



International Conference on European Integration 2022

ICEI 2022

Proceedings
of the 6th International Conference
on European Integration 2022

May 19 – 20, 2022
Ostrava, Czech Republic



Collection



VSB – Technical University of Ostrava

Faculty of Economics

Department of International Economic Relations

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DOI 10.31490/9788024846057

Publisher:

VSB – Technical University of Ostrava
Sokolská třída 33, 702 00 Ostrava 1, Czech Republic

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Cover:

Jan Pražák

ISBN 978-80-248-4604-0 (print)
ISBN 978-80-248-4605-7 (on-line)
ISSN 2571-029X (print)
ISSN 2788-0958 (on-line)

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Publication has been supported by the European Commission – Representation in the Czech Republic and the Karel English Endowment Fund.

Publication is divided into two parts due to technical issues.

Publication is not a subject of language check.

Papers are sorted by author's names in alphabetical order.

All papers passed a double-blind review process.

Authors are fully responsible for the content and originality of the papers.

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Suggested citation:

Author, A. Title of the paper. In Staničková, M. and L. Melecký (eds.). *Proceedings of the 6th International Conference on European Integration 2022*. Ostrava: VSB – Technical University of Ostrava, 2022, pp. xxx-xxx. ISBN 978-80-248-4604-0 (print). ISBN 978-80-248-4605-7 (on-line). ISSN 2571-029X (print). ISSN 2788-0958 (on-line). DOI 10.31490/9788024846057.

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Foreword

Ladies and gentlemen, dear readers, dear ICEI friends,

The sixth year of the International Conference on European Integration 2022 (ICEI 2022) is being held, again, at a completely different time than the previous one. 2022 is the year when the COVID-19 pandemic has taken finally time out in most EU Member States, so we have the opportunity to breathe and to prepare for its possible return. It is also the third year of fulfilling the agenda and political guidelines of the European Commission, burdened with the consequences of the new type of coronavirus, which we continue to see in all areas of our lives.

COVID-19 poses an enormous challenge for the EU to live up to its official motto "United in Diversity". Unity and solidarity among the EU Member States are now facing another unprecedented test in the form of a persistent war invasion of the Russian Federation troops in Ukraine. This true act of military aggression is not only an attack on the independence and national sovereignty of Ukraine but is also an attack on our basic European values and freedom and thus affects the life of each of us. In this new reality the main idea of ICEI 2022 "Making Europe stronger together" is more than just an effort to bounce Europe forward from the COVID-19 pandemic stronger than before, accelerate the green and digital transitions and build a fairer, more resilient and more cohesive European society.

The year 2022 probably should not have been a year of well-being and significant economic growth, but thanks to the ongoing war conflict in Ukraine, it represents another significant test of stability and resilience of the European and world economy in the form of a deepening energy crisis and the crazy pace of stagflation, an economic reality that some of us only know from economics textbooks.

The state of play of the current political, security and economic situation needs more than ever a Europe that strives for more. With the hope of overcoming all crises, we are looking forward to the future, which brings new challenges and opportunities to change not only European but also global societies. One of these opportunities is the upcoming Presidency of the Czech Republic in the Council of the European Union which will take place in the second half of the year 2022. Thus, the topics and priorities of the Czech Presidency will be more important for the further direction of the European Union than ever before.

The success of the Presidency of the Czech Republic in the Council of the European Union will not only be perceived through the prism of solving current European problems and key agendas but will also reflect the value foundations that have been built by the Czech Republic over the past eighteen years of EU membership. It is more than a place to remind, evaluate and discuss the 18th anniversary of the Czech Republic's accession to the EU, which we celebrate on May 1, 2022. And this is also the goal and purpose of the sixth year of the ICEI conference.

We are very pleased that the sixth year of the International Conference on European Integration 2022 can be again a place to meet each other personally during the official conference agenda, but also during the accompanying social program. It is a unique opportunity to strengthen existing cooperation, but also the mutual personal relations that are and will remain in our ICEI family a priority and permanent value.

Finally together, finally live. That makes sense!

Wishing you an inspiring experience.



Lukáš Melecký

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Problems of National Economy Management and Economic Prosperity in the Context of Financial Globalization in EU

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Abstract

The paper discusses issues related to the national economy management in the context of financial globalization. The focus is on the challenges and benefits of globalization. The paper aims to identify the positive and negative effects of globalization and it's reflected on economic well-being and whether it is compatible with the country's economic sovereignty. The research analyses some aspects of economic development and social welfare as a result of globalization, based on a comparative analysis of developed and developing countries, including Georgia. The article shows that globalization cannot be uniquely good or bad. As a consequence of the development of the world, it has double effect and the benefit depends on the policies and measures taken by the country. This framework allows us to provide a fresh synthetic perspective on the macroeconomic effects of globalization, in terms of both growth and volatility.

Keywords: *economic management, financial aspects of economic integration, international economic order and integration, prosperity, welfare*

JEL Classification: *F02, F15, F36, F63*

1. Introduction

Recent world events show that the scale of globalization is constantly increasing. The term, which once had only an economic connotation, now covers almost all spheres of public life. Financial globalization can be defined as the objective process of internationalization of the world economy, which includes financial markets, foreign exchange funds and exchanges, free movement of capital, the IMF's relations with the parties involved, including the transnational corporations and the financial and economic relations between them. The topical issue is Globalization's impact on small/open economy countries and social-economic development of the EU region. The research allowed us to see the pros and cons of globalization and determine its benefits.

Particularly, globalization provides better opportunities for producers, consumers and labour forces, who are in a position to exploit larger markets and competition. Under this, living standards improve by lower prices and a wider choice of goods. On the other hand, Europe faces conflicting signals regarding to its short and long run impact on economies and standards of living. Job transfers to less developed countries make it hard for developed countries to compete. Those who have lower wages and benefits for workers are able to out-compete a typical OECD country.

Furthermore, globalization binds countries together, so that if one collapses, the collapse is likely to ripple through the system. Thus, it is essential to implement the necessary tools and

domestic policies to be able to mitigate the risks in order to take advantage of the benefits of financial globalization. This includes prudential policies, which can help to safeguard financial stability by increasing the robustness of the financial sector.

2. Methodological Foundations

The research is based on Georgian and foreign official documents, legislative acts, statistical data, economic literature and Internet sources, which are characterized by a high degree of credibility and provides an essential information for in-depth analysis of research issues.

Descriptive method of research involves identification of attributes of economic globalization based on exploration of correlation between Globalization index and social-economic parameters in EU. Comparison method was used to examine cause and effect relationships between the variables of employment, income, GDP and globalization.

Significant research on financial market integration, financial markets, and national economic sovereignty compatibility has been devoted to Harrison and Moore (2012), Gjika and Horvath (2013), J. Okičić (2014), Yavas and Dedi (2016), M. Obadan (2006) and others. The author in the paper (Abuselidze, 2019; Abuselidze and Mamuladze, 2020) justifies the importance of European integration for the small-open economy countries like Georgia, as it strengthens the European values and gives a lot of other opportunity.

Studies (Reinhart and Rogoff, 2004; Yuzvovich et al. 2016) have found a direct link between banking crises and the free movement of capital in countries of Europe and other regions. Indeed, financial openness is one of the channels through which the crisis flows. A clear example is the financial crisis in 2008, also known as the period of the Great Recession – the most severe economic and financial meltdown since the Great Depression;

Authors point out how the global COVID-19 economic crisis has led to recession in some countries and depression in others (Abuselidze and Mamaladze, 2020; Buheji et al. 2020; Obrenovic et al. 2020). As a result, many companies went bankrupt, global unemployment increased and capital flows decreased. In this situation, it is important to develop an Alternative Investment Market (AIM) (Lin and Tjio, 2020; Abuselidze and Beridze, 2018; Cumming and Zhang, 2016) which in our view provides compensation for reduced capital flows.

3. Results and Discussion

Study reveals that large part of European Union is confronted with the need to restructure and modernize in order to increase productivity and quality, based on its technological strengths and ability to compete in products and services. Weaknesses in workforce qualifications make the region less attractive for investments and creating/maintaining jobs. The challenge is to provide training to people without relevant education and to create more low skilled jobs. What's more, increased International Trade and consuming makes EU economy very resource dependent. In this circumstance, it's essential to move to a circular economy as soon as possible.

3.1 Features of Financial-Economic Globalization

In the last decades the financial consolidation in Europe has reached a new level. As a result of increased connections of international organizations and globalization, the degree of interdependence between countries has also increased. It led to two controversial effects in the form of stimulating economic growth and reducing economic stability. Thus, financial globalization, on the one hand, has contributed to the economic development of EU and, on

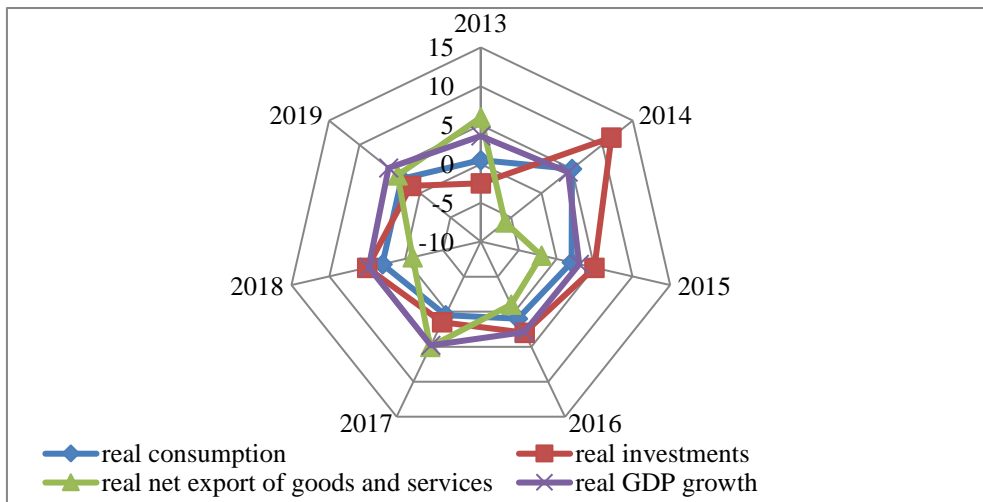
the other hand, has made economies more sensitive and vulnerable to the global processes in the world. Today the European Union is one of the great forces that stimulate international consolidation.

Financial integration has softened the economic borders between countries and environment has become more attractive for international trading and investments. This provided great opportunities for a rapid economic growth, better technology development, and increased level of competition within the region (Athukorala, 2005). In the last two decades the number of jobs supported by EU exports beyond its borders increased from 21.7 million jobs in 2000 to 36 million jobs in 2017. As for international trade, the EU has increased share to 15,6% of the global export in goods in 2019 (the highest share after the China).

L. Krkoska (2001), who studied the economies of 25 transition countries in 1989-2000, notes that the increase in foreign direct investment stimulates the accumulation of capital, and during the economic downturn contributes to their economic growth.

Indeed, joining the World Trade Organization in 1997, the use of the Generalized System of Preferences (GSP) in trade with developed countries, the EU Association Agreement and the Deep and Comprehensive Free Trade Agreement (DFCTA) have allowed Georgia to recover economically (Figure 1).

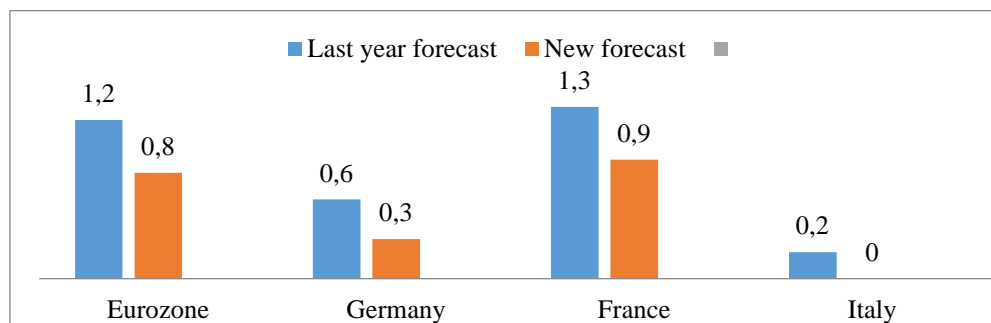
Figure 1: Decomposition of GDP Growth (2013-2019)



Source: Compiled by the author based on data from the National Bank of Georgia

In particular, as a result of the liberal economic environment, trade policy and privatization, the number of foreign direct investment increased from \$ 334.6 million to \$ 1335.8 million in 2003-2019 (National Statistics Office of Georgia, 2020). The influx of investments contributed to GDP growth in Georgia after the economic downturn caused by the war and crisis in 2008.

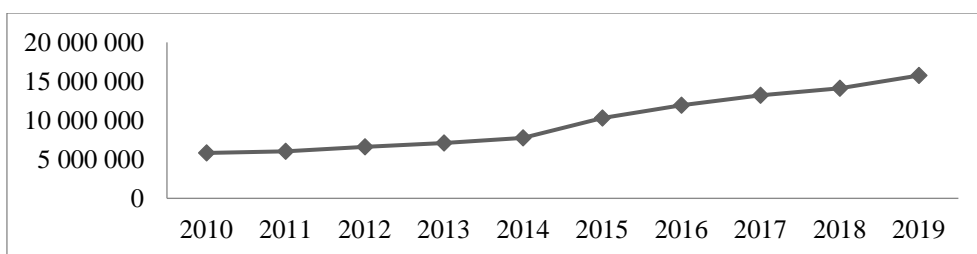
However, despite all the positives, globalization has the negative side too. For instance, regional economic shocks are spreading faster than ever. Figure 2 shows economic consequences of the latest COVID-19 pandemic in Eurozone.

Figure 2: Economic Growth in the Euro Area Countries by 2020, %

Source: Compiled by the author based on OECD data

In 2020 the trade of the European Union including both exports (-9.4%) and imports (-11.6%) had significant fall (Eurostat [online], 2020). There has been arisen need to move the production of critical sectors and products, such as medication, back to Europe.

Meanwhile, Georgia has received a major economic blow while coronavirus. All the main economic parameters decreased. Remittances fell by 42% and foreign debt also has increased (Figure 3).

Figure 3: The Government's External Debt 2010-2019 (Thousand)

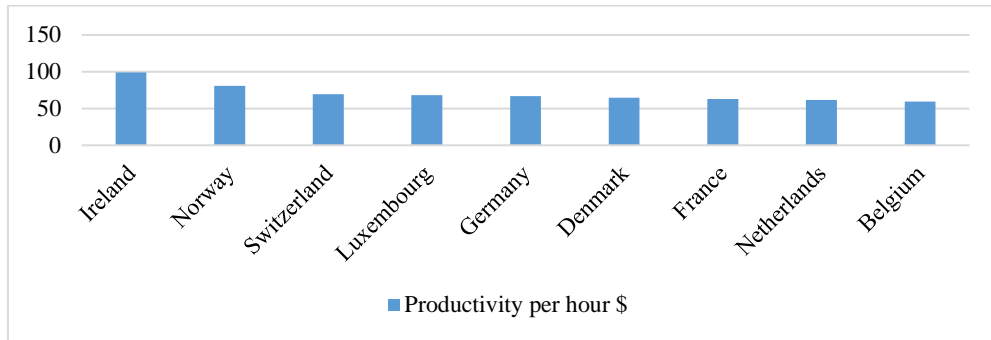
Source: Compiled by the author based on data from the Ministry of Finance of Georgia

3.2 Employment, Labor Perspectives and Production Costs in EU

The main economic structure of EU is being competed by Asian countries with lower costs. While China and India are increasingly attracting new investments throwing out their image of "low cost, low value" economies, Europe becomes less attractive for investors.

EU can achieve growing share of global expenditure and shift to higher value-added economic activities by having more educated workers. According to Eurostat (2020), regions in the Nordic Member States (Benelux, Ireland, France and others) mostly have more than 50% of tertiary educated aged 25-34. Thus, they are expected to benefit from a workforce with a high level of education, employment and labor productivity. However, Southern and Eastern parts of the Union (Czechia, Hungary, Bulgaria, Romania, Italy and others with less than 30-40% tertiary educated) appear to be much more exposed to the challenges.

As for the Western and Central Europe there is no clear pattern since some areas are expected to be in better position. For ex. Germany achieves high level of productivity and employment with the great innovativeness and strong focus on export (1/5 of total jobs).

Figure 4: The Most Productive Countries in Europe, 2020

Source: Compiled by the author based on EUROSTAT data

In fact, the EU is moving towards service-based economy so the less jobs are created for low skilled labor. In this situation, textiles, clothing, metal products and manufacturing industries are the most vulnerable sectors characterized by a predominance of low-skilled jobs. Nowadays, according to data, there are approx. 160,000 companies in the industry employing 1.5 million people and generating a turnover of €162 billion. The biggest producers are Italy, France, Germany, Spain and Portugal with turnover for about three-quarters of EU production.

As said above, increased International Trade and consuming makes EU economy very resource dependent. Mainly, Europe uses materials only once and the cost is very high. Even recycling materials lose up to 75 percent of their value in the first-use cycle.

In this circumstance, it's essential to move to a circular economy by integrating new technologies and business models in a way that maximizes value extracted from asset and material stocks. It will not only reduce production costs but also increase GDP too. New Circular Economy Action Plan adopted by The European Commission in March 2020 was a great step to set the new agenda in Europe.

3.3 Compatibility of Financial Markets and Economic Sovereignty

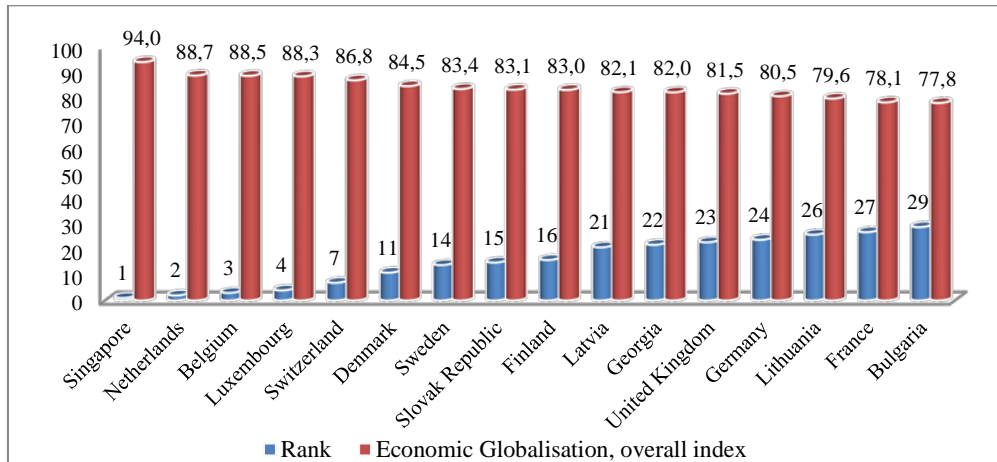
Financial globalization may increase vulnerability and make the country less protected from external factors. In this respect, the question is how compatible are financial markets and economic sovereignty in a global environment? Large and powerful countries constantly struggle to consolidate positions, while small countries become more vulnerable as their dependence on foreign currency, capital, goods and other resources increases. It leads to the gradual collapse of economic sovereignty and weakening the country's economic security. At the same time, state-owned powers are indirectly delegated to transnational entities and dependence on external institutions also increases. According to data from the Bank for International Settlements, the dollar is used to denominate almost half of all cross-border banking claims and it appears in 90% of all foreign currency transactions. So, what should the state do to stay on top of this unstoppable "snow avalanche"?

In our opinion, the problem can be addressed by taking the following measures: Regulation of the openness of the economy; Production of import substitute product; Development of the national real sector; Regulation of customs policy.

Deviation from international integration is tantamount to suicide on the path of state development. Thus, it is necessary to make rationally balanced economic decisions and pursue prudent policies based on the interests of the country.

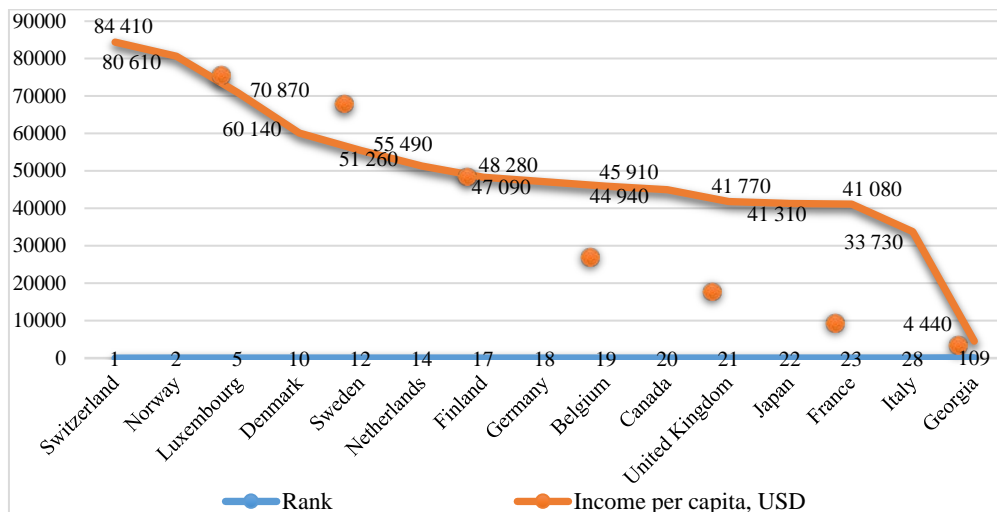
To analyze the consequences of economic integration, we considered the reference between indicators of economic well-being and the degree of globalization in EU and the other regions (Dreher, 2006; Gygli et al., 2019; Pereira et al., 2019). The survey was conducted based on the KOF Globalization Index (Figure 5) and Gross national income per capita (Figure 6).

Figure 5: 2019 KOF Globalization Index: Economic Dimension



Source: Compiled by the author based on data from the KOF index of globalization

Figure 6. Gross National Income Per Capita 2018, Atlas Method



Source: Compiled by the author based on World Bank data

Observations in Figures 5 and Figure 6 show that the countries with large economies are not in a very high position in terms of economic globalization, although the GNI is quite high in these countries. For example, Germany ranks 44th in the KOF index of Economic Globalization and 18th in terms of revenue (\$ 47090); Japan ranks 66th in the KOF Index and 22nd in terms of per capita income (\$ 41310); Canada ranks 43rd in the FOF index, 20th in terms of revenue (\$ 44,940), and so on.

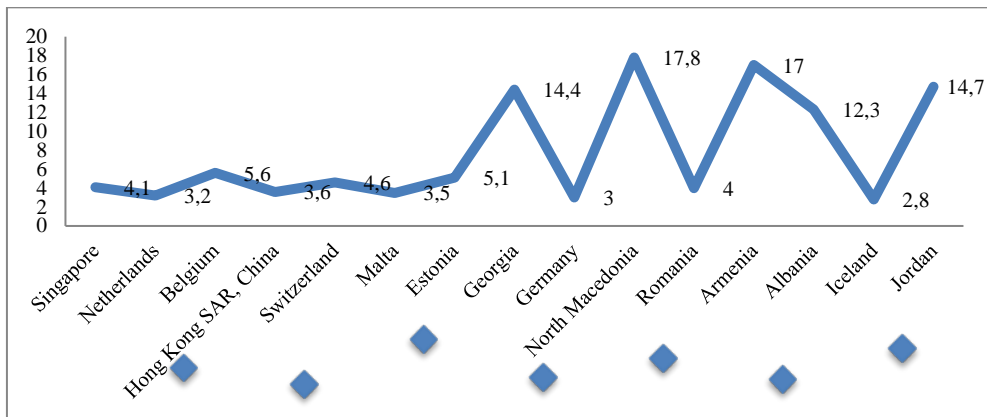
However, the picture is the opposite in the case of small countries where the reference between economic globalization and income per capita is directly proportional. This is explained by the fact that large countries already have a large domestic market and a significant amount of domestic capital; On the other hand, integration with international markets is especially important for the small countries, as it expands the real boundaries and increases the scale of opportunities. For example, international trade allows a country to benefit from comparative advantage and export goods and services that are cheaper to produce.

Years ago, Georgia had a preferential trade regime (GSP) with the European Union and could export up to 3,200 types of products without a customs tariff. Then it was introduced The Preferential Trade Promotion (GSP +) regime and the number of products increased up to 7,200. After the signing of the DCFTA, the internal border barriers were removed and about 9,600 products were allowed to be exported at zero customs tariffs.

In addition to the above, the international agreement has promoted employment growth in Georgia. According to the Integrated Household Survey, the number of employees in 2014 increased by 1.8% compared to the same period of the last year and amounted to 1,745,200 people.

Despite all, unemployment is still the most pressing problem for both developed and developing countries (Figure 7). Although new jobs are being created almost daily, in the current reality their number is still insufficient and many people remain unemployed.

Figure 7: Unemployment Rate, %



Source: Compiled by the author based on World Bank data

Among the top 70 countries in the KOF index of economic globalization, northern Macedonia has the highest unemployment - 17.8%, followed by Greece (17.2%) and Armenia (17%). These countries are not in the leading position in terms of economic globalization. Specifically, Macedonia - 44th place, Greece - 40th and Armenia - 52nd. Nevertheless, it is interesting to note that Georgia, which has a high unemployment rate (14.4%) and an average annual income of just \$ 4440, still manages to be at a relatively advanced position in the economic globalization index (22 places), while other countries with the same indicators are ranked 50th and lower.

Scholars consider this to be paradoxical and explain it by the liberal policy of international trade, the simplification of bureaucratic procedures and the possibility of free inflow of foreign capital, which is accompanied by an attractive investment environment. Therefore, this position is more a determinant of future prospects than the level of development already

achieved, as the country still faces the most difficult tasks, the solution of which requires the development of a more effective mechanism for managing and regulating the economy to become an equal member of EU.

4. Conclusion

Financial globalization has become an important pillar in the development of the global economy. We consider it necessary to adapt the management of the economy to modern problems and challenges, such as efficient utilization of the country's geopolitical, natural-climatic and resource potential, development of priority sectors and promotion of production and international competitiveness in terms of available potential.

Research shows that the link between economic globalization and prosperity in EU and other regions varies with the size of countries and their economies. This link is direct in a case of small countries where the prosperity and well-being indicators grow with the level of economic globalization.

It must be noted that the green economy, along with reducing the negative impact on the environment, can promote the wise use of natural resources, attraction of green investments and creating new green jobs, which will directly affect the social welfare of the population. At the same time, development of the green economy requires the introduction of new production technologies in agriculture and the adaptation of the produced products to international standards.

As a result, country will be able to occupy a competitive position in international markets. Development of the organic agriculture can lead to decrease amount of the fertilizers used in production and therefore facilitate healthy ecosystem with distinctive biodiversity and biological activity. Also, by creating a National Renewable Energy Management Fund, it will be possible to develop renewable energy technologies and reduce the country's dependence on foreign gas and oil.

Last, the green economy includes important innovations for providing sustainable development, with economic, social and environmental benefits, such as:

- GDP growth due to increased production of green products;
- Product or service diversification;
- Improve economic risk management and reduce risks;
- Innovative growth using modern green technologies;
- Increasing the efficiency of natural resource use;
- Improved living conditions by creating additional jobs;
- Equalization of living standards inequality;
- Environmental protection, etc.

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State Aid in the European Union. Similarities and Differences among Visegrad Group Countries

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Abstract

Before the EU accession state aid structure in candidate countries varied substantially compared to that in the EU. One would expect that eighteen years of EU membership should have bridged the gap between the Visegrad group countries and the EU average. Therefore, the aim of the paper is to assess the degree of similarity between state aid granted in the V4 countries and the European Union average in terms of aid intensity and structure after 2004. To this end we analysed changes in state aid granted in the aforementioned countries in relation to the EU average, taking into account Revealed State Aid Intensity Index and State Aid Similarity Index. While all 4 countries embarked on their integration path at the same time and began from a similar starting point, their distance to the EU average differed substantially in terms of both relative value and the structure.

Keywords: European Union, horizontal state aid, state aid, state aid intensity, Visegrád group

JEL Classification: H25, H71, F02

1. Introduction

After all traditional barriers to trade, together with physical, technical and fiscal barriers, got eliminated within the framework of the European Union internal market process, state aid has become the only interventionist and protectionist instrument left in the domestic market. However, one needs to stress that the ban on granting such assistance has been in place in the EU since its very beginning. To a certain extent it was repeated in the Europe Agreements concluded by the EU with, inter alia, the Visegrád Group countries. After more than 50 years of living in the centrally planned economy system with seriously restricted private ownership of enterprises one would expect that Hungary, Poland, Czechia, and Slovakia will have similar ideas as to their state aid policies both before and after the EU accession. This thesis can be substantiated by the conduct of countries before the accession when they established similar institutions in seeking to comply with the EU requirements (Fornalczyk, 2002), as well as increased public expenditure immediately before and after the EU accession (Török, 2007). In addition, the correctness of the thesis can be drawn from the fact that they were covered by European funds on the same principles and, from the very onset, enjoyed relatively high regional aid intensities designed to enhance their investment attractiveness (Ambroziak, 2015). Moreover, the EU helped to shift the internal political balance towards development strategies relying on direct foreign investment and, despite fostering the neoliberal approach, boosted the capacity of East European countries to use state aid compatible with the EU rules as a key tool of industrial policy (Potvorszki, 2018, Vukov, 2020).

As a result, on one hand, one would expect that the V4 countries should follow the previously applied model of public intervention taken from Keynes (1936). First, after many years of experience with the centrally planned economy one would expect a greater propensity to resort to interventionism than in other countries, especially in the times of financial and economic crisis of 2008-2010. On the other hand, we might expect that liberal approach to economy should prevail in the new Member States as a sign of definite departure from the centrally planned economy model (von Mises, 2006; Hayek, 1972). Poland could serve as the best example here, as a country which at the beginning of the systemic transformation underwent shock therapy that restricted the role of the state as an economic actor and fostered the market within the framework of the so-called Balcerowicz Plan (Balcerowicz 1995; Balcerowicz et al., 1997). After more than a dozen years of EU membership, it is believed that these four countries have developed slightly different approaches to general internal market principles, including state aid (Lindstrom, 2021). There are many sector-oriented publications focused on the assessment of aid granted in countries of this region (Duman & Kureková, 2012; Nováčková et. al., 2018; Kotiá & Blaschke, 2019; Dorożyński & Kuna-Marszałek, 2016; Ambroziak, 2021), however, a comparative assessment of both the intensity and direction of public intervention after 2004 for countries of Central and Eastern Europe, including the Visegrád Group, is still missing.

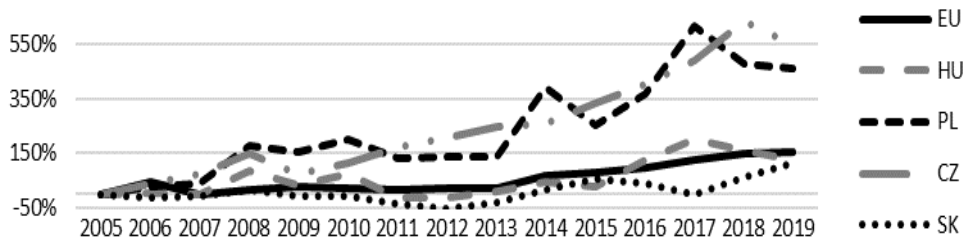
Given the above, the aim of this paper is to identify the intensity and internal convergence of state aid structure, as well as its convergence with the structure of state aid granted in the European Union. To achieve this, after having discussed where the V4 countries rank in the overall EU state aid scoreboard, the Revealed State Aid Intensity Index will be used followed by the Similarity State Aid Index developed by the author in the previous works (Ambroziak, 2021). To this end we will use data from the European Commission Scoreboard on State Aid in the period of 2004-2019.

2. Position of the V4 Countries in State Aid in the EU

The overall value of state aid granted between 2004 and 2019 grew up dramatically from EUR 52.9 bn to EUR 134.4 bn, i.e., more than 2.5 times (Figure 1). Noteworthy, the value of state aid granted compared to the base year among the V4 countries increased slightly from 2007 and more considerably in 2015, i.e., in the first years of both financial perspectives 2007-2013 and 2014-2021. It means that the EU resources have a major impact on financial interventions in the group of the Member States in question. Nevertheless, one needs to realise that as much as the above-mentioned relationship was close to the EU average for Hungary and Slovakia over the period covered by the study, for Poland and Czechia it clearly increased after 2009 and 2015, respectively. As regards the former, according to Potvorszki (2018) it could be attributed to the financial and economic crisis while for the latter, the beginning of the next financial perspective had a decisive impact.

Ultimately, an increase slightly below the EU average of state aid granted in 2019 compared to 2005 was reported for Slovakia (to EUR 0.4 bn in 2019) and Hungary (to 2.4 bn). Meanwhile, the value of state aid granted in Poland and Czechia grew respectively more than 5.5 and 6.5 times (to 5.4 bn and 2.9 bn) (Figure 1).

Despite these increases in granted state aid, the share of individual members of the Visegrad Group in the total stock of financial intervention in the EU was rather small in 2019: Poland 4.0%, Hungary 3.0%, Czechia 1.9%, and Slovakia 0.4% compared to Germany 31.7%, France 18.5%, United Kingdom 8.1%, or Italy 5.9%. Such substantial differences, compared to other EU Member States can be explained by: the size of their economies, their state budget but also economic policy of the government (more liberal or more etatist).

Figure 1: State aid dynamics in V4 countries after the EU accession (base year = 2005)

Source: Own calculations based on European Commission, 2021.

3. Revealed State Aid Intensity

To capture the relative volume of state aid granted by the Member States, the European Commission presents it in relation to their GDP. Looking at the ratio calculated in this way, Hungary (1.4-3.8%) emerges as a clear leader amongst the Visegrad countries when it comes to the value of granted state aid as a fraction of GDP, although the ratio fluctuated rather substantially over the examined period 2004-2019. For the rest of the countries, they were getting closer and oscillated around the EU average (ca. 1-1.5% of GDP).

However, the above-described ratio has got a series of shortcomings starting from the fact that it compares state aid to the GDP and ignores the EU average. Hence, further analysis instead of the value of Gross Domestic Product expressed in current prices, uses the Gross Value Added, which measures the total output and income in the economy. Moreover, we excluded from our calculations of the total GVA data concerning sectors eligible to receive specific state aid under special regimes which are not under our investigation (agriculture, forestry and fishing, transportation, financial and insurance activities, public administration and defence, compulsory social security, education, human health and social work activities, as well as arts, entertainment and recreation; other service activities; activities of household and extra-territorial organizations and bodies). We are aware of the fact that public subsidies to some of the aforementioned sectors can impact the outcomes of other sectors, however, we decided to focus only on those allowed to directly receive state aid on general rules.

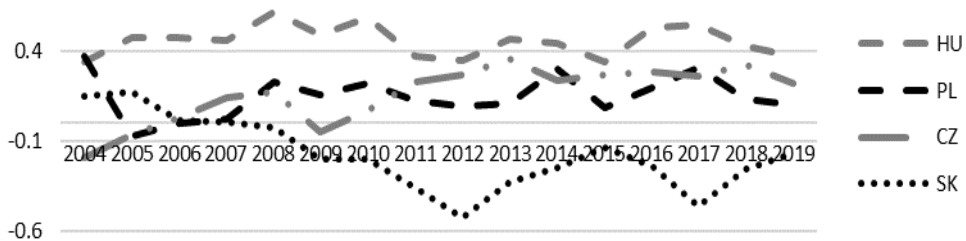
Apart from the above presented simple statistical analysis, we decided to apply newly developed metric: a Relative State Aid Intensity Index (RSAI) (Ambroziak, 2021), based on a well-known Balassa's (1965, 1989) Revealed Comparative Advantage (RCA) index. RSAI is calculated as a relationship between the value of state aid in either, given EU Member State or the EU and GVA of selected sectors in a given EU Member State or the EU. Thus RSAI informs about relative intensity of state aid in a given country compared to an average intensity of a given category of public aid in the EU. Moreover, in order to ensure symmetric values we applied Laursen (1998) concept, which allowed us to construct the final formula:

$$RSAI_i = \left(\frac{(x_i/v_i)}{(X_{EU}/V_{EU})} - 1 \right) / \left(\frac{(x_i/v_i)}{(X_{EU}/V_{EU})} + 1 \right) \quad (1)$$

where: x_i – value of state aid in a country i ; v_i – value added of a country i ; X_{EU} – value of state aid in the EU; V_{EU} – value added of the EU. When the final value of RSAI is above 0, it means that state aid intensity in a given country is higher than for the EU average, while, when it is below 0, it means that the intensity is lower than at the EU level. Similarly to the Commission's index, Hungary remains the leader of the V4 countries although Czechia and, to a much smaller extent, Poland got closer to it after the economic crisis 2008-2010. It means

that the governments of these countries intensified their presence in domestic markets, not leaving them entirely to market forces. Slovakia boasted about the smallest intensity of state financial interventions (Figure 2). Remarkably, when the value of granted aid is compared to selectively calculated GVA and the EU average, one cannot see the steady growth. It means that the inflow of European funds and their distribution to enterprises is accompanied by increases in the GVA in the selected sectors. This may provide grounds for a cautious confirmation of the thesis claiming a positive impact of financial interventions carried out by distributing the EU resources to entrepreneurs on the free market.

Figure 2: Revealed State Aid Intensity in the V4 countries in 2004-2019

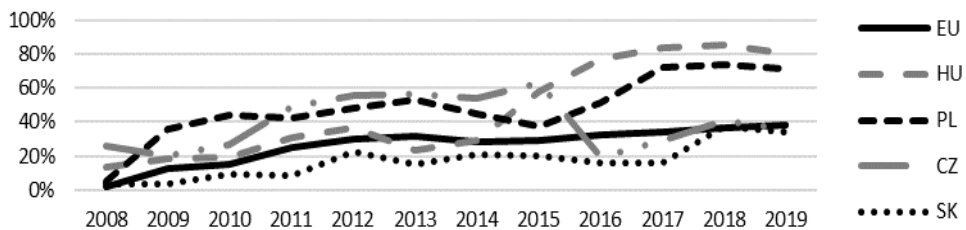


Source: Own calculations based on European Commission 2021.

4. State Aid Under the GBER

As a rule, each granting of state aid needs to be notified to the European Commission pursuant to Art. 108.3 of TFEU. However, compliance with this provision would be unrealistic in the face of the increasing number of the Member States and aid schemes notified by them. This is why the European Commission first introduced individual sectoral exemptions which later have turned into an entire system of exemptions from this duty pursuant to the Commission General Block Exemption Regulation - GBER (European Commission, 2008, 2014). Importantly, the latter lays down criteria for granting many categories of state aid which, if met, release the granting authority from the duty to notify it and await the Commission’s decision. Thus, from the procedural point of view, aid to enterprises is granted more quickly while aid donors and beneficiaries acquire a relative legal certainty. No wonder then that all the Member States, including the V4 countries, increasingly more willingly avail themselves of exemptions offered under the GBER. Hungary and Poland are clear leaders with the value of state aid granted under the GBER reaching, respectively, over 80% and 60% of the total amount of aid. On the other hand, Slovakia and Czechia use the instrument much less intensely and their share fluctuates around the EU average (Figure 3).

Figure 3: State aid granted under GBER as a percentage of total State aid granted in 2014-2019 in the V4 countries.



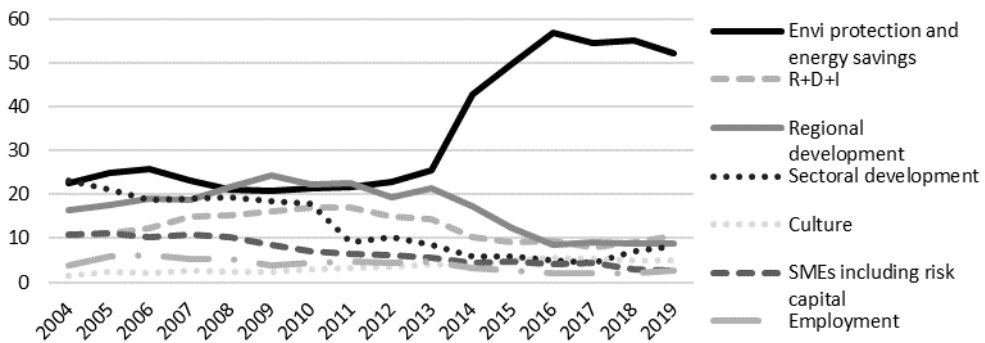
Source: Own calculations based on European Commission, 2021.

Simultaneously, it is worth noting that allowable categories of financial intervention of the state provided for in the Regulation constitute a kind of combination of instruments that are, on the one hand, allowable but, on the other hand, desired by the Commission as they delineate the direction for business activities. As a rule, state aid should be granted if market failure is experienced (Bator, 1958) to change the behaviour of entrepreneurs compared to how they would behave should there be no state intervention. As a result, the inclusion into the GBER of specific state aid categories has encouraged the Member States to use them and, consequently, intervention should be directed to areas desired within the EU in relation with the implementation of economic and social policies.

5. Structure of State Aid and Similarity of State Aid

The above quoted GBER Regulation may facilitate but does not prejudge the structure of granted state aid which has changed considerably over recent years in the EU. Already after the accession of the Visegrád countries one could observe the importance of environmental aid and aid to improve energy efficiency in the EU (Figure 4).

Figure 4: Changes in shares of selected State aid categories in the EU in 2004-2019



Source: See figure 1.

In subsequent years, however, after the distribution of the EU funds was launched in the new Member States, the share of classic regional aid slightly increased. That was mainly due to high intensity of offered aid intended to improve investment attractiveness of the least developed regions in these countries (Ambroziak, 2015; Dorożyński & Kuna-Marszałek, 2016; Törös, et al., 2017; Nováčková et al., 2018; Paškrťová et al., 2019). Attention should also be paid to research and development (R&D) aid whose relevance slightly increased over the financial perspective 2007-2013 focused on the implementation of the Lisbon Strategy and knowledge-based economy (Kordos, 2017). However, a complete re-assessment of state aid categories took place in the course of the 2014-2020 financial perspective, when the idea of the greening economy and combating climate change started being implemented with substantial state aid flows granted under the GBER amended at that time. As a result, for some years we can see the dominant share of environmental and energy efficiency state aid in the EU aid mix, which is substantially diversified in individual Member States.

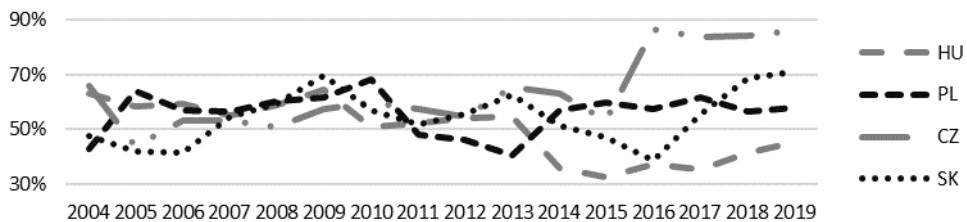
To map the V4 countries' position vis-à-vis other EU Member States in terms of state aid objectives and assess similarity between structures of state aid in the EU Member States we applied similarity index based on Finger & Kreinin measure (1979):

$$SASI_j^i = \left\{ \sum_i \min [X_j^i, X_{EU}^i] \right\} 100 \quad (2)$$

where X_j^i – represents a share of category i in total state aid in j EU Member State, X_{EU}^i – represents a share of category i in total state aid in the European Union. The SASI ranges between 0%, indicating the lack of similarity of state aid structure by categories, and 100% representing the structure identical to the EU total average.

When it comes to the V4 countries, their SASI was relatively close in subsequent years of the 2007-2013 financial perspective, which only confirms major impact of the EU funds on financial intervention of these countries in the market after the EU accession (Figure 5). However, the circumstances changed totally together with the Multiannual Financial Framework 2014-2020. At that time Czechia became a clear leader in approaching the EU aid structure, Slovakia slightly improved its position while Hungary and Poland were apparently using a different mix of state aid categories.

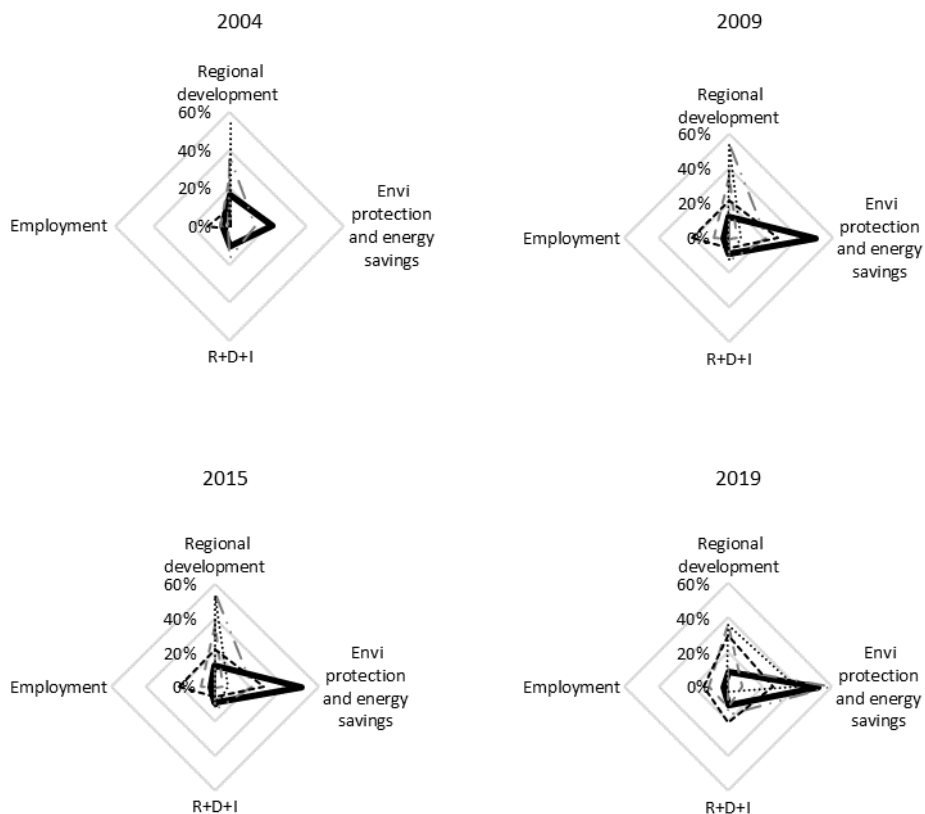
Figure 5: State Aid Similarity Index in the V4 countries 2004-2019 (EU=100%)



Source: see Figure 1.

The EU accession of V4 countries marked a breakthrough in their perception of state aid. Although, pursuant to the Europe Agreements these countries were obliged to assess aid measures that they apply against their compliance with the EU law, the mechanism, bearing no consequences if breached, failed to work in practice. The EU accession forced out specific adjustment and, over time, the application of specific interim periods. The structure of state aid in these countries differed at the start of their EU membership. Poland, Hungary and Slovakia granted mainly sectoral aid, in most cases within the framework of adjustment and restructuring processes, for employment in Poland and for regional development in the remaining countries (Figure 6.).

In 2009, that is in the midst of the examined period when the EU was coping with the economic and financial crisis, resources from the EU funds strengthened the position of regional aid in the V4 countries, the relevance of R&D&I aid in Czechia (Bruzkova, 2015), and environmental aid in Slovakia. In Poland and Hungary sectoral aid and aid for employment continued to prevail. Circumstances changed completely with the new financial perspective 2014-2020. Although its first years were still dominated with regional aid, environmental aid and aid for energy efficiency started to gain in importance (in particular in Czechia and also in Poland). In subsequent years, the trend fostered in Czechia and Slovakia where the share of environmental aid was the highest in 2019 and exceeded the EU average (Czechia) or approached it (Slovakia). Developments in Czechia merit our attention where increased relevance of environmental aid and R&D&I aid (as indicated by Owczarczuk, 2013) took place at the cost of regional aid, aid for employment or for the SME sector (Tvrdoň and Bernatík, 2010). Slovakia took a similar path apparently as a result of important changes in the attitude to this policy (Suplata, 2015; Nováčková et al., 2018), despite partly positive outcomes of regional aid (Balejova, 2017).

Figure 6: Structure of State Aid in the V4 countries 2004-2019

Source: see Figure 1.

In Poland and Hungary the simplest regional aid and aid for employment still prevailed irrespective of its at least ambiguous impact on regional development (Šimelytė and Liučvaitienė, 2012; Éltető & Antalóczy, 2017; Ambroziak & Hartwell, 2018; Mosberger & Varga, 2018). The above is confirmed by Lindstrom's (2021) findings concerning Hungary that it has engaged in more creative compliance due to more cohesive ideological commitment to state intervention (a will) and stronger administrative capacity to achieve objectives while minimizing EU scrutiny and sanction (a way). It seems that this can be expanded to Poland, as well. This confirms the high percentage of aid granted in fact under the GBER but clearly distant from the EU average structure.

6. Conclusion

The above discussed analyses confirm the findings of earlier studies according to which in terms of the overall reform paths, Slovakia and Czechia, especially since the late 1990s, is more coherent and overwhelmingly takes a liberal direction, while Hungary appears less radical and encompasses a combination of liberal elements and active state involvement (Duman & Kureková, 2012). This common approach to traditional state aid, where enterprises are not geared towards new areas of intervention (environment and energy savings), seems to

be rooted not only in the economic policy but also in politics (Toplišek, 2020; Vukov, 2020). On the other hand, it is worth noting that 2019 was the first year in Poland when the country significantly increased the share of environmental aid and aid for R&D&I in the financial structure of public interventions (Ambroziak, 2021).

In conclusion, two pairs of Visegrád Group countries can be distinguished. The first consists of Czechia and Slovakia with the latter opting clearly for the liberal course with cautious financial interventions in the market. However, despite the propensity exhibited by Czechia to grant state aid being clearly on the rise in recent years, both countries directed their interventions towards activities convergent with state aid categories the most frequently granted in the EU: environmental aid and aid for energy saving. One needs to stress that the aforesaid is not the effect of GBER but, apparently, of the countries' own choice of economic policy. On the other hand, Poland and Hungary, despite different dynamics of public intervention in comparison to the base year and a considerable share of aid granted under the GBER, have clearly departed from innovative paths of public interventions in the EU. Both countries focused on the improvement of investment attractiveness of the least developed regions and combating unemployment. This approach, however, rests heavily on granting support to price competition of domestic businesses (low labour costs) rather than supporting quality (linked with innovation). Consequently, such approach may produce major difficulties in coping with new challenges that the EU is facing: twin digital and climate transition. It seems that, especially in the era of the climate and digital transformation, it would be worth verifying to what extent the current approach of Poland and Hungary will be changed due to the multiannual financial framework for 2021-2027 and the national recovery plans.

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The Transatlantic Economic Cooperation – Can Old Dogs Learn New Tricks?

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Abstract

Transatlantic economy is a driving force of the prosperity and source of jobs for both sides of the Atlantic. However, massive trade and investment are although a source of some bilateral trade issues. The institutional framework of the transatlantic relations allowed to find common ground for understanding and resolving the bilateral trade and regulatory issues, but with limited success. Also, the negotiations on a new trade agreement have been frozen. Last year the EU and the US announced, that they will launch a new platform - Transatlantic Trade and Technology Council (TTC). This new body seems to be very similar to the previous attempts to foster the relations. It therefore raises a question whether it can be more successful than its predecessors. The paper provides an overview of the evolution of the EU-US relations and further analyses issues arise from the current context and political setup on both sides of the Atlantic and the role of the newly established TTC. It aims to examine the context in which the transatlantic relations are evolving and to capture main challenges that they face in mutual cooperation.

Keywords: *EU-US economic relations, regulatory cooperation, Transatlantic Trade and Technology Council*

JEL Classification: *F15, F13, F53*

1. Introduction

The transatlantic relations have deep roots and with shared values, promoting peace, freedom and democracy serve an anchor to the world order. The relations between EU and the US have been constantly evolving and have been going through various successes and setbacks. The historical ties are reflected in various dimensions – cooperation in defence and security, but often the transatlantic economic link is overlooked.

The transatlantic economy is characterized by massive volumes of trade and investment. No other entities in the world economy have relations of such size and such a level of integration. Nevertheless, the economic cooperation between the EU and the EU has not been without issues and obstacles. Despite of relatively low tariffs, a number of areas are affected with different standards and regulatory framework, which is so similar but different at the same time.

The institutional framework of the transatlantic relations allowed to find a common ground for understanding and resolving some bilateral trade and regulatory issues, but with limited success. Also, the negotiations on a new trade agreement (Transatlantic Trade and Investment Partnership) are frozen since 2016. Nevertheless, since then a lot has changed. New US administration under J. Biden changed the course in trade policy what consequently meant

shifts in relations towards its partners. This is an opportunity for renewing the transatlantic bond.

The paper is organized as following. It firstly describes the role importance of the transatlantic economic relations for both entities. Further it looks at the institutional setup of the transatlantic economic cooperation and its evolution. This allows further discuss issues and circumstances that led to creation of the TTC. The of this paper is to explore milestones of the contemporary EU-US economic relations and discuss opportunities and limits for fostering mutual cooperation.

2. Problem Formulation and Methodology

The newly established TTC provides a window of opportunity for renewing and enhancing the transatlantic relations. This platform should help to coordinate both sides approaches to various global and bilateral issues. However, this new body seems to be very similar to the previous attempts to foster the relations. Can it therefore bring more tangible results? Can the EU and the US push old agenda with a newly established platform?

The paper's methodology builds on descriptive analysis of available data which shall explore the drivers of the EU-US economic relations. Further, an analysis of various official documents and relevant available literature is provided. This will enable (a) to understand evolution of the relations (b) to highlight progress and setbacks of the cooperation and finally, (c) to capture the challenges of the transatlantic partnership.

3. Understanding the Transatlantic Economy – What Are Main Drivers and Obstacles?

The transatlantic economic ties represent the most massive and most integrated economic relations in the world. No other bilateral relations generate such volumes of trade and investment.

According to the European Commission (2021a) the US companies invest three times more in the EU than in Asia. At the same time the EU companies invest eight times the amount of EU investment in India and China together. More than 60% of US global FDI's flow to Europe and around 64% of global EU FDI's flow to the US (Hamilton, Quinlan, 2021).

Table 1: FDI between the EU and the US, bil in EUR

Year	Inward stock	Outward stock	Balance
2019	2003.1	2161.5	158.3

Source: European Commission (2021a)

As table 1 illustrates, the FDI flows represent more than 2 trillion EUR. This massive investment directly and indirectly contributes in the job creation and overall prosperity in the transatlantic economy.

Trade is another aspect which drives the economic activity between the EU and the US. As data by the European Commission further show, the EU investment in US generates approximately 4 million jobs. The EU trade itself adds to the US more than 2,7 million jobs. (EU Delegation to the US, 2020) As table 2 and 3 show, the overall EU-US trade has been growing in recent years (by 2019), attacking more than 550 bil. EUR in goods, what counts ca. 1,5 bil. EUR of trade in goods flowing between the entities every day. Hamilton and Quinlan (2021) also point out that a lot of the trade is happening as an intra-firm trade i.e.

trading between their parent company and an affiliate. This also illustrates how the transatlantic trade is integrated through business ties.

The EU has a positive trade balance with the US in trade in goods. In trade with services, EU has a negative trade balance (table 3).

Table 2: Trade in Goods Between the EU and the US, bil. EUR

Year	EU Imports	EU Exports	Balance
2018	214.7	351.2	136.5
2019	232.6	384.4	151.8
2020	202.6	352.9	150.3

Source: European Commission (2021a)

Table 3: Trade in Services Between the EU and the US, bil. EUR

Year	EU Imports	EU Exports	Balance
2017	193.1	174.1	-19.0
2018	199.0	184.8	-14.2
2019	221.5	205.0	-16.5

Source: European Commission (2021a)

Even if the trade is enormous, there obstacles are present. In general, the tariffs in international trade particularly between the developed countries have been decreasing. In this respect, the transatlantic market enjoys very low approximately 3% tariffs, with some exceptions, where specific sectors such as agriculture still experience high duties. Nevertheless, the real issue is non-tariff measures (NTM). As good examples serve product regulations (to ensure health, safety or security requirements), licences for providers of services, certification and conformity assessment procedures. Producers therefore face two different (although very similar) regulatory regimes. Obviously, this increases costs of the final product when placing it on a market in EU or in the US (Hoekman, 2015). Given the size and volumes of the transatlantic trade, there is number of examples across the industries such as car industry, electronics, machinery and many others who report additional costs and impediments they face. Francois et al. in study on removal of the NTM reports that if EU and the US would align 50% of all NTM and regulatory divergencies, the EU GDP would grow by 0,7% (compare to 2018) whereas the US GDP would gain 0,3%. This represents 122 mil. EUR for the EUs GDP and approximately 41 bil. for US (Francois et al, 2013).

4. The Evolution of the Transatlantic Cooperation - Successes and Failures in Nutshell

The economic cooperation is a crucial puzzle of the EU-US relations. It has been evolving as a result of the volumes and size of the transatlantic trade and investment.

A new input in the modern history of the relations provided New Transatlantic Agenda, a document which was by the EU and US official signed in 1995. Pollack (2005) argues that the NTA could be seen as an experiment in the international governance, where he identified three levels of the cooperation – intergovernmental (head of states), transgovernmental (expert level) and transnational (business community and other stakeholders). He further argues that despite the massiveness of the relations, the cooperation is likely to be very shallow.

The economic cooperation between the EU and the US gained a new wind through establishing the Transatlantic Economic Council in 2008. This forum has been a result of The Framework for Advancing Transatlantic Economic Integration, had an ambition to enhance the integration of the relations, foster regulatory cooperation and mitigate and eventually prevent trade disputes (Ziegler, Mildner, 2009). One hand the TEC managed to find resolution of issues. For instance, such as secure traders, where both parties recognized their standards and safe traders were able to benefit from faster border controls and less administration by custom clearance (EC, 2012). At the same time, some of the problems remained unresolved such as the agricultural sector. TEC was also expected to deliver through its power and through support of political leadership and to achieve resolutions even on highly problematic areas. Nevertheless, the old issue of chlorinated chickens illustrated that political declaration and establishing a new platform such as TEC cannot deliver - not because sound argumentation of the EU side (and application of the precautionary principle), but due to fact that the US chicken meat would negatively affect the EU production. Another example on the genetically modified organisms illustrates, “the EU’s approach to GMOs is as ‘scientific’ as that of the US, only the social values and conceptions underlying the assessment of the risk diverge, indicating the difference between a risk-friendly and a risk-averse society” (Scherzberg, 2006).

The complexity of the issues between the EU and the US lies mainly in the differences in regulatory approaches. These show the core of the problem in further integration of the relations. A good example is agriculture, where safety, risk assessment and management are the biggest obstacle in finding a common approach, that would fit both.

Nevertheless, discussions on further complex integration of mutual relations re-emerged, particularly thanks to economic and political circumstances. The businesses have been long advocating for trade liberalization and fostering the regulatory cooperation as they saw them as major obstacle. The circumstances and willingness of the EU and US policy makers allowed (based on the recommendation of the High-Level Group for Jobs and Growth) to launch the negotiations of the free trade agreement (TTIP). Exixon (2013) argues, that TTIP is a result of initiative by some member states, where under German Presidency in the EU, the TEC has been established. At the same time the US administration was very supportive of the liberalization of the transatlantic trade relations. For instance, Hillary Clinton called the TTIP an economic NATO. Hoekmann highlights the ambitions of the TTIP— “to further integrate the transatlantic marketplace by removing remaining import tariffs and other policy measures that discriminate against foreign providers of goods and services and to reduce the market-segmenting effects of differences in regulatory regimes” (Hoekman, 2015). The economic aspects of the trade liberalization also played a key role. According to Francois (2013) the economic gains 0,3-0,5% GDP for the EU. Jungmittag and Welfens (2020) in their study point out that overall trade liberalization can also stimulate the creation of bigger firms or multinational companies, what consequently may lead to more international mergers and greenfield investments in the EU and the US. Exixon argues that the economic dimension of the TTIP is a very strong argument, which has been often mention by policy makers on both sides of the Atlantic (Exixon, 2014).

Nevertheless, the largest trade agreement, which would the EU-US free trade zone would represent has never been concluded. A major shift brought the US administration led by Donald Trump, which with its different ambitions and priorities also contributed to freezing the negotiations. During the Trump administration, the EU-US relations became more fragile and involved more tensions. The US administration-imposed sanctions on the European steel and aluminium, calling the protection of national security (under Section 232 of the Trade Expansion Act). As answer the EU introduced duties on selected US products and initiated procedures on the WTO. Further the US government launched investigation of the imports of

the cars from the EU, “as U.S. auto imports pose a national security threat because they affect “American-owned” producers’ global competitiveness and research and development on which U.S. military superiority depends” (Szczepanski, 2021). Nevertheless, the no further actions have been taken in this regard.

A brighter moment of this period was a political agreement between US side and the European Commission, where leaders among others agreed “to work together toward zero tariffs, zero non-tariff barriers, and zero subsidies on non-auto industrial goods” (European Commission, 2018). As a result, both parties managed to conclude agreements on industrial goods and conformity assessment, what possibly helped to prevent further escalation (Fojtíková, 2020).

The relations have been later affected by an old dispute Boeing-Airbus, where the US side-imposed sanctions on the imports of EU produced aircrafts. This was settled by the Biden administration, where both parties agreed to ground the dispute (European Commission, 2021b).

The EU-US relations also have a specific digital dimension. The giant trade volumes are happening in the digital space. In order to ensure the protection of personal data, both parties arranged a Privacy Shield Framework. However, in 2016 the European Court of Justice called the Privacy Shield as invalid, as it did not comply with the personal data protection. This decision further poses a lot of questions, as the digital dimension of the transatlantic economy is massive and it’s still growing. Arranging a framework for data protection and seeking for principles that would fit both sides, therefore remain also a crucial agenda.

5. Transatlantic Trade and Technology Council – Can It Bring More?

As previously mentioned, the Trump administration brought more tensions in the relations towards the EU. The election of J. Biden therefore meant more hope for the relations and mutual cooperation with the EU. This optimism is captured also in the official EU documents. European Commission put a new EU-US agenda for global change stating that “with a change of administration in the US, a more assertive Europe and the need to design a post-corona world, we have a once-in-a-generation opportunity to design a new transatlantic agenda for global cooperation” (European Commission, 2020). In this document a proposal to establish the TTC is mentioned for the first time. A strong transatlantic relation is also mentioned in the EU Trade Policy Review, where the European Commission stresses that “the new US administration provides an opportunity to work together” on issues such as reform of the WTO, sustainable development, green and digital transformation (European Commission, 2021c).

Nevertheless, certain caution should be drawn too. Despite the above-mentioned changing course of the US government in trade policy, it remains unclear what exactly the trade policy under the new US government will look like and therefore enthusiasm in negotiations of new trade agreements is not legit (Swanson, 2021).

Therefore, it is hard to predict what outcomes we will from the newly established platforms under the umbrella of the TTC see. Undoubtedly, the Council has a strong political support coming from both sides. It is co-chaired by US Trade Representative, US Secretary of Commerce and the US Secretary of State. The EU is represented by European Commissions’ Executive Vice-Presidents. On the first meeting, both parties declared to as goals following areas:

- Expand and deepen bilateral trade and investment
- Avoid new technical barriers to trade
- Cooperate on key policies on technology, digital issues and supply chains

- Support collaborative research
- Cooperate on the development of compatible and international standards
- Facilitate cooperation on regulatory policy and enforcement
- Promote innovation and leadership by EU and US firms (European Commission, 2021d).

Besides the above-mentioned goals, the EU and the US indicate interest in launching cooperation in other areas. Climate change is one of them. Here both entities share common interest and given the EU's ambition and the Green Deal, it is obvious that the transatlantic link can serve a strong bloc addressing the climate change globally.

Another crucial part of the transatlantic cooperation is the digital agenda. Here as already mentioned the EU and the US have been struggling to find common ground on the data protection, however there are more urgent issues ahead such as developing common framework for artificial intelligence or free flow of data. This has also a clear link to the technologies, where the global dimension is also important, as common transatlantic standards can serve as path to follow for the rest.

Aktoudianakis et al. (2020) argue that, the TTC should also involve other stakeholders and institutions – such as European Parliament and the Council as these logically will be on later stage actively involved in the decision making. The TTC working groups should provide bottom up initiatives from all other stakeholders. D. Lilkov points out, that TTC should be a part of an international effort to contain China, particularly to respond on the authoritarian regime, which seeks channels to gain influence – through foreign direct investments, advanced technologies. Nevertheless, he highlights a danger, that the platform could become an instrument “where the US government tries to apply pressure to water down existing European tech regulation” (Lilkov, 2021).

New breath in form of the TTC and mutual willingness to further foster the relations is certainly a promise. Nevertheless, in the history we learnt about the limits of the cooperation – particularly when it comes to sensitive issues. The institutional framework and its results show that it has been able to deliver. However, the achievements very much depend on political attitude and willingness to gain support on national level. As some of the previous issues show, their nature is very specific and goes beyond of the bilateral political negotiations. This challenges the regulatory frameworks and established approach in risk assessment and risk management, where both entities differ. At the same time TTIP negotiations showed how easily can trade liberalization become a part of politicized public debate. Nevertheless, more could be expected in setting new standards and framework for new technologies, where developing similar standards can bring benefits to both entities.

6. Conclusion

The transatlantic economic relations play a significant role in the global economy. For both, the EU and the US is transatlantic economy a source of jobs and prosperity. Nevertheless, neither such complex and massive economic ties are without issues. The tariff barriers do not play a crucial role in bilateral trade, the devil is hidden in non-tariff measures. The EU and the US have been working hard to address the regulatory divergences, however with a limited progress. After tensions between the EU and the US under the administration of D. Trump, a new chapter in the relations is being written under J. Biden. The EU-US Summit in 2021 declared enhancing the partnership and leaders agreed to launch a new platform, which would serve as umbrella for coordination, mitigation of disputes and addressing global challenges. The transatlantic bond has an old agenda, starting with the regulatory cooperation where a

huge potential is hidden. At the same time, the new pressing and growing digital dimension of the relations such as artificial intelligence, needs to be addressed too. Both, the EU and the US can also with a common approach reach a progress in the reform of the WTO and addressing the climate change. The challenges therefore are: trade, climate change, digital and regulatory cooperation. For reaching tangible results, the cooperation must have political support and a strong push assisted by a bottom-up approach, with engagement of other stakeholders and institutions on both sides of the Atlantic. If the transatlantic cooperation capitalises the lessons learnt from the past, it might learn new tricks to address common challenges.

Despite the fact that the EU-US relations have been of interest of research in various dimensions in the past, the new momentum, where transatlantic cooperation occurs will certainly open number of new interesting areas for further research. Particularly in understanding new forms of governance, developing common transatlantic approaches to new challenges, standards in new technologies or artificial intelligence. All these are relevant for further research.

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Repression of the Freedom of Speech in Selected EU Country

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Abstract

The paper deals with repressions of the freedom of speech linked with technological aspects in the selected EU country – France and with some selected other cases of violation of freedom of speech, especially in the European Union. The author therefore focuses his attention of the opening chapter on the foundation of the freedom of speech. There is mentioned a foundation of positive law regulation of freedom of speech in EU countries, its main forms and features. In the next chapter, an attention is paid to individual cases of threat of freedom of speech both in France and in other countries. Here is discussed differences among cases in these countries and here is discussed individual court decisions related to violations of freedom of speech. The last chapter presents conclusions of the paper.

Keywords: *EU integration, France, freedom of speech*

JEL Classification: *K38, K41, K42*

1. Introduction

The freedom of speech or rather the freedom of expression is one of the fundamental human rights enshrined in the legal systems of all democratic and modern (not only) European countries. The freedom of speech is a conception how to voice publicly opinions and views regardless of fear of adverse consequence (e.g. punishments, censoring).

This fundamental right is enshrined in the Universal Declaration of Human Rights (hereinafter UDHR), which contains a list of the best-known human rights – above all, the basic civil, political, cultural, economic and social rights in effect for all inhabitants of the Earth. The freedom of speech as a fundamental right is in practice respected differently in different countries. Naturally, in authoritarian countries, this right is suppressed in favor of censorship or punishments.

According to the UDHR (art. 19) “*Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers.*” In fact, the UDHR is not binding document, unlike the Convention for the Protection of Human Rights and Fundamental Freedoms (the European Convention on Human Rights). Although many states have adopted the document, some states (such as Italy, Netherlands) have reserved exceptions to Article 19 when it could affect their broadcasting regulation and licensing system.

The crucial fact is that the “speech” as such is not bordered on public speaking (public speeches), but the speech includes, of course, more ways of expression. As a “speech” could be considered communications made through a press, an electronic mass media or various social networks. In other words, speeches can be expressed in several ways – not only in words,

but also in writings, in the media or in the electronic form. The latter group includes e.g. mobile applications.

The right to freedom of speech should be understood relatively broadly, because it is associated with the right to information and ideas, the right to receive information and ideas and finally the right to impart information and idea. This broad conception of the right of speech makes it possible to study this area from several points of view and aspects – for example the pedagogical or scientific aspects.

On the other hand, this fundamental right is certainly not absolute. For example, slanders, libels, obscenities, seditious, incitements, copyright violations are beyond the right to freedom of speech. The issue of the freedom of speech and its application is more challenging nowadays because of broader concept of a morality and a digital age.

The aim of this paper is to analyse selected forms, or rather problems of the freedom of speech associated with a digital age in France. From the point of view of the system classification, this area, or more precisely its selected elements mentioned in the paper, can be subsumed under constitutional law, which is a part of public law. Another example of public law branch is, for example, the monetary law, which is a part of financial law (Bartes, 2020).

The continuity of the paper to the European Union is given, for example, the current issue of the European Commission 2014-2024 program to the issue of freedom, right and digitalization. From another point of view, it can be stated that the continuity of the paper topic to the European integration is given due to the effort of the European Commission to reach a safety in the digital environment.

2. Problem Formulation and Methodology

The author uses the descriptive method, which at first properly allows to introduce the issue of the freedom of speech. Moreover, the paper uses a method of comparison, which, for example, allows comparing the situation of freedom of speech in various countries of the world, especially within the European Union.

The author in his contribution principally gains information from the French scientific literature, i.e. principally from the publications of the French constitutional law professor Michel Clapié of Montpellier Law Faculty (Clapié, 2018). Although the internal literature deals with the right to freedom of speech, on the other hand this literature neglects its modern conception with regard to a digital form. For this reason, it is necessary to base the topic on foreign literature and relevant rulings of (European) courts.

3. The Waze Mobile Application and the Right to Freedom of Speech

Waze is a navigation software for smartphones and tablets which is provided free of charge. Today, more than 130 million people worldwide use the *Waze* mobile application. This mobile application not only navigates motorists, but it also allows motorists to share reports about tailbacks, obstacles on the route or police patrols. Although motorists may not be aware of this, sharing messages with other motorists via *Waze* is a practical fulfilment of the right to freedom of speech. This fact has been judged by various European courts, as we shall bellow. However, this fact remains the subject of emotional debates.

On the one hand, there is a togetherness of motorists who want to help each other on the roads, especially against potential sanctions by the police; on the other hand, there is the police that want to thwart these efforts of motorists. For this reason, the police put pressure on lawmakers

to outlaw the sharing of police patrol reports in the mobile applications (such as *Waze*). In addition, the police are willing to impose fines on motorists for activities that inform motorists about the presence of police patrols on roads. The police usually classify such information as an obstruction of their activities.

In today's "digital" world, therefore, we are witnessing an interesting conflict between the right to freedom of speech (represented by a specific form) and the limits of this freedom. These limits can be an interesting problem in terms of assessing the adequacy, and therefore the constitutionality, of individual forms of freedom of speech in the digital world and especially in the law of (not only) European countries.

3.1 The French Case of Repression of the Freedom of Speech in Digital Age

The surprise was even greater when the French authorities wanted to suppress this right by banning the sharing of certain information through the *Waze* mobile application and other similar applications. The French legislator planned to completely ban the sharing of traffic information through applications such as *Waze* and others.

This ban was adopted as part of an amendment to the Road Code in France, which, however, has not yet taken effect. If the amendment of the Road Code had become effective, the founder of the *Waze* application would be obliged to abolish the possibility of sharing police patrols. This measure in question was in fact promoting the interest of the French police and administration, which wanted to prevent the detection of the location of police patrols

Just from a technical-legislative point of view, it is appropriate to add that France is a state with many codes – for example The Civil Aviation Code, the Sport Code, the Tourism Code and number of another codes (Bartes, 2018).

This crucial circumstance led the developer of *Waze* application to file the action for the annulment of the relevant amendment to the Road Code, which the developer considered unconstitutional. *Waze* developers' lawyers have criticized the provisions of the Code for undermining the freedom of speech and communication. *Waze* developers' lawyers have added to this that the amendment of the Road Code prohibiting sharing police patrols was an attack on freedom of speech that would be neither necessary nor proportionate to the legislator's objective.

The Constitutional Council in its decision, recalled Article 11 of the Declaration of the Rights of Man and of the Citizen of 1789: "*The free communication of thoughts and of opinions is one of the most precious rights of man: any citizen thus may speak, write, print freely, except to respond to the abuse of this liberty, in the cases determined by the law*". This right means freedom of access to these services and freedom to speech.

Waze developers appreciated the decision, which allows motorists to "stay informed in real time about police patrols on the road". Developers also say that the decision of the Constitutional Council is the official recognition of *Waze* contribution to the traffic Safety.

3.2 Related Cases with the Waze Application and the Freedom of Speech

In fact, motorists have warned each other against police patrols since time immemorial. Not only in the past, motorists used flashing on oncoming cars for this purpose. In some countries (such as Italy, Denmark or outside the European Union USA), this activity has been the target not only of criticism but also of sanctions by the police. Motorists have always resisted sanctions for any form of warning other motorists against police patrols and it should be noted that their defense was successful.

For example – the legality of flashing headlights warning motorists against police patrols and their speed traps has been confirmed in several court rulings. Courts agree that flashing lights warning other motorists is a "protected expression", or rather a form of "protected speech".

On the other hand, the police argues against *Waze* application and others that these applications allows to criminals have information on the location of police. This information is dangerous because it could help to criminals to avoid detection or, in the worst case, to assault police. For this reason, the police deletes records of motorists about its position in the *Waze* application.

4. Another Case Repressing the Right to Freedom of Speech in France

The coronavirus is the global problem that affects not only doctors, but also lawyers and economists. In France, there was passed a new Act, which requires social networks to remove a harmful content (especially discriminatory and hateful comments) until 24 hours (and in some cases, as little as one hour) of being reported by users. In fact, non-compliance with this act (called as "*Fight against hate on internet*", or rather as "*France's Social Media Act*") can result in a fine of up to 1,25 million euros.

More specifically, the *Social Media Act* requires to remove hateful comments and harmful content – based especially on race, gender, sexual orientation – until 24 hours after they had been reported by users. Particularly dangerous content as a terrorism or a child pornography must be removed until one hour of being reported.

On the one hand, this Act is a good instrument for victims of harmful expressions on social networks. On the other hand, this Act constitutes a dangerous and real threat to freedom of speech in the digital world. This situation may resemble the German Act, which was passed in 2018.

In order to avoid fines as a result of this Act (called as "*the Network Enforcement Act*"; shortly "*NetzDG*"), German social networking companies have censored the majority of user contributions. In fact, users had no judicial oversight or right to appeal against the decision to remove the contribution. Social networking companies in Germany had to publish reports every six months about the number of reports of illegal content that they have received. This fact therefore significantly affected the freedom of speech and online activities of the German population.

The weighty problem of the French *Social Media Act* is that there are no penalties of social networks incorrectly remove relevant content, which is later found not to be in violation of legislation or public order. This legislative imperfection, consisting in a possible unjustified censorship of the content of social networks, leads to a significant restriction on the freedom of speech.

The number of reports of harmful content (*de facto* complaints) which would be reported to social networks is very important in this matter. This number will be a metric by that it will be possible to evaluate the success of this Act. Afterwards, these complaints should be assessed individually in order to determine how effective this Act is. In fact, care must be taken as these measures may be ineffective or even counterproductive in the fight against a total incidence of a harmful content. This experience could be observed in Germany as a result of the adoption of *Network Enforcement Act*.

It may be striking that the French parliament passed the Act similar to the German parliament, when the German *Network Enforcement Act* was not effective. On the other hand, we have witnessed much misinformation about coronavirus in the last two years. Probably for this

reason, the French government has decided to restrict freedom of speech and increase censorship.

In May 2020, the French government has published the coronavirus “fake news” webpage, where the government has released falsehoods surrounding the Covid-19 outbreak. This website has become a target of journalists who claimed that the website attacks on the freedom of speech and on the plurality of opinions. Even more surprising was that the government withdrew the website mainly due to a pressure from the French Journalists' Union.

In this context, according to the French Journalists' Union, the French *Social Media Act* is another attack on freedom of speech in France. This time, however, in this case, the French government had more freedom of public opinion due to public concern about the coronavirus pandemic. In fact, the *Social Media Act* has been introduced already in March 2019. However, the real role of this Act came only during the Covid-19 pandemic, when some social networks curtailed coronavirus misinformation.

It can be assumed that the French *Social Media Act* will limit most hate speech, which is the official purpose of this Act. On the other hand, this Act is an important tool for censoring many legitimate forms of freedom of speech and its concrete expressions. In any case, this Act has stimulated a professional debate, and above all, a legislative effort within the framework of further European integration in this area.

4.1 European Integration of Legislation Governing Illegal Content of Digital Service

The French *Social Media Act* in question contributed to the creation of the 2019 legislative proposal called the *Digital Services Act*. The main aim of this legislative proposal of the European Commission is to modernize the e-Commerce Directive regarding illegal content, transparent advertising and disinformation, because this directive has been already adopted in 2000 and is very outdated nowadays.

It could be quite surprising that in today's online world, which is influenced by digital services, there were 22-year old rules. This big change will be of great benefit not only for consumers, or rather users of social networks, but also for society as whole. Specifically, the changes should not only concern to the online content, but also to services and goods in digital world.

For example, the following are considered digital services for purposes of this Act: websites, social medias, e-books, cloud-based storages, music and video streaming. These products are considered and defines as digital services.

The *Digital Services Act* should improve a content of social networks and to dispel concerns about harmful content in the digital world. This Act is based on the crucial principle, that social networking companies are not responsible for the content unless they actually know it is unlawful. On the other hand, when an unlawful content is reported, these companies are obliged to remove it almost immediately, otherwise they run the risk of sanctions.

Unlike the French *Social Media Act*, the *Digital Services Act* obliges social networking companies to inform so-called regulators authorities about their metrics and about their decisions to remove harmful content.

Regarding the personal scope of the *Digital Services Act*, this Act applies to companies with over 45 million users in the European Union. This limit is met by social networks such as Facebook, Twitter, Spotify, app stores or YouTube. Companies that do not respect these legal obligations of the *Digital Services Act* can be fined up to 6 % of the total annual turnover. The

Act will apply to networking companies that have company address outside the European Union, if they provide digital services in the single market.

The personal scope of the *Digital Services Act* also affects small networking companies, because the Act imposes them obligations and duties, which are proportionate to their size, importance and social role. Networking companies providing network infrastructure, hosting services are also included in the scope of this Act.

Until recently, *Digital Services Act* was only a legislative proposal. This Act status was changed on 20 January 2022, when the Act was adopted by the European Council and the European Parliament.

France, which is actually the state holding the EU Council presidency until July 2022, would like to bring the *Digital Services Act* to a successful conclusion – to create conditions for this European legislation to be applied in the member states of the European Union and to become their legal norm. Some legal experts expect, that this Act will create a level field in the market and will allow small and medium networking companies to enter the market.

There is also a reasonable expectation, that other (third) countries will follow steps of the European Union to introduce digital services standards and legal norms. In this way, the law and the approach to digital services could be harmonized in the future. On the other hand, the basic problem of the European Union is the absent agreement of the member states on the final form of this specific international or supranational organization (Týč, Sehnálek, 2017).

Therefore cannot be estimated whether they will agree on the form of approach to a “digital world”. In practice, there may be various circumstances preventing a decision to be harmonized. These are circumstances of various origins - natural such as natural disasters; consisting of human behavior beyond the control of the individual wars, civil wars or social unrest; given in unexpected economic or technological processes, possibly even legislation, etc. (Rožehnalová, 2015).

In conclusion, with regard to the European Union law, Jiří Malenovský can be mentioned: European Union law constitutes a highly autonomous subsystem of international law, which supplants, by derogation, a very large number of rules of general international law having a *jus dispositivum* nature, but not all (Malenovský, 2019).

5. Conclusion

The aim of the paper was to analyse selected forms or rather problems of freedom of speech associated with a digital age in France. The paper has discussed the essence of freedom of speech from the point of view of constitutional and positive law. In this context, individual forms of expressions of the right to freedom of speech were also mentioned and afterwards introduced.

The paper also describes limits of the freedom of speech, i.e. individual expresses that are not protected by law. Such expressions include, for example, obscenities and incitements. It has been stated that individual forms of expressions of freedom of speech in today's “digital” world are often on the verge of admissibility and it could be difficult to assess them.

In this context, the case of the *Waze* mobile application and freedom of speech in France was mentioned. It may seem astonishing that freedom of speech in a modern democratic European country may have been restricted by the amendment of the Road Code. As a result, such minor inconsistencies can create a legal crisis. The crisis is the word that has always accompanied the European Communities and the European Union (Křepelka, 2017). The issue of the *Waze*

application and the freedom of speech could be expressed by a struggle between motorists on the one hand and the police on the other.

Whereas motorists want to share online information about police patrols (for example via the *Waze* application), the police consider this effort an attempt to thwart their activities. Therefore, the police fined motorists for these online activities, but motorists did not agree with this police procedure and claimed that they were exercising their constitutional right based on the freedom of speech.

In addition, the police forced the French lawmakers to ban *Waze* developers from reporting and sharing information on police patrols on the roads, which resulted in the adoption of the above-mentioned amendment to the Road Act in France, which banned this.

The reaction of motorists was similar to the case of fines – motorists claimed that the amendment to the Road Act is unconstitutional and demanded the repeal of this new part of the Road Act.

For this reason, the French Constitutional Council had to deal with this case. The result was, that the Constitutional Council confirmed the unconstitutionality of both fines imposed on motorists and amendment to the Road Act in France.

The main reason and argument for this decision of the Constitutional Council was that the activity of motorists consisting in reporting police patrols via the *Waze* application is protected by freedom of speech. In other words, the member state of the European Union wanted to suppress freedom of speech in the online, or rather digital environment.

Another, but similar case took place in France and Germany. These European countries have adopted relevant Acts to curb of harmful content in the digital environment. France has adopted the *Social Media Act*, which reduces hateful comments and harmful content in the digital environment. Such harmful content must be removed within 24 hours of being reported by users under the threat of sanctions. Relevant social networking companies are responsible for removing such harmful content.

The paper warned that there are no penalties of social networks companies incorrectly remove relevant content, which is later found not to be in violation of legislation or public order. This legislative imperfection, consisting in a possible unjustified censorship of the content of social networks, leads to a significant restriction on the freedom of speech.

On the other hand, this French Act was certainly not unsuccessful. On the contrary, *Social Media Act* was, in a way, an inspiration for the European legislators who have created a new legislative proposal called the *Digital Services Act*, whose main aim is to improve a content of social networks and to dispel concerns about harmful content in the digital world.

A conception of the *Digital Services Act* is therefore broader than a conception of the French *Social Media Act*, because the European legal Act aims not only for harmful content in the digital environment, but it also aims to improve all digital content and to protect consumers, or rather users more generally.

We will now find out whether it will be a useful tool to suppress negative content and manifestations in the Internet or whether it will be another interference with freedom of speech, as was the case in the French case with the *Waze* application.

In the future, the author would like to focus on a more detailed research of the European Commission 2014-2024 program to the issue of freedom, right and digitalization.

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Expected Development of Debt Relief in the Czech Republic with the Aspects of European Integration Issues

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Abstract

The article characterizes the basic principles of the European Parliament's Directive No. 2019/1023 on the restructuring and insolvency process. The aim of the Directive is to improve the conditions for the continuation of the entrepreneurs in their businesses financial difficulties. Another point of the Directive is to limit the duration of debt relief to entrepreneurs to last a maximum of three years and so not to enforce further debtors obligations after the debt relief. Therefore, the Directive is a recommendation that applies the rules for the debt relief to debtors as well. Based on united European integration, European countries are obliged to implement the Directive into their legislation, and the conditions for debtors and creditors, as well as for the country, must be improved. Furthermore, the article will characterize the implementation process in connection with the amendment to the Insolvency Act in the Czech Republic. The article will also define the debt relief process in the Czech Republic and the assumptions of its development ahead.

Keywords: debt fulfilment, European integration issues, impact on society, insolvency

JEL Classification: A14, G33, G39

1. Introduction

The theme of insolvency, debt relief, and their impact on individuals has gained importance, especially in connection with the impacts of the global economic crisis, which manifested itself, among others, in increasing unemployment, more difficult access to financial resources and, thus, in a growing number of bankruptcies (Bařinová, Fiřerová and Paseková, 2016). Insolvency, its causes and solutions are a very current topic nowadays mainly due to the growing number of business entities and citizens confronted with debts (Bařinová, Krajňák and Krzikallová, 2017). The Czech Republic as one of the member states of the European Union is obliged to implement the European Directives in its national legislation (Bařinová, Krajňák and Krzikallová, 2018). The bankruptcy proceedings are the process of litigation, the aim of which is to reach a settlement between the debtor in bankruptcy and his creditors. For the purposes of this research, the insolvency proceedings will be viewed with a simplified view only of aspects of the businesses, (especially) legal entities. The proceedings may be seen as the last attempt at a rescue brake in the gradual reduction of the value of creditors' claims against the debtor, due to their declining enforceability (Hampl [online], 2020). Therefore, the whole process should be adapted so that creditors obtain the largest possible share of their claims and steps are taken to satisfy them (Alleweldt and Kara [online], 2013).

1.1 Factors Affecting Debt Relief in the Czech Republic

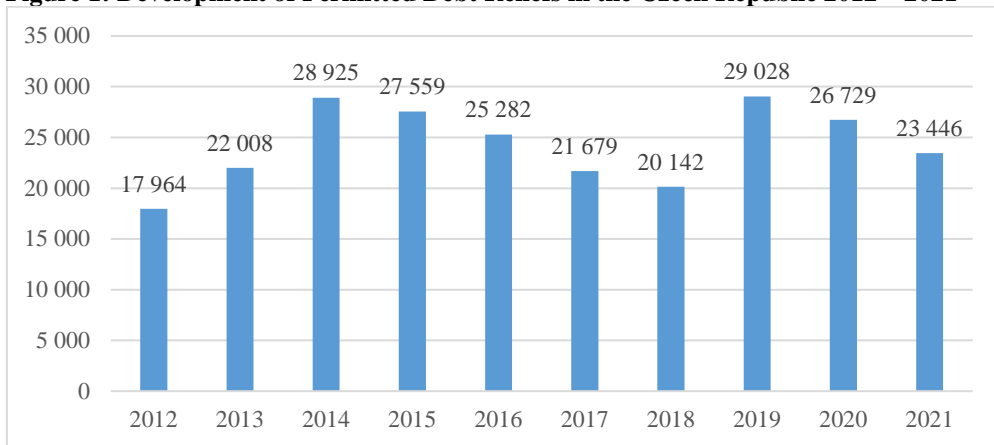
The waiver of the condition that the debtor repays at least 30 % of all his claimed debt is perceived as a fundamental change in favor of the debtors (Lawyer's diary [online], 2020). The debt relief amendment introduces a so-called '1 + 1 system' where the debtor only has to prove that he can pay the remuneration and cash expenses to the insolvency administrator on the one hand and has the same amount available to creditors on the other. The debtor must therefore be able to repay the creditors at least the amount of cash costs and the insolvency administrator's remuneration throughout the debt relief period (E-law [online], 2021). The yield of registered and accepted claims in insolvency proceedings in the Czech Republic is, according to World Bank statistics, one of the lowest in Europe (Bařinová et al., 2015).

Another important element influencing the performance of the debtor and the approach to debt relief is awareness of who the debtor is, knowledge of his abilities and skills, which also have a significant impact on the proper performance of the debt relief process (Havel et al., 2020). We must realize that the longer the person lives in debt, the more likely his changed behavior will adapt to adapt this situation and even the way he solves problems. He manages to live in this state, he knows that if he doesn't work, nothing can be taken from him, and that is the way he accepts. Therefore, he loses his work habits (Sprinz et al., 2019). If he starts working, the deduction of income will resume, which is something he will not like to adapt to, leading debtors in most cases to start sick leave or even terminate their legal employment relationship in order to his money not being deducted from their income again, hence losing motivation to work properly. It is increasingly common for these people to enter the debt cycle more often as the expensive lifestyle is preferred and it is still not that difficult for them to obtain a loan (Smolík, 2016).

Another big problem is that debtors live in the stress they basically got used to and which becomes a part of their lives. As a result of indebtedness, the borrowers often face an increased surge of daily stress. This debt stress may be viewed as a chronic stressor that is recurring and ongoing (EU Directive [online], 2019).

In the period before the so-called 'Debt relief' amendment of 2019 that removed the obligation of debtors to repay at least 30 % of their debts, the satisfaction of creditors averaged then at 56 %. And after the amendment to the debt relief in 2019, the satisfaction decreased to an average of 41,48 % whilst the median satisfaction averaged only 30,61 % [8]. Shortening the debt relief period by two years would further reduce creditors' satisfaction to 3/5, thus reducing the average satisfaction of their claims to 24,89 % (median 18,37 %), which is a very tangible intervention in the already weakened economy.

The number of ongoing debt reliefs as of December 31, 2021 was 111,5 thousand. This represents an astonishing 1,28 % of the Czech population aged 15+. In 2021 itself, the courts allowed 23,4 thousand indebted people to obtain their debt reliefs.

Figure 1: Development of Permitted Debt Reliefs in the Czech Republic 2012 – 2021

Source: Insolvency Register

The development of the number of debt reliefs depends on the conditions set by the legislators in legal norms rather than the state of the economy. The largest number of permitted debt reliefs can be observed in 2019 when the amendment to the Insolvency Act eased the parameters of the debt relief process by allowing repayment below 30 % of the claimed debts (E-law [online], 2020). Between 2008 and 2021, the courts granted debt relief to a total of 263 thousand people, of which as of December 31, 2021 totally 127,3 thousand people reached relief of their debt and 111,5 thousand people currently in the insolvency process.

The results so far show that the debtors are 91% successful in their ability to repay. Only 9 % of debtors dropped out of the insolvency procedure and returned to their lives with debts. Compared to 75 % of repeat offenders in jails, this is an extraordinary success.

The number of people entering debt relief in 2022 and beyond will depend on the draft of amendments to the Insolvency Act. If the conditions for debt relief were further eased, we could expect record numbers of debt reliefs to be allowed.

The assumption does not yet include people who will become in debt as a result of arising energy prices, inflation, etc. This number is currently difficult to estimate, as it would depend on the progress of the economic crisis and the effectiveness of state aid.

Figure 2: Total Households' Debt 2006 - 2020 (in mil. CZK)

Source: Czech National Bank

Factors justifying the indebtedness of people may be diverse, according to different views on the matter, e.g. aspects of economy, legal, sociological, or other. For example, it may be the result of a ultimately low level of financial literacy in society or a kind of indifference attitude towards basic economic knowledge of the debtors who are unlikely to be aware of the seriousness of their situation (Glogar [online], 2021). These people are often unable to understand whether they are sufficiently erudite to fulfill their obligations properly and in a timely manner, as a result of which they enter into newly acquired debt, which further accumulate in a "debt spiral". Subsequently, this situation implies an undesirable economic status of the debtor. After that, it is difficult to find optimal starting points that would cause the inclusion of debtors back into a "healthy" functioning economy.

2. Implementation of Directive No. 2019/1023 on the Restructuring and Insolvency' Process into the Czech Debt Relief' Legislation

On July 16, 2019 the Directive of the European Parliament and of the Council on preventive restructuring frameworks, debt relief and activity bans, and measures to increase the effectiveness of restructuring, insolvency and debt relief procedures and amending the Directive (EU) 2017/1132, abbreviated as the Restructuring and Insolvency Directive. (EU Directive [online], 2019).

The aim of this Directive is, in particular, to improve the conditions for the continuation of entrepreneurs in financial difficulties in their subsequent business activities. Therefore, if an entrepreneur is in financial trouble, it is the duty of the state to create such conditions that an honest entrepreneur could continue in his business activities. Therefore, it is necessary to improve the effectiveness of preventive restructuring and insolvency proceedings, as well as to shorten the period so that the entrepreneur could resume business as soon as possible (EU Directive [online], 2019).

The Directive does not apply to certain debtors, such as insurers and reinsurers, credit institutions, investment firms and collective investment funds, central securities depositories, and public entities (EU Directive [online], 2019).

One of the many objectives of the European Union' integration issues is to ensure the proper functioning of its internal market. However, in many member countries, the conditions for restructuring and insolvency are different, so foreign investors have much higher costs of risk assessment when investing in financial distressed companies. A foreign investor may be interested in investing in such a company as it might be, for example, the company that is competitive but poorly managed or is only temporarily financial-illiquid. However, due to different rules for resuming business, a foreign investor has uncertainty associated mainly with constant changes in the laws regulating this matter. Thus, a foreign investor has unnecessarily high costs of assessing the investment risks, which means that he would prefer to invest in the countries with comparable rules for re-business as to his country and which do not change that often. European environmental resilience has been observed at mainly from the perspective of ensuring sustainability for future generations on the principles of equal opportunities for the entire population (Ostárková and Staníčková, 2021).

The Restructuring and Insolvency Directive should be without prejudice to the Regulation of the European Parliament and of the Council (EU) on the insolvency proceedings of May 20, 2015, which deals with, for example, cross-border insolvency proceedings and the interconnection of the insolvency registers. Therefore, the Directive should follow this Regulation smoothly (EU Directive [online], 2019).

According to the Directive, it is also possible to allow the individual entrepreneur to resume his business while fulfilling the repayment schedule, and even in the same field (EU Directive [online], 2019).

2.1 Deadlines for Implementing the Directive

Member States have three different deadlines for implementing the Directive into their national law. Most of the Directive must have been already implemented by July 7, 2021. Article 28 (a), (b), (c) of the Directive about usage of electronic means of communication for claiming, submitting restructuring plans or repayment schedules and sending notifications to creditors must be implemented by July 17, 2024. The filing of objections and appeals via electronic means of communication must be implemented by July 17, 2026.

2.2 The Basic Premise of the Directive is the three-year lasting Debt Relief for Entrepreneurs

The Directive also aims to limit the duration of debt relief to entrepreneurs to last maximum three years and not to enforce further debtors' liabilities after the debt relief so that the debtor could start a business once more. Unnecessarily long activity bans that are part of the debt relief should also be reduced, as they restrict entrepreneurs in their business, which may not be entirely appropriate for the economy. Furthermore, it would be very time-consuming for individual entrepreneurs to distinguish between business debts and private debts. The Directive thus recommends that the rules for debt relief for entrepreneurs also apply to non-entrepreneurs, because if the entrepreneur was released from his debts after three years whilst the non-entrepreneur would be exempted after five years, the non-entrepreneur could deliberately start a business in order to serve the shorter duration. Under the insolvency law, it is possible for an individual entrepreneur to go out of his debt only after obtaining the consent of his creditors.

Three-year debt relief should also be subject to certain exceptions under the Directive. An exception could be, for example, not allowing debt relief to those entrepreneurs who are dishonest and only try to avoid paying their liabilities (Friesl, 2002). For entrepreneurs who have business and personal obligations that cannot be separated, bankruptcy can be managed

in one or more insolvency proceedings, but those must be coordinated (Greenberg, 2019). The development of personal bankruptcies will depend more on the procedure of legislators in adopting the amendment to the Insolvency Act rather than on the economic cycle then.

2.3 Analysis of the Current State of the Debt Relief in the Czech Republic

The presented analysis is an evaluation of publicly available data from the Insolvency Register. In this analysis, the author focused on the problematic issues that arise with the development of debt relief. The primary objective of the research is to determine the level of satisfaction of creditors by their debtors; both absolute and relative depending on the amount of the established debt, or on the category of the creditor. The basic criterion for data selection was the time factor.

The analysis consists of a sample of 50 randomly selected borrowers in between 2017 – 2021. The results of this sample are used in this paper. For each debtor, the data were used to identify his insolvency proceedings (name, surname, debtor's number, year of commencement of proceedings, 'court abbreviation' (according to the court's jurisdiction), number of the panel and type of case). The course of each debtor's debt relief is indicated by the year and month of the permission and the year and month of the debt relief approval. Research also monitors the frequency of certain factors (e.g. gender, average wage, amount of recognized debts, representation of individual creditors, etc.).

Among the methods used for data processing is, in particular, the comparison of the expected level of the creditors' debt cover in the beginning of the debt relief and at the end, and as anticipated, the plan of performance is usually higher than the reality paid in the end. Furthermore, an analysis of individual registered creditors was performed, for which we compared the amount of applications and their frequency with debtors, the expected satisfaction of individual creditors, and we also compared the sectors (banking, nonbanking, and public) in which they operated.

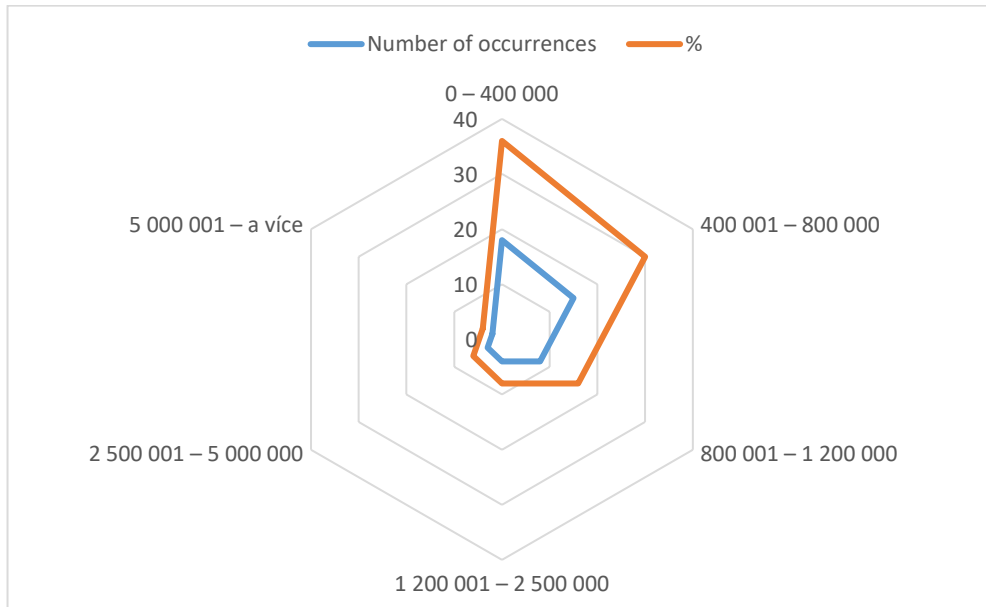
To achieve the objectives of the article of the standard positivist economic methodology involving various description methods, comparison, deduction, synthesis, and analysis is used. For the assessment of the dependency between the variables analysed, correlation analysis is used (Krajňák, Krzikallová, and Široký, 2020).

Table 1 shows the individual occurrences of the debtors according to the amount of their recognized debts at the beginning of the performance. It is obvious that most debtors fall within the first two definitions up to CZK 800 000. The average debtor in the selected sample had a recognized debt of CZK 499 000 and every tenth had a debt of more than CZK 1 000 000.

Table 1: Representation Ratio of Individual Debtors According to the Amount of Eligible Debts

Amount of liabilities in CZK	Number of occurrences	%
0 – 400 000	18	36
400 001 – 800 000	15	30
800 001 – 1 200 000	8	16
1 200 001 – 2 500 000	4	8
2 500 001 – 5 000 000	3	6
5 000 001 +	2	4
TOTAL	50	100

Source: own processing, own calculations

Figure 3: Amount of Recognised Debts in the Debt Relief

Source: own processing, own calculations

The net salary of the average debtor is CZK 17 000 (of which 28 % of debtors have net income less than CZK 10 000 and 10 % of debtors have no income at all). 35 % of the debtors had to receive an additional monetary gift so that their total income would be high enough for the debt relief in the form of a repayment schedule. However, only half of these gift recipients obtained the original promised gift value whilst the remaining half received a lower value or even no gift. The average amount of the promised gift at the beginning of the debt relief was CZK 2 200.

In addition, 25 % of debtors are obliged to pay maintenance fees for their dependent child in the average amount of CZK 3 500. The minimum repayment amount for the debt relief is currently set at approximately CZK 2 200 (rounded up the insolvency administrator's remuneration), plus alimony.

Debtors tend to look for ways to bring their recoverable amount closer to the minimum debt relief, specifically CZK 2 200 per month, e.g. by seeking any reasons why they could not start work, submitted only part-time employment contracts, concluded performance agreements, and any lack of income is to be supplemented by fictitious donations from the third parties, which they ultimately paid for themselves.

At the same time, it was studied whether the income of debtors would affect their potential entry into the debt relief. For the evaluation method, a chi-square test, a statistical nonparametric method, was chosen to determine whether there is any demonstrable significant relationship between the two characters. The essence was to compare the observed and expected frequencies. The calculation was based on the assumption of a valid null hypothesis, assuming that the incomes of the debtors did not affect their entry into the debt relief. According to the calculation, the entry of debtors into the debt relief was not affected by their income, and hence the null hypothesis was not rejected. Therefore, the income of the debtors is not a criterion for their entry into the debt relief.

$$x^2 \geq x_{(r-1)(c-1)}^2 (1-\alpha) \quad (1)$$

The debtor is obliged to secure a permanent income, which will ensure that the claims of the registered unsecured creditors would be satisfied as much as possible throughout regular monthly installments. According to the provisions of § 412 par. h) of the Insolvency Act, the debtor is obliged to make all efforts that could reasonably be required of him to fully satisfy the claims of his creditors. Specifically, this means that the debtor secures the highest possible income throughout the debt relief period, and not just the minimum income (guaranteed minimum wage). In other words, the unjustifiably low income of the debtor may be the reason for the cancellation of the already approved and running debt relief.

3. Conclusion

The level of debt is constantly growing; however, the Czech Republic is not one of very indebted countries compared to the countries of Western Europe. Indebtedness of households and individuals does not necessarily mean economic exclusion of them. If, however, a person cannot repay his debts and has no opportunity to participate in the proper economic functioning of the society, there is a debt relief institute which provides such a person with the desired starting point. The debt relief is therefore a special type of procedure allowing an honest debtor who has not been economically successful to satisfy at least some of his creditors and to get rid of the debt burden left.

In general, it may be stated that the legal regulation of the debt relief has undergone considerable development during its existence, when the institute originally focused on individual non-entrepreneurs with strict conditions for approval of the debt relief turned into the institute, which is supposed to have a widespread use in relation to individuals. Also in relation to its application practice, in the author's opinion, it turned out that the original relatively brief paragraph formulation of the Insolvency Act made it necessary for courts (especially higher courts) to interpret the law through their decisions. However, some of these interpretations were subsequently rejected by the legislature through amendments to the Insolvency Act. European integration issues were described in detail too.

Furthermore, the research will continue with the evaluation of the debt relief situation in the upcoming years, with a particular focus on the group of so-called protected debtors, who are the old-age pensioners and the disabled II. and III. with reduced three-year debt relief and sufficient rounded monthly instalment of CZK 2 200 per month regardless of the 30+% paid-out debt barrier of claimed debts; and also evaluate the group of debtors with their debt relief endings after June 1, 2024, and so five years after the amendment to the Insolvency Act. Paying less than 30 % of their debts is not a requested condition, but ensurement that during their debt relief they made every effort to achieve maximum incomes. For the assessment of this aspect, there is no uniform court methodology in the Czech Republic so far. The goal of the next research will therefore also focus on a set-up of a uniform procedure for assessing whether a borrower has made every effort to achieve his maximum income and, therefore, whether he is entitled to be relieved from outstanding debts.

In general, it may be stated that the debt relief legislation has undergone considerable during its existence development, when originally the institute focused on non-entrepreneurs only with strict conditions for debt relief resulted in connection with the social development in the institute, which is to have in relation to the individuals de facto widespread use.

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Does Covid-19 Influence the Traffic Accidents? The Survey in Condition of the Czech Republic

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Abstract

The COVID-19 pandemic hit the world in 2020-2021. The effects of this pandemic have affected almost all countries of the Euro area. One of the serious effects was, for example, the restriction of the movement of people, the global decline in productivity of the economy, including the Czech Republic. Therefore, one of the consequences of these measures should logically be that there will be a decrease in traffic and thus in traffic accidents. This is reflected in the statistics; however, the question is whether the decline in traffic and traffic accidents has affected, for example, the mortality itself, the number of lightly or severely injured. Using regression analysis, the authors determined the dependences between the number of accidents and the consequences of accidents in the period 2019 before COVID-19 and during COVID-19, before and after regulation in the Czech Republic. The results show that the analysed variables are the same for all selected time periods. The effect on the number of accidents is changing - a different type of variable and a different performance.

Keywords: Accidents, Covid-19, traffic, WHO

JEL Classification: C22, C32, C53, L81, R41

1. Introduction

The development of our lives in 2020 and 2021 was influenced by Covid-19. The World Health Organization learned of the new virus on December 31, 2019, and in January 2020 began using codes U 07.1 and U07.2 to identify the disease. (WHO,2021)

Covid-19 affects the health and well-being of people around the world. According to the Sustainable Development Goals supported by Agenda 2030, health and well-being developments must be monitored through all sustainable development indicators set out in Agenda 2030. (Drastichová, 2020) According to Dvoroková and Kaňa (2020), fiscal policy should strengthen aggregate demand during a recession and, in contrast, slow down in a period of expansion. This was also proven in the period of Covid-19, when the Czech government, resp. The Ministry of Finance compensated for the losses for companies and entrepreneurs.

Measures to prevent Covid-19 have brought traffic restrictions in the Czech Republic. For example, people were forced to limit physical contact and protect themselves by wearing a veil or respirator on public transport, they could not associate in groups, they could not enter restaurants after 10 o'clock, etc. Covid-19 left the most fundamental influence on children. Online tuition has been introduced to prevent direct contact and transmission between children. As a result of this disease, the “extraordinary measures” of the Ministry of Health were implemented by 69 par. b) and paragraph 2 of Act No. 258/2000 Coll. Population protection

and prevention of the risk of developing and spreading Covid-19 due to the new coronavirus SARS CoV-2. (Ministry of Health, 2021; Bílek, 2022).

The consequences of Covid-19 were felt not only in the Czech Republic, but throughout the euro area. The question arises as to how deeply Covid-19 will also affect the world economy and world development. Several studies and research have been conducted in this regard, showing how deeply Covid-19 has hit the economy. In his article, Kollmann (2021) provides evidence that the impact of Covid-19 on aggregate demand and supply in EU countries is lasting. Across Europe, GDP will fall rapidly in 2020. Martinho (2021) assesses the impact of Covid-19 on gross domestic product per capita in OECD countries on panel data from the last quarter of 2017 to the 3rd quarter of 2020. Martinho (2021) assesses the effects of coronavirus disease 2019 (Covid-19) on the gross domestic product (GDP) per capita in OECD countries in panel data, as well as data from the OECD database for the last quarter of 2017 to Q3 2020. This statistical information was analyzed using spatial autocorrelation approaches. Vrána et al. (2021) examined the importance of Covid-19 on traffic density during the pandemic, focusing on long-distance transregional bus and railway transport between Prague and Northern Moravia and Silesia. They used the comparative analysis of transport density in NUTS3 in the Czech Republic under traffic limitations.

The Covid-19 has caused not only the productivity of the economy to decrease but also the density of traffic to decrease. The European Union's transport strategy seeks to ensure the long-term sustainability of transport. It is developed in the transport policies of the member countries with an emphasis on eliminating negative externalities. The main objectives of these Member States' policies focus on urban, interurban and long-distance transport. In the field of transport, the European Union faces challenges that target the internal market, infrastructure, innovation, and international aspects. (Víturka, Pařil and Rederer, 2020).

The investigation of traffic accidents in the Czech Republic is carried out within the National Center for In-Depth Accident Analysis (CzIDAS). One of its goals is to cooperate with entities that could use the results of research. Previous studies in the development of accidents have taken only two directions. Accident research has focused on analysing the causes of accidents. There are many causes of traffic accidents, the most common of which are speeding, animal collisions, accidents caused by the consumption of narcotics and psychotropic substances, accidents under the influence of alcohol, accidents with reduced visibility, and other causes. Due to the significant number of accidents caused by alcohol, many authors (Skog, 2003; Saar, 2015; Li et al., 2007, Kruger and Vollrath, 2004; Reynold et al., 2002) focused on the analysis of traffic accidents caused by alcohol consumption. The group of authors studied traffic accidents caused by bad weather and difficult climatic conditions (Edwards, 1999; Amin, Zareie and Amador-Jimenez, 2014; Fulz and Ashley, 2016; Becker, Rust, and Ulbrich, 2020; Medina, Cervone, and Moters, 2017). In addition to these two directions, the so-called traffic nodes, ie, intersections and traffic jams in these nodes were also analysed to optimize, for example, traffic light signalling in these nodes within 24 hours. Recent research is focused on in-depth accident analysis, road infrastructure assessment, improving safety at railway crossings, crash prediction models, and human factor analysis. (OECD International Transport Forum, 2019)

The authors of this article believe that the implications of Covid-19 in the Czech Republic need to be thoroughly explored. The authors assume that due to Covid-19, there has been not only a decrease in demand and supply in the Czech Republic, but also a decrease in traffic transport and so in traffic accidents. This article aims to find out whether the number of traffic accidents is affected by Covid-19. The next paragraph will analyse important factors which influence traffic development and traffic accidents.

2. Traffic Accidents in the Czech Republic and the Influencing Factors

The Czech Republic recorded a 6.2% decrease in traffic accidents in 2019 compared to 2018. In 2019, the mortality rate was 5.8 deaths per 100,000 inhabitants. The 2011-20 National Strategic Road Safety Plan aimed to reduce road deaths by 60% by 2020. (OECD International Transport Forum, 2019) Despite initial satisfactory progress, however, interim targets between 2014 and 2019 were not reached. A new strategy is now being developed for the period 2021-30, where the main goal will again be to reduce fatalities and serious injuries by 50% between 2020 and 2030.

In 2019, the Police of the Czech Republic investigated 107,572 traffic accidents. In these accidents, 547 people were killed, 2,110 people were seriously injured, and 23,935 people were slightly injured. The total material damage estimated by the police at the scene of the accident reached CZK 6,838.6 million. (Police of the Czech Republic, 2019)

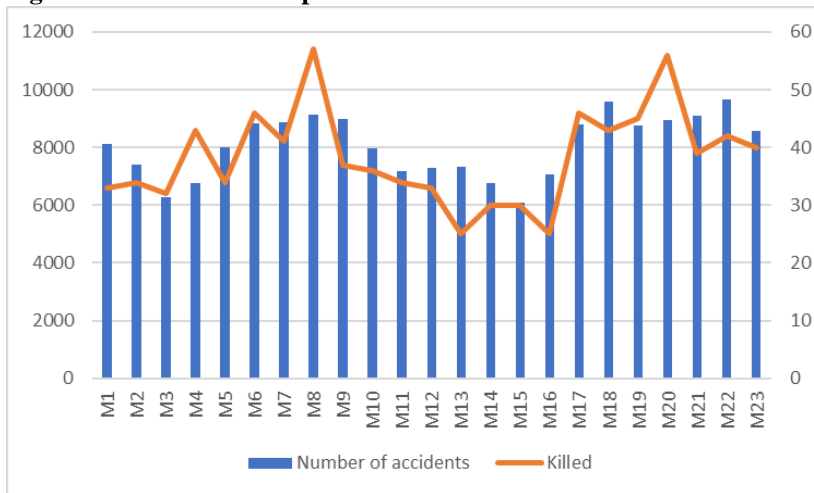
In 2020, 94,794 traffic accidents were investigated, in which 460 people were killed, 1,807 people were seriously injured, and 20,880 people were slightly injured. The total material damage estimated by the police at the scene of the accident reached CZK 6,016.1 million. In all of the above categories, a decrease was recorded compared to 2019. In the category of the number of accidents, there was a decrease of 11.9%, in the category of the number of killed persons it was 15.9%, in the number of seriously injured persons it was 14.4%, in the category of slightly injured persons it was 12.8%, and in the category of injured persons it was 12%. (Police of the Czech Republic, 2020)

From the above analysis, it is clear that Covid-19 is hampering global developments. It is a serious disease that hampers not only demographics, but also social, economic, political, and transport.

2.1 Data Analysis

In the period 2020 and 2021, when Covid-19 was recorded, the development of the number of accidents in the Czech Republic in the individual months of 2020 and 2021 developed slightly, as shown in Figure 1. However, from February 2021 to October 2021 there is a sharp increase in accidents, as shown in Figure 1. This sharp increase may be due to the fact that, after the abolition of lockdown and work from home, production began to increase again in full. The employers were allowed to continue their business activities. As of December 18, 2020, the emergency measure of the Ministry of Health No. MZDR 47828 / 2020-10 / MIN / KAN (the 'Emergency Measure of the Ministry of Health') is effective, regulating the widespread implementation of POC antigen tests in all persons participating in public health insurance in the Czech Republic. This has led to employers carrying out antigen tests on their employees in companies, and employees could go back to work. Traffic density has increased and, as a result, the number of accidents has increased. In October 2021, their number reached more than 70 000.

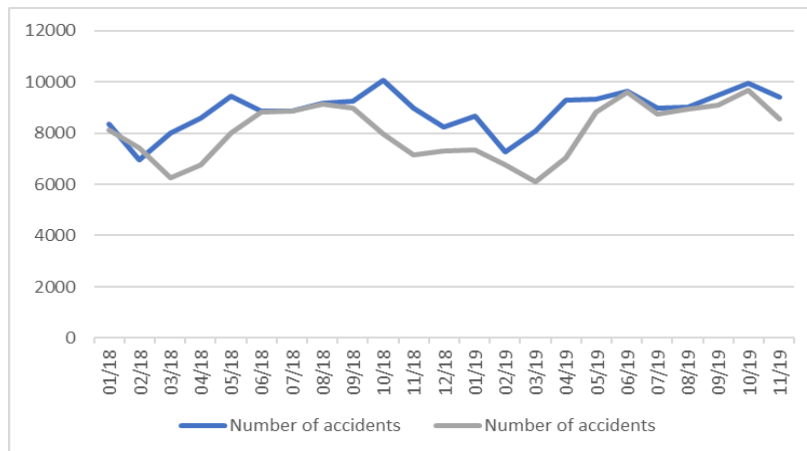
Figure 1: Accident Development in the Period 01/2020-11/2021



Source: Own processing (2022)

When we compare the development of the number of accidents in the period before Covid-19, then the highest accident rate was reached in October 2018, while in the Covid-19 period, the highest accident rate was in June 2021. 2018 and at the time of the Covid-19 it was in August 2021. (see Figure 2)

Figure 2: Number of Accidents in the Period before Covid-19 and during the Covid –19



Source: Own processing (2022)

2.2 Researched Sample and its Statistics

This paper aims to find out whether the number of traffic accidents is affected by Covid-19. The authors of the article chose their monthly development to monitor the number of traffic accidents. A sample of data was selected from January 2018 to November 2019 to compare the development of the accident with the period before Covid-19. and the number of patients with this diagnosis was statistically recorded for the first time. During this period, the symptoms of the disease were identified, and a vaccine against the disease began to develop. Next, in the third monitoring period, a sample of data was selected from January 2020 to

November 2021. During this period, the defence mechanisms against the disease started to work and people began to be vaccinated. The monitored sample is therefore evaluated on monthly data in the Czech Republic divided into three periods, i.e. from January 2018 to November 2019, then from January 2019 to November 2020, and from January 2020 to November 2021.

Table 1: Statistical Indicators before and during Covid-19

		Total	Average	Median	Min	Max	St. Dev.
01/2018-11/2019	Y_t	203,857	8,863.348	8,994	6,953	10,066	776.947
	$X_{1,t}$	1,076	46.783	51	21	64	12.688
	$X_{2,t}$	4,469	194.304	186	119	290	53.751
	$X_{3,t}$	47,309	2,056.913	2,139	1,248	2,623	431.541
	$X_{4,t}$	12,861,640,100	559,201,743.5	576,888,800	427,218,400	6.35E+08	56,853,411.72
01/2019-11/2020	Y_t	195,079	8,481.696	8,829	6,269	9,950	983.847
	$X_{1,t}$	974	42.348	41	25	62	10.709
	$X_{2,t}$	3,829	166.478	176	80	277	48.439
	$X_{3,t}$	43,496	1,891.131	1,841	1,064	2,507	462.569
	$X_{4,t}$	12,364,064,600	537,568,026.1	559,695,900	399,110,900	6.35E+08	71,908,513.44
01/2020-11/2021	Y_t	185,474	8,064.087	8,121	6,103	9,675	1,071.441
	$X_{1,t}$	881	38.304	37	25	57	8.379
	$X_{2,t}$	3,315	144.131	141	72	218	51.451
	$X_{3,t}$	39,843	1,732.304	1,566	974	2,485	525.748
	$X_{4,t}$	12,100,399,300	526,104,317.4	509,024,900	399,110,900	6.74E+08	80,625,702.72

Source: Own processing (2022)

The relationship between variables will be examined using a correlation matrix and the confirmation of the correct assumptions will become part of the regression model, which should confirm the declining development of the number of accidents. Using the proposed regression model, the authors predict the future development of accidents in the first six months of 2022.

The basic statistical characteristics of the data sample examined before the outbreak of Covid-19 and during Covid-19 are shown in Table 1. Specifically, the period from January 2018 to November 2019 was examined more than the period when Covid-19 broke out, and the period when vaccination began. That is, specifically from January 2020 to November 2021, designated T2.

The total number of accidents before Covid-19 was 20,3857, at the time of the Covid-19 outbreak it was slightly less (195,079) and in the period of the so-called controlled Covid-19, it was even less, i.e., 185,474. The number of people killed in the period before Covid-19 was 1,076, during Covid-19 it was a total of 974 and in the period under Covid-19 it was 881 people killed. The number of seriously injured in the period before Covid-19 was 4,469, in the period of the Covid-19 outbreak 382,929, and in the period controlled by Covid-19 it was 3315 people. The number of lightly injured was 47,309 before Covid-19, at the time of the Covid outbreak it was 43,496 and in the period of Covid-19 was 39843 slightly injured. The total material damage in the period before Covid-19 amounted to CZK 12,861,640,100, at the time of Covid-19's outbreak it was CZK 12,364,064,600, and at the time of Covid-19's control it was CZK 12,100,399,300. These figures show a slight reduction in traffic accidents during Covid-19 and controlled Covid-19. The average number of accidents fell from 8,863.348 to 8,064.087. There was a slight decrease in their values in all monitored variables.

2.3 Regression Analysis

Regression analysis is a statistical modelling tool for the estimating the relationships between chosen dependent variable (denoted as Y_t) and estimated data of independent variables (denoted as $X_{i,t}$) where t denotes that it a time regression and i the number of independent variables (it denotes the multiple regression). Regression analysis offers a measure of the probable accuracy of the predictions. Also, by this method it may be control the one and more independent variables to change the value of the dependent variable.

Multiple regression analysis is based on the principle of a classical linear equation, which has the form (Kuhn and Johnson, 2013):

$$Y_t = \beta_0 + \beta_1 X_{1,t} \dots \beta_k X_{k,t} + \mu_t \quad (1)$$

where

Y_t dependent variable (predicate),

$X_{i,t}$ independent variables (predictors),

β_i regression coefficients of independent variables (β_0 is a constant),

μ_t expresses the error of the equation, model, noise, measurement error, or the sum of the factors not included.

The dependent and independent variables may be transformed during the regression analysis (logarithm, differentiate, etc.). Regression coefficient estimates indicating the expected marginal impact of a unit change in each independent variable of her or another independent variable are at an average level.

The regression analysis has the following assumptions for equation (1). The assumptions that complete this multiple regression model are following:

1. The independent variables $X_{1,t}, X_{2,t}, \dots, X_{k,t}$ are non-stochastic,
2. The random errors are normally distributed, i.e. $\mu_t \sim N(0; \sigma^2)$, that is the normality of residues,
3. The mean of random errors μ_t is zero, i.e. $E(\mu_t) = 0$,

4. The variance of random errors μ_t is constant, i.e. $Var(\mu_t) = \sigma^2$, that is the homoscedasticity,
5. The random errors μ_t are uncorrelated, i.e. $Cov(\mu_i; \mu_j) = 0$ for $i \neq j$, that means that model is not autocorrelated,
6. Independent variables $X_{1,t}, X_{2,t}, \dots, X_{k,t}$ are collinear, i.e. there is no multicollinearity.

The authors of this paper follow the aim to predict the number of traffic accidents. The relationship will be examined by correlation matrix and after the confirmation of the right assumptions will be involved in the regression model, which shows the development of the accidents for the periods which have been claimed. Formulation of the stochastic regression model according to the above-mentioned topic:

$$Y_t = \beta_0 + \beta_1 X_{1,t} + \beta_2 X_{2,t} + \beta_3 X_{3,t} + \beta_4 X_{4,t} + \mu_t, \tag{2}$$

where

- Y_t number of accidents,
- $X_{1,t}$ number of killed,
- $X_{2,t}$ number of heavy injured,
- $X_{3,t}$ number of slightly injured,
- $X_{4,t}$ material damage.

β_i are the regression coefficients for each independent variable where we assume that all these regressions coefficients should be positive based on specified aim of the paper (not the constant). Model (2) will be analysed for all three time periods and the analysis is introduced in the following chapter.

3. Problem Solution

Three identical models for three different periods were tested and compared to show if the Covid-19 had such a big impact on accidents. Due to the need for stationarity, differentiated models are used.

Table 2 presents the correlation matrix for all three models and Table 3 presents the basic information from regression analysis. Based on these two tables the models are define more precisely and represent below (in each undersection).

Table 2: Correlation Matrix of all Models

		dY_t	$dX_{2,t}$	$dX_{4,t}$
Old Model	Y_t	1		
	$dX_{2,t}$	0.379*	1	
	$dX_{4,t}$	0.932***	0.286	1
Middle Model	dY_t	1		
	$dX_{2,t}$	0.532**	1	
	$dX_{4,t}$	0.926***	0.395*	1
New Model	dY_t	1		
	$dX_{2,t}$	0.574***	1	
	$dX_{4,t}$	0.908***	0.371*	1

*** - statistically significant at 1 % , ** - statistically significant at 5 % , * - statistically significant at 10 %

Source: Own processing (2022)

Table 3: Regression Analysis of all Models

	Old Model	Middle Model	New Model
Adj. R²	0.870	0.879	0.879
Durbin-Watson value	2.219	2.128	2.634
Constant	13.881	-6.492	-32.945
d_Heavy_injured	2.151	3.401*	5.622*
D_Material_damage_CZK	0.0000121**	0.0000109**	0.0000106**

*** - statistically significant at 1 % , ** - statistically significant at 5 % , * - statistically significant at 10 %

Source: Own processing (2022)

3.1 Analysis of Period 01/2018-11/2019 – Old Model

The old model is the model before Covid-19 where the life was normal. The final general version of the old model is defined by equation (3) and it is seen below:

$$Y_t = \beta_0 + \beta_2 X_{2,t} + \beta_4 X_{4,t} + \mu_t. \quad (3)$$

According to the results of Table 2 and 3, the old model may be rewritten with the values as the equation (4) and as:

$$Y_t = 13.88 + 2.151 X_{2,t} + 0.0000121 X_{4,t} + \mu_t. \quad (4)$$

Based on the coefficient of the determinant is this old model very good (0.870). This model does not have a problem with autocorrelation and even the regression coefficients are positive as they should be. The problem here is that the variable – Number of heavy injured is statistically significant at 15 % and also from correlation matrix it is seen that relationship between this variable and dependent variable is not very strong.

3.2 Analysis of Period 01/2019-11/2020 – Middle Model

The middle model may be defined generally as the equation (3) and the old model. During the analysis the same variables had been eliminated. The model model is the model in the first wave of Covid-19. According to the results of Table 2 and 3, the middle model may be rewritten with the values as the equation (5) and as:

$$Y_t = -6.492 + 3.401 X_{2,t} + 0.0000109 X_{4,t} + \mu_t. \quad (5)$$

Based on the coefficient of the determinant is this old model very good (0.879). This model does not have a problem with autocorrelation and even the regression coefficients are positive as they should be. All variables are statistically significant at 5 % level and the relationships between dependent and independent variables are stronger and statistically significant.

3.3 Analysis of Period 01/2020-11/2021 – New Model

The last model, the model for the second wave of Covid-19 is called the new model and again may be generally define by equation (3). The same variables had been eliminated during the econometric analysis. The precise model is defined as equation (6) with the information from Table 2 and 2 and it is seen below:

$$Y_t = -32.945 + 5.622 X_{2,t} + 0.0000106 X_{4,t} + \mu_t. \quad (6)$$

Based on the coefficient of the determinant is this old model very good (0.879). This model does have a small problem with autocorrelation. The regression coefficients are positive as

they should be. All variables are statistically significant at 5 % level and the relationships between dependent and independent variables are stronger and statistically significant.

4. Discussion

The case studies of Vrána et al. (2021) showed the changes in long-distance domestic transport that have occurred on selected routes. The survey by Vrána et al. (2021) covers the Covid-19 period of only four months. His study looked at the impact of traffic as a result of the measures that came into force in 02-04/2020, when the number of infected Covid-19s in the Czech Republic reached enormous proportions, and the period 04-05/2020, when the measures gradually took in action. The results of the case study Vrána et al. (2021) in long-distance transport in the Czech Republic, as well as our results, confirmed its significant reduction. The effects of Covid-19 were evident in both public and private carriers. When comparing the results of Vrána et al. (2021) on the volume of the transport with our results, we can confirm the reduction of the transport volume, reduction of the volume of accidents, and also the number of fatalities.

Bartuska and Masek (2021), who in their article dealt with the consequences of transport after the declaration of a state of emergency in the region of South Moravia in the Czech Republic in the summer of 2020, confirmed the decrease in the number of vehicles, trucks, and cars. This decline was also confirmed. It was also confirmed that there was a slight increase in traffic after the emergency. Both surveys were based on short-term monitoring of the consequences of Covid-19. The time period when the volume of traffic was monitored was carried out in selected months. This research also follows the consequences of Covid-19 after months, divided into three periods, but in terms of the number of people killed, severely and lightly injured.

5. Conclusion

To determine the dependence between the variables, a deterministic regression model was used, which evaluated the significance of the variables representing Covid-19 disease on the number of accidents, the number of people killed, the number of seriously and slightly injured and material damage. The modelling took place in three time periods.

The results of the analysis showed that the models for all three time periods are the same (the same variables were always selected as important and statistically significant). It follows from the above that the chosen type of model could be suitable as a basis for future work and prediction. Furthermore, the results show that while statistics generally show that the accident rate in the first wave of Covid-19 was smaller, the number of people killed remains the same. Covid-19 did not affect this trend.

In the future, the authors would like to continue with making analysis in this field. They would like to verify the model for the rest of the countries of the European Union. Further verification would be done for other time periods as well - to see if Covid-19 effected traffic for the future (for example: more people want to travel as they did not have chance for two years; the conflict in East Europe and so on).

Acknowledgments

This paper was supported within Students Grants Project Computational Intelligence in the Prediction of Economic Quantities, Data Mining, and Economic Process Modeling. Project registration number SP2022/74.

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sídlících v České republice na přítomnost onemocnění covid-19 prostřednictvím POC antigeních testů hrazených z veřejného zdravotního pojištění – Aktuální informace o COVID-19 (mzcr.cz)

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Clusters of European Countries as Similar as Possible in Terms of Selected Indicators

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Abstract

This paper deals with the evaluation of the material aspect of the living standards of the population of European countries and the degree of development of these countries during the coronavirus crisis. The assessment of the material side of living standards and degree of development is carried out on the basis on selected indicators for individual countries. European countries are primarily divided into six groups based on their historical, cultural, and economic development as well as their geographical location. The main aim of this paper is to cluster European countries that are as similar as possible in terms of selected indicators again into six clusters and to assess the extent to which these clusters are similar of primary groups of European countries. Using cluster analysis, the furthest neighbour method and Ward's method were used. Euclidean, square Euclidean and city-block distance metrics were further used. Partial agreement of the obtained clusters of European countries with the primarily specified groups of these countries was identified.

Keywords: cluster analysis, clusters of European countries, Euclidean distance metric, the furthest neighbour method, Ward's method

JEL Classification: C38, E24, E25, E31, F15

1. Introduction

In recent years, the problem of income inequality has increasingly come to the fore not only on the scientific, but also on the socio-political agenda. Nevertheless, in modern economic research we often find inaccurate and contradictory approaches to income inequality. For many years, the interests of social statistics include such categories as standard of living, quality of life and welfare being, too. Many domestic and foreign experts deal with this topic. From a historical point of view, the study (Baten, Ma, Morgan, and Wang, 2010) examines the long-term trend of living standards and human capital for China during the eighteenth to twentieth centuries. Findings of the authors confirm the existence of a substantial gap in living standards between China and North-western Europe in the eighteenth and nineteenth centuries. They also reveal a sustained decline in living standards and human capital at least in South China from the mid-nineteenth century. The authors (Gelman, and Santilli, 2018) deal with the issue of consumer baskets between the 18th and 20th centuries in Buenos Aires. In this article, two consumption baskets are constructed: one corresponding to the minimum subsistence of

a worker's family and another based on primary sources from the archives of Buenos Aires. Then the authors compare these baskets with the wages of urban and rural workers to get closer to the real income of the population of Buenos Aires during this period, or the so called, welfare ratio according to Robert Allen's proposals.

An income inequality issue is also an important topic in this regard. The main purpose of the article (Butaeva, 2017) is to suggest a comprehensive theoretical approach to defining income inequality as an object of economic research. The main result of the article is the developed integrated approach to the systematization of basic concepts, terms, definitions of income inequality and other related categories, the definition of the place and role of income inequality in the system of economic categories. The paper (Binswanger, and Schunk, 2012) deals with the topic of retirement savings in old age. This article addresses question what amounts households should save to maintain an adequate standard of living during retirement. The authors address this question with a randomized survey design, individually tailored to each respondent's financial situation, and conducted both in the U.S. and the Netherlands. They find that adequate levels of retirement spending exceed 80 % of working life spending for majority of respondents.

Paper (Easterlin, 2000) points out that by many measures a revolution in living conditions is sweeping the world. The author emphasizes that most people today are better fed, clothed, and housed than their predecessors two centuries ago. They are healthier, live longer, and are better educated, women's lives are less centred on reproduction, and political democracy has gained a foothold. The author points out the fact that current international differences in a line of living standards indicators are significantly correlated. Authors (Montgomery, Gragnolati, Burke, and Paredes, 2000) emphasize that very few demographic surveys in developing countries have gathered information on household incomes or consumption expenditures. The authors ask what hypotheses can be tested using proxies, and compare these indicators with consumption expenditures per adult, their preferred measure of living standards. It was found that the proxies employed in much demographic research are very weak predictors of consumption per adult. Study (Mazumdar, 2002) attempts to measure the standard of living in terms of the human development index which reflect the human well-being better than income or productivity and examines whether standards of living converge across economies over a fairly long period of time, such as 35 years (1960–1995). The study uses the convergence test introduced by Baumol, where these tests indicate that in almost for all the cases divergence has been observed. A pair of authors (Sahn, and Stifel, 2003) examines the relative importance of rural versus urban areas in terms of monetary poverty and seven other related living standards indicators. The authors present the levels of urban–rural differences for several African countries for which they have data and find that living standards in rural areas lag far behind those in urban areas. Then they examine the relative and absolute rates of change for urban and rural areas, and they find no overall evidence of declining differences in the gaps between urban and rural living standards. Paper (Dolan, 2009) uses the theories of Norbert Elias to explain the unplanned but structured (ordered) changes in expected standards of living over time. This approach is compared to other alternative explanations, particularly those advanced by Bourdieu, Veblen and Baudrillard. Using qualitative data from parliamentary debates in Ireland to trace changing norms and ideals of consumption, as well as historical data to reconstruct shifts in social interdependencies, the author further contends that discourses of living standards and luxury are vital aspects of the growing identification and empathy between classes, which in turn encourages greater global integration in the face of emigration and national decline. Research (Dabrowa, 2011) points out that since the 1950s, research on the standard of living has focused on the construction of a synthetic, objective indicator that would allow not only the description of the phenomenon, but it would allow the comparison

of the degree of satisfying of material and cultural needs on an international scale. The paper presents two research procedures, namely the Geneva method (distance method) and the method of building the Human Development Index. Study (Mărcuță, Mărcuță, and Angelescu, 2013) assesses the impact of the global economic crisis on the living standards of the Romanian population. The authors emphasize that the impact of this crisis may be measured by different indicators assessing the standard of living of population, such as active population, employed population, employment rate, unemployment rate, population income, consumption expenditure of population etc. Authors (Diamond, and Moretti, 2021) provide estimates of the standard of living by commuting zone for households in given income or education group, and we study how they relate to local cost of living. The research uncovers vast geographical differences in material standard of living for a given income level. The authors find that low-income residents in the most affordable commuting zone enjoy a level of consumption that is 74 % higher than that of low-income residents in the most expensive commuting zone.

In terms of current issues at the European Union level, paper (Capello, and Caragliu, 2021) deals with the important question such as which European areas will be able to better react to the crisis induced by COVID-19 and how regional disparities will look like. The authors present a long-term simulation of the economic rebound expected to take place from 2021 through 2030 is presented, assuming, among other trends, that no further national lockdowns will be undertaken in European countries. Based on their research, the authors assume that regional disparity trends will decrease as a result of a decisive rebound of those countries mostly hit by the pandemic. Framework paper (Schimmelfenning, 2021) conceptualizes and theorizes integration as a process of internal debordering and external rebordering. It sketches the history of European integration in a bordering perspective and proposes general assumptions about the EU's bordering process. Study (Maher, 2021) deals with the questions: What are the prospects and likely future direction of European integration? Will it be marked by resilience and perhaps even deepening integration among European Union (EU) member states, or will it encounter further instability that could lead to fragmentation and disintegration? This paper identifies and evaluates a broad range of causal forces that will affect the future of European integration.

The main aim of this paper is to identify clusters of European countries that are as similar as possible in terms of selected indicators of the material side of living standards of the population in the country and its degree of development. These indicators are described in detail in section "2.1 Database". An equally important objective of this paper is to evaluate the extent to which these clusters of European countries coincide with pre-specified groups of European countries according to their historical, cultural, and economic development and their geographical location, see again section "2.1 Database".

The basic research hypothesis supposes: Clusters of European countries formed according to selected indicators characterizing the material side of living standards of the population and the degree of development in a country basically overlap with groups of European countries specified on the basis of historical, cultural and economic development in individual countries and their geographical location.

Cluster analysis is used to achieve the set objectives and to prove the basic research hypothesis, and within this analysis the furthest neighbour method and Ward's method were used. Euclidean, square Euclidean and city-block distance metrics were used.

2. Data and Methodology

Data from the official website of the Czech Statistical Office are used for this research. Cluster analysis is used to process this data.

2.1 Database

The variables examined are: volume indices (EU 27 2020 = 100) of real expenditure per capita (gross domestic product (GDP) per capita) after conversion to purchasing power parity (PPP) – GDP; median equivalised net income (€) – median; annual net earnings of a full-time of a single worker without children earning an average wage after conversion to purchasing power parity (€) – net earnings; PPP price level indices (EU 27 2020 = 1) – price level; severe material deprivation rate (%) – material deprivation; research and development expenditure (% of GDP) – research and development; population aged between 15 and 64 years with tertiary education (%) – tertiary education; immigration (number) – immigration; annual average rate of inflation (%) – inflation; employment rate of population aged between 15 and 64 years (%) – employment; balance of payments (million €) – balance.

Table 1. Blocks of European Countries Created According to Their Historical, Cultural, and Economic Development and According to Their Geographical Location

Block		
Continental	Scandinavian	Anglo-Saxon
1. Austria	1. Denmark	1. Ireland
2. Belgium	2. Finland	2. United Kingdom
3. France	3. Iceland	
4. Germany	4. Norway	
5. Luxembourg	5. Sweden	
6. Netherlands		
7. Switzerland		
Block		
South-European	Baltic	Central-European
1. Cyprus	1. Estonia	1. Bulgaria
2. Greece	2. Latvia	2. Croatia
3. Italy	3. Lithuania	3. Czechia
4. Malta		4. Hungary
5. Portugal		5. Poland
6. Spain		6. Romania
		7. Slovakia
		8. Slovenia

Source: Own research

There are eleven variables, which represent annual data relating to 2020. At first, the material side of the standards of living and degree of development in these countries has been assessed on the basis to these selected indicators. The data comes from the official Eurostat website (Eurostat, 2021) and includes European countries, where the necessary figures for all eleven variables are available. Countries for which the value of one or more of the eleven variables was missing were excluded from the research (Albania, Bosnia and Herzegovina, Liechtenstein, Montenegro, Serbia). Finally, the macroeconomic aggregate of the balance of payments was not used, because the value of this variable was missing in a significant number of European countries (16 countries). This reduces the number of variables examined to ten.

The data has been processed using the statistical program environment SAS and SPSS.

First, the countries were divided into six blocks of countries created on the basis to their historical, cultural, and economic development and, also according to their geographical location, see Table 1. The Continental block of countries consists of developed countries in Western Europe: Austria, Belgium, France, Germany, Luxembourg, Netherlands, and Switzerland. The Scandinavian block of countries consists of the Scandinavian countries: Denmark, Finland, Iceland (which is often included into Scandinavia), Norway and Sweden. The Anglo-Saxon block consists of two Anglo-Saxon countries: Ireland and United Kingdom. The South-European block consists of Southern European countries that were not a part of the former socialist block of Eastern Europe: Cyprus, Greece, Italy, Malta, Portugal, and Spain. The Baltic block includes three Baltic countries that were formerly a part of the former Soviet Union: Estonia, Latvia, and Lithuania. The Central-European block consists of the countries of Central Europe that were a part of the former socialist block of Eastern Europe and the countries of the former Yugoslavia, which also belonged to the socialist block: Bulgaria, Croatia, Czechia, Hungary, Poland, Romania, Slovakia, and Slovenia.

2.2 Cluster Analysis

The aim of cluster analysis is to find clusters of maximally similar objects. The issue is briefly explained using the following five equations. The formula for calculating the distance between objects represented with p -member vectors \mathbf{x}_i and \mathbf{x}_j , is according to Euclidean distance metric

$$d_E(\mathbf{x}_i; \mathbf{x}_j) = \sqrt{\sum_{j=1}^p (x_{ij} - x_{ij})^2}. \quad (1)$$

Square Euclidean distance metric represents other possible way of expressing the relationship between two objects

$$d_{ES}(\mathbf{x}_i; \mathbf{x}_j) = \sum_{j=1}^p (x_{ij} - x_{ij})^2. \quad (2)$$

For this purpose, we can also use Manhattan distance metric, so called city-block distance metric

$$d_M(\mathbf{x}_i; \mathbf{x}_j) = \sum_{j=1}^p |x_{ij} - x_{ij}|. \quad (3)$$

Agglomerative hierarchical clustering is based on a matrix of distances calculated for all pairs of objects. The individual algorithms differ in the measure used to calculate the cluster distances. In this connection, the calculation of the distance between the cluster C_g and the unification of the clusters C_h a C_h differs.

The furthest neighbour method

$$d_g(h; h) = \frac{1}{2} \cdot (d_{gh} + d_{gh}) + |d_{gh} - d_{gh}| \quad (4)$$

and Ward's method

$$d_g\langle h; h' \rangle = \frac{(n_h + n_g) \cdot d_{gh} + (n_{h'} + n_g) \cdot d_{gh'} - n_g \cdot d_{hh'}}{n_h + n_{h'} + n_g} \tag{5}$$

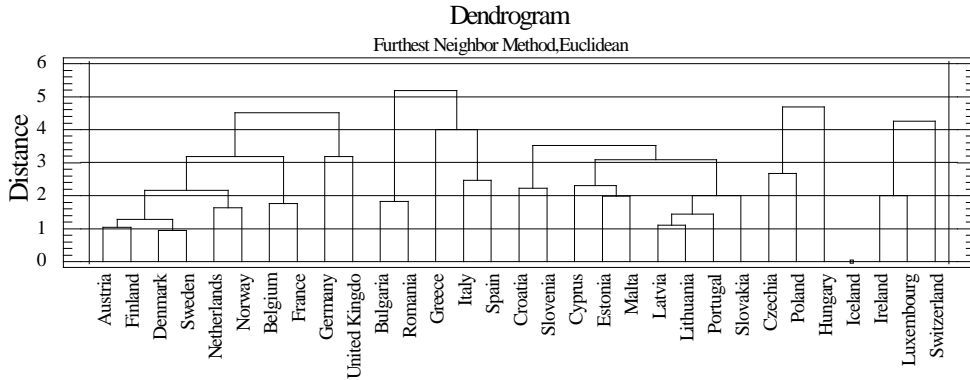
were used in this research, where n_h , $n_{h'}$ and n_g are the sizes of the respective clusters.

The clustering process is aptly illustrated by a special graph called a dendrogram. This is a tree diagram that shows the gradual clustering of both individual objects and clusters created in the previous steps.

3. Problem Solution

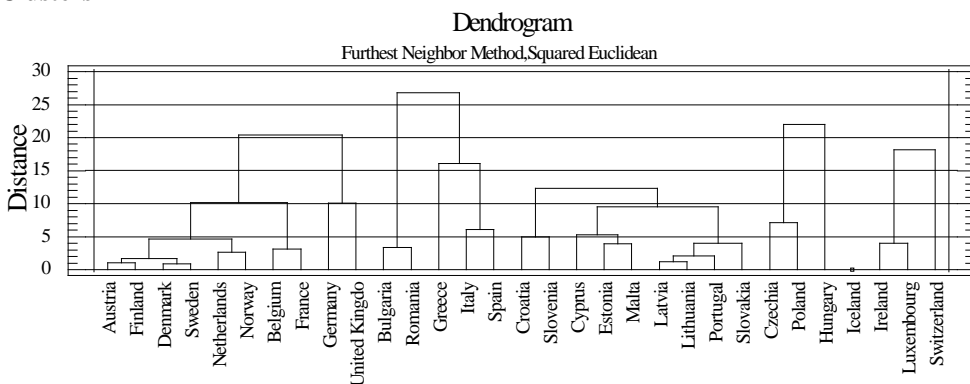
Figures 1–6 and Tables 2–3 present the results of cluster analysis using Euclidean, square Euclidean and city-block distance metrics and the furthest neighbour method and Ward's method. The countries that are the most similar in terms of selected indicators are always in the same cluster, no matter which of the two methods is chosen and any distance metric.

Figure 1: Dendrogram of Cluster Analysis Using the Furthest Neighbour Method, Euclidean Distance Metric and Division of European Countries into Six Clusters



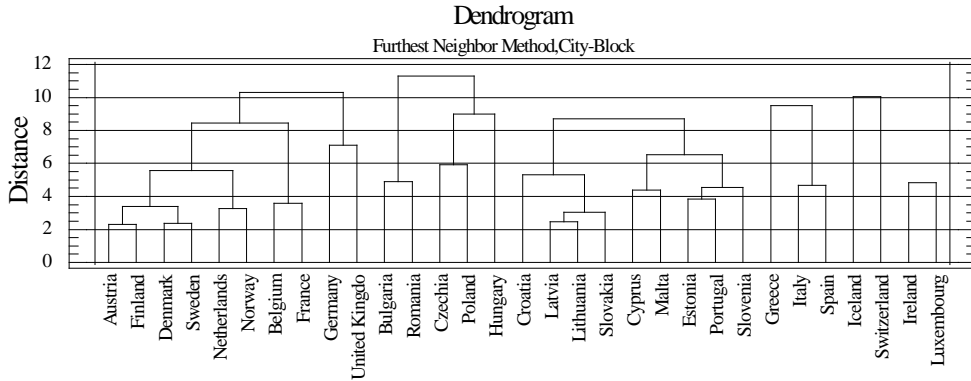
Source: Own calculations

Figure 2: Dendrogram of Cluster Analysis Using the Furthest Neighbour Method, Squared Euclidean Distance Metric and Division of European Countries into Six Clusters



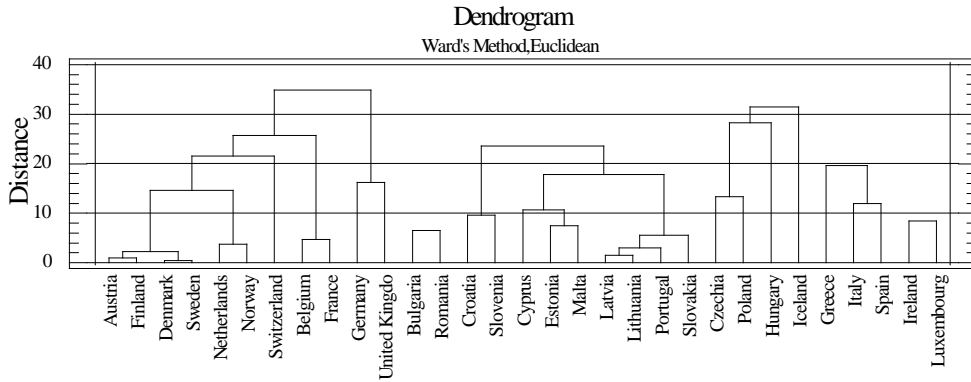
Source: Own calculations

Figure 3: Dendrogram of Cluster Analysis Using the Furthest Neighbour Method, City-Block Distance Metric and Division of European Countries into Six Clusters



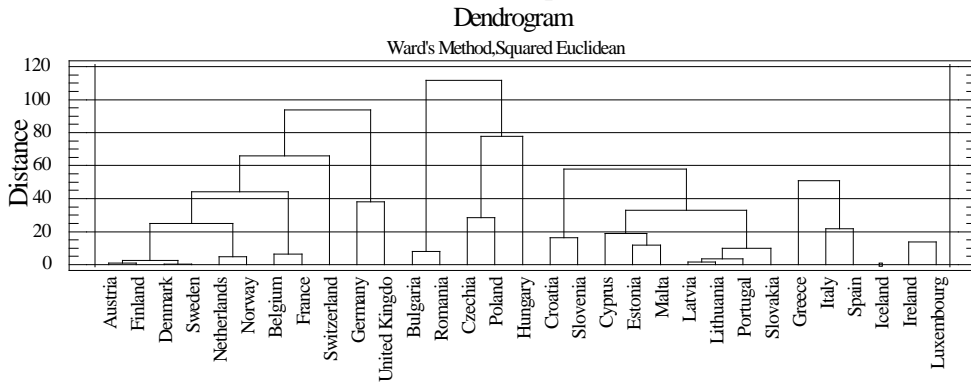
Source: Own calculations

Figure 4: Dendrogram of Cluster Analysis Using the Ward's Method, Euclidean Distance Metric and Division of European Countries into Six Clusters



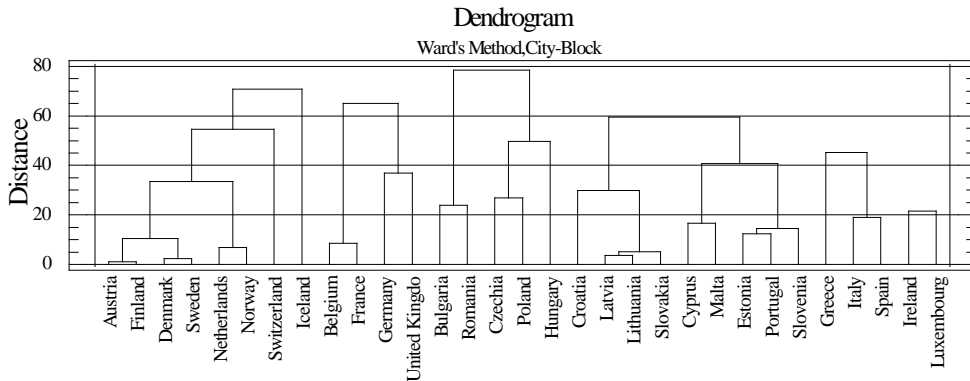
Source: Own calculations

Figure 5: Dendrogram of Cluster Analysis Using the Ward's Method, Squared Euclidean Distance Metric and Division of European Countries into Six Clusters



Source: Own calculations

Figure 6: Dendrogram of Cluster Analysis Using the Ward's Method, City-Block Distance Metric and Division of European Countries into Six Clusters



Source: Own calculations

In the study, we distinguish basically six computational possibilities, namely the use of the furthest neighbour method in combination with Euclidean, square Euclidean and city-block distance metrics and the use of Ward's method, again in combination with Euclidean, square Euclidean and city-block distance metrics.

Austria, Denmark, Finland, the Netherlands, Norway, and Sweden form the first group of countries, which are always in the same cluster. Belgium, France, Germany, and the United Kingdom form another such group of countries. The two Balkan countries, Bulgaria, and Romania, always belong to the same cluster of countries, too. Another such group of countries consists of three post-communist countries of Central Europe, namely Czechia, Hungary, and Poland. Another group of countries always belonging to the same cluster is relatively large and consists of the Mediterranean countries Cyprus, Malta, and Portugal, the three Baltic countries Estonia, Latvia, and Lithuania, two member states of the former Yugoslavia Croatia and Slovenia and further Slovakia. The three Southern European countries Greece, Italy and Spain also always belong to the same cluster. Ireland and Luxembourg always belong to the same cluster, too.

The year 2020 brought not only a health but also an economic crisis. The covid-19 pandemic has claimed millions of lives and plummeted economies. Sweden, whose approach to the covid-19 pandemic was very different from other member states, recorded the smallest economic loss (-2.9 %) in the European Union. The Swedish government advised the people not to associate and stay safe and isolated. In the meantime, however, it has not ordered any national quarantine, in part because the Swedish constitution does not allow it. Finland has the second smallest economic downturn (-3.3 %) in 2020, where the government has been pushing for strict measures and closing borders since early 2020. The economic downturn of over 10 % was exceeded in the European Union only by Spain (-11.0 %) and Italy (-10.6 %) in 2020. These two countries were hit hardest by the covid-19 pandemic. This is the biggest recession in Spain since the Spanish Civil War in the late 1930s. Italy is facing the largest slump in GDP since the end of World War II.

4. Conclusion

Using Ward's method, the Euclidean and square Euclidean distance metrics, all the countries of the Continental block belong to the same cluster except Luxembourg, which occupies an exceptional position among other European countries, for example in terms of wage levels.

Table 2: Results of Cluster Analysis Using the Furthest Neighbour Method and Division of European Countries into Six Clusters

Distance metric		
Euclidean	Squared Euclidean	City-block
Block 1	Block 1	Block 1
1. Austria 2. Belgium 3. Denmark 4. Finland 5. France 6. Germany 7. Netherlands 8. Norway 9. Sweden 10. United Kingdom	1. Austria 2. Belgium 3. Denmark 4. Finland 5. France 6. Germany 7. Netherlands 8. Norway 9. Sweden 10. United Kingdom	1. Austria 2. Belgium 3. Denmark 4. Finland 5. France 6. Germany 7. Netherlands 8. Norway 9. Sweden 10. United Kingdom
Block 2	Block 2	Block 2
1. Bulgaria 2. Greece 3. Italy 4. Romania 5. Spain	1. Bulgaria 2. Greece 3. Italy 4. Romania 5. Spain	1. Bulgaria 2. Czechia 3. Hungary 4. Poland 5. Romania
Block 3	Block 3	Block 3
1. Croatia 2. Cyprus 3. Estonia 4. Latvia 5. Lithuania 6. Malta 7. Portugal 8. Slovakia 9. Slovenia	1. Croatia 2. Cyprus 3. Estonia 4. Latvia 5. Lithuania 6. Malta 7. Portugal 8. Slovakia 9. Slovenia	1. Croatia 2. Cyprus 3. Estonia 4. Latvia 5. Lithuania 6. Malta 7. Portugal 8. Slovakia 9. Slovenia
Block 4	Block 4	Block 4
1. Czechia 2. Hungary 3. Poland	1. Czechia 2. Hungary 3. Poland	1. Greece 2. Italy 3. Spain
Block 5	Block 5	Block 5
1. Iceland	1. Iceland	1. Iceland 2. Switzerland
Block 6	Block 6	Block 6
1. Ireland 2. Luxembourg 3. Switzerland	1. Ireland 2. Luxembourg 3. Switzerland	1. Ireland 2. Luxembourg

Source: Own calculation

Table 3: Results of Cluster Analysis Using the Ward's Method and Division of European Countries into Six Clusters

Distance metric		
Euclidean	Squared Euclidean	City-block
Block 1	Block 1	Block 1
1. Austria 2. Belgium 3. Denmark 4. Finland 5. France 6. Germany 7. Netherlands 8. Norway 9. Sweden 10. Switzerland 11. United Kingdom	1. Austria 2. Belgium 3. Denmark 4. Finland 5. France 6. Germany 7. Netherlands 8. Norway 9. Sweden 10. Switzerland 11. United Kingdom	1. Austria 2. Denmark 3. Finland 4. Iceland 5. Netherlands 6. Norway 7. Sweden 8. Switzerland
Block 2	Block 2	Block 2
1. Bulgaria 2. Romania	1. Bulgaria 2. Czechia 3. Hungary 4. Poland 5. Romania	1. Belgium 2. France 3. Germany 4. United Kingdom
Block 3	Block 3	Block 3
1. Croatia 2. Cyprus 3. Estonia 4. Latvia 5. Lithuania 6. Malta 7. Portugal 8. Slovakia 9. Slovenia	1. Croatia 2. Cyprus 3. Estonia 4. Latvia 5. Lithuania 6. Malta 7. Portugal 8. Slovakia 9. Slovenia	1. Bulgaria 2. Czechia 3. Hungary 4. Poland 5. Romania
Block 4	Block 4	Block 4
1. Czechia 2. Hungary 3. Iceland 4. Poland	1. Greece 2. Italy 3. Spain	1. Croatia 2. Cyprus 3. Estonia 4. Latvia 5. Lithuania 6. Malta 7. Portugal 8. Slovakia 9. Slovenia
Block 5	Block 5	Block 5
1. Greece 2. Italy 3. Spain	1. Iceland	1. Greece 2. Italy 3. Spain
Block 6	Block 6	Block 6
1. Ireland 2. Luxembourg	1. Ireland 2. Luxembourg	1. Ireland 2. Luxembourg

Source: Own calculation

All the Scandinavian countries belong to the same cluster using the furthest neighbour method for all three types of distance metrics and using the Ward's method for Euclidean and square Euclidean distance metrics, with exception of Iceland, which is not sometimes included among the Scandinavian countries. The Anglo-Saxon countries do not fall into the same cluster in any of the six cases. The South-European countries are basically divided into two groups. The first of them consists of three countries Greece, Italy, and Spain, which belong to the same cluster in all six cases. The second group also consists of three countries Cyprus, Malta, and Portugal, which also belong to the same cluster in all six cases. The Baltic countries Estonia, Latvia and Lithuania fall into the same cluster in all six cases. From the Central-European countries, Czechia, Hungary, and Poland always belong to the same cluster in each of the six computing options. The other two member states of the former Yugoslavia, Croatia, and Slovenia, together with Slovakia, also belong to the same cluster using either of the two clustering methods and all three types of distance metrics considered. Bulgaria and Romania similarly fall into the same cluster in each case.

It can therefore be stated that the basic research hypothesis is basically proven.

This research includes data for 2020, when the economies of countries around the world were fully affected by the consequences of the COVID-19 pandemic. Future research in this area can be focused on data for the countries of the European Union after the crisis subsided, as well as on the OECD countries, which will enable the inclusion of the most advanced non-European countries in the research.

Acknowledgements

This paper was subsidized by the funds of institutional support of a long-term conceptual advancement of science and research number IP400040 at the Faculty of Informatics and Statistics, University of Economics and Business, Czech Republic.

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The Role of the Green Deal in Start-ups' Approach to Innovation

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Abstract

The European and world economy is increasingly focused on a new systemic transformation, which is leading to a significant increase in the popularity of green business in the European Union and around the world. The article focuses on the analysis of the main trends in the development of the Green Deal in the contemporary European economy through selected aspects of start-ups: the share of the Green Deal in innovation, international trade, changes in business models, and government registration requirements. After studying the related EU regulations, the author examines the specifics of the use of the Green Deal in the Czech Republic with a focus on start-ups. The research was conducted using paper and electronic bibliographic sources, annual business reports, case studies and personal observations.

Keywords: circularity, Czech Republic, energy consumption, Green Deal, start-up

JEL Classification: L52, O33, P18, P48

1. Introduction

The threat of climate change and the reduction in the quality of the environment for future generations is a global problem that poses an existential threat to the whole world. The challenge of a „European Green Deal“ is an effort by the European Union (EU) to make efficient use of available resources and transform it into a modern and competitive economy. It is a fundamental blueprint for the transformation of the European economy to stop the unprecedented threat of climate change and environmental devastation. In the coming decades, Europe will face an economic, social, and environmental transformation unprecedented in modern history. The plan is to transform the current economy into a competitive system that uses resources efficiently, but avoids pollution and environmental degradation ([European Commission, 2019). The challenge aims to achieve zero net greenhouse gas emissions by 2050, decoupling economic growth from resource use and the inclusion of all individuals and regions (European Commission, 2021a). In size, The Green Deal can be compared to the Marshall Plan for the reconstruction of Western Europe after the Second World War (Steil, 2018).

Europe's post-COVID-19 direction is also included in the European Green Deal. Under the EU's seven-year budget and the NextGenerationEU recovery programme, €0.6 trillion is expected to be allocated to realise this goal (European Commission, 2021a).

The absence of prolonged military conflicts across national boundaries and increasing levels of medical care has led to a doubling of the world's population in the past 70 years. While in 1955 there were 2.7 billion inhabitants on the globe, in January 2022 there were 7.9 billion. Europe, unlike the other continents, has seen only a modest increase in population and, with 747.6 million inhabitants, represents 9.6% of the total (Worldometer, 2022). Rapid population

growth is increasing the consumption of all nonrenewable resources, coal deposits are being depleted, and water, oil and timber consumption is increasing. Forests are disappearing, the share of arable land is declining. (Cropper and Griffiths, 1994).

Despite the fact that every inhabitant contributes to the consumption of resources and contributes to the pollution of the planet Earth for their well-being, industry and transport are considered to be the biggest air polluters. With the development of manufacturing, rising living standards, and travel, the issue of the impact of air pollution on the human body has begun to be addressed (Brunekreef and Holgate, 2002); (Srivastava et al., 2019). The environmental industry today is facing societal changes that are forcing companies to pay more attention to developing services, processes, and products that meet stringent regulatory requirements, resulting in greener production, a cleaner environment, and a more sustainable world. At the same time, companies face increasingly competitive markets where innovation is seen as a requirement for survival (Galanakis, 2019). Consequently, there is an urgent need to consider new smart solutions to ensure the intensive sustainability of agricultural and food production processes that respond to the challenges of pandemics and climate change.

“The contribution of The European Green Deal (European Commission, 2021a) is to improve the lives and health of citizens, especially future generations, by ensuring: clean air, safe water, healthy soil and biodiversity

- *Renovating buildings for energy efficiency*
- *Healthy and affordable food*
- *Expanding public transport*
- *Greener energy and innovation through cutting-edge clean technologies;*
- *Longer product lifetimes, as products can be repaired, recycled, and reused*
- *Jobs that are resilient to future labour market changes and training in areas that will be needed for the future transformation of society;*
- *a globally competitive, resilient industry”.*

Environmental footprinting, EU taxonomy, and non-financial reporting play an important role in sustainability reporting. A key process is aligning the interests of the company, stakeholders, and identifying content material for annual reporting on the approach to sustainability by business (Moratis and Brandt, 2017). Flexibility in the relationship between the firm and its stakeholders has been attempted to be constructed by Friedman and Miles (2002). Sustainability was originally interpreted in the context of the reasoning that uncontrolled growth is not sustainable in the long term, due to resource constraints (Peters et al, 2016).

Intensive negotiations are currently underway within the European Commission and Parliament to create a legally binding EU taxonomy in the context of The European Green Deal. Until now, EU member states are bound by the current Directive 2014/95/EU of the European Parliament and of the Council of the European Commission (EUR Lex, 2014), which amended Directive 2013/34/EU (European Commission, 2021b) as regards the disclosure of non-financial and diversity-related information by certain large companies and groups. There is no statutory reporting obligation for new, technology-focused companies. In addition, based on the shortcomings of nonfinancial reporting under the current legal framework (e.g. lack of completeness, reliability, comparability, and digital readiness of reported non-financial information), the European Commission has proposed a Directive on corporate sustainability reporting, which aims to amend the existing Non-Financial Reporting Directive (NFRD). The proposal extends the scope of nonfinancial reporting to all large companies and to all

companies listed on regulated markets (with the exception of microlisted companies), requires audit (assurance) of the information reported, introduces more detailed reporting requirements, and further develops the requirement to report according to mandatory EU sustainability reporting standards (European Commission, 2021a).

The paper focuses on the analysis of the main trends in the development of The Green Deal in the current European economy through selected aspects of Start-ups: the contribution of The Green Deal to innovation, international trade, changes in business models and government registration requirements. Start-ups are briefly characterised, and in the next section the number of business entities considered as Start-ups according to different sources is published. The approach of Czech start-ups is interpreted through the results of the research conducted. The rest of the paper is organized as follows. In Section 2, I describe the methodological approach. Section 3 is divided into several chapters that provide an overview of recent findings in the field of start-ups and the approach to reporting nonfinancial indicators with links to sustainable development. Section four provides a summary and concludes the paper.

2. Methodology

Methodologically, the paper is based on a combination of traditional descriptive analysis of the current state of legislative directives, laws, and references in the literature with a deductive approach. This includes in particular the synergy of partial findings, a search of scientific literature, annual reports, the author's observations and the implementation of a questionnaire survey among Start-ups in the Czech Republic. The sample of 30 start-ups was approached on the basis of an application to an accelerator programme for start-ups organised in autumn 2021 by a large financial group in the Czech Republic.

3. Problem Solution

Start-ups first appeared in the dictionary in 1976 in the US edition of Forbes magazine. With the advent of the Internet in 1996-2001, the term for a young technology enterprise spread from Silicon Valley to the rest of the world. The definition of start-ups, their status in the European Union, and whether the COVID-19 pandemic is a threat or an opportunity are discussed in the following chapters.

3.1 Definition of Start-up

An interesting element that intervenes in the entrepreneurial environment is start-ups, which are defined as young companies founded with the aim of developing a unique product or service, bringing it to market and making it irresistible and irreplaceable for customers (Baldrige, 2021).

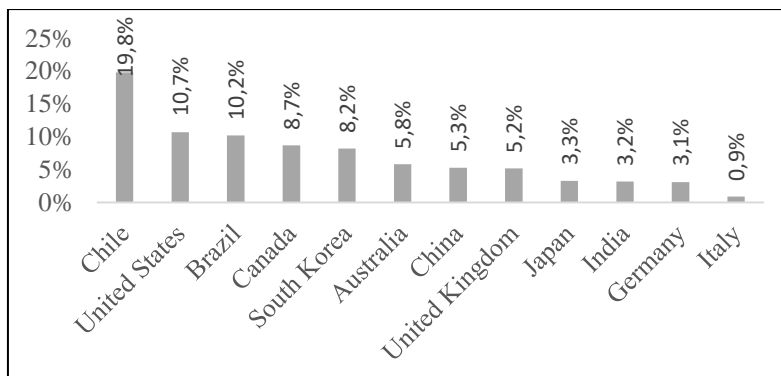
In a historical context, thinking about the start-up in terms of the conditions of its emergence, rather than in terms of what it is, directs us to an analysis of power in terms of how language and economic practices are interconnected and mutually constituted. The start-up and perhaps other methods of categorizing and ordering economic phenomena might then be better conceived as performative, as a particular mode of speaking and acting, of knowledge and ignorance that is produced and reproduced alongside digital media and other kinds of economic activity. Elsewhere, I have explained some theoretical implications of the thesis that part of what start-ups produce is not just digital media and other kinds of technology, but also attachment to particular kinds of working conditions and particular kinds of knowledge and ignorance (Cockayne, 2016). (Cockayne, 2019) was concerned with the methodology and politics of creating particular ways of thinking about economics and their role and

responsibility as investigators in doing so. The consequence of his research is a careful (re)thinking of the categories that are typically used to argue about the economy and to examine their underlying assumptions, a task to which feminist economic geography has already committed itself (e.g., Ettlinger, 2010; McDowell and Dyson, 2011). In academia, the definition of a start-up is more sophisticated. The basic activity of a start-up is the transformation of ideas into products. After the phase of measuring customer reaction to the product, the learning phase, comes the decision whether to navigate or persevere (Ries, 2013). Through trial and error, hiring and firing, successful start-ups have invented a parallel process to product development (Campbell, 2021). In a company, the learning process is run concurrently with the development of the product. Although the learning process deals with customer-facing activities that take place mainly outside the enterprise, product development focuses on product-facing activities that take place internally (Wang et al., 2016). Although many start-ups fail in the early stages (nine out of 10 start-ups) (Krishna et al., 2016), the entrepreneurial society facilitates this entrepreneurially driven economic growth through the institutional context that leads to entrepreneurial activity (Audretsch, 2014).

3.2 Start-ups in European Union

EU cooperation and the achievement of the EU's financial, social, cultural and political objectives has always been based on EU principles (Turečková and Nevima, 2016). The transformation and openness of V4 economies to EU cooperation is the subject of several studies, see (Majerová and Nevima, 2016); European start-ups raised \$41 billion in capital in 2020. Despite the COVID-19 pandemic, investments in start-ups grew to a record \$156 billion in 2021. The European technology-driven start-up ecosystem benefited from the increased adoption of online services during the pandemic. Investor interest is growing given that the COVID-19 pandemic has shown the possibility of a mass change of life in the online world. It was a year that set the direction of European technology. And there has been a significant increase in the value of start-ups. According to Wehmeier (Browne, 2021), it took a decade for the value of shares in Europe to reach the first trillion. And that was in December 2018. It took just 24 months to reach the second trillion and in 2021 the third trillion was reached in just 8 months.

Figure 1: Start-up Rate Worldwide in 2020



Source: ("GEM Global Entrepreneurship Monitor," 2021)

The start-up environment has become the focus of statisticians. However, the position of the European start-up ecosystem on a global scale is very low. According to (GEM Global Entrepreneurship Monitor, 2021), non-European countries are the most active in start-up rates. China took the lead and only Germany (3.1%) and Italy made it into the top ten countries, if we exclude the UK (5.2%), which left the EU after Brexit, see Fig. 1.

Venture capital (VC) has become the leading funding mechanism for entrepreneurs, but to stay competitive, VCs have to keep innovating. As the opportunity set matures, global investors are doubling down: from seed rounds to public markets, there are now more international investors and buyers active in Europe. Although investors across the board have more conviction in European tech, pension funds still lag behind on their allocation to tech (stateofeuropantech.com, 2021).

The term European Start-up was the 19th most searched topic in 2021 and the corresponding search terms included European start-up, startup, scaleup, scale-up, European scaleup, European scale-up. Green Deal was ranked 21 and the most common related search terms were climate technology, biotechnology, green tech, renewable energy, carbon capture and sequestration (stateofeuropantech.com, 2021).

But what is the number of Start-ups in Europe? There is still no reliable record of the number of Start-ups. GlassDollar, which collects data on Start-ups, has tried to estimate the number of Start-ups in 2020. They started from the definition that they are companies under 20 years old, their core business is enabled by technology, and they are product-based companies (they do not provide consulting; no agencies).

3.3 Start-ups, COVID and Opportunities

Not only the challenges of the European Parliament (European Commission, 2019), but also shocks to the economy such as the global emergence of the COVID-19 pandemic will create challenges and new opportunities that include emerging or disruptive innovations in services and business processes such as home delivery. Rowan and Galanakis (2020) used a review of 43 projects funded by the Irish Government under Science Foundation Ireland's Disruptive Technology Initiatives to highlight trends in the innovation ecosystem and the potential for both cross-cutting and future disruptive breakthroughs in the agri-food, health and medical, Information and communications technology, or technologies (ICT), manufacturing, and circular economy sectors with a global orientation. This trend is also reflected in the first 64 selected start-ups and Small and medium-sized enterprise (SME) "Green Deal" projects recently funded by European Innovation Projects that will help support the transition beyond COVID-19 and for future pandemics. On the one hand, pandemics can cause economic paralysis in various key areas (Bloom et al., 2021; Bockova and Doubravsky, 2021). On the other hand, recent research has also shown that the lock-in caused by COVID-19 has drastically reduced environmental pollution worldwide. Khan et al. (2021) discussed some important positive impacts of coronavirus on environmental quality by compiling recently published data from research articles by NASA (National Aeronautics and Space Administration) and ESA (European Space Agency).

Although the economic consequences of COVID-19 are expected to be higher rates of young business exits, lower business survival rates, and therefore more job losses (European Commission, 2021a). SMEs are the pivot of the European economy and play a fundamental role in social and community dynamics. Moreover, SMEs are key players in European and global value chains, making them essential actors in the efforts toward a sustainable transition

European SMEs account for more than 25 million companies, or 99.8% of the total number of firms operating in the European Union and Switzerland. Large companies account for the remaining 0.2%. Beyond their major part in the composition of European entrepreneurship, SMEs hold a vital role in the provision of employment, supplying 2 out of 3 jobs in the EU and Switzerland, or a little more than 100 million jobs. A similar picture can be drawn for their value contribution, with SMEs' value added marked at €4.3 billion within the EU or 56.4% of the total.

3.4 Green Deal in the European Union

Interesting data on the Green Deal can be obtained from the Technology Yearbook. According to (stateofeuropeantech.com, 2021) the Green Deal ranks 8th among the 20 key issues in the European Parliament. However, the number of mentions of the Green Deal in legislative documents has been declining since 2019. In 2019, legislative documents mention the Green Deal 84 times, in 2020 73 times and in 2021 only 34 times. It is clear that the Green Deal is a very popular topic. It is still only partially embedded in the reporting of large companies, but many small and medium companies are already adding this nonfinancial indicator to their ESG. The proposal also includes a legal provision whereby all nonfinancial entities that will be required to report their sustainability data will also have to disclose how and to what extent the economic activities of the company are classified as environmentally sustainable. Specifically, they will have to disclose:

- the proportion of turnover from products or services that is linked to sustainable economic activities; and
- the proportion of their capital and operating costs that are linked to sustainable economic activities.

This information will need to be supplemented by a breakdown of the main key performance indicators (KPIs) based on specific economic activities and sustainability targets achieved (European Commission, 2021a).

The main pillars on which changes will be monitored are compiled in Table 1.

Table 1: Description of Pillars of the Green Deal

abbreviation	Pillar
FA	fresh air, clean water, healthy soil and biodiversity
EFB	renovated, energy efficient buildings
HAF	healthy and affordable food
MPT	more public transport
CC	cleaner energy and cutting-edge clean technological innovation
RRR	longer lasting products that can be repaired, recycled and re-used
FPJ	future-proof jobs and skills training for the transition
GCRI	globally competitive and resilient industry

Source: Own elaboration of (European Commission, 2021a).

3.5 Status of Start-ups in the Czech Republic

The topic of start-ups is part of many strategic activities of the Ministry of Industry and Trade. Support for technology start-ups is an important part of the Czech Republic's Innovation Strategy 2019-2030, which aims to make the Czech Republic an innovation leader by 2030. The strategy fulfils the objectives of the Digital Czech Republic document, which concerns the impact of digitalisation on the economy and society, and seeks a unified and innovative

approach of the Czech Republic to the digital agenda (Ministry of Industry and Trade, 2019). CzechInvest, the Agency for Enterprise and Investment Promotion, supports start-ups without limitation. In terms of entrepreneurship, the ICT sector is dominant in the Czech Republic (80-90% of start-ups operate in the ICT sector). Start-ups in the software, on-line services and e-Commerce sectors are predominant. There are also start-ups focused on IoT, financial services, and health care. On the other hand, there is a very low representation of companies dealing with manufacturing, materials, hardware, and IoT. CzechInvest provides a number of programmes for start-ups. It offers advice on developing strategies, incubation assistance for space projects, acceleration abroad, or connecting start-ups with partners and investors. Between 2016 and 2019, CzechInvest sent over 181 start-ups to London, Silicon Valley, Singapore, and New York as part of its programmes (Czechinvest, 2021). LongevityTech.fund focuses on a phenomenon called longevity, associated with the megatrends of the fastest growing demographic of people over 50 years of age. It supports projects aimed at applying the results of research and development of technologies that fall under this phenomenon, which aims to extend the active part of life and increase its productivity. Here, space is created for innovation, entrepreneurship and the creation of new companies, and the Czech Republic is offered the chance to build an industry with huge growth potential and the application of artificial intelligence between 2020 and 2022; the fund plans to make 25-30 investments (LongevityTech.Fund, 2021).

ESA BIC Prague is a business incubator focusing on space technology. The programme, which falls under the European Space Agency in the Czech Republic, is managed by CzechInvest. It supports projects dealing with space technologies and their transfer into practice. ESA BIC supports a number of start-ups. For example, Stratosyst designs, manufactures and markets a stratospheric observatory that enables Earth observation and data transmission. TRIPHOOOD was a mobile app for trips with a story. However, the original idea did not work for the founders, so they changed the business model and only sold clones of the original app ("Triphood," 2021). OctoGEO processes satellite and aerial data to create maps that are beginning to compete with Google Maps. It was founded a year ago and is now used by over 200 million people a month, including NASA, ESA, and AIRBUS (*OctoGeo*, 2020). FOXWORKS AEROSPACE is developing space simulator software to be used as an educational game or for the space sector, e.g. to simulate the movement of spacecraft, satellites and satellites. FESTKA is a manufacturer of state-of-the-art wheels made of ultralight material for rocket construction. InsightART protects the artistic heritage with next-generation X-ray imaging technology. Through a special robotic arm, it offers assistance to professionals in art restoration and forgery detection. NG AVIATION digitises aviation data and airport communications. It offers an airport traffic monitoring system and its integration into digital airport maps, making navigation easier.

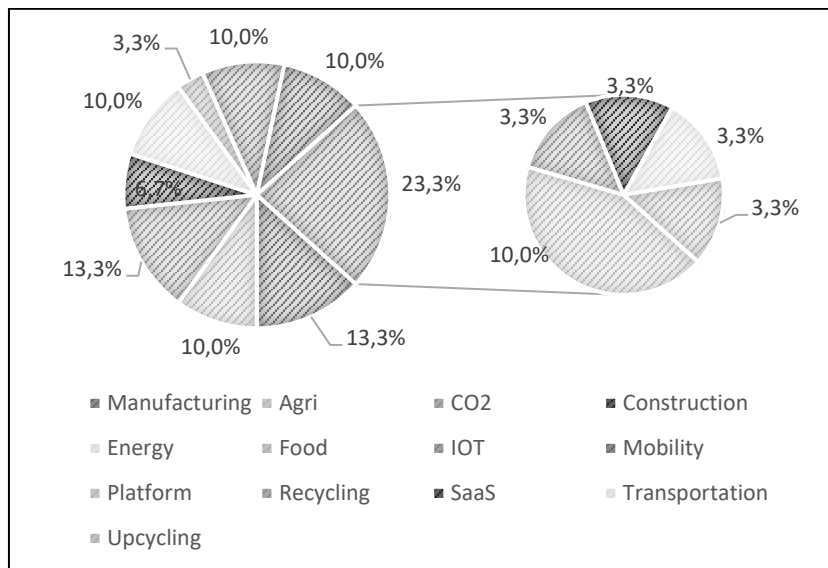
Czech start-ups mostly do business in the information technology, e-commerce, food, and logistics sectors. 54% are focused on the B2B sector and the end client is a company. The average start-up has two founders. Own funds play a crucial role in financing a business plan in exactly 79% of cases. The number of new start-ups outside the capital has increased compared to the survey conducted in 2017 and 2018. Currently, 34% of them are in Prague. This is largely due to the growing support and infrastructure in the regions. Start-up most often has around eight people. However, this number should be taken as a value that will tend to grow more given the usually rapid growth. The most common form of collaboration is in the form of a trade. Most of the time it is part-time. Founders overwhelmingly run their business as a limited company. It is also interesting that Czech start-ups do not go abroad very much. For the most part, they operate primarily in the Czech Republic. The most attractive region for them outside the country is Europe to the west and east, followed by North America, where

only 24% of companies operate, and Asia only 11%. The remaining continents of Africa, South America, and Australia account for negligible percentages. The biggest problem for start-ups in the country is the bureaucracy of the business environment, e.g., ranked 133rd in the ease of starting a company. Next is the availability of finance, quality staff, and sales. We are far behind developed countries in the regulatory framework. A quality start-up is primarily made up of the personality of the founders, the composition of the team, the business plan, scalability, and the associated return on investment. The survey shows that start-ups should also communicate and collaborate more with each other (“STARTUP REPORT,” 2021).

3.6 Integration of the Green Deal into The Activities of Start-Ups in The Czech Republic

To find out what the focus of today's start-ups is, it was necessary to research companies that present themselves as start-ups and that are in the early stages of development. As part of the Accelerator challenge, 30 entrepreneurs were identified who expressed an interest in taking their business further. I have focused only on information that relates to the companies' approach to The Green Deal, either in relation to their activities or the technology they incorporate into their business. The focus on the Green Deal pillars is also related to business activity; see Table 1. The question of form of transaction, i.e., which customer segment start-up focuses on, was also examined. Whether the focus is on the end customer or the company. Figure 2 shows The Field of Business.

Figure 2: Division of Start-Ups by Field of Business

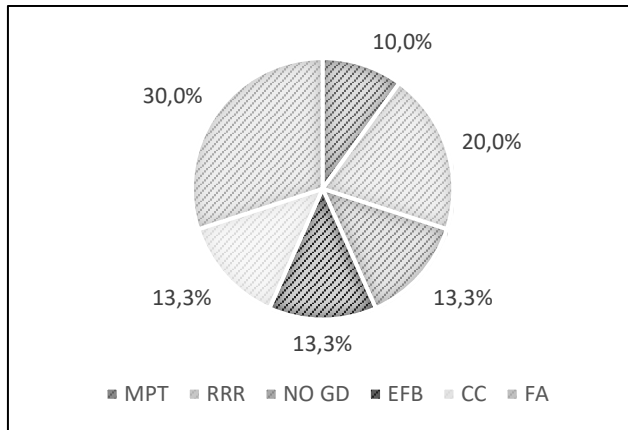


Source: Own elaboration (2022)

The largest share among the start-ups surveyed are companies whose business activity focuses on manufacturing and reducing CO2 emissions. Other sectors are agriculture, mobility and sharing economy, Internet of Things (IOT), and new platform creation. Other sectors such as waste recycling, food transport account for only one representative each. Although the main focus of the business is not always exactly aligned with the Green Deal pillars, only 4 companies, or 13.3%, do not mention or focus on these trends in their plans.

In Figure 3 it is possible to see the focus of the surveyed sample on the Green Deal pillars. The variable NO GD reflects firms that are not focused on doing business in line with the Green Deal, and these are only 13.3%.

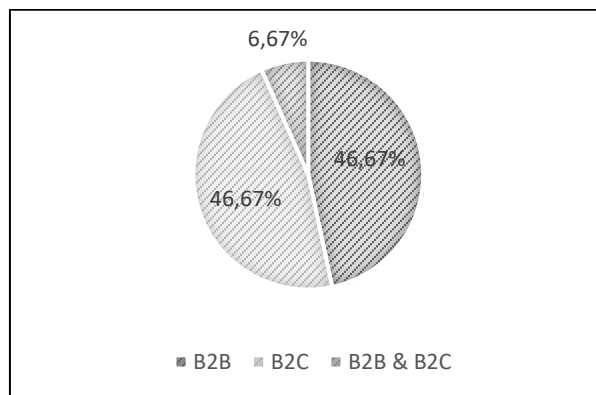
Figure 3: Breakdown of Start-Ups According to the Basic Pillars of the Green Deal



Source: Own elaboration (2022)

The other almost 90% follow one of the pillars of the Green Deal in their business. Most start-ups focus on cleaning air and waterways, or using technologies that reduce the burden on waterways from everyday human activities. Second place goes to recycling and reusing materials processed with innovative technologies, that is, 20% or 6 companies. The same 13.3% and the number of 4 companies are in the field of energy efficient buildings, their retrofitting, and clean energy.

Figure 4: Division of Start-ups by Form of Transaction



Source: Own elaboration (2022)

The Form of Transaction division is interesting. Consistently, 46.7% of companies focus on the concept of business-to-business (B2B) and business to customer (B2C). The remaining 6.67% of start-ups believe that sales of their product will be among end customers and businesses; see Figure 4.

4. Conclusion

The focus of this conference paper is to present the Green Deal and the approach of Czech start-ups to the implementation of the principles adopted by the European Parliament to maintain a clean Europe for the next generation. Based on a literature analysis and research among 30 start-ups in the Czech Republic, it was identified that reporting of nonfinancial indicators in relation to the Green Deal's core pillars is not required by legislation, so start-ups are not forced to overwhelm themselves with additional bureaucracy. Due to the size of start-ups, there are currently no uniform requirements for reporting relevant non-financial information. Therefore, there is currently a high variability in the reporting methods used by these companies. The adoption of the EU Corporate Sustainability Reporting Directive (CSRD) legislation is expected to create a single standard focused on environmental responsibility reporting, thus falling within the core objectives of the Green Deal, which are addressed in this paper. These standards are to be aimed at Small and Medium Enterprises, but are expected to be introduced in 2026, preceded, however, by mandatory reporting, for listed SMEs as early as 2023.

To explore the approaches of start-ups themselves to the Green Deal milestones, a survey was conducted amongst 30 start-ups that have signed up to the Accelerator in 2021, where they can receive further support for their activities and business development. Based on this survey, I found that 13.3% of start-ups are focused on reducing CO₂ emissions, 16.7% are focused on reducing energy consumption in buildings and industrial production, 6.6% of the surveyed start-ups are focused on recycling waste and reusing other materials.

To ensure the competitiveness of European countries, it is necessary to strengthen the demand for innovation and entrepreneurial potential. Given the global position of European start-ups (GEM Global Entrepreneurship Monitor, 2021), it is necessary to create a higher level of international technological competitiveness, especially in the areas of IT and AI. The further development of digitalisation can deepen societal change and environmental impacts (Smit et al., 2016). Start-ups, despite not having reporting obligations, must consider their activities as a factor affecting sustainability (Voinea et al., 2019). The use of complementary mechanisms, in particular financial support from government programmes and the EU, is essential for the start-ups business area, especially in the areas of innovative solutions for food, green and biotech, new packaging materials, the sharing and circular economy (Felin et al., 2020).

With the increasing number of start-ups, the issue of sustainability and its reporting is becoming more and more relevant in the context of the Green Deal.

Future studies should cover in more detail the area of government reporting and support for reporting. I would also suggest further studies to estimate the spillover effects of compliance with the Green Deal pillars in terms of overall performance and productivity.

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Comparison of Preferential Schemes of the European Union, the United States and China Focused on the Least Developed Countries

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Abstract

Trade preferences are one of the most important instruments for supporting the development of poor countries. Each provider country determines the design of its preferential scheme unilaterally. Differences in individual aspects of preferential schemes are one of the main reasons for their different success rates. The paper focuses on the three most important preferential schemes targeted at the least developed countries, the European Union's (EU) Everything but Arms (EBA), the United States' (US) African and Growth Opportunity Act (AGOA), and China's Duty-Free, Quota-Free (DFQF) program. The paper examines these schemes within the main aspects affecting their effects such as coverage, advantage, value, and use. The main goal of the paper is to compare these aspects and identify the scheme that, due to its design, appears to be the most beneficial for the beneficiary countries. The results of study suggest that EBA brings the greatest benefits to LDCs. The Chinese DFQF program also shows great, but untapped potential.

Keywords: *China, European Union, trade preferences, United States*

JEL Classification: *F10, F13, O19*

1. Introduction

The World Bank identifies international trade as a focal point for ending global poverty. Countries that are open to international trade tend to grow faster, innovate, improve productivity, and provide their people with higher income and more opportunities (World Bank, 2021). According to the International Monetary Fund, no country would be able to achieve significant economic success in recent decades, especially in terms of raising living standards, if it were not involved in international trade (International Monetary Fund, 2021). However, developing countries are often unable to fully engage in international trade and reap its benefits. The increasing complexity of the world trade system and the high degree of competitiveness necessary to succeed on the world market represent major obstacles for poor countries that prevent them from reaching global and regional markets. To help countries increase their participation in international trade, developed countries, but also some developing countries, offer unilateral trade preferences. Unilateral preferences are tariff concessions granted by the provider countries that do not require the reciprocity of the beneficiary countries. Their main purpose is to help beneficiaries increase their exports to preference-granting economies through zero or reduced tariffs. Thanks to lowered tariffs, exporters can charge higher prices in the provider's market while staying competitive. This way they are able to increase export volumes, thereby increasing their export income.

Unilateral trade preferences are provided within preference schemes, which can be either general or targeted at certain groups of countries.

It follows that preferential schemes play a central role in shaping trade opportunities for many developing countries. They are especially important for the least developed countries (LDCs) that, due to their underdevelopment, are particularly disadvantaged in international trade (Doleželová, 2020).

Due to its great potential to increase the economic growth of poor countries, trade preferences have become a frequent subject of theoretical and empirical studies. (Aiello, 2009; Aiello and Cardamone, 2010; Brenton and Ikezuki, 2005; Frazer and van Biesebroeck, 2010; Gil-pareja et al., 2014; Zenebe et al., 2014). However, to date, there has been no clear scientific consensus on their effectiveness. For example, Gil-Pareja et al. (2014) examine the effect of trade preferences on exports on a sample of 177 developing countries between 1960 and 2008. Using gravity equations, they found that overall non-reciprocal preferential agreements and GSP programs had significant impact on the exports of the 14 countries surveyed. The largest effects on beneficiary's exports were recorded for the GSP of the European Union, the USA, Canada, Norway and Switzerland. Aiello and Cardamone (2010) assess the effectiveness of the EBA initiative in the period 1995-2006. The study suggests that the impact on agricultural exports from developing countries to the EU was positive. Zenebe (2014) examines the impact of the AGOA on African agricultural exports. The statistical results of the study suggest that the AGOA does not have a statistically significant impact on exports of SSA agricultural products. Frazer and van Biesebroeck (2010) estimate the impact of the AGOA with the differences in differences method. The authors conclude that despite the exclusion of sensitive products and high transaction costs, the AGOA had the greatest effects on imports of clothing, agricultural and industrial products.

Although the preferential schemes provided by different countries have the same purpose and operate on the same principle, there are significant differences between them. These differences might relate to various aspects of the schemes such as their scope, coverage, eligibility conditions, preferential margins, conditions of origin, graduation criteria, utilization, etc. These aspects are the main determinants of the magnitude of the effects of preferential schemes. Previous studies have shown that the effects of individual preference schemes can vary significantly (Frazer and van Biesebroeck, 2010; Klasen et al., 2016). The effects of preferences, of course, are affected also by external factors stemming from the economic, e.g., supply-side flexibility and beneficiary's production capacity, or the political, e.g., corruption, environment of the recipient country. However, the main determinants of the effectiveness of preferences are given primarily by the design and main features of the preference schemes themselves. By comparing individual aspects of different preferential schemes, it is possible to identify the reasons for the differences in the success rates of individual preferential schemes.

Since most studies focus mainly on the evaluation of the impact of preferences, despite its significant contribution to the topic of trade preferences, the literature dealing with the design of preference schemes is still rare. Brenton (2003) examines the EU's EBA and shows that although the EBA initiative provides high product coverage, its utilization rate is relatively low. Candau and Jean (2006) argue in their study that when utilization rates are calculated under the best scheme available to the exporter, they are in fact not so low. In an early study, Sapir and Lundberg (1984) found that the US Generalized System of Preferences (GSP) mainly affects trade flows for products that enjoy large preferential margins. Also, according to Manchin (2005), a higher value (preference margin) of the preferences offered increases the likelihood that they will be used. Manchin also provides evidence that there is a minimum

value of preferences needed for beneficiaries to show interest in preferences at all. He claims that if the preference margin is less than 4 %, the motivation of exporters to draw preferences is too small. At a lower margin, the cost of obtaining preferences is expected to be higher than their benefits. Persson (2012) points to the reduction in preference margins caused by the erosion of preferences and the fact that the value of trade preferences decreases inevitably as multilateral trade liberalization progresses. This problem is mentioned in connection with the benefits of preferences quite often, e.g., Raimondi et al. (2011).

The paper aims to fill a gap in the literature on the evaluation of preferential schemes by providing an analysis and comparison of the three most important preferential schemes focused on the least developed countries. The goal of the paper is to analyse main features of preferential schemes influencing their effects, compare them, and identify the scheme that appears to be the most beneficial.

We compared preferential schemes in terms of coverage, advantageousness, value, and extent of use with the help of four main indices: product coverage, standard preferential margin (SPM), relative preferential margin (RPM), and utilization rate. Product coverage identifies the preferential scheme which includes the largest variety of products. Preferential margins suggest which scheme appears to be the most advantageous and valuable for beneficiaries. The utilization rate indicates the degree to which the preferences are used by the beneficiaries. Low utilization is often one of the main reasons for insufficient effects of preferences.

Compared to other studies that assess preferential schemes, we analysed the development of the main indicators since the very introduction of preferential schemes. Moreover, we also evaluated individual aspects of preferential schemes within individual product groups. A comparison within the commodity structure indicates the export of which product groups bring the greatest benefits to LDCs.

The paper is focused on three largest preferential schemes available to least developed countries: the Everything but Arms initiative of the European Union, the African Growth and Opportunity Act of the United States, both launched in 2000, and the Chinese Duty-free, Quota-Free Free program introduced in 2010.

2. Data and Methodology

Data on imports and tariffs were obtained from WITS (World Integrated Trade Solution) and preferential tariff data from the TRAINS (Trade Analysis and Information System) and the IDB WTO (The Integrated Database of the World Trade Organization). Data on preferential schemes were drawn from the WTO Database on Preferential Trade Arrangements, which contains information on all preferential trade arrangements of WTO members. The product groups were assigned according to the Standard Classification of International Trade (SITC). SITC originally contains nine product groups, but because no tariff data were available for the last group SITC 9 - Commodities not elsewhere classified, we had to exclude this group from the study. The product groups used in the paper are as follows:

Table 1: Product Groups According to SITC Classification

SITC 0	Food and live animals
SITC 1	Beverages and tobacco
SITC 2	Crude materials, inedible, except fuels
SITC 3	Mineral fuels, lubricants, and related materials
SITC 4	Animal and vegetable oils, fats, and waxes
SITC 5	Chemicals and related products, n.e.s.
SITC 6	Manufactured goods classified chiefly by material
SITC 7	Machinery and transport equipment
SITC 8	Miscellaneous manufactured articles

Source: Unstats, (2022)

For the analysis of preferential schemes in question, we used both traditional indices such as product coverage, standard preferential margin (SPM) and utilization rate, as well as innovative indicators such as relative preferential margin (RPM).

2.1 Product Coverage

Product coverage is expressed as the share of preferential tariff lines in the total number of tariff lines and can be calculated according to equation (1).

$$COV_p = \frac{TL_{pref}}{TL_{total}} \quad (1)$$

where COV_p is the product coverage rate,
 TL_{total} is the total number of tariff lines, and
 TL_{pref} is the number of tariff lines covered by preferences.

Product coverage indicates how wide the preferential scheme is, i.e., how many opportunities are provided to beneficiaries to take advantage of the preferences. With a wider product coverage, the opportunity to benefit from preferences is provided to a wider range of exporters from different production areas. However, the width of product coverage cannot be automatically linked to the magnitude of the benefits of the preferences, as preferential schemes also include products that the country may not specialize in. The narrower the country's export base, the narrower its opportunities to take advantage of preferences.

2.2 Standard Preference Margin

The preference margin is the main factor that influences the effectiveness of preferences. It indicates the advantage of preferences for different products and serves as the primary measure of the value of preferences. The preference margin is the difference between the preferential tariff rate and the most favoured nation (MFN) rate. Standard preference margin can be calculated using equation (2). The higher the preference margin, the higher the competitive advantage for beneficiaries and the value of the preferences.

$$M_{ijkt} = T_{ikt}^{MFN} - T_{ijkt}^{PREF} \quad (2)$$

where M_{ijkt} is the preferential margin for imports of the product k into the country i from the exporter j at time t ,
 T_{ikt}^{MFN} is the MFN duty rate applied, and
 T_{ijkt}^{PREF} is the preferential tariff rate.

As Persson (2012) points out, since a large part of tariffs is zero today, it is essentially impossible to keep the preferential margin at the same level in the context of ongoing trade liberalization. While MFN rates are falling, preferential rates can no longer fall to lower levels, as they are virtually zero. Given that there are administrative costs for beneficiaries associated with preferences, some authors argue that there is, in fact, a minimum level of preferential margin needed for beneficiaries to be willing to apply for preferential treatment at all. According to Francois et al. (2006), the preferential tariff should be at least 4 to 4.5 percentage points lower than the MFN tariff in order to stimulate beneficiaries' interest.

2.3 Relative Preferential Margin

The standard preferential margin uses the MFN tariff as a reference rate. However, the world has become highly globalized, and in most instances, other countries also have some form of (often reciprocal) preferential access to the preference-granting economy (Nicita, 2011). This means that a much smaller number of trading partners import at the MFN rate, and standard preferential margin can thus overestimate the relative preference enjoyed by countries. In view of the above, the relative preference margin offers a more appropriate estimate. Relative preferential margins are also recommended by Hoekman and Nicita (2008) and Low et al. (2009). The relative preferential margin can be calculated as shown in equation (3).

$$RPM_{ijkt} = T_{ikt}^{AW} - T_{ijkt}^{PREF} \quad (3)$$

where RPM_{ijkt} is the relative preferential margin for the imports of the product k to country i from the exporter j at time t ,

T_{ikt}^{AW} is the weighted average rate applied to the rest of the trading partners of preference-granting economy, and

T_{ijkt}^{PREF} is the preferential tariff rate.

Simply put, when calculating the competitive advantage given by the preferential scheme, the condition of relative market access is important, not just the absolute level of restrictions imposed. The approximate value of preferences is estimated by comparing the preference margin within individual product groups with the volume of exports in these groups. Preferential schemes are of high value when the product groups with the highest margins make up the largest share of beneficiary's exports.

2.4 Utilization Rate

The utilization rate indicates what part of imports from beneficiary countries is imported into preference-providing economies at preferential tariff rates. The utilization rate is defined as the ratio of preferential imports to all imports subjected to customs duties (covered or not). The low utilization rate means that a large part of the imports subjected to the duty are not imported at the preferential rate of the scheme. The utility rate can be calculated as shown in equation (4) (Akinmade et al., 2020).

$$U_Y R_{PREF} = \frac{M_{PREF(Z,X)}}{M_{DUTY(Z,X)}} \quad (4)$$

where $U_Y R_{GSP}$ is the utilization rate of preferences provided by the country Y ,

$M_{PREF(Z,X)}$ denotes imports of a product Z from country X imported at preferential rate,

$M_{DUTY(Z,X)}$ are imports of product Z from country X to country Y subjected to duty.

Topp (2001) identifies the utilization rate as one of the most important indices evaluating the benefits of preferences. Utilization rate for assessing preferences is also used by Khorana (2007), Candau (2004), Inama (2003) and Jha (2013).

3. Empirical Results

The following section provides an overview of the results achieved by the individual preference schemes examined within the individual indicators.

3.1 Product Coverage

As Table 2 shows, the largest range of products can be exported under Everything but Arms, which covers more than 97% of all tariff lines and thus provides the beneficiaries with the most opportunities to export at a preferential rate. The second widest regime is the Chinese DFQF program, which covers more than 80% of tariff lines. The lowest product coverage is offered by the US AGOA with a share of the covered tariff line approximately 60 %.

Table 2: Product Coverage of EBA, AGOA and Chinese DFQF Program

	Total Tariff Lines	Preferential Tariff Lines	Product Coverage
EBA	9483	9232	97.35
AGOA	10905	6406	58.74
Chinese DFQF Program	8549	7387	86.41

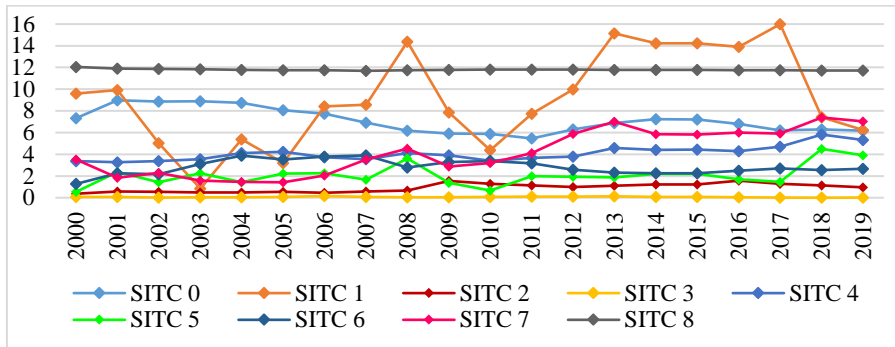
Source: author's calculation (2022)

3.2 Standard Preferential Margin

The preferential margin is one of the main features of preferential schemes through which preference-granting countries can encourage imports of certain products. The higher the preferential margins for a given product, the higher the competitive advantage given to the beneficiaries of preferences over other market participants (Keck and Lendle, 2012). The high value of preferences is generated if the beneficiaries' exports consist mainly of product groups with a high preference margin.

As shown in Figure 1, EBA's standard preferential margins reached the highest values in the product groups SITC 0, SITC 1, and SITC 8. Although the SPM of SITC 8 was very stable over time, the SITC 1 margin recorded large fluctuations during the observed period. Given that SITC 8 and SITC 1 account for the largest share of EU imports from LDCs (UNCTAD, 2021), a high value of preferences for LDCs can be expected.

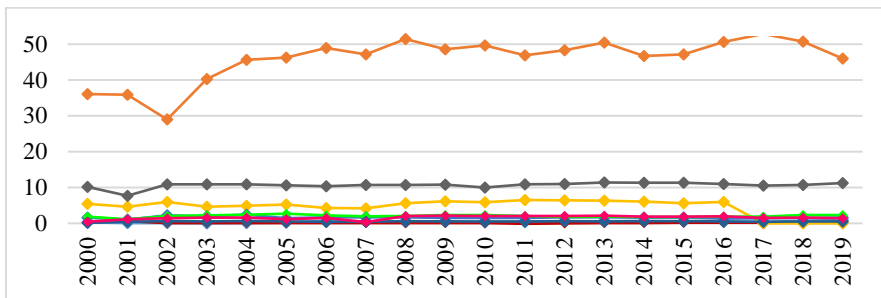
Figure 1: Standard Preferential Margins of EBA (Percentage Points)



Source: author’s calculations (2022)

The development of the standard preferential margin for AGOA is shown in Figure 2. The highest SPMs were recorded for the SITC 1 group, for which in some years the value reached up to 50 pp. Since the US tobacco industry has been heavily protected by tariffs since the Great Depression, the United States imposed a tariff rate sometimes up to 350% on tobacco products. Although this gives LDCs a significant comparative advantage, tobacco represented only a small part of their preferential exports to the US (UNCTAD, 2022). The second and third highest preferential margins were recorded for SITC 8 and SITC 3. Products in these groups account for the majority of preferential exports of LDCs, which indicates a high value of AGOA preferences. The preference margins for the remaining product groups were rather low, often close to zero.

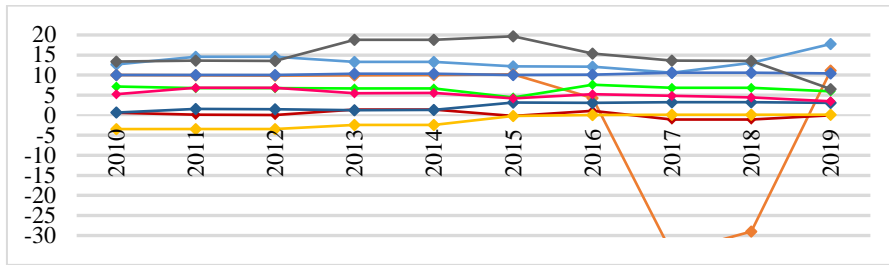
Figure 2: Standard Preferential Margins of AGOA (Percentage Points)



Source: author’s calculation, (2022)

As shown in Figure 3, for the Chinese DFQF program, the standard preferential margins of the majority product groups reached more than 5% during the period considered. On the basis of these results, the Chinese DFQF program appears to be the most advantageous of the examined preferential schemes. A significant decrease in SPMs for the SITC 1 product group between 2015 and 2019 was caused by the introduction of high tariffs on tobacco originating in developing countries. The highest SPMs were achieved within group SITC 8 - Miscellaneous manufactured articles, which constitutes the third largest share of China’s preferential imports (UNCTAD, 2021). SITC Class 6 - Manufactured goods classified chiefly by material, which has the largest share in China’s preferential imports, records up to the sixth highest preferential margin.

Figure 3: Standard Preferential Margins of Chinese DFQF Program (Percentage Points)



Source: author’s calculation, (2022)

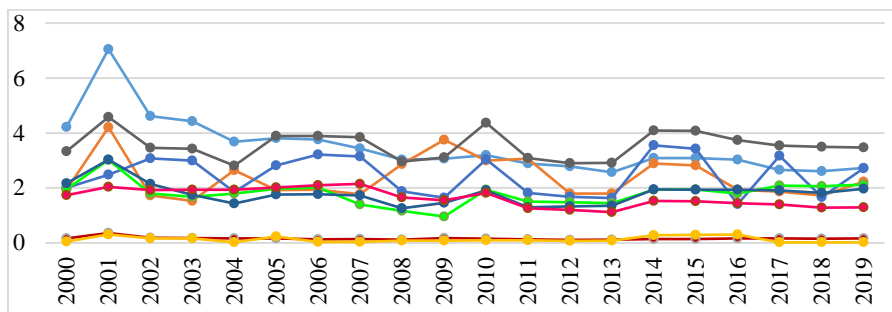
Unlike AGOA and EBA for the Chinese DFQF, the commodity structure of the recipient's exports did not correspond to the values of SPMs within the product groups. The product groups that recorded high preferential margins comprised only a small part of the LDC exports to China; therefore, the value generated by the Chinese DFQF was below its potential.

3.3 Relative Preferential Margin

Through the analysis of standard preferential margins, we identified the advantage that the LDCs have over importers that do not benefit from any preferences and who therefore export to the EU, the USA and China under MFN tariffs. The RPM expresses the average relative customs advantage (or disadvantage) that LDCs have when exporting to the EU, the US, and China over all other trading partners of these economies. Figure 4 shows the development of the relative preferential margin within EBA.

As with SPMs, the highest RPMs within EBA were reached in product groups SITC 0, SITC 1, and SITC 8. With a few exceptions, the RPMs were for all product groups lower than the SPMs. The largest difference was recorded in the case of SITC 8, where RPMs were on average 8 pp. lower than SPMs. There were also relatively significant differences in preferential margins for SITC 1. Large differences between RPMs and SPMs suggest that the EU has a number of preferential agreements regarding these product groups lowering their tariffs.

Figure 4: Relative Preferential Margins of EBA (Percentage Points)

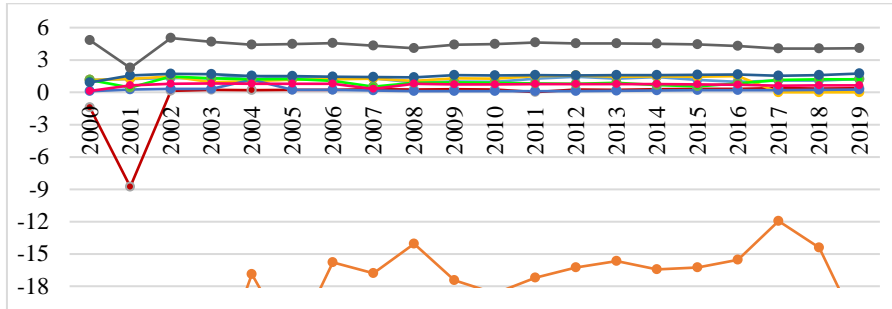


Source: author’s calculation, (2022)

As Figure 5 shows, the highest relative preferential margins within AGOA were recorded for SITC 8. The RPMs for SITC 3, which constitutes the largest share of LDCs' preferential exports (UNCTAD, 2021), average 4 percentage points and were the third highest among product groups. Except for SITC 0 and SITC 6, the RPMs for all groups are lower than the SPMs. Surprising results were recorded for product group SITC 1. Although the SPMs for this

group were the highest of all, the RPMs reached negative values. This means that while LDCs have a major advantage in importing tobacco and beverages into the US over MFN-importing countries, given the trade agreements that the US has with the rest of the world, LDCs are in fact disadvantaged in exports of this product group.

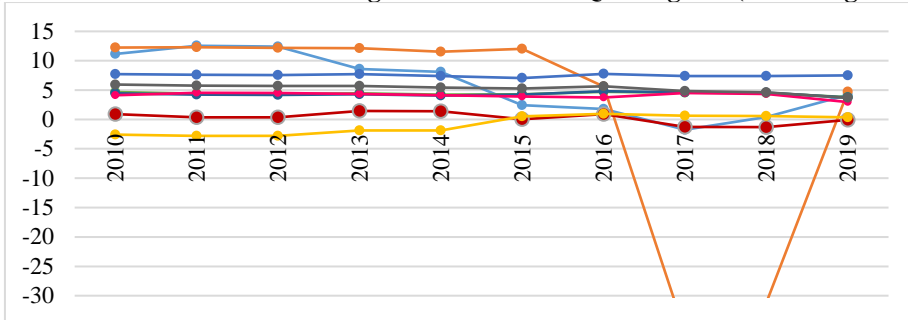
Figure 5: Relative Preferential Margins of AGOA (Percentage Points)



Source: author’s calculation, (2022)

The relative preferential margins of individual product groups for the Chinese DFQF program are shown in Figure 6. For the Chinese DFQF program, the SITC groups with the three highest RPMs correspond to groups with the highest SPMs. In Figure 6, the disadvantage faced by LDCs in the export of tobacco to China between 2016 and 2019 is also visible. The differences between the RPMs and the SPMs were the lowest of the three preferential schemes examined. This means that the advantage of LDC exports to China expressed by standard preferential margin roughly corresponds to the advantage they really receive in a globalized world. Such a small difference between RPMs and SPMs is mainly due to the fact that China has not yet liberalized its trade to the same extent as the EU and the USA and applies the MFN rates to most countries.

Figure 6: Relative Preferential Margins of Chinese DFQF Program (Percentage Points)



Source: author’s calculation, (2022)

3.4 Utilization Rate

As the year-on-year changes in the utilization rates within the individual preferential schemes were relatively low, we display only three control years for comparison, namely 2000, 2010, and 2019.

Table 3: Utilization Rates of Examined Preferential Schemes

Product Groups	2000		2010			2019		
	EU	US	EU	US	China	EU	US	China
SITC 0	60.4	46.7	49.8	36.5	44.4	45.4	48.4	49.1
SITC 1	50.5	49.9	50.0	49.2	0.2	50.0	46.5	47.9
SITC 2	83.6	50.4	50.6	55.5	40.6	47.3	40.7	48.9
SITC 3	97.7	50.0	50.0	46.4	26.0	52.7	41.7	50.0
SITC 4	50.0	50.0	51.7	41.4	2.2	49.1	49.1	50.0
SITC 5	85.8	50.1	50.1	36.4	64.7	48.9	19.0	49.9
SITC 6	84.3	40.6	50.0	14.9	66.4	49.5	32.7	36.0
SITC 7	52.2	46.5	50.0	44.0	50.0	35.8	48.8	50.3
SITC 8	50.1	2.6	49.6	7.7	69.4	42.4	22.0	50.0

Source: author's calculation, (2022)

The highest utilization rates were recorded for EU's EBA in 2000, which was the first year of its functioning, reaching more than 80 % for SITC 2, SITC 3, SITC 5 and SITC 6. However, for most product groups, the utilization rate has declined significantly over the years and has averaged around 50 %. These results suggest that only around half of LDC exports to the EU benefited from EBA preferences and the rest of LDC exports were exported at a different rate from the preferential tariff. The utilization rates of the US AGOA preferences were lower than the EBA rates for almost all product groups. AGOA utilization rates reached especially low values for SITC 8 in 2000 and 2010 and SITC 6 in 2010. In these product groups, more than 85% of the products were subjected to a tariff other than the AGOA preferential tariff upon importation. Within other product groups, from 30% to 50% of imports was imported under AGOA preferential tariff. In 2019, AGOA utilization rates reached 50% for only a few product groups. Due to the late introduction of the Chinese preferential scheme, utilization rates only for 2010 and 2019 are displayed. Except for a few product groups, the utilization rates of the Chinese DFQF program averaged around 50%. The highest utilization rates were recorded in 2010 for SITC 5, SITC 6, and SITC 8. The lowest values were recorded for SITC 1 and SITC 4.

4. Conclusion

The paper assesses and compares the preferential schemes of the European Union, the United States, and China focused on the least developed countries. Preference schemes were examined in terms of their main features that determine the size of their effects.

According to the results, the preferential scheme with the largest product coverage is the EU's Everything but Arms, which provides the most opportunities for the least developed countries to export at preferential tariffs. In terms of the advantageousness of the preferential scheme expressed by preferential margins, the Chinese DFQF program achieved the best results. However, EU's preferential imports reached the highest values and were concentrated mainly in product groups with the highest both standard and relative preferential margins. Therefore, when we confront preference margins with volume and product structure of LDCs exports, Everything but Arms will turn out to be the most valuable.

Differences between standard and relative margins were recorded for all three preference schemes with most significant differences for the EU's EBA. At first sight, the EU's preferential regime may seem much more favorable than it actually is, given other trade agreements of the EU. In contrast, there were only small differences for the Chinese DFQF

program. These results reflect a sharp contrast in the degree of trade liberalization of the European Union and China.

In terms of the utilization of preferences, the EBA, AGOA and the Chinese DFQF program were very similar. Of the economies examined, China managed to increase the use of its preferences during the operation of the preferential scheme the most. The EU's EBA recorded slightly lower but more stable values both within individual product groups and within the development over time. This finding suggests that there are nontariff barriers, strict rules of origin, or administrative costs that prevent exporters from taking full advantage of the scheme that have not yet been eliminated.

Based on the overall results, EBA appears to be the most beneficial of the three preferential schemes assessed. The Chinese DFQF program also achieved good results, but as its preferential imports were low, its potential remains untapped. The largest share of LDCs total exports to China consists of mineral fuels, lubricants, and related materials (UNCTAD, 2022), for which the preferential margin rates are very low and in the past even negative. An increase in margin, which would encourage the use of preferences for this product class, would bring a significant increase in preferential imports. Given that the total imports of China and the European Union reach a similar value (UNCTAD, 2021), there is much room for increasing the share of China's preferential imports. Should such an increase occur, it is possible that the Chinese DFQF program could become the most valuable and, at the same time, the most used preferential regime for LDCs.

Future research will focus on quantifying the effects of the three investigated preferential schemes. The synthesis of the results of this study and results of the evaluation of effects will allow us to identify the main features that were crucial for success of preferential schemes.

Acknowledgements

This work was supported by the VSB – Technical University of Ostrava under SGS Grant number SP2022/7; and Moravian-Silesian region under *Grant Support of Talented Doctoral Students at VSB-TUO 2020* number 08078/2020/RRC.

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Measurement of Crucial Aspects of Sustainable Development in a Selected Sample of the Developed Countries

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Abstract

This work evaluates the crucial aspects of sustainable development (SD) related to wellbeing, quality of life, and environmental limits, measured by the selected indicators (indices) in a sample of 31 countries in the period 2010 – 2019. All the dimensions of SD were included, while the indicators used either reflect one of these dimensions, i.e., the economic, social, or environmental pillar of SD, or two/all of them. Several of these indicators also measure specific aspects included in particular dimensions which are crucial for SD, especially health and inequality. Furthermore, the indicator of subjective happiness is also included. From these indicators, an overall index, known as the Sustainability and Wellbeing Index (SWB), and based on the strong sustainability principle, was created and the overall performance of countries in sustainability and progress towards the SD path were evaluated. On the basis of the SWB index, high average performance was achieved by several Northern, Benelux and other developed countries – Iceland, Sweden and Norway, France, Belgium and Denmark. Switzerland and the Netherlands achieved the highest performance. Bulgaria, followed by Estonia and Slovakia had the lowest performance.

Keywords: *adjusted savings, circular economy, Inequality-adjusted HDI (IHDI), sustainable development, wellbeing*

JEL Classification: *I15, I31, Q51*

1. Introduction

SD/sustainability are linked to aspirations to leave future generations a better world as well to improve quality of life for present generations. According to the most cited definition of SD from the World Commission on Environment and Development (WCED), SD is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Two key concepts are included in this definition. It is the concept of needs, in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs (WCED, 1987). SD as originally envisioned still is a convincing concept (Lorek and Spangenberg, 2013).

Economic and social activities (development) must be balanced against the maintenance of ecosystems and the services they provide to people, which are a source of their wellbeing and quality of life. Although several scholars have described the relationships between the concepts of sustainability and SD differently, the approach considered in this work is based on the necessity to pursue a kind of development (process of change), which is sustainable, in order to achieve a desired state of sustainability (their possible relationships are described in Drastichová (2008)). The environmental and social costs of development have certain environmental limits. In order to enable future generations to achieve the highest possible

wellbeing, human activities must take these limits of the planet into account (Benking et al., 2017).

The aim of this work is to evaluate the performance of 31 countries in the sample in the period 2010 – 2019 by means of the Sustainability and Wellbeing Index (SWB), constructed by the author. This index reflects the performance in sustainability/SD, wellbeing and quality of life, including the aspects of happiness. The relationships of this index with the indicator of macroeconomic performance per capita, i.e. real GDP per capita, are also analysed and evaluated. The structure of the remainder of this paper is as follows: Section 2 contains problem formulation and methodology, while literature review is included in subsection 2.1 and next, the data (2.2.1) and methods applied (2.2.2) are introduced; section 3 provides the results and discusses the findings; and section 4 finalizes the paper with the conclusions.

2. Problem Formulation and Methodology

In this section, the works relevant to the performed analysis are presented. Subsequently, the data and methods applied are introduced.

2.1 Literature Review

The relationship between economic wealth, quality of life, and environmental implications of human activities, including production and consumption patterns, is a core area of interest in sustainability/SD concepts. A number of methods of measurement in the field of these concepts have been developed.

The UNCED in 1992 recognized that better and more knowledge and information about environmental conditions, trends, and impacts are needed (Segnestam, 2002). Accordingly, many initiatives to measure SD were encouraged there. Indicators are widely used in policymaking due to their synthetic properties (Carraro, 2013). They arise from values, i.e. we measure what we care about, and they create values, i.e. we care about what we measure (Meadows, 1998). The purpose of the sustainability/SD indicators is to simplify, quantify, analyse and communicate otherwise complex and complicated information. A valid instrument to measure sustainability/SD is a set of indicators. Warhurst (2002) considers SD measuring as a two-step approach. Firstly, the progress made in selected individual fields is measured by SD indicators and secondly, the overall progress made towards SD is assessed by a combination of these individual fields with regard to their interlinking. Measuring environmental, economic and social aspects using the appropriate (set of) indicators is the prerequisite for monitoring progress towards defined targets. An index is compiled on the basis of combining indicators or data. Indices are often used at more aggregated analytical levels, particularly at the inter/national or regional level. SD indices are usually complex to develop.

Differences in disciplinary perspectives and in the philosophical and ethical interpretation of SD have resulted in concepts of sustainability which prioritize either economic or environmental objectives, such as the opposing paradigms of weak and strong sustainability (Hediger, 1999; Pearce et al., 1994) that are based on different conceptions of capital theory. The theoretical foundation of the weak sustainability paradigm is in the neoclassical theory of economic growth and capital accumulation and its extension to include non-renewable resources (Hartwick, 1978; Solow, 1986). On the contrary, the strong sustainability paradigm is based on biophysical principles, i.e. on the thermodynamic foundation of a steady-state economy (e.g. Daly, 1977). Mainstream neoclassical economists usually use monetary aggregation methodology. On the other hand, scientists and researchers in other disciplines, including ecological economists, favour using physical indicators. The first approach to consider when measuring SD/sustainability aspects in macroeconomic models is adjusting the GDP via monetarized societal and environmental indicators into an alternative index, assuming

that environmental pressures could be reduced via substitution of input factors and elimination of market failures through internalization of external costs (e.g., Stiglitz, 1980). Ecological economists have questioned these assumptions (Common et al., 1992; Daly, 1997), advocating absolute instead of relative decoupling of economic activity from environmental harm (further: decoupling). Decoupling is defined as breaking the link between environmental bads, which represent environmental pressures, including the use of natural resources and the emission of pollutants/generation of waste, and economic goods, referred to as driving forces, which are economic activities, often expressed in terms of GDP at the macroeconomic level. They also advocate the concepts of planetary and social boundaries (Steffen, et al., 2015; Raworth, 2012). Absolute decoupling involves an absolute decline in resource (ecosystem services) use over time while the economy grows. This is linked to the discussion about different economic growth discourses, such as degrowth, green growth, a-growth, post-growth, no-growth, as well as the resulting steady-state, among others concepts. There are also many conceptual solutions linked to sustainability/SD, including resource efficiency (e.g. Tukker and Ekins, 2019), substitution and circularity on the production side (e.g. Kirchherr et al., 2017), as well as sufficiency and change of behaviour on the consumption side. These relationships can be understood as the environmental intensity and the environmental efficiency of human wellbeing (e.g. Dietz et al., 2009; see more in Cibulka and Giljum (2020)). The indicators included in the construction of the SBW index reflect the above described concepts (at least one or several of them).

The human development approach, reflecting human sustainability, is also a crucial concept, which cannot be abandoned when analysing the relationships between SD and quality of life (see more in Drastichová (2008)). It focuses on people and their opportunities and choices, i.e., on the richness of human life, rather than simply the richness of the economy. This point of view is considered in the Human Development Reports (HDR) of the United Nations Development Programme (UNDP). These aspects are reflected in the Human Development Index (HDI) and its adjusted alternative, i.e., the Inequality-adjusted HDI (IHDI), the main indicators included in the HDR (UNDP, 2021). Since this human sustainability overlaps all three basic dimensions of SD/sustainability, which include economic, social, and environmental dimensions, the IHDI was selected as the crucial indicator for the analysis in this work. Witulski and Dias (2020) assigned the position of this index to the intersection between the economic and social dimension (see further); however, human sustainability is the main concept reflected in this index.

The Sustainable Society Foundation in the Netherlands has been developing since 2006 the Sustainable Society Index (SSI) (Saisana and Philippas, 2012), which inspired the author's Sustainable Development Index (SDI) (Drastichová, 2008) as well as the index presented in this work, named Sustainability and Wellbeing Index (SWB). Sustainable societies are those societies with mutually reinforcing policies that protect the environment, create jobs and build scaled growth economies aiming altogether to achieve a high quality of life, which has to be sustained and constantly improved. Although this is not in compliance with alternative concepts, such as degrowth, it is in compliance with the concepts of SD and sustainability. The SSI is a comprehensive index that contains substantive aspects of all three dimensions of sustainable development (SD): social, environmental and economic dimension. Witulski and Dias (2020) assessed the reliability of the three dimensions of the SSI. Indicators within each dimension exhibited weak correlation. They used Kendall rank correlation coefficients to compare the country rankings of the social and economic dimension with the HDI, and of the environmental dimension with the Environmental Performance Index (EPI). In general, the combination of several indicators into a single index has advantages in terms of allowing the analysis of complex concepts, supporting decision making, easier public communication, and

more straightforward interpretation (e.g., Nardo et al., 2005, OECD, 2008). The crucial disadvantages of indices result from subjective decisions in the methodological process, such as indicator selection or weighing or handling of missing data (Nardo et al., 2005). Hence, a solid methodological foundation is essential.

2.2 Data and Methodology

The background of the indicators used and data sources, and the methodology applied are defined in this subsection.

2.1.1 Data and Indicators Applied

Composite indicators/indices are an innovative approach to evaluating SD. They represent aggregate measures of a combination of complex development phenomena. Computing aggregate values is a common method used to construct indices. An index can be either simple or weighted depending on its purpose. The construction of (composite) indicators is connected with making choices. This involves issues of uncertainty such as selection of data, imprecision of the data, data imputation methods, data normalisation, weighting schemes, values of weights and aggregation methods. Indices often simplify the problem and are able to encourage finding solutions by drawing stakeholders' attention to the problem (Atkinson et al., 1997).

Table 1: The Variables (Indicators/Indices) Applied in the Analysis

Real GDP per capita (GDPpc)	Adjusted net savings, including particulate emission damage (current USD) (ANSc)
Inequality-adjusted HDI (IHDI)	Adjusted net savings, including particulate emission damage (% of GNI) (ANSp)
Healthy life years at birth (HLY)	Circular material use rate (CMUR)
Happiness Index – Life Ladder (HI/LL)	Fossil fuels MF tonnes/Population on 1 January (FFMFpop)
Adjusted net national income per capita (constant 2010 USD) (ANNIc)	Adjusted savings: natural resources depletion (% of GNI)
Adjusted net national income per capita (annual % growth) (ANNIg)	Adjusted savings: carbon dioxide damage: % of GNI/current USD (CDp/CDc)

Source: Eurostat (2021); UNDP (2021); World Bank (2021)

Notes: Data are not available: HLY – AT, IT (2010); SE (2012), FI (2013), IS, UK (2019); FFMFpop: for all countries in 2018-2019); CMUR: IS, NO, CH (each year); ANNIc: MT, IS (all years); ANNIg: EE (2010), IS (2010, 2011), UK (2019); NRD – MT (all years), UK (2019); ANS (both indicators: IS (2010), UK (2019)).

Twelve indices reflecting crucial dimensions of SD/sustainability (economic, social, and environmental pillars of SD), or particular aspects within them, are applied in the analysis to evaluate sustainability and progress toward the SD path in the sample of 31 countries. These indices are summarized in Table 1 with their official names (with the abbreviations used indicated in the brackets) and briefly described (in succession). Their choice is justified by the relevant works (see section 2.1) and by the purpose of the analysis (see subsection (2.1.2)).

One or several aspects of SD and/or wellbeing and quality of life are involved in the indices applied (Table 1). The HD approach (presented in subsection 2.1) is directly reflected in the IHDI, but the environmental dimension is not included. Economic and social development, or human wellbeing, is reflected by United Nations Development Programme's (UNDP) widely recognized HDI and its inequality-adjusted alternative, IHDI. IHDI is an even more suitable measure than HDI since it reflects the social dimension of SD more precisely by means of the inclusion of aspects of inequality in distribution. It combines a country's average achievements

in health, education and income with the distribution of those achievements among country's population by discounting each dimension's average value according to its level of inequality. It reflects the level of human development when inequality is considered. The relative difference between the IHDI and HDI is the loss due to inequality in distribution of the HDI within the country. The IHDI goes beyond the average achievements of a country in health, education and income. It shows how these achievements are distributed among its residents (UNDP, 2021). Hence, it better reflects the aspects of SD and wellbeing, as well as those of quality of life. The dimensional indices (I) are calculated as indicated in Eq. (1):

$$I = \frac{\text{Actual value} - \text{Minimum value}}{\text{Maximum value} - \text{Minimum value}} \quad (1)$$

The IHDI is calculated as a geometric mean of the three dimension indices adjusted for inequality displayed by Eq. (2):

$$IHDI = (I_{Health}^* \cdot I_{Education}^* \cdot I_{Income}^*)^{1/3} = [(1 - A_{Health}) \cdot (1 - A_{Education}) \cdot (1 - A_{Income})]^{1/3} \cdot HDI \quad (2)$$

where A is the inequality measure used (UNDP, 2021). The inequality-adjusted dimension indices (I*) are constructed for three dimensions of HDI and the whole formula, by which the HDI is multiplied, represents the loss in the HDI due to inequality. IHDI draws on the Atkinson (1970) group of inequality measures (for the calculation, see more in Drastichová (2018); Drastichová and Filzmoser (2021)). The first dimension – health, is represented by the indicator of life expectancy (LE, years), the second dimension – education, by indicators of expected years of schooling and mean years of schooling, and the third one – standard of living, by Gross National Income (GNI) per capita (2011 purchasing power parity (PPP) USD). Concretely, IHDI is calculated as the geometric mean of the values in the inequality-adjusted life expectancy index (IALE), inequality-adjusted education index and inequality-adjusted income index (see more in Drastichová and Filzmoser (2021)). IALE is HDI life expectancy index value adjusted for inequality in distribution of expected length of life. Life expectancy (LE) at birth is defined as the mean number of years that a new-born child can expect to live if subjected throughout his life to the current mortality conditions. It is one of the most frequently used health status indicators and in this analysis (see more in Drastichová and Filzmoser (2020)). However, in this work, Healthy Life Years (total, year) in absolute value at birth (HLY) indicator is applied to reflect quality of life in terms of health. It measures the number of remaining years that a person of specific age is expected to live without any severe or moderate health problems. HLY is a composite indicator that combines mortality data with health status data. HLY focuses on the quality of life spent in a healthy state, rather than the quantity of life, as measured by LE. If HLY is increasing more rapidly than LE, people are living more years in better health (Eurostat, 2021). HLY is an objective indicator, it reflects qualitative aspects of health and quality of life in the social dimension of SD.

A subjective measure of wellbeing and happiness is included as the second variable. It is referred to as the Happiness Index (HI). Concerning the rationale behind this index, happiness score or subjective wellbeing – the variable named Life Ladder (LL), from the World Happiness Report (WHR) 2021 (Helliwell et al., 2021) is used. The measurement of subjective wellbeing from the WHR 2021 is based on three main indicators, i.e. life evaluations, positive emotions, and negative emotions (described in the WHR as positive and negative affect). The happiness rankings are based on life evaluations, which should represent the more stable measure of the quality of people's lives. For life evaluations, the Gallup World Poll (GWP) is the main source of data in WHR 2021. The survey measure for life evaluations is from the February 26th, 2021 release of the GWP covering years 2005 – 2020. It asks respondents to evaluate their current life as a whole using the image of a ladder, with the best possible life for

them as a 10 and worst possible as a 0. Each respondent provides a numerical response on this scale, referred to as the *Cantril ladder*. The English wording of the question stated is *Please imagine a ladder, with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?* For each country around 1000 responses are gathered annually. Weighted averages are used to construct a representative population from national averages for each year in each country. Thus, it is the national average response to the question of life evaluations.

On the basis of the work of Pearce and Atkinson (1993), who provided one of the earliest suggestions for an indicator for measurement of this (very) weak sustainability, the World Bank (WB) has estimated Adjusted Net/Genuine Saving (ANS) as a macro level index of SD. Based on the above-indicated indicator (Pearce and Atkinson, 1993), a country achieves very weak or weak SD path if the savings exceed the total depreciation of both material and natural capital. The overall ANS and one of its partial indices are used to evaluate and compare the overall progress of SD in countries over the monitored period and progress in a particular dimensions of SD, which reflects the impacts of one of the global environmental problems, which is climate change. Moreover, for both of them, two units of measurement are used since they often show different trends. The measurements used are current USD (absolute, monetary values) and % of GNI (relative, percentage value). Although the relative impact is important, the absolute extent of savings and environmental impact is crucial in the field of SD in the context of environmental limits of the planet (planetary boundaries).

As regards the rationale behind this index, ANS extends the conventional net saving by adding human capital accumulation and deducting natural resources losses (Gnègnè, 2009). Pearce and Atkinson (1993) presented an index which builds on the Hicksian income concept. The ANS is thus an indicator of weak sustainability. The capital stock of societies consists of man-made capital (physical or produced capital), human capital (such as knowledge and skills) and natural capital. Thus, the theoretical background results from the idea that weak sustainability requires the maintenance of a constant stock of extended wealth that is not limited to natural resources but it also includes physical capital, as measured in traditional national accounts, and human capital. The ANS should represent the change in this total wealth over a given time period (a year). Such a concept can be understood as the relevant economic counterpart of the notion of sustainability. Namely, it does not include only natural resources but also, in principle at least, those ingredients necessary to provide future generations the opportunities which are at least as large as those available to current generations (Fitouss et al., 2011) (see more in Drastichová (2018)). Adjusted Net Savings (ANS) is measured as gross national saving (GNS) minus the depreciation of produced capital, depletion of subsoil assets and timber resources, the cost of pollution damages, plus a credit for education expenditures.

GNS are the difference between gross national income (GNI) and public and private consumption, plus net current transfers. Net national savings (NNS) are equal to GNS less the value of consumption of fixed capital (CFC). CFC represents the replacement value of capital used up in the process of production. ANS are equal to NNS plus education expenditure (EE) and minus energy depletion (ED), mineral depletion (MD), net forest depletion (NFD), and carbon dioxide (CD) and particulate emissions damage (PED). NR is the sum of NFD, ED, and MD. NFD is unit resource rents times the excess of roundwood harvest over natural growth. NFD is calculated as the product of unit resource rents and the excess of roundwood harvest over natural growth. If growth exceeds harvest, this figure is zero. ED is the ratio of the value of the stock of energy resources to the remaining reserve lifetime. It covers coal, crude oil, and natural gas. MD is the ratio of the value of the stock of mineral resources to the remaining reserve lifetime. It covers tin, gold, lead, zinc, iron, copper, nickel, silver, bauxite,

and phosphate. Cost of damage due to CD emissions (CO₂) from fossil fuel use and the manufacture of cement, estimated to be 40 USD per ton of CO₂ (the unit damage in 2017 US dollars for CO₂ emitted in 2020) times the number of tons of CO₂ emitted. This indicator is also used in the analysis separately, not only as part of ANS, since it represents global environmental aspects; in particular, it evaluates the damage caused by the global environmental problem of climate change. It is used in both % of GNI and current USD to show its relative as well as its absolute impact. Particulate emissions (PM) damage (reflects local aspects of environmental impacts) is damage due to exposure of a population of a country to ambient concentrations of particulates measuring less than 2.5 microns in diameter (PM2.5), ambient ozone pollution, and indoor concentrations of PM2.5 in households cooking with solid fuels. EE refers to the current operating expenditures in education, including wages and salaries and excluding capital investments in buildings and equipment. In the ANS, public education expenditures are included as savings. Moreover, because of their relatively high values in a number of countries, the ANS is higher than the NNS, since the calculated depletion of resources and pollution damages is often low. In summary, the ANS measures the change in value of a specified set of assets, excluding capital gains. If a country's net savings are positive and the accounting includes a sufficiently broad range of assets, according to economic theory the present value of social welfare is increasing. Conversely, persistently negative adjusted net savings indicate that an economy is on an unsustainable path.

The ANS indicator also involves several crucial deficiencies and limitations. It is, among other things, affected by the methodology of the accounting of natural resource depletion and pollution costs. Not only are there still some gaps in this field (such as important pollutants affecting human health and economic assets are excluded because no internationally comparable data are widely available on damage from ground-level ozone or sulphur oxides), but the final values are affected by the methods applied. Gnègnè (2009) showed that positive and significant relationship exists between the ANS and aggregate welfare but weak in magnitude (social welfare measured by changes in the HDI and Infant Mortality Rate over time). The ANS is an indicator of sustainability and it serves as a policy indicator as well. The methodology and the rationale behind it is also described in detail in Drastichová (2014; 2018).

Adjusted net national income (ANNI) is GNI minus CFC and natural resources depletion (NR). ANNI complements GNI in assessing economic progress by providing a broader measure of national income that accounts for the depletion of natural resources. It is calculated by subtracting from GNI a charge for the CFC (a calculation that yields net national income) and for the depletion of natural resources (GNI - CFC - NR). The deduction for the depletion of natural resources, which covers NFD, ED, and MD, reflects the decline in asset values associated with the extraction and harvesting of natural resources. This is analogous to depreciation of fixed assets. It differs from the adjustments made in the calculation of ANS by not accounting for investments in human capital or the damages from pollution. Growth rates of ANNI are computed from constant price series deflated using the gross national expenditure (formerly domestic absorption) deflator. (World Bank, 2021). So, ANNI per capita (constant 2010 USD) (ANNIc) and annual % growth of ANNI (ANNI_g) are applied in this analysis to reflect both the state, but in relative values, and the change. Since it is typical for quantitative macroeconomic indicators, such as GDP, that the more developed countries with the higher values usually have lower growth rates, both units are also used for this indicator, which is closer to SD indicators (it reflects both the economic and environmental dimension of SD)

Besides the environmental indicators included in the ANS indicators, representing both resource depletion and environmental (pollution) impacts, several crucial indicators were chosen to represent the environmental dimension of SD and sustainability in general, taking

into account key scientific concepts related to these two concepts, including alternative concepts. The circular material use rate (CMUR) measures the share of material recovered and fed back into the economy in overall material use. It is defined as the ratio of the circular use of material to the overall material use. The overall material use is measured by summing up the aggregate domestic material consumption (DMC) and the circular use of materials. DMC is defined in economy-wide material flow accounts (Eurostat, 2021). CMUR reflects an involvement of circular economy in the country, which is one of the crucial practical concepts shifting economies towards SD (e.g. Kirchherr et al., 2017). Fossil fuels material footprint in tonnes (The International Resource Panel, 2021) is divided by population on 1st January (Eurostat, 2021) and the FFMFpop indicator was constructed. In this indicator, the crucial impacts on the global problem of climate change are reflected. Hence the aspects of resource efficiency and planetary boundaries are represented, among other concepts. All the indicators included are related to the concepts presented in subsection 2.1.

2.1.2 Methodology and Model

The SWB index was calculated as a geometric mean of twelve indices summarized in Table 1, except for real GDP per capita, which was used only for measuring correlation with the SWB index. The years with missing data were either omitted or replaced with the data of neighbouring years where it was justified (especially, the data of the year, which was used, were not outliers). The indices are expressed in different units (monetary units (ANS, CD), such as percentages, tonnes/population (FFMFpop), years (HLY), scores (HI), or even geometric means of partial indices (IHDI)). Hence, they have different ranges and variances, and thus a normalization to a common scale is required. The methods that are most frequently used are standardization, i.e. z-scores, and rescaling. Standardization converts the indicators to a common scale of mean zero and standard deviation of one. Hence, above-average performance of a given indicator is assigned higher scores than consistent average scores across all indicators. Rescaling is an approach, which is easier to communicate to a wider public. It normalizes indicators to an identical range [0, 1], while higher scores are consistent with higher performance. A key advantage of this method over standardization in the context of SWB (similarly in the SSI framework) is widening of the range of an indicator, which is an advantage for those indicators with a small range of values. It allows differentiation between countries with similar levels of performance.

However, this method is not appropriate in the presence of extreme values or outliers, which can distort the normalized indicator. To control for this, it is necessary to avoid extreme values, which could bias the results. In this analysis, ANNIg exhibited such extreme values. Nevertheless, it was decided not to adjust/remove the values, since they also refer to sustainability of the country, particularly the macroeconomic sustainability and some aspects of the environmental sustainability are included. Hence, pursuing the SD path is also reflected.

The indices from Table 1, apart from GDPpc, are normalized by the min-max method, considering the direction of their effect. The direction of the indicators' effect was taken into account at this stage. The construction of this version of SWB index was inspired by SSF, (2016), Drastichová (2018) and Witulski and Dias (2020) (see more also on TH Köln (2021)). Nevertheless, the methodology described in Saisana and Filippas (2012) was favoured. The direction of the effect of the indicators included was considered at this stage. For indicators for which higher raw values lead to better results the formula was:

$$F(X) = \left(\frac{X_i - \min(x)}{\max(x) - \min(x)} \right) \cdot 9 + 1. \quad (3)$$

The previous formula (Eq. 3) was also applied in the calculation of HDI/IHDI. For indicators for which lower raw values are desirable, the formula was:

$$F(X) = \left(\frac{\max(x) - X_i}{\max(x) - \min(x)} \right) \cdot 9 + 1. \quad (4)$$

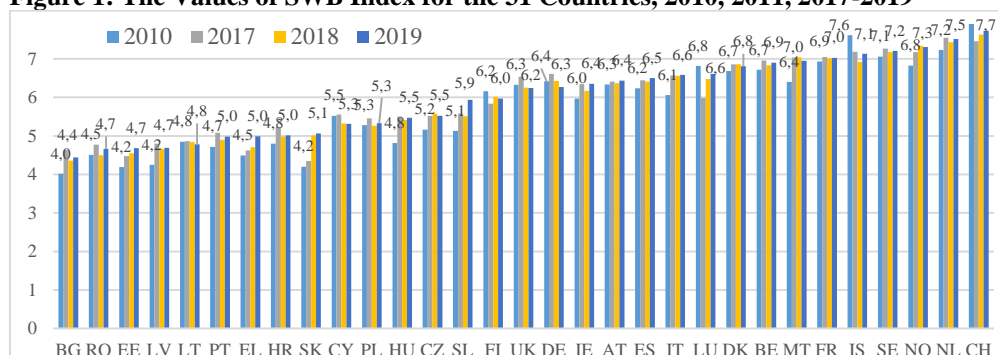
At this stage all normalised indicators are expressed in a 1-10 scale. Regarding the weighting of indicators, equal weights are assigned to all the indices included (Saisana and Philippas, 2012). For aggregation, the most frequently used aggregation methods are the arithmetic and geometric means (AM, GM). Some arguments against the use of the AM include perfect substitutability, i.e. poor performance in one indicator can be fully compensated by good performance in another; no penalty for an unbalanced performance: the arithmetic mean does not penalize the differences in values between indicators, i.e. it does not reward balanced achievement in all indicators; no impact of poor performance: the AM does not consider that the lower the performance in a particular indicator, the more urgent it becomes to improve achievements in that indicator. On the contrary, GM implies only partial substitutability, i.e. poor performance in one indicator cannot be fully compensated by good performance in another; it rewards balance by penalizing uneven performance in the underlying indicators, it provides incentives for improvement in the weak dimensions: the GM considers that the lower the performance in a particular indicator, the more urgent it becomes to improve achievements in that indicator (Saisana and Philippas, 2012). Hence, similarly to the application of GM in the SSI, the GM, which reflects the strong sustainability criterion, was also favoured in the SWB index against the AM, which reflects the weak sustainability criterion. Nevertheless, both indices contain ANS as one of their partial indices. Hence, the weak sustainability approach is also reflected to some extent. It must be pointed out that no solid scientific theory exists for the aggregation of values into one single index. Hence, the values may always be subjective and the purpose of the analysis is crucial. It is necessary to apply as much scientific knowledge in the field of SD/sustainability as possible (Kerk and Manuel, 2007).

The Pearson correlation coefficient (r) is used to measure the strength of a linear association between two variables, where the value $r = 1$ means a perfect positive correlation and the value $r = -1$ means a perfect negative correlation. It is a statistical measure of the degree of linear correlation between these two variables, but it can be highly sensitive to outliers. In this work, it is applied to evaluate relationships between the calculated SWB index and the first indicator displayed in Table 1, GDPpc.

3. Problem Solution

In this section, the results of the analysis of SD/sustainability and wellbeing of the countries by means of the SWB index are presented. The calculated values in the selected years are displayed in Figure 1. They are ordered according to the year 2019. The countries with high and low performance are clearly visible. The first group of countries (score above 6.6 each year) includes Switzerland, which is the best performing country almost each year, except for 2017, when it was surpassed by the Netherlands. Three Northern countries, including Norway, Sweden and Iceland, along with France are also in this group. The second group (scores below 5 in each/the majority of the years) includes Bulgaria, Romania, Estonia, Greece, Portugal (except for 2013 and 2017, when the values are slightly above 5), Slovakia (except for 2018 and 2019). However, an increase in the score in Slovakia is not likely to be a significant improvement, since FFMFpop is not available in these two years and Slovakia had the highest values of this indicator in each year (see Figure 2: an increase in the score over 2010-2017: 0.152).

Figure 1: The Values of SWB Index for the 31 Countries, 2010, 2011, 2017-2019



Source: Author’s calculation (source of the data: see Table 1)

Table 1 completes Figure 1. It shows the maximum/minimum values for each country and the year in which these values were exhibited. The lowest score in the sample over the monitored period was in Estonia in 2011 and the highest score in Switzerland in 2012 (see the grey fields in Table 2). It can be seen in Figure 2 that Switzerland had a decrease in the score between 2010 and 2017. The minimum values of Baltic countries are significantly affected by their minimum values of ANNIg. Each of the Baltic countries experienced a high drop in ANNIg in one year of the monitored period, i.e. LV: -11.851 in 2010; LT: -70.602 in 2015; and EE: -92.98% in 2011. As explained in subsection 2.1.1, these extreme values were not removed since they also affect the SD path, although they were influenced by the negative impacts of the economic crisis (the case for the majority of the countries in the sample). Table 2 shows that those values caused that these countries had the lowest scores in these years ((ANNIc: the highest/lowest average values: NO, CH, LU, DK, SE, NL /EE, BG, LT, RO, HU, HR; ANNIg: the highest/lowest average values: LV, IC, RO, BG, PL, HU, IE/EE, LT, GR, IT, CY, NO).

Table 2: Maximum/Minimum Scores of the SWB Index over the Monitored Period

C.	Max	Min	Max – v.	Min – v.	C.	Max	Min	Max – v.	Min – v.
AT	6.5	6.3	2012	2014	LV	5.1	4.2	2016	2010
BE	7.0	6.7	2017	2010	LT	5.2	4.2	2014	2015
BG	4.6	3.9	2017	2011	LU	6.8	5.9	2010	2016
HR	5.2	4.8	2017	2010	MT	7.0	6.3	2018	2012
CY	5.6	5.3	2011	2014	NL	7.5	7.2	2017	2013
CZ	5.6	5.2	2018	2010	NO	7.3	6.4	2018	2011
DK	6.9	6.5	2014	2012	PL	5.5	5.3	2014	2018
EE	4.7	3.7	2019	2011	PT	5.1	4.7	2013	2010
FI	6.2	5.8	2011	2016	RO	4.8	4.4	2014	2011
FR	7.1	6.9	2011	2012	SK	5.1	4.1	2019	2012
DE	6.8	6.3	2015	2019	SL	5.9	5.1	2019	2010
EL	5.0	4.1	2019	2011	ES	6.5	6.1	2019	2013
HU	5.5	4.8	2017	2010	SE	7.3	7.1	2017	2010
IS	7.6	6.6	2010	2011	CH	8.1	7.5	2012	2014
IE	6.4	5.9	2016	2012	UK	6.5	6.1	2017	2013
IT	6.6	5.9	2019	2012					

Source: Author’s calculation (source of the data: see Table 1)

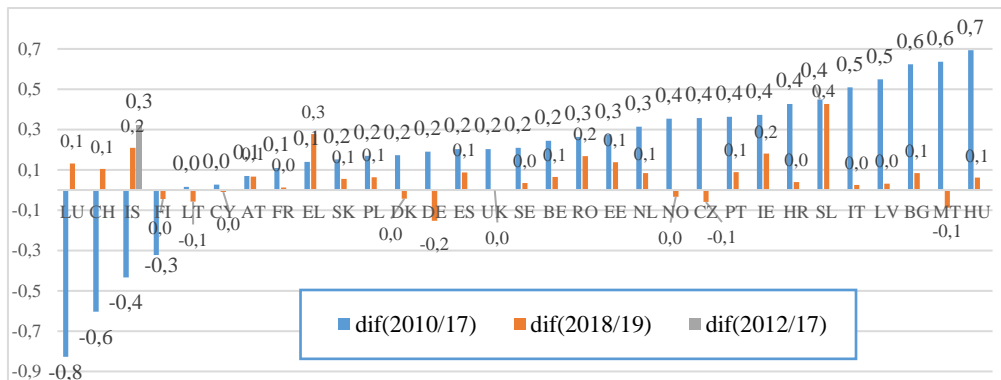
Note: C. – country, y. – year, min. – minimum value, max. – maximum value.

The lowest SWB average values were in Bulgaria, followed by Estonia, Slovakia, Greece, Romania, Latvia, Lithuania and Portugal. The highest ones were achieved by Switzerland, the Netherlands, Iceland, Sweden, Norway, France, Belgium, Denmark and Malta. Bulgaria had the lowest value in most of the years (2010, 2013, 2015, 2018, 2019) and it was followed by

Estonia (2011, 2014) and Slovakia (2012, 2016). In 2012 in Slovakia, this was due, in particular, to the minimum value of CMUR in this country in 2012 (the values are relatively low for each year) in combination with the maximum value of FFMFpop in that year. In 2016, its ANNIg was among the lowest when compared with other years. In the sample, the FFMFpop values were highest in Slovakia and third highest in Estonia each year, while those of Bulgaria are the second or third lowest over the monitored period. Slovakia also has among the lowest values of ANSp in the sample, while those other two countries are higher, especially those of Estonia (the average value is the highest among the new member countries). Nevertheless, the average value of ANSc in Slovakia is the highest in this group.

It is also desirable to briefly describe the values of other crucial indices involved in the construction of the SWB index in order to derive the background behind its values and their development (displayed in Figure 1, 2 and Table 1). Low values of ANSp were often typical of the new member countries and the Southern countries. Three Northern countries – Norway (19.077%), Sweden and Denmark (over 17% of GNI), followed by Switzerland (16.516), two Benelux countries – the Netherlands and Luxembourg (15.814 and 14.985 of GNI respectively) exhibited the highest average values. All these countries also exhibited high SWB values, although that of Luxembourg significantly decreased, similarly to its both ANS values (see below). Greece as the only country exhibited a negative average value of ANS and had also among the lowest SWB values. It was followed by Portugal and the UK (over 2%), Latvia (3.064), Italy and Romania (over 4%) and Cyprus (5.882% of GNI) (the highest values in 2019: DK, SE, NL, IR, CH, IS, EE, NO, HU; the lowest values in 2019: EL, UK, LV, PT, RO, IT, SK, CY, CZ). Apart from the UK and Cyprus, these countries also had low values of SWB (see Figure 1). However, Cyprus had a lower SWB score in the last two years, when FFMpop is not included. This country had among the lowest values of FFMpop each year, which improved its score in 2010-2017. Iceland, followed by Hungary and Ireland, experienced the highest increases, while Luxembourg, followed by Norway and Switzerland, had the most significant drops. In 2011 and 2012, Iceland exhibited negative values (in 2010 the value was not available), then the value increased annually except for 2017 and 2018. This also corresponds with the development of the SWB index (see Figure 2).

Figure 2: Changes in SWB Index Scores in the Partial Periods of the Overall Period



Source: Own elaboration (2022); (source of the data: see Table 1)

Hungary experienced the highest increase of SWB, Ireland and Iceland had relatively high increases (for Iceland – when the period 2012-2017 is considered due to the missing data of some indicators before, which would distort the results; see notes below Table 1). Several more developed countries, which are more populated, such as the UK, France and also Germany, had significantly worse average results, when the units of percentage of GNI rather than current

USD are used. On the contrary, several less populated developed countries, such as Luxembourg, some new member countries, such as Estonia, Hungary, Bulgaria and Lithuania, achieved a higher performance. Norway and Luxembourg also exhibited a decline in ANSc.

Over the period investigated (2010–2019), GDPpc increased in all the countries of the sample. IHDI decreased only very slightly in Spain (-0.004), while this was the case for HI in nine countries (from the highest to the lowest decrease: CY, NO, FR, AT, SE, BE, DK, NL, IE) (the highest/lowest average values of HI: DK, CH, NO, FI, IS/BG, HU, EL, PT, LV, HR, RO; the highest/lowest average values of IHDI: NO, CH, IS, FI, DK, SE, DE/BG, RO, HR, PT, LV, LT, EL). HLY declined in sixteen countries (from the highest to the lowest decrease: IS, UK, CH, DK, LU, AT, LT, CY, FI, LV, HR, CZ, EL, BE, EE, NO). When compared to HI, this indicator decreased in different groups of countries, i.e. at various levels of development. In 2010, HLY was below 60 in twelve countries (AT (2011)): eight new member countries and three older ones (PT, FI, DE, AT). Unusually, three new member countries (CY, BG, MT) exhibited relatively high values (the highest/lowest average values of HLY: SE, MT, ES, NO, IE, IT/LV, EE, SK, FI, AT).

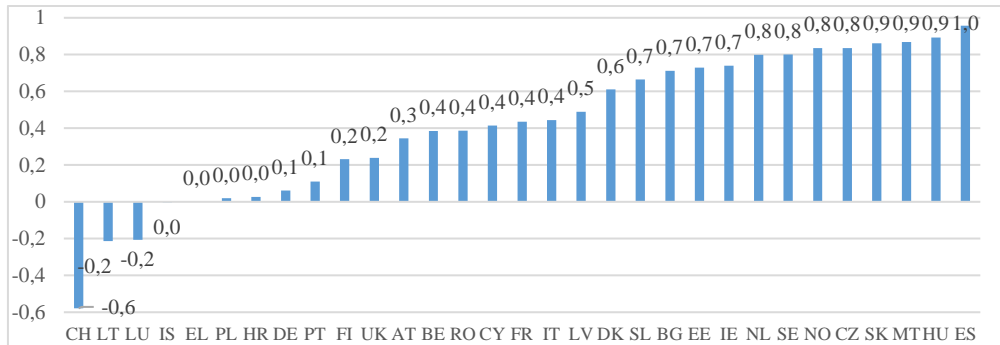
As regards the indicators reflecting the environmental pillar of SD included in ANS, CDp are predominantly low in the more developed and higher in the less developed countries, including the new member countries and the Southern countries, apart from Spain and Italy. Switzerland achieved the lowest value each year and was followed by Sweden, apart from 2011, when it was followed by Norway and Sweden had the third lowest value. (the highest/lowest average values: BG, EE, PL, CZ, RO, SK/CH, SE, NO, DK, IS, FR, AT, UK, IE). For CDc, the average values are the highest in the more populated, especially developed countries, but also those from the other groups. As regards the average values, Germany is followed by the UK, Italy, France, Poland, Spain and the Netherlands. The lowest average values were exhibited by Malta, followed by Iceland, Cyprus, Latvia, Luxembourg and Lithuania. The order does not differ substantially in the monitored period, it is predominantly similar to the average values. Concerning the overall NR indicator, the values in each year (and the average value of 6.024%) are unambiguously the highest in Norway. It is followed by Denmark in 2010, the UK in 2019 and Romania in the remaining years. These countries had the highest values in each year, along with Estonia, Croatia, the Netherlands and Bulgaria (except for Bulgaria in 2019). The lowest average values were achieved by Iceland and Latvia (the zero values in each year), followed by Switzerland (close to zero; the zero values: 2015-2019), Belgium (0.001; the zero value in 2010), France (0.008), Cyprus and Spain. The NR values increased in only three countries over the monitored period (PT, ES, BG). Norway exhibited the highest decline. Hence, this is also an important factor behind a relatively high increase of its SWB score, although several indicators having positive contribution to the SWB score declined (HI, ANS, HLY) and its CDp and FFMFpop slightly increased. Apart from some negative changes, the NR values are the only factor, which lowers the SWB score of this country, while Switzerland and the Netherlands also had relatively low HLY values.

On the basis of the values and development of the indicators included, the score of SWB decreased only in three developed countries in the period 2010-2017 (LU, CH, IS), but in nine countries between 2019 and 2018, especially in the more developed countries, and in Malta, Czechia and Cyprus from the new member countries (see Figure 2).

Due to the inadequacies of the macroeconomic indicator of performance GDP, it cannot serve as an indicator of human progress, wellbeing, and quality of life. Thus, it was not involved in the construction of the SWB index. However, it is verified if the values of GDPpc are correlated with this index. Figure 3 shows the r values between the SWB index and real GDPpc (the highest/lowest average values of GDPpc: LU, NO, CH, DK, IE, SE/ BG, RO, LV, PL,

HR, HU). Negative values were exhibited by only four countries, including the best performing country, i.e., Switzerland, the country with one of the highest levels of performance, Iceland, as well as one country with poor performance, i.e., Lithuania, and finally, Luxembourg, which had a relatively high score for the SWB index at the beginning of the monitored period, but also experienced the greatest fall in the sample (see Figure 2).

Figure 3: The Pearson Correlation Coefficient (r) between GDPpc and the SWB Index



Source: Own elaboration (2022); (source of the data: see Table 1)

Hence, no clear relationship was identified between the macroeconomic performance per capita and the SWB index. The countries with different values of the SWB index exhibit different values of correlation with real GDPpc. The best performing country, Switzerland, had the highest negative correlation with real GDPpc, while the second-best performing country, the Netherlands, had among the highest values. The remaining best performing countries, Iceland, Norway, Sweden and France also exhibited different values, with the negative ones in the first, high positive in the second two and medium positive in the last country. Among the countries with the poor performance, Lithuania had the second highest negative correlation, Slovakia and Hungary among the highest values. High correlation was also exhibited by Estonia and Bulgaria.

The composite indices constructed for countries, including SSI (SSF, 2016), the author's SDI (Drastichová, 2018), and SWB analysed in this work should serve to extend individuals' awareness of the extent of (un)sustainability and the progress towards the SD path of their countries. They allow for communication of this progress, comparisons of countries, and can help them in choosing appropriate instruments at the macroeconomic or at the national level in general. Comparisons of the scores of countries can encourage them to learn from one another and stimulate them to move closer towards the SD path.

Should humanity shift closer towards the application of concepts related to sustainability, which encompass ways of life respecting the limits of the planet, which provides people with the sources of wellbeing, quality of life, and their very survival, it is also necessary to continually advance the methodology of measurement in this field. The SWB index constructed in this work represents several advancements from previous works. Nevertheless, both the methodology of construction and the indicators included may differ according to the purpose of the analysis and there is significant room for potential improvements.

4. Conclusion

This work evaluates the crucial aspects of SD related to wellbeing, quality of life, and environmental limits, measured by the selected indicators (indices) in a sample of 31 countries in the period 2010 – 2019. All the dimensions of SD were included, while the indicators used

reflect at least one of these dimensions or specific aspects of SD/sustainability included in particular dimensions, especially health, inequality or subjective happiness.

From these indicators, an overall index, known as the Sustainability and Wellbeing Index (SWB), and based on the strong sustainability principle, was created and the overall performance of countries in sustainability and progress towards the SD path were evaluated. The aim of this work was to evaluate the performance of 31 countries in the sample in the period 2010 – 2019 by means of the SWB index, constructed by the author.

On the basis of the SWB index, Switzerland and the Netherlands achieved the highest average performance in the aspects included, reflecting sustainability/SD, wellbeing, and quality of life. High average performance was achieved by several Northern, Benelux and other developed countries – Iceland, Sweden and Norway, France, and Belgium and Denmark (they followed the previous two countries). In contrast, Bulgaria, followed by Estonia and Slovakia had the lowest performance. The less developed new member countries often lag behind in several dimensions of SD, including human/social development (reflected in IHDI), economic development (GDPpc), subjective happiness level, and the environmental dimension of SD (CD, CMUR). However, they often have low FFMFpop (except for Slovakia, Estonia, Lithuania, and Czechia). As regards the qualitative aspects of health, reflecting quality of life, HLY was also low in many developed countries, including Finland, Austria, Denmark, and Switzerland (ordered from the lowest to the highest average values).

Hence, it cannot be claimed that even the best performing countries are on the SD path, since on the one hand, the Netherlands had among the highest Cdc values and Norway the highest NR (among other aspects). Although their ANS/ANNI values are high, which is in compliance with the weak sustainability principle (in all the best performing countries where the data were available; except for Iceland in ANS until 2013), it is not environmentally sustainable as well as in general. The planetary boundaries (limits) are threatened. On the contrary, Switzerland with its low HLY values lags behind in the crucial aspects of quality of life related to health (a part of the social pillar of SD).

The relationships of this index with the indicator of macroeconomic performance per capita, i.e. real GDP per capita, were evaluated. No clear relationship was identified between the macroeconomic performance per capita and the SWB index, reflecting SD/sustainability, wellbeing, quality of life, including the aspects of happiness. The countries with different values of the SWB index exhibit different values of correlation with real GDPpc. The best performing country, Switzerland, had the highest negative correlation with real GDPpc, while the second-best performing country, the Netherlands, had among the highest values. Among the countries with the poor performance, Lithuania had the second highest negative correlation. On the other hand Slovakia, Estonia, Bulgaria and Hungary exhibited high positive values.

Despite the ongoing critique, sustainability and SD must not be abandoned. Although they are still nebulous and vague and often misinterpreted, they represent a critical challenge for the present and the future generations. However, many (re)interpretations have appeared and alternative concepts have developed which better fit to the actors at different analytical levels. The challenges for the future research involve improving the overall methodology for the measurement of sustainability and SD aspects. The construction of indices for the measurement of complex sustainability/SD aspects involves the application of a number of normalisation methods for comparisons and the further development of possibilities for flexible construction of appropriate indices in reaction to the requirements of the measurement (without distortions). Knowledge of sustainability science and practical aspects should be involved to the highest possible extent.

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The European Union Sustainable Competitiveness in the Context of the European Green Deal

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Abstract

The paper aims to present the concept of sustainable competitiveness on the theoretical ground, as well as to analyse the sustainable competitiveness of the European Union economies. Moreover, the significance of the European Green Deal (EGD) for the European Union sustainable competitiveness is discussed. An important research problem is the potential impact of the implementation of EGD principles on the EU's sustainable competitiveness. According to the thesis of this paper, the implementation of the European Green Deal's principles can improve the overall sustainable competitiveness of the EU as a whole in the long term, despite the costs of the planned green and digital transformation. However, this effect will markedly vary between the individual EU member states due to a number of differences between them, including in their economic development or the structure of their economies.

Keywords: European Green Deal, European Union, sustainable competitiveness

JEL Classification: L60, O11, O21

1. Introduction

In the recent years, as a result of a series of new environmental and social challenges facing humanity in the modern world, economists studying the issue of international competitiveness have started to highlight the need for more research in this area. Consequently, the new term of 'sustainable competitiveness' has moved into the spotlight of researchers' attention. This type of competitiveness, by definition, focuses not only and not so much on improving the resource productivity (both material and non-material), but also accentuates the pursuit of social fairness and sustainable use of the environment.

The main objective of this paper is: (1) to present the concept of sustainable competitiveness in theoretical terms, (2) to discuss the sustainable competitiveness of the European Union as a whole and of the individual EU member states, (3) to address the potential impact of the implementation of the European Green Deal (EGD) on the EU's sustainable competitiveness.

This paper puts forth the thesis that while implementation of EGD principles can be expected to improve the overall sustainable competitiveness of the EU as a whole in the long term, despite certain costs associated with the planned green and digital transformation, it is to be expected that this effect will vary between the individual EU countries, as a consequence of differences not only in their economic development or commitment to this ambitious strategy, but also in the structures of their economies, including the energy intensity of their industry and their primary energy sources.

2. Sustainable Competitiveness and Its Determinants

In view of the dynamically growing world economy and rapid development of human civilisation, whose exploitation of the Earth's (often non-renewable) natural resources is done in an increasingly uncontrolled way, as well as due to the emergence of a number of new challenges, including growing income inequality, unequal access to health care and education, social exclusion, climate change and other issues related to environmental protection, the concept of 'sustainable competitiveness' was introduced to economic discourse.

Sustainable competitiveness takes a new and broader approach to the phenomenon of competitiveness (Balkytė, Tvaronavičienė, 2010). According to the traditional approach, competitiveness is defined as the efficiency (understood as output maximization at the given input of production factors), and any changes thereof, of the use of the country's resources, and therefore it is strictly connected to the country's level of economic development and its ability to achieve faster growth in living standards than other countries (Boltho, 1996; Porter, 1990). Sustainable competitiveness, on the other hand, goes beyond this economic dimension, consisting in the changes in factor productivity only as it also takes into account the environmental and social aspects as new, integral dimensions of competitive processes in the modern world. Thus, it refers directly to the concept of 'sustainable development', which in the 1980s was defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987).

The pioneers of this approach to competitiveness are M.E. Porter and C. Linde (1995), who were the first to observe a relationship between competitiveness and the natural environment and who identified the need to include environmental aspects in the competitive strategies of both enterprises and whole economies. In turn, the need to also include social issues in competitiveness studies was mentioned by *inter alia* A. Kasztelan (2018), E. Doyle and M. Perez-Alaniz (2017), S. Thore and R. Tarverdyan (2016), K. Aiginger, S. Barenthaler-Sieber and J. Vogel (2015) as well as B. Giddings, B. Hopwood and G. O'Brien (2002).

According to the definition proposed by the World Economic Forum in Davos, sustainable competitiveness is the country's ability to improve productivity over the long term (which determines the competitiveness of its economy) while pursuing sustainable social development and environmental sustainability (World Economic Forum, 2014).

The sustainable social development, in turn, enables all members of society to experience the best possible health, equitable participation in the distribution of national income, and a sense of security, which will maximise both their contribution to the overall economic welfare of the country in which they live, as well as their individual returns from the economic growth and development thus generated. In turn, environmental sustainability is the use of the environment that ensures the rational and efficient management of resources, in order to secure the well-being of present and future generations (World Economic Forum, 2014).

Moreover, in this approach to sustainable competitiveness, attention is paid not only to improving resource productivity while ensuring sustainable social development and environmental sustainability, but also to the performance of the country's institutions, which is a major driver for the growth of factor productivity while maintaining social cohesion and environmental sustainability (Aiginger, Barenthaler-Sieber, Vogel, 2015). Indeed, social sustainability can be the result of institutional factors, including also policies providing all members of society with security and health care and ensuring participation in the country's economic and social life. Environmental sustainability, on the other hand, is connected with

the country's institutions and policies, especially those that ensure efficient management of natural resources, in order to increase the well-being of current and future generations.

According to the World Economic Forum (2014), in order to maintain the social cohesion as an important dimension of sustainable competitiveness, it is particularly important to: (1) effectively meet basic needs (measured by indicators describing sanitation, access to drinking water and health care); (2) address the risks of social exclusion (measured by employment rates, the size of the informal economy and indicators of social protection), (3) ensure social cohesion (measured by income inequality, social mobility rates and youth unemployment). In turn, environmental sustainability consists of the following elements: (1) the effectiveness of environmental policies (measured by indicators reflecting environmental standards and the compliance with them, as well as indicators of land protection and the number of ratified international environmental treaties); (2) the use of renewable resources (measured by indicators of changes in water levels, wastewater treatment, water stocking and afforestation); (3) environmental degradation (measured by air pollution, CO₂ levels, etc.) (World Economic Forum, 2014).

A slightly different definition of sustainable competitiveness was proposed by the Swiss-Korean think-tank SolAbility (which publishes the annual Global Sustainable Competitiveness Index). According to it, sustainable competitiveness is the ability to generate and sustain inclusive wealth without diminishing the future capability of sustaining or increasing current wealth levels in an environment of ever intensifying competition between countries (SolAbility, 2017).

SolAbility (2017) identified the following 5 main factors determining sustainable competitiveness: (1) natural capital (the availability of natural resources, both renewable and non-renewable, and their level of depletion); (2) social capital (health, safety, freedom, equality and life satisfaction); (3) resource efficiency (the efficient management of available resources); (4) intellectual capital (the capability to generate wealth and create jobs through innovation and value-added sectors in the globalised markets); (5) governance performance (the provision of a framework for sustained and sustainable wealth generation).

In the literature, there is also the concept of responsible competitiveness, which is synonymic to sustainable competitiveness. A. MacGillivray, J. Sabapathy and S. Zadek (2003) define it as adjustment of strategic activities of enterprises, public policy of the state and social and environmental factors to ensure sustainable development, which will increase the importance of the economy in the international arena. According to S. Zadek (2006), responsible competitiveness means that in an effort to improve their competitiveness, enterprises in their activities will take into account social and environmental aspects to a greater extent than before, and the authorities of the country in which these enterprises operate will support such business practices through their economic policy.

3. Sustainable Competitiveness of the EU Economies

The European Union, especially its Scandinavian member states, are among the world leaders in sustainable competitiveness, understood as defined by SolAbility (2021). What is more, their sustainable competitiveness has clearly improved over the last decade in comparison with other regions of the world. This proves the effectiveness of the Community policy oriented towards ensuring sustainable development, which directly drives the EU's competitiveness. Yet, as K. Aiginger (2021) argues, the fact that the EU is a world leader in terms of environmental and social indicators, has an inclusive health care system and ensures growing life expectancy, does not at all guarantee that it will continue to successfully achieve the new,

increasingly challenging climate-related targets and eliminate the emerging new social inequalities.

However, despite the gradual improvement in the EU's sustainable competitiveness observed so far, it is not surprising that within the EU the competitiveness of individual economies varies considerably (Table 1).

Looking at the overall score in the global ranking of sustainable competitiveness (which includes a total of 180 countries), the clear leaders are the Scandinavian countries. In 2021, Sweden was the most competitive country in the world in this respect, closely followed by Finland in second place and Denmark in fourth place. Interestingly, two other Scandinavian countries (although they are not members of the EU) – Norway and Iceland – were ranked 5th and 6th, respectively. The EU's strength in sustainable competitiveness is best demonstrated by the fact that a total of 7 EU member states were ranked in the TOP 10. Apart from Norway and Iceland, the other non-EU country in the TOP 10 is Switzerland (3rd place). The lowest ranked EU countries were Bulgaria (44th place), Greece (42nd place), and, the lowest of all, Cyprus (62nd place). However, as the ranking included a total of 180 countries from all over the world, the positions of Bulgaria, Greece and even Cyprus were relatively not so bad.

When analysing the sustainable competitiveness of EU economies, it is also worth taking a closer look at their scores within the 5 basic areas (pillars) of sustainable competitiveness, i.e.: 'natural capital', 'resource efficiency', 'intellectual capital', 'social capital' and 'governance performance' (Table 1).

The two pillars of sustainable competitiveness in which the EU member states perform best with relatively low disparities are 'intellectual capital' and 'governance performance'. On the other hand, individual EU economies fare the worst in comparison with the rest of the world in terms of 'natural capital' and, above all, 'resource efficiency'. The latter one is understood as the ability to manage available resources (natural capital, human capital, financial capital) – regardless of whether scarce or abundant, domestic or imported – in such a way as to minimise the cost of their use and the impact on the environment (SolAbility, 2021).

It seems that particularly alarming is the weak competitive position of quite a large number of EU countries in 'resource efficiency', which is the area in which the efficiency of the country's use of its available resources is assessed. As many as 8 countries were classified in the Second 100 of the ranking, with Poland (143rd out of 180), Bulgaria (145th) and Cyprus (148th) ranked the lowest. The Czech Republic (127th place) and Slovenia (128th place) also scored poorly in this respect. What's more, in the pillar of 'resource efficiency' there is also the widest gap between the most (Sweden, 18th) and least competitive EU country (Cyprus, 148th), a difference of 130 places in the ranking. The gap between the most and least competitive EU economy is almost equally big in the 'natural capital' pillar (126 places). The most competitive Sweden ranks 15th, while Belgium is only 141st.

Given that, as stated above, the EU countries' international competitiveness is the lowest in the pillars of 'natural capital' and 'resource efficiency', the implementation of the New European Deal may help significantly improve it. Such a change would obviously have a positive impact on the sustainable competitiveness of these countries (and the EU as a whole) on the international level, which is particularly desirable in the contemporary global economy.

Table 1: Sustainable Competitiveness of EU Economies in 2021

Country	Overall		Natural Capital		Resource Efficiency		Intellectual Capital		Social Capital		Governance Performance	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Austria	9	56.6	65	49.1	68	50.3	18	58.7	6	60.7	10	64.0
Belgium	24	53.0	141	36.9	86	48.0	19	58.5	5	61.2	31	60.4
Bulgaria	44	49.6	51	51.9	145	37.8	47	47.4	56	49.0	24	61.7
Croatia	14	55.1	11	61.4	99	47.0	40	49.1	29	54.5	15	63.6
Cyprus	62	47.5	127	38.8	148	36.7	41	48.8	27	55.4	46	57.8
Czechia	26	52.9	111	40.7	127	41.7	23	55.7	18	56.7	3	69.7
Denmark	4	60.2	45	53.2	24	56.4	5	66.8	9	60.4	11	64.0
Estonia	11	56.1	73	48.1	116	43.8	27	54.9	8	60.4	1	73.2
Finland	2	60.7	17	59.8	67	50.6	10	64.3	4	62.3	4	66.3
France	8	56.8	41	54.2	20	57.3	17	58.7	26	55.4	44	58.3
Germany	10	56.6	78	46.2	52	52.3	11	63.2	19	56.1	5	65.0
Greece	42	49.6	87	44.7	114	44.7	35	50.3	48	50.7	47	57.8
Hungary	36	50.8	82	45.5	95	47.4	22	56.3	76	45.8	38	59.1
Ireland	7	57.6	56	51.4	19	57.7	32	51.2	24	55.8	2	71.7
Italy	32	51.7	90	44.2	57	51.4	34	50.5	28	54.6	48	57.7
Latvia	22	53.5	30	57.6	88	47.9	44	48.1	44	51.4	17	62.6
Lithuania	25	53.0	48	52.6	76	49.7	36	50.0	38	53.4	36	59.3
Luxembourg	19	53.9	55	51.5	73	49.8	52	46.0	10	59.8	18	62.5
Malta	31	51.7	84	45.1	87	48.0	43	48.5	35	53.5	16	63.4
Netherlands	20	53.9	103	41.4	71	50.1	15	60.3	17	57.9	34	59.7
Poland	35	51.2	77	46.2	143	38.2	26	55.5	33	53.7	19	62.3
Portugal	16	54.8	64	49.5	84	48.6	25	55.5	14	59.4	26	60.9
Romania	29	52.3	40	54.7	40	54.0	98	38.7	36	53.5	25	60.9
Slovakia	23	53.1	58	51.0	110	44.9	29	52.8	21	56.0	29	60.7
Slovenia	18	54.3	72	48.1	128	41.7	21	57.5	7	60.5	14	63.7
Spain	27	52.7	66	49.0	74	49.8	53	45.3	22	56.0	13	63.7
Sweden	1	61.2	15	60.2	18	58.0	4	67.9	3	62.4	49	57.6

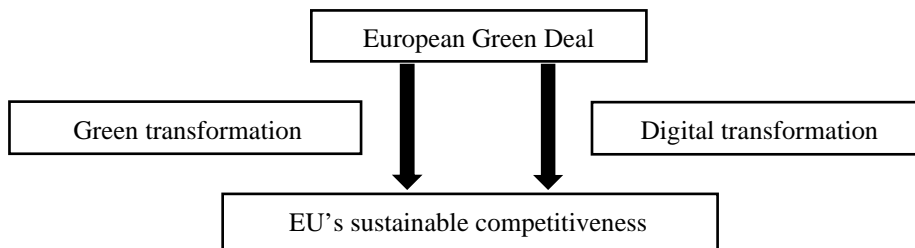
Source: Own study based on: SolAbility (2021).

4. Impact of the European Green Deal on the European Union Sustainable Competitiveness

The European Green Deal is a development strategy to transform the European Union into a climate-neutral bloc by 2050 (van Zeben, 2020). It is a response to the ongoing climate crisis and severe environmental degradation. According to the general principles of the European Green Deal (European Commission, 2019), the European Union aims to become a society that is ultimately: (1) climate natural, (2) fair and prosperous, (3) with a modern, resource-efficient and environmentally friendly economy. In particular, it assumes: (1) creation of a safe and clean energy system by 2050, (2) transition towards a circular economy, (3) move towards sustainable and smart mobility, (4) rationalisation of energy use in industry and households, and (5) restoration and protection of ecosystems and biodiversity. All these activities also directly contribute to the implementation of the concept of the European Union's sustainable development (Falkowski, 2019).

The European Green Deal, in connection with the implementation of its strategic objectives, assumes the necessary green and digital transformation of the European Union as whole and all individual EU member states, which will significantly impact and transform both their economies (in particular, it will be a great challenge for the European industry to maintain its current highly competitive position while decarbonizing energy-intensive industries) and societies (Figure 1). This will require the adoption of new technologies, which needs to be accompanied by appropriate investment and innovation. This transformation will lead to the creation of new products, services, markets and business models. This green and digital transformation of the European Union, as part of the European Green Deal, will mean a transition from linear production to a circular economy.

Figure 1: Impact Channels of the European Green Deal on the European Union Sustainable Competitiveness



Source: Own elaboration.

Green transformation – one of the two key channels for the European Green Deal's impact on the EU's sustainable competitiveness – aims to: (1) protect the climate by reducing air pollution, (2) create a circular economy, especially in the context of waste, recycling, sustainable production and resource efficiency, (3) enhance biodiversity conservation, (4) create a sustainable food system and sustainable rural areas, and (5) improve the quality of life of Europeans by improving the environment, including the quality of air and water (European Commission, 2019).

A crucial element of green transformation is energy transition, understood as the transformation of the current energy system based on non-renewable energy sources (mainly fossil fuels) into an energy system based mainly on renewable and zero- or low-carbon sources. This process will include the gradual replacement of finite hydrocarbons and uranium fuel with renewable energy sources (RES) with the aim of complete decarbonization of energy-intensive

sectors of EU economies (transport, industry, power generation, heating, construction, agriculture, etc.). The energy transition understood as a conversion towards a sustainable economy, based on energy efficiency, low-carbon energy sources and electromobility will not only be conducive to environmental protection, but – in the long term – will strengthen the EU's sustainable competitiveness.

In turn, digital transformation – the second of the two key channels for the European Green Deal's impact on the EU's sustainable competitiveness – involves: (1) fostering solidarity and social inclusion, (2) ensuring freedom of choice online, (3) promoting participation in the digital public space, (4) enhancing safety, security and human empowerment in the digital environment, and (5) promoting the sustainability of the digital future (European Commission, 2021).

From the perspective of the concept of sustainable competitiveness (as defined by SolAbility), the implementation of the European Green Deal will have an impact on all 5 pillars of sustainable competitiveness, i.e.: 'natural capital', 'resource efficiency', 'intellectual capital', 'social capital' and 'governance performance' (SolAbility, 2017).

However, given the current competitiveness of individual EU member states within the above-mentioned 5 pillars of sustainable competitiveness, including in particular the existing disparities between them (as discussed in the preceding section of this study), it appears that it will be extremely difficult to implement the principles of the European Green Deal in two of those pillars, 'natural capital' and, above all, 'resource efficiency'.

In this respect, a particular challenge is faced by industry in the EU. In the spirit of implementing the European Green Deal, EU industry needs to become greener, and more digital and circular than today, while remaining internationally competitive.

The global competitive advantage of EU industry should be in products and services with high added value, and meeting the highest environmental and social standards. With EU funding and innovation capacity, EU industry can become a world leader in green technologies in the near future, which would significantly improve the overall sustainable competitiveness of the EU as a whole.

It is to this end that, as part of the implementation of the European Green Deal, in March 2020 the European Commission announced the New Industrial Strategy for Europe (European Commission, 2020). This strategy aims to support EU industry in its transition towards climate neutrality. This support is necessary due to the fact that some industrial sectors will have to change more, and more radically, than others in order to be effective in achieving the objectives of the European Green Deal.

However, there is no doubt that the modernisation and decarbonization of energy-intensive EU industries (such as steel, cement and chemical sectors) must be a priority for action. The challenge is all the greater in this respect as some of the EU member states still produce a large proportion of their energy from solid fossil fuels (Table 2). Moreover, these countries also have high industrial energy intensity, which will not facilitate the transition.

In view of the above, it is therefore to be expected that while implementation of the principles of the European Green Deal will help improve the overall sustainable competitiveness of the EU as a whole in the long term, despite certain costs of the planned green and digital transformation, its impact will vary between individual EU member states, as a consequence of differences not only in their economic development or commitment to this ambitious strategy, but also in the structures of their economies, including the energy intensity of their industry and their primary energy sources.

Table 2: Energy Production in the EU27 in 2020 (% Share of Total Production)

	Renewable energy	Nuclear energy	Solid fossil fuels	Natural gas	Crude oil	Other
Austria	84.9	0.0	0.0	5.1	4.5	5.5
Belgium	29.9	62.8	0.0	0.0	0.0	7.3
Bulgaria	23.8	40.0	34.5	0.4	0.0	1.3
Croatia	62.3	0.0	0.0	18.9	16.2	2.6
Cyprus	96.3	0.0	0.0	0.0	0.0	3.7
Czechia	22.1	31.9	43.3	0.7	0.4	1.6
Denmark	45.6	0.0	0.0	12.5	37.9	4.0
Estonia	42.0	0.0	0.0	0.0	0.0	58.0
Finland	64.4	30.1	0.0	0.0	0.0	5.5
France	22.8	75.2	0.0	0.0	0.5	1.5
Germany	47.5	16.9	23.9	4.1	2.0	5.6
Greece	64.8	0.0	33.0	0.1	1.9	0.2
Hungary	29.3	38.3	8.8	12.5	7.9	3.2
Ireland	45.5	0.0	0.0	46.7	0.0	7.8
Italy	72.6	0.0	0.0	8.7	14.3	4.4
Latvia	99.3	0.0	0.0	0.0	0.0	0.7
Lithuania	83.9	0.0	0.0	0.0	1.6	14.5
Luxembourg	85.3	0.0	0.0	0.0	0.0	14.7
Malta	100.0	0.0	0.0	0.0	0.0	0.0
Netherlands	26.0	3.5	0.0	62.9	2.7	4.9
Poland	21.6	0.0	69.0	5.9	1.6	1.9
Portugal	98.0	0.0	0.0	0.0	0.0	2.0
Romania	25.9	12.9	11.6	33.1	14.5	2.0
Slovakia	32.3	59.8	3.6	0.8	0.0	3.4
Slovenia	30.8	42.7	24.7	0.1	0.0	1.7
Spain	55.4	42.8	0.0	0.1	0.1	1.6
Sweden	62.8	34.5	0.0	0.0	0.0	2.7

Source: Own elaboration based on Eurostat data (2022).

5. Conclusion

Sustainable competitiveness is a relatively new economic concept. Competitiveness understood in this way means not only growing efficiency of material and non-material resources use, but also emphasises striving to ensure social cohesion and environmental sustainability. Its emergence and growing popularity are a direct consequence of a series of new challenges faced by humanity amid the dynamically developing world economy. These include, *inter alia*, climate change, brought on by global warming due to increased greenhouse gas emissions as a result of the human economic expansion, as well as growing global income inequalities and the related unequal access to health care and education, which contribute significantly to the problem of social exclusion and inequality of opportunities for individuals to meet their basic social needs, as well as opportunities of development.

The analysis of the contemporary global economy from the perspective of sustainable competitiveness shows that the European Union, especially its Scandinavian member states, are among the world leaders in this area. However, it is important to note that within the European Union, the sustainable competitiveness of individual EU countries varies considerably.

Nevertheless, in view of the fast-growing international competition in the modern world in general, it would be very naïve to assume that the EU's sustainable competitiveness can be maintained in the future without any effort. In fact, other (non-EU) countries are already very strong, and well positioned to secure more advantages, in various areas of sustainable competitiveness, which they have already succeeded in doing (for instance, Norway, Japan or the USA). For example, the EU's international competitors have advantages in areas such as electrification of road freight and air transport, solar energy, carbon capture and storage, electric batteries and electric vehicles. All this, as well as the highly conscious need to take concrete action to combat climate change and global social exclusion, underpinned the launch of the European Green Deal.

The implementation of the European Green Deal, which involves pursuing the European Union's twofold transformation, i.e. the green transformation and the digital transformation, is expected to help the EU further strengthen its sustainable competitiveness so that it remains the world leader in this area. On the other hand, motivating other countries to follow in the EU's footsteps will greatly enhance the progress of efforts to reduce the negative effects of the environmental and social challenges discussed above.

What's more, given the importance and relevance of the issues addressed in this paper, it seems advisable to conduct further, more in-depth research on the EU's sustainable competitiveness. In particular, there is a need to identify the main determinants of sustainable competitiveness in individual EU member states, in order to be able to formulate specific recommendations for the policymakers in these countries to take decisions and actions for effective green and digital transformation with the aim of improving the sustainable competitiveness of their economies. To this end, methods of analysis based on econometric models can potentially be used.

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The Impact of COVID-19 on EU Trade

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Abstract

The COVID-19 pandemic has changed the life of millions of people around the world. This issue has economic and social consequences. In the trade area, countries have taken different trade policy measures since 2020 with the objective of protecting their domestic industries and people. It also showed a high level of integration of some economies, and their vulnerability at the time of crisis. This paper is focused on European Union (EU) trade in the period December 2019 to November 2021. The objective of the paper is to show the development of EU trade and trade measures, to find out the impact of the health crisis on EU trade, and to show what role the EU played in world trade at this time. The results of the trade analysis show the leading position of the EU in world trade, but also its vulnerability with respect to material and intermediates dependence on imports especially from the EU's main competitors. Besides technological innovation, trade negotiations about removing barriers to trade are the way how to eliminate the negative impact of different crises on EU trade.

Keywords: EU, global value chains, protectionism, trade policy

JEL Classification: F10, F53, F55, F60, F68

1. Introduction

Since the end of 2019 humankind has battled with the COVID-19 virus, which has already killed more than five million people in the world. International organisations, such as the World Health Organization (WHO), the World Trade Organization (WTO) and the World Intellectual Property Organization (WIPO), signed a Joint Statement (WTO, 2021a) in which they committed to working closely together to help overcome the COVID-19 pandemic and its devastating human, social, and economic impacts. In general, the role of the WHO is to provide technical and policy advice to its member states upon request and to take an active part in capacity building activities. The WIPO provides information and tries to contribute to a better understanding of the role of the intellectual property system. The WTO, among other things, works on innovation and access to health technologies. This trilateral cooperation includes a series of workshops to support the flow of information on the pandemic and implementing a joint platform for technical assistance to member governments relating to their needs for medical technologies. As of December 2021, the main producing economies, i.e. countries where the final vaccines against COVID-19 were made or where fill and finish was completed, were China and the European Union. These two countries share in the world production of vaccines against COVID-19 by 43.5% and 23.3%, and they were also their main exporters. The ten leading producers and exporters also included India, the USA, Russia, South Korea, Brazil, Mexico, South Africa and Thailand. These ten countries accounted for 98.6% of the world production of vaccines against COVID-19 and they covered 99.7% of vaccines exports (WTO, 2022).

Besides losses of human lives, in response to the exponential rise in COVID-19 infections, many countries around the world implemented lockdowns, travel restrictions, social distancing policies, and workplace and school closures, which led to the decline of economic activity across different sectors. For example, the economic impact analysis of the International Civil Aviation Organization reveals that in the month of April 2020 when almost all countries implemented a full or partial lockdown, air traffic fell drastically to nearly zero with unprecedented contractions of over 90%. For the first half of 2020, the number of passengers dropped by 56% compared to 2019, from 2.2 billion to one billion (WTO, 2020a). Foreign direct investments were also hit by the COVID-19 pandemic; in 2020, they fell by one third to one trillion USD, well below the low point reached after the global financial crisis a decade ago (UNCTAD, 2021a). Hamulczuk and Skrzypczyk (2021), who analysed the impact of COVID-19 on the producer process in the EU-27, found out that the COVID-19 pandemic caused changes in the EU countries in the export-import ratio and price in the second and third quarters of 2020.

On the other hand, the COVID-19 pandemic was a challenge and opportunity for some countries and companies, which accepted new business plans and filled the market by those products and services which were more demanded. The pandemic also highlighted the importance of digital technologies, and the role of e-commerce.

The objective of the paper is to show the development of EU trade and trade measures, to find out the impact of the health crisis on EU trade, and to show what role the EU played in world trade at this time. In this vein, firstly, the principle of EU trade and trade policy will be described. Secondly, the development of the total EU external trade will be explored in the period December 2019 to November 2021, and also the trade policy measures that were introduced by the EU and other countries which are members of the World Trade Organization (WTO) in connection with the COVID-19 pandemic will be analysed. Lastly, the impact of the pandemic on EU trade and its position in world trade will be deduced.

2. Problem Formulation and Methodology

The European Union (EU) is a highly open country in the world. From the point of view of trade flows, and the exports and imports of goods and services, it accounted for almost 86% of gross domestic product (GDP) in 2020, while the world average was 52% at the same time (The World Bank, 2022). With respect to the departure of the United Kingdom from 1 February 2020, the EU consists of 27 countries. Although the importance and structure of the foreign trade of the EU individual countries is different, the analysis is focused on the total EU trade. The reason for this is the fact that the EU has a Common Commercial Policy, and the trade measures that were accepted by the EU to third countries in the time of the COVID-19 pandemic were the same for all EU member states. Except for the trade area, however, in the area of public health the EU has supporting competencies; thus, it can only support, coordinate or complement the actions of member countries in compliance with the EU treaties. In this vein, the EU's activities related to COVID-19 include: supporting the EU's recovery, coordinating travel measures, slowing the spread of the virus, providing safe and effective COVID-19 vaccines, supporting the EU health systems, protecting jobs, helping the EU countries fund their COVID-19 response, boosting European solidarity, supporting the most hit economic sectors and developing a partnership to support its partners around the world. The European Commission also set apart the amount of 2,364.3 bill. euros to support the EU's economic recovery from the COVID-19 pandemic (European Council, 2022).

Another important fact is that the EU trade flows have been globalised. This means that the EU companies divide their activities across the world, from the design of the product and manufacturing of components to assembly and marketing, creating international production chains. Thus, more and more products are “made in the world”. As the EU member states are not homogenous economies, some countries participate in these global value chains (GVCs) through forward linkages or backward linkages in dependence on their production conditions and source equipment. Besides the different forms of the participation of the EU member countries in GVCs (such as backward linkage and forward linkage), also the level of participation of the individual countries in GVCs is different. Among the EU member states, Germany is the most important hub in complex GVCs networks.

It is typical that the predominant part of the gross exports of a country is created by domestic value. The European Union also records a higher share of domestic value added than foreign value added. The foreign value added in industry sectors accounts for almost 16% of the EU gross exports, and the foreign value services added share accounts for more than 8% of gross exports (OECD, 2021). Although the foreign value added creates a smaller part of the EU gross exports, it shows a given level of the EU dependence on external resources. Problems arise especially in the time of economic or health crises in the world, such as the COVID-19 pandemic, when countries accept new barriers to trade (see Table 1) in order to protect their industries and jobs. Then a limited supply of components and inputs imported from other countries jeopardises the final production at the domestic market. In addition, Evenett (2021) pointed out that the EU’s export authorisation regime created the grounds for retaliation for some of EU’s trading partners.

Thus, the trade analysis includes trade and trade-related measures which have been notified since 2000 in connection with the COVID-19 pandemic. The methodology of non-tariff measures (NTMs) was created by the UNCTAD from databases such as the WTO COVID-19: Measures Affecting Trade in Goods; WTO Quantitative Restrictions and ITC COVID-19 Temporary Trade Measures, with additional UNCTAD research covering national government websites of laws and regulations. Then, the UNCTAD categorised the type of non-tariff measures by using the International Classification of NTMs (see the abbreviation in brackets in Table 1). Table 1 records all commonly used NTMs which were accepted by countries in connection with the COVID-19 pandemic. In principle, not all measures have a protectionist character. For example, exemptions from duties and taxes, the relaxation of sanitary and phytosanitary (SPS) requirements, and easing on non-automatic licencing requirements on imported medical supplies made the trade of such goods easier, and thus ensured adequate supplies for the source country. On the other hand, the use of export prohibitions, export quotas, licencing, and permit or registration requirements to the export of medical supplies negatively affected trade, because they deteriorated the availability of essential goods in import-dependent countries. Some measures like export monitoring and surveillance requirements helped ensure that the exported products were safe and of high quality, but they also caused the delay of exports due to the additional inspections and checks. The complex overview of NTMs relating to the COVID-19 pandemic is shown in Table 1, which includes two categories of NTMs, trade restricting measures and trade facilitating measures.

Table 2: The Categorisation of the COVID-19 Non-Tariff Measures

Trade Facilitating Measures	Trade Restricting Measures
Tax and duty exemptions, reductions, other fiscal incentives (L41)	Export prohibition (P31)
Regulations concerning terms of payment for imports (G4)	Licensing, permit or registration requirements for export (P33)
Licensing for the protection of public health (E125)	Prohibitions for SPS reasons (A11)
Certification requirements for SPS reasons (A83)	Temporary prohibition, incl. suspension of issuance of licences (E313)
Transfers of funds by the government (grants) (L11)	Export quotas (P32)
Anti-dumping duties (D12)	Export monitoring and surveillance requirements (P22)
Certification requirements for technical barriers to trade reasons (B83)	Export prohibition for SPS reasons (P17)
Support for consumers or producers not elsewhere specified (L9)	Prohibition for the protection of public health (E325)
Prohibition for the protection of public health (E325)	Other pre-shipment inspection formalities not elsewhere specified (C9)
Product quality, safety, or performance requirements for TBT reasons (B7)	Authorisation requirements for importing certain products for TBT reasons (B14)
Authorisation requirements for importing certain products for TBT reasons (B14)	

Source: UNCTAD (2021b)

Qualitative research is added by statistical data about the EU trade in the period December 2019 to November 2001. Trade data are recorded in the gross value of trade.

3. EU Trade in the Time of the COVID-19 Pandemic

Although the first positive cases of COVID-19 only occurred in the EU (namely in Spain, France and Italy) in January 2020, the EU had already recorded the decline of merchandise exports and imports in 2019. The drop of the EU merchandise exports and imports continued in 2020, but it was lower than in the world. Mariani (2021) also confirmed that trade barriers negatively affected intra-EU trade as well as external trade with third countries. While merchandise trade recorded a decline in both years, i.e. in 2019 and 2020, the EU commercial services exports and imports only recorded a decline in 2020. It was the result of government measures that limited the free movement of people across regions and countries. As of March 2020, the EU member countries imposed temporary restrictions on non-essential travel from third countries to the EU (exceptions were expected for nationals of all EU member states and Schengen Associated States). The large majority of the prevention measures in the EU member countries were taken during mid-March 2020, and were kept throughout April. In May and June, most measures were completely or partly lifted. With the increasing COVID-19 cases after the summer holidays, several countries re-introduced the measures in September and October 2020. Hotel and restaurant services were most strongly affected (Eurostat, 2021a).

The main EU partner for exports in 2020 was the USA and for imports China; both these countries were also significantly hit by the COVID-19 pandemic. Among the EU member countries, Germany had the highest share of extra EU trade in 2020, contributing 30% of the

EU's exports of goods to non-member countries and accounting for more than one fifth (22%) of the EU's imports (Eurostat, 2021b). It again confirms the important role of Germany in world trade that is carried out through global value chains. In terms of commercial services, the drop of the EU exports and imports was lower than in the world (see Table 2).

Table 3: EU Merchandise Trade and Trade in Commercial Services in 2019-2020 (Annual Percentage Change)

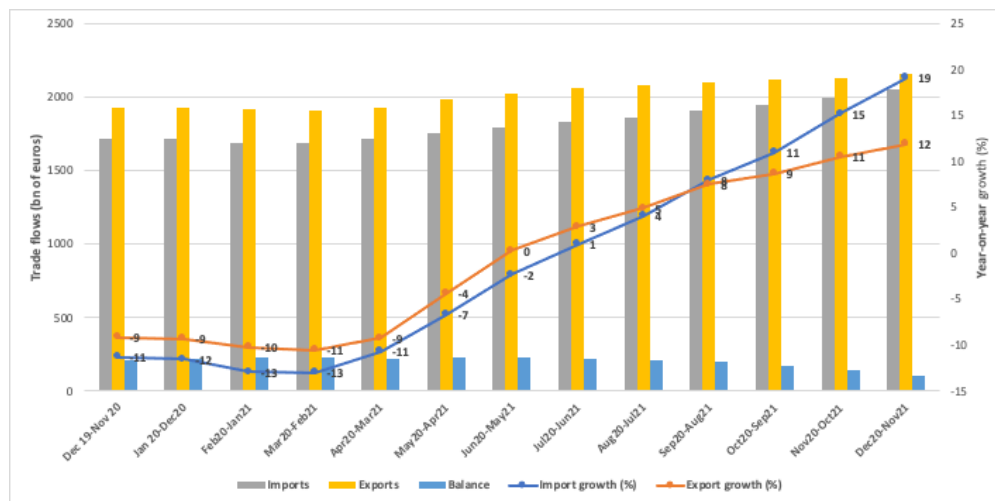
Merchandise					
Exports	2019	2020	Imports	2019	2020
EU	-3	-6	EU	-4	-7
World	-3	-8	World	-3	-8
Commercial services					
Exports	2019	2020	Imports	2019	2020
EU	2	-16	EU	5	-17
World	2	-20	World	3	-21

Source: WTO (2021b)

As the data for the entire year 2021 have not been published yet, Figure 1 records the changes of the growth of the EU exports and imports (year-on-year growth), which compared to the same period 12 months earlier. As Figure 1 shows, the EU recorded the highest decline of its exports as well as imports between March 2020 and February 2021 in comparison with the previous 12 months (from February 2020 to January 2021), when the EU merchandise exports to the rest of the world declined to 1,910 bn euros (a decline of more than 10%), and the imports decreased by 13% at the same time. The growth of trade started in the period from July 2020 to June 2021, when export grew by 2.9% and imports by 1% in comparison with the previous 12 months, i.e. between June 2020 and May 2021. Figure 1 also shows the fact the EU recorded trade surpluses for the whole time.

Although machinery and vehicles were the main tradable items, which accounted for 39% of EU exports and 34% of EU imports in 2020 (Eurostat, 2021b), the importance of trade in goods used in direct response to the COVID-19 pandemic was also recorded. Trade in COVID-19 related products included namely sterilisation products, medical vehicles and furniture, protective garments, diagnostic testing equipment, medical devices, oxygen equipment and medical consumables. Despite the economic downturn and a decrease in the total EU trade in 2020, extra-EU imports of COVID-19 related products increased by 10% and exports by 6% compared to 2019. Among COVID-19 related products, the highest increases for EU exports to third countries were recorded for sterilisation products (+16%) and diagnostic testing equipment (+15%), and EU imports of protective garments and oxygen equipment recorded the highest increases (+40% and 39% respectively compared with 2019), followed by diagnostic equipment and sterilisation products (both around 20%) (Eurostat, 2021c). The EU main trading partners for COVID-19 related products were the USA and Switzerland for exports as well as imports. The United Kingdom was the third largest partner for EU exports, while China for imports (Eurostat, 2021d).

Figure 4: Changes in the EU-27 Merchandise Trade with Third Countries in the Period December 2019 to November 2021



Source: Eurostat (2022), Own elaboration (2022)

In term of NTMs, as of mid-March 2021, nearly 300 measures were applied. UNCTAD (2021b) estimates that nearly 40% of all trade restrictive NTMs have been terminated (T), but 60% of them are still in place (A) and NTMs on vaccines are starting to appear. Table 3 shows the number and type of NTMs that were introduced by the EU and its main trading partners, i.e. the USA and China. China applied the highest number of COVID-19 related NTMs, from which only one is facilitating trade. The remaining five NTMs represent barriers to trade, and all of them are active all the time. The USA, similarly to the EU, applied four NTMs in total, which are active as well. Besides the four NTMs that were applied by the EU, some of its member countries applied other NTMs (see Table 4), especially with a negative impact on trade. From trade restricting measures, especially export prohibition and the licencing system were the most often used NTMs in the EU and also in the USA. While the EU and the USA focused their protection on medical and personal protective goods, China also restricted essential food products.

Table 4: COVID-19 Non-Tariff Measures in the EU, the USA and China

European Union		United States of America		China	
Facilitating	Restricting	Facilitating	Restricting	Facilitating	Restricting
L41 / A	P33 / T	E325 / A	P33 / A	C9 / A	P16 / A
L41 / A	P31 / A	G4 / A	P33 / A		P33 / A
					A11 / A
					P17 / A
					A11 / A

Source: UNCTAD (2021b); Own elaboration (2022)

Table 5: COVID -19 Non-Tariff Measures Applied in the Individual EU Member Countries

Facilitating measures		Restrictive measures	
Type of NTMs	Country	Type of NTMs	Country
B83	Italy	P22	Poland
G4	Spain	P31	Belgium, Bulgaria (3), Cyprus, Czechia (2), France, Germany, Greece (2), Hungary, Latvia, the Netherlands, Romania (2), Slovakia, Slovenia
		P33	Cyprus, Estonia

Source: UNCTAD (2021b); Own elaboration (2022)

Besides NTMs, the EU facilitated trade in all goods to combat the effects of the COVID-19 outbreak by tariff or duty exemption or reduction. China facilitated trade by temporary exemptions from the additional 10% ad-valorem rate of duty tariff increase on a list of imported products from the USA (as a result of the trade war between China and the USA led by the D. Trump administrative). China also reduced or exempted tariff or duty on medical supplies, test kits, certain personal protective equipment, raw materials and capital goods not locally produced. All these facilitating trade measures are still in place UNCTAD (2021b).

The impact of the COVID-19 pandemic on the position of the EU in world trade is shown in Table 5, which enables a comparison between 2019 and 2020. In merchandise trade, the EU remained the second largest exporter in the world, accounting for more than 15% of world exports. On the import side, the EU dropped from the second to the third position, but its share in the world remained about 13%. In trade in commercial services, the EU remained in the first position on both sides of trade, i.e. the export as well as import side. While the value of the EU commercial services trade declined in 2020 in comparison with 2019, the EU's share in world commercial services trade increased in 2020. It again shows the importance of the EU's participation in GVCs, although global trade suffered a significant contraction in 2020 as a result of the COVID-19 pandemic, it did not influence centrality of trade powers, such as the EU. The results of Kiyota's (2022) analysis also confirmed the resilience of trade patterns for most ASEAN and major trading countries.

Table 6: The EU's Position in World Trade in 2019 and 2020 (Billion USD and %)

Merchandise trade							
2019				2020			
	Rank	Value	Share		Rank	Value	Share
Exports	2	2386	15.4	Exports	2	2209	15.4
Imports	2	2166	13.6	Imports	3	1958	13.4
Trade in commercial services							
2019				2020			
	Rank	Value	Share		Rank	Value	Share
Exports	1	1123	22.4	Exports	1	983	24.7
Imports	1	1010	21.4	Imports	1	916	24.6

Source: WTO (2020b; 2021b)

4. Conclusion

The objective of the paper was to show the development of EU trade and trade measures, to find out the impact of the health crisis on EU trade, and to show what role the EU played in world trade at this time.

Although the EU recorded a decline of merchandise and commercial services trade in the time when the COVID-19 pandemic hit the whole world, the EU has kept the leading position in world trade. Some EU member countries, namely Germany, the Netherlands, Belgium, Ireland, France and Italy, were among the top ten exporters of medical products. On the other hand, disruption in the supply chains of a few essential goods, such as semiconductors chips, and shortages of key medical products during the COVID-19 outbreak were a real problem. Thus, the COVID-19 crisis has highlighted the interconnectedness between countries through GVCs with a negative impact on the EU industry. However, the health crisis also shows the strategic importance of value chains such as pharmaceuticals and protective medical equipment. The overall view from the EU industry and experts alike is that value chains can be strengthened through increased diversification rather than reshoring (European Parliament, 2021). Thus, the EU should support strategic value chains where the EU can have a competitive edge, invest in research and innovation, and support diversification of access to critical raw materials. Besides technological innovation, trade negotiations about removing barriers to trade are the way how to eliminate the negative impact of different crises on EU trade. Although the EU with its member states also introduced some restrictive measures during the pandemic, it also participates in the WTO negotiations promoting access to medical technologies, and has been the proponent of trade liberalisation in the world for a long time (Fojtíková, 2020).

Besides the COVID-19 pandemic, which has not finished yet, the war in Ukraine, economic sanctions and political conflicts in Europe will bring more trade protectionism, and instability in the EU economic and trade development.

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Participation of EU-27 in Global Value Chains and its Economic Implication on the Development of Selected Industries

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Abstract

Current world trade is defined by global value chains. Developments in production technologies, transport, information, and communications technologies enable businesses to diversify their production processes to gain efficiencies from a large economic network and thus gain competitive advantage. This leads to strong interrelationships that have profound influences on national economies, as well as trade relationships among traditional trade partners. In this paper, we focus on analyzing the changes among EU-27 member states and its important trade partners in selected industries. The analysis will focus on global value chains using data from the OECD Trade in Value Added database. The selection of important industries is based on their total exports from the EU-27. This analysis will cover years 1995 to 2018. Using statistical analysis, changes throughout this period will be evaluated. Based on the results, we will explain what possible impact this could have on particular industrial sectors and future competitiveness of the EU-27 in these sectors.

Keywords: global value chains, trade in value added, EU-27, international trade

JEL Classification: F40, F60, M21

1. Introduction

Analysis of trade relations through global value chains (GVC) is seen as a new approach in investigating the level of foreign trade. The concept of value chains dates back to the 1980s and was first defined by the American economist Michael E. Porter. Conventional trade statistics can adequately capture foreign trade flows only if the products consist exclusively of domestic value added and all parts of the production process take place within a single economy (Cigna, Gunnella, and Quaglietti, 2022). Therefore, traditional trade statistics based on the recording of import and export flows in individual countries do not give us a real picture of the creation of domestic and foreign value added (Fojtikova and Vahalik, 2016).

Globalization trends in recent decades have increased the fragmentation of production between several countries and companies. Lower trade barriers, organisational innovations, and progress in information and communication technologies have made slicing up the production process cheaper and easier. Coordination costs have decreased, and different stages of production are now more frequently located in different countries. Today, intermediate trade accounts for more than half of the world's trade in goods and services (OECD, 2021a).

Global value chains are a dominant feature of global economy in which productive activities are often divided into several countries and increasingly outsourcing and offshoring of some

production activities (De Castro et al. 2015). The country in which the final assembly takes place does not have to have the greatest added value in the value chain. Value chains focus on the value added in each country during production processes by which trade can be measured with intermediates and the origin of the final value of the product. Trade in intermediate products undermines the explanatory power of the territorial structure of the trade balance, as it leads to an overestimation of the value of products exported from the countries at the end value chains and vice versa, to underestimate the role at the beginning of the chain. GVCs also contributed to the growing globalization of production networks. Furthermore, technological advances that come with production contribute to the substitution of unskilled labour for automation (Rodrik, 2013; 2018). Therefore, global value chains challenge the way we look at the global economy (OECD, 2013). GVCs can be also used in investigation of production sovereignty in particular industries i.e., information technology (SPCR, 2021).

The goal of this paper is to investigate recent data on the participation of EU member countries in GVCs. The analysis is focused on the general change in GVC participation of the EU27 countries and the changes in particular sectors regarding the domestic and foreign value added in gross exports. The results of this study can be used in the formulation of policies for sustainable trade activities in certain industries that are of strategic importance to the 27 member countries of the EU. It should also serve as a contribution discussion about trade interdependencies in important industries. The paper is structured as follows: introduction, explanation of the role of GVC in global trade, methodology and data description, results and discussion, and conclusion.

2. Role of Global Value Chains in Global Trade

Country exports include domestic value added and foreign value added. Differentiation by value added is important, as only domestic value added (not foreign value added) constitutes GDP and jobs in a given economy (WTO, 2022). Countries use goods and services of foreign origin in the creation of their own exports (upstream links), and simultaneously produce goods that are used in exports of other countries, i.e., intermediate products (downstream links).

2.1 Participation of Countries in Global Value Chains

The degree of economic involvement in global value chains is measured by a combination of backward and forward participation. Backward participation involves the use of the added value of foreign origin in one's own exports. Forward participation involves the creation of domestic added value of intermediate goods and services that are used in exports of another country (Borin, Mancini, and Taglioni, 2021). The degree of involvement of a given economy in the GVC reveals the comparative advantages of the country in the individual sectors and production processes and shows, for example, the potential impact of a country's export blockade on the world economy and individual sectors. Participation in global value chains means that developed countries can take advantage of low input prices and economies of scale. On the other hand, for emerging economies, participation in existing GVCs represents an opportunity for accelerated industrialization (OECD, 2015).

2.2 Use of Global Value Chains to Measure Foreign Trade

Value chains, unlike conventional gross trade measurement, focus on the value added during production processes in individual countries. With the increase in fragmentation of production, there was also an increase in vertical specialization, i.e., the use of imports (intermediate products) in the creation of exports (Borin and Mancini, 2019). Value added trade measurement seeks to counter double counting when crossing borders by estimating trade

flows only according to the VA in each production process. As a result, the trade and service balance with individual business partners can be distorted (Ahmad and Ribarsky 2014).

Awareness of the value created at the various stages of production is important for maintaining the competitiveness of all sectors of the domestic economy. Knowledge of how global value chains work is also important in assessing the impact of external shocks on the economy and adapting the appropriate economic policy response. Supply or demand shock in the partner economy causes the so-called bullwhip. Additionally, different parts of a GVC may behave differently in a downturn. Reductions in final demand may lead to even larger reductions in intermediate demand, so that trade in intermediates declines more rapidly than trade in final goods, the so-called bullwhip effect (Altomonte et al. 2012; Zavacka 2012).

2.3 Upgrading of Countries within Global Value Chains

According to the so-called smiling curve, activities at the beginning and end of the value chain have the largest share in value added. The highest value added activities include research and development, marketing, sales, and services. In contrast, the share of production itself in the total value of the product is the lowest (Meng, Ye, and Wei, 2020). This also explains why participation in the GVC may have a negative effect on some participating countries (De Castro et al. 2015). Firms and countries are looking to upgrade within the value chain. This should lead to an increase in the added value of exports, the growth of national income, and the living standards of the population (OECD, 2015).

The literature recognises four types of upgrading that can be adopted at the firm level: i) product upgrading; ii) process upgrading, which is the development and implementation of new or significantly improved production or delivery methods by introducing superior technology; iii) functional upgrading; and iv) inter-sectoral upgrading, which consists of moving to new productive activities or sectors using previously acquired knowledge and skills; for instance, knowledge acquired in manufacturing electronic goods can be used to participate in other sectors such as aeronautics (Humphrey and Schmitz, 2002; Gereffi, Humphrey, and Sturgeon, 2005). In practice, the different types of upgrades overlap and combine.

3. Methodology and Data Sources

To study the GVC, initiatives such as the Trade in Value Added (TiVA) database help to avoid multiple counting of trade items when crossing borders by measuring trade flows of goods and services against the value added in the production process (Fojtikova and Vahalik, 2016).

3.1 OECD TiVA Database

The OECD TiVA database records trade flows at value added, based on annual input-output (ICIO) tables, which show the value added created between trading countries. Data are obtained from official sources; however, there are significant discrepancies between the values of individual sources. The condition for the construction of input-output tables is based on assumptions: the production assumption and proportionality assumption. Despite several assumptions, the degree of inaccuracies at the aggregate data level is low (Ahmad, 2019). However, caution should be exercised when interpreting data on individual economies and industries. The 2021 edition of the TiVA database provides indicators for 66 economies including all OECD, EU, and G20 countries, and a selection of East and Southeast Asian economies and South American countries (OECD, 2021b).

3.2 Used TiVA Indicators

The following indicators from the OECD TiVA database are used to measure participation in foreign trade in value added (OECD, 2021c):

- **EXGR_FVASH**: Foreign value added share of gross exports, percentage. The share of foreign value added (VA) in gross exports is available by industry for partner world and is defined as foreign value added embodied in gross exports:

$$EXGR_{FVASH_{c,i}} = \frac{\sum_p EXGR_{FVA_{c,i,p}}}{EXGR_{c,i,p}} \quad (1)$$

It is an 'FVA intensity measure' often referred to as 'import content of exports' and considered as a measure of *'backward linkages'* in analyses of GVCs.

- **EXGR_DVAFXSH**: this indicator represents the country c domestic VA content embodied in the gross exports of industry i in foreign countries as a percentage of total gross exports of country c .

$$EXGR_{DVAFXSH_{c,i}} = \frac{\sum_p EXGR_{BSCI_{c,i,p}}}{EXGR_c} \quad (2)$$

Where $EXGR_{BSCI_{c,p,i}}$ is the total VA from country c embodied in the total gross exports of industry i in foreign country p , and $EXGR_c$ is the total gross exports of VA source country c . It is often considered as a measure of *'forward linkages'* in GVCs.

- **DEXFVAPSH**: Backward participation in GVCs - represents the foreign VA from "partner" country p embodied in the gross exports of country c , as a percentage of country c 's total gross exports, $EXGR(c)$. For partner $p = WLD$ and industry $i = DTOTAL$; $DEXFVApSH = EXGR_{FVASH}$. This indicator is estimated as:

$$DEXFVApSH_{c,p} = \frac{EXGR_{BSCI_{c,p}}}{EXGR_c} \quad (3)$$

Where $EXGR_{BSCI_{c,p}}$ is the total VA from country p embodied in the total exports of exporting country c , and $EXGR_c$ is the total gross exports of exporting country c .

- **FEXDVAPSH**: Forward participation in GVCs - represents the domestic VA from country c embodied in the gross exports of foreign country p , as a percentage of country c 's total gross exports, $EXGR(c)$. For partner $p = WLD$ and industry $i = DTOTAL$; $FEXDVApSH = EXGR_{DVAFXSH}$. This indicator is estimated as:

$$FEXFVApSH_{c,p} = \frac{EXGR_{BSCI_{c,p}}}{EXGR_c} \quad (4)$$

Where $EXGR_{BSCI_{c,p}}$ is the total VA from country c embodied in the exports of country p , and $EXGR_c$ is the total gross exports of the VA source country c .

- **EXGR_DDC**: Direct domestic industry VA content of gross exports, USD million. It measures the direct VA contribution made by industry i in country c to the production of goods and services exported by industry i to the world:

$$EXGR_{DDC_c} = \widehat{V}_c \text{diag} B_c EXGR_c \quad (5)$$

- **EXGR_IDC**: Indirect domestic content of gross exports (originating from domestic intermediates), USD million. It corresponds to the VA originating from other, upstream, domestic industries (different from industry i) in country c that are incorporated into the exports of industry i :

$$EXGR_{IDC_c} = \widehat{V}_c \text{offdiag} B_c EXGR_c \quad (6)$$

- **EXGR_RIM**: Re-imported domestic VA content of gross exports, USD Million. Measures the content of domestic VA, from any industry in country c , which has been exported for the production of intermediate goods or services abroad and subsequently embodied in imports used in the production of exports by industry i in country c :

$$EXGR_{RIM_c} = EXGR_{DVA_c} - EXGR_{DDC_c} - EXGR_{IDC_c} \quad (7)$$

- **EXGR_FVA**: Foreign VA content of gross exports, by industry, USD million. It captures the value of intermediate goods and imported services that are incorporated in the exports of a domestic industry. VA can come from any foreign industry upstream in the production chain.

$$EXGR_FVA_{c,i} = \hat{V}B_{c,i}EXGR_c. \tag{8}$$

4. Results and Discussion

Backward and forward participation in the GVC indicators was used to perform the analysis, that is, the share of foreign value added (VA) in total exports of goods and services by country of origin VA and backward participation in the GVC, that is, the share of domestic VA in exports of other countries in total exports of goods and services according to the exporting country. The sum of backward and forward participation represents the overall involvement of individual EU Member States in GVCs:

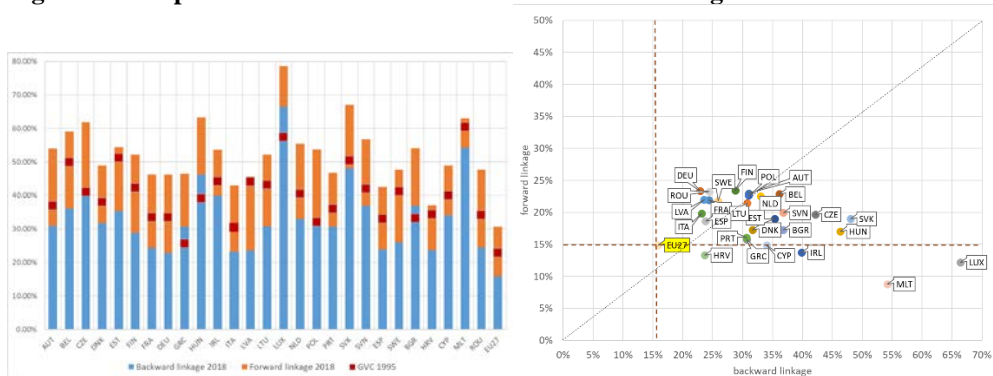
$$GVC_{c,p} = FEXFVApSH_{c,p} + DEXFVApSH_{c,p} \tag{9}$$

On the basis of these calculations, an assessment was made as to whether the country's participation in the GVCs was dominated by backward or forward participation.

4.1 Analysis of the Participation of EU Member States in Global Value Chains

The analysis is focused on changes in particular EU member countries regarding their participation in global value chains in 1995 to 2018. Figure 1 illustrates the difference in the situation in 1995 and in 2018. It is obvious that the change towards higher participation in GVC is significant; however, there are notable differences. The situation in Figure 1 is based on exports from EU member states to all countries included in the TiVA database (e.g., world).

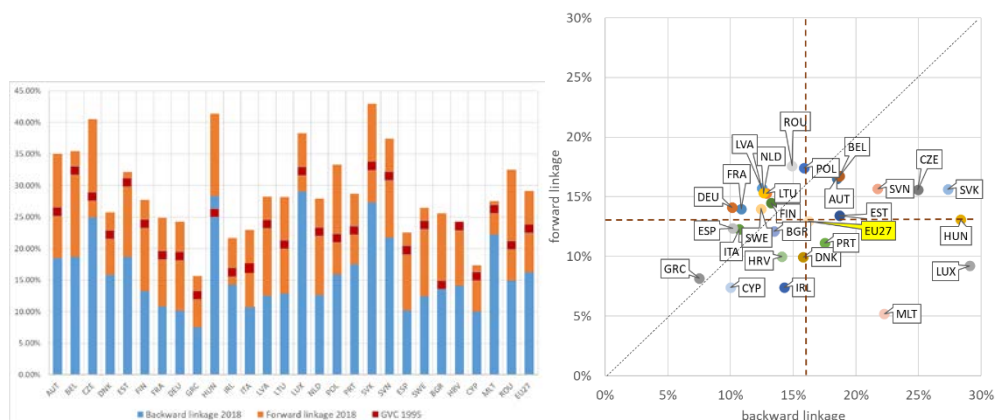
Figure 1: Comparison of GVC Backward and Forward Linkages in 1995 and 2018



Source: Own elaboration based on data from the OECD TiVA database (OECD, 2021b).

We can see that the smaller economies such as Malta (MLT) and Luxembourg (LUX) tend to have a higher share of foreign value added in total exports of goods and services (higher share of backward linkage) than larger ones such as Germany (DEU) or France (FRA). However, the largest increase between 1995-2018 in GVC participation was seen in Greece (81,7%) and then in Poland, Bulgaria, Hungary, and Czechia (e.g., 50-60%).

The next Figure 2 illustrates the situation when we included only exports within the EU27 area. So, this illustrates the GVC participation within the EU area only. Compared to the previous Figure 1, the forward and backward linkages are more balanced.

Figure 2: Comparison of GVC Backward and Forward Linkages in 2018 and 1995.

Source: Own elaboration based on data from the OECD TiVA database (2021).

It is also obvious when analysing the situation in 2018, that countries that became members after 2004 (i.e. Czechia, Hungary, Slovakia, or Poland) witnessed a significant increase of the backward linkage within the EU trade area. Data from the TiVA database show an increasing participation of GVCs with an average annual increase of about 1,2%. But the trend of these yearly changes is slowing down, reaching the highest overall GVC participation for the EU27 in 2011 (33%). On the other hand, when we investigate the participation within the EU area only, the GVC participation among EU27 members is still increasing (about 1% each year) and reaching the highest level in 2018 (29,2%). After the financial crisis of 2008 to 2009, the GVC participation has fallen, but it recovered very quickly. It will be interesting to see how the current Covid-19 pandemic-related crisis will panne out in the GVC participation rates.

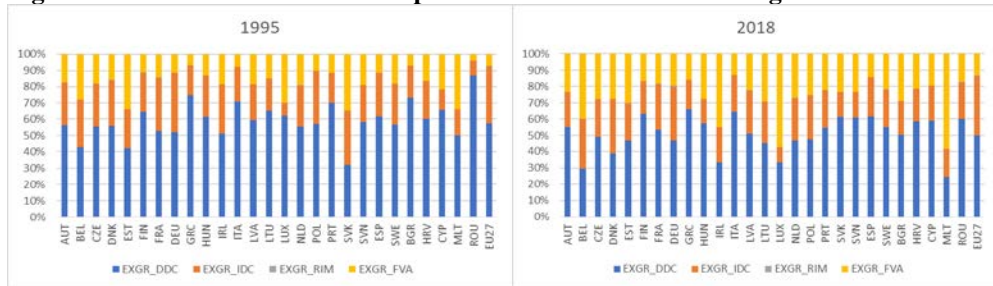
4.2 Analysis of Value Added Content in Gross Exports of EU Member Countries in Selected Industries

Value-added trade statistics can be used to highlight the domestic or foreign value added embodied in exports. The advantage of these data is that they help determine where things are actually made. Gross exports are the total value of exports as shown in traditional trade and balance-of-payments statistics (for goods and services) captures the value added embodied in the production of the good or service exported, as well as all domestically sourced and imported inputs embodied in the good or service. In this paper, we will focus on the second degree of decomposition of gross exports into where the domestic value added is actually created: (i) domestic value added in the particular sector (EXGR_DDC); (ii) domestic value added in upstream sectors supplying the sector with parts (EXGR_IDC), and (iii) domestic value added in intermediates first shipped abroad for further processing and then reimported (EXGR_RIM). The true sector-specific domestic value added of exports (EXGR_DDC) can be obtained as gross exports minus EXGR_IDC, EXGR_RIM, and foreign value added of intermediate inputs (EXGR_FVA). The differences between the situation in 1995 and 2018 in particular sectors, as well as the significant changes in particular EU27 members, will be examined below.

4.2.1 Industry D01T03: Agriculture, Hunting, Forestry, and Fishing

This industry is characterised by a relatively high share of direct value added of gross exports (EXGR_DDC). However, there is a significant change toward a higher share of foreign value added (see Figure 3). This shift is notable in less developed economies such as Romania or Bulgaria. Some countries like Greece, Italy, or Portugal have a large share of domestic VA.

Figure 3: VA Structure of Gross Exports in 1995 and 2018 in the Agriculture Sector



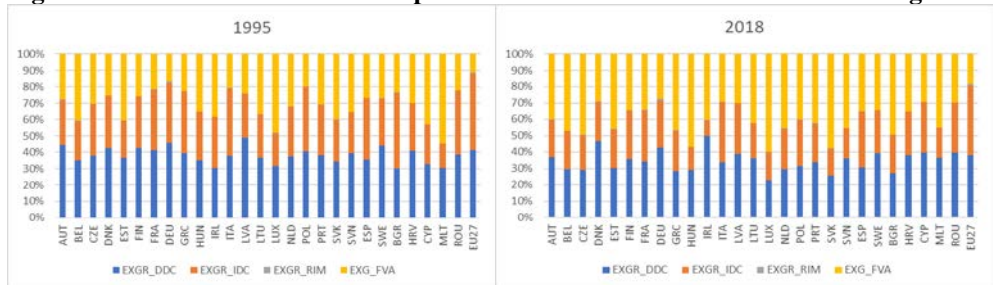
Source: Own elaboration based on data from the OECD TiVA database (2021).

Slovakia has witnessed an opposite trend as the direct VA has increased from 32% to 61%.

4.2.2 Industry D10T33: Manufacturing

The value chain complexity in this sector is higher than in agriculture and thus the structure of the VA in gross exports favours the foreign VA and also the share of reimports is higher. A significant change can also be seen in the share of indirect domestic VA of intermediate inputs. Looking at the values of the EU27, we can see that most of the trade takes place within the EU area, but the share of FVA in favour of indirect inputs has also increased (see Figure 4).

Figure 4: VA Structure of Gross Exports in 1995 and 2018 in the Manufacturing Sector



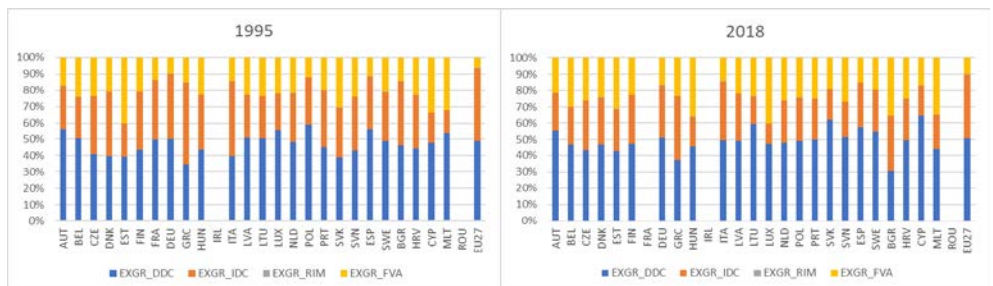
Source: Own elaboration based on data from the OECD TiVA database (2021).

Altogether, the FVA plays a bigger role in EU27 member states exports than in 1995. However, the proportion of DDC has been rather increasing since 2009.

4.2.3 Industry D41T43: Construction

Notable changes in the structure of the added value of gross exports can be seen in Figure 5 in the share of the indirect domestic value added of intermediate inputs (IDC).

Figure 5: VA Structure of Gross Exports in 1995 and 2018 in the Construction Sector



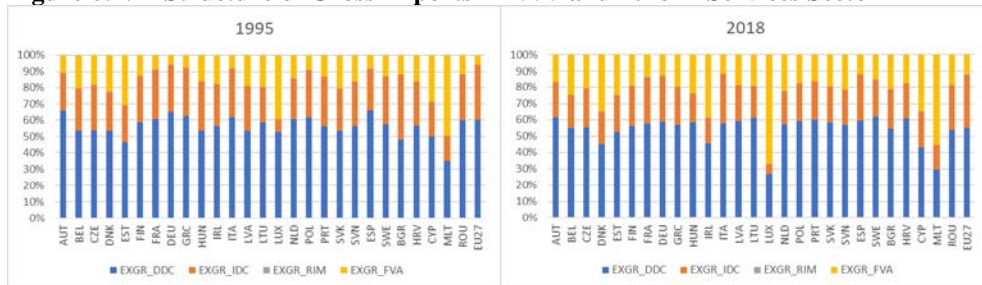
Source: Own elaboration based on data from the OECD TiVA database (2021).

The most notable changes in the structure of the VA in gross exports can be seen in the countries that have joined the EU since 2004. In general, the share of the domestic VA has decreased, but still amounts to almost half of the total VA. Unfortunately, data from the construction industry contain missing values. Thus, we cannot compare all countries, and the analysis has less explanatory value.

4.2.4 Industry D45T98: Total Services

Exports in this industry sector also have a higher share of direct domestic VA (similarly to agriculture and construction). However, a significant decrease in DDC in favour of FVA can be seen in smaller economies such as Luxembourg, Malta, and Cyprus. In general, the importance of FVA in gross exports has increased (see Figure 6).

Figure 6: VA Structure of Gross Exports in 1995 and 2018 in Services Sector



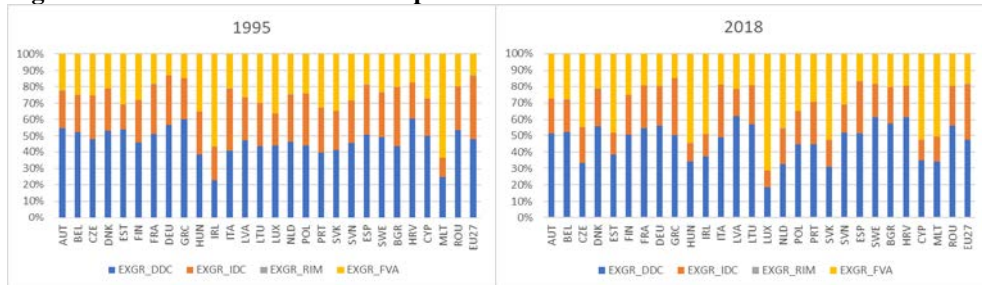
Source: Own elaboration based on data from the OECD TiVA database (2021).

Another trend that can be seen from the comparison is that the share VA of indirect domestic value added of intermediate inputs has fallen.

4.2.5 DINFO: Information Industries

Exports in this industry have witnessed a very dynamic development. This can be seen in the total amount of VA, but also in the changes in its structure. The graphs in Figure 7 show a dramatic change not only in the share of FVA, but also among the countries themselves.

Figure 7: VA Structure of Gross Exports in 1995 and 2018 in Information Industries



Source: Own elaboration based on data from the OECD TiVA database (2021).

A profound change between 1995 and 2018 can be seen in smaller economies such as Luxembourg, Slovakia, Ireland, Poland, or Czechia. What is also important to explain is that the industry exports in these countries have risen more than 10 times, whereas in Germany they increased about 4 times. Therefore, we can see that foreign value added has played a significant role in this development.

5. Conclusion

The results of this study do not reveal a novel contribution to the discussion about the role of GVC in global trade. However, it uncovers some significant changes in the exports of important industry sectors and the origin of value added. We can safely say that the EU membership has helped in faster integration into GVC, mostly in countries that joined in 2004. This effect is not that profound in countries that joined in 2007 and 2013. Most significant changes can be seen in sectors with complex value chains, such as the manufacturing and information industries. Another notable trend can be seen in increasing foreign value added in exports in favour of domestic VA. On the other hand, its rising share has been steadily slowing in development after the 2009 crisis. It is also important to see some significant differences in the development of the VA structure in the exports of particular EU member countries. We can also see the biggest changes in smaller economies.

Results of this study also revealed profound differences among EU27 member countries from the VA origin perspective as well as the structure of VA in gross exports. It can be also seen that some countries that joined the EU have used this opportunity more than the others i.e. in the agriculture sector.

Further research might be focused on GVC participation and VA origins related to the linkage between EU members countries and countries which hold a specific advantage in exports of strategic goods and services and how these linkages can influence some member countries more than others.

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Impact of the COVID-19 Pandemic on Accounting and Taxation of Commercial Corporations in the European Union

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Abstract

This paper deals with the analysis of selected extraordinary situations in accounting, taxation and in the notes to financial statements and annual reports, which all large commercial corporations were forced to deal with not only in the Czech Republic or EU but worldwide, in connection with the negative effects of the COVID-19 pandemic on the business of commercial corporations and their financial results in the years 2020 to 2022. The paper analyses brand new accounting situations (such as drawing subsidies and aids, providing protective equipment, testing of employees, creating provisions and adjusting entries) and emphasizes the importance of adhering to and respecting important accounting principles under these extraordinary conditions. It also deals with selected tax issues in connection with the application of pandemic measures according to applicable legislation in the Czech Republic in regards to the business of commercial corporations.

Keywords: *accounting, COVID-19, European Union, financial statements, taxes*

JEL Classification: *H25, K34, M40, M41, M48*

1. Introduction

The pandemic caused by the COVID-19 coronavirus has affected the entire world. The World Health Organization (hereafter only WHO) declared a global health emergency in January 2020, and it was designated as a pandemic in March 2020. By 29 December 2021, more than 284 million cases have been confirmed in 196 countries. This unprecedented situation has had and continues to have implications on countries, businesses and even individuals, be it imposing lockdowns, travel restrictions or cancelling cultural events and other anti-epidemiological measures. As a result of the pandemic, huge economic changes are taking place, causing difficulties for companies in Europe and around the world. Business has been restricted, supply and demand chains have been disrupted, and prices of goods and services have started to rise as a result. The COVID-19 pandemic has had a very negative impact on many businesses and has made them vulnerable, and it is not just businesses in the catering, tourism, culture or service sectors. The businesses across all sectors have been negatively affected by the pandemic. This situation is, of course, reflected in the state of everyone's economy. The Czech Republic is facing higher public debt, and inflation and unemployment are expected to rise.

While governments are taking various measures to mitigate these impacts, including the European Union and its member states at the macro level, businesses are also approaching the emergency and events at the micro level, where they have to reflect the new situations in their accounting and taxation using appropriate accounting and tax tools while accurately and fairly reflecting these situations in their financial statements and commenting on them in their annual reports.

2. Problem Formulation and Methodology

In the paper, the exploration method was used, including description and classification; furthermore, methods of analysis and synthesis were chosen that match the paper's content and focus. A dialectical benefit, for which each phenomenon can be understood as a part of the whole, can be considered as a methodological basis. Individual economic categories and economic phenomena are not examined in isolation but are based on principles of integrity of economic phenomena and the principle of dialectical unity. Apart from the mentioned methods, the method of procedure was used, which comes from simple categories to their increasingly complex determination, to their mutual relations. The findings are summarized primarily using the method of synthesis and scientific explanation.

3. Extraordinary Situations in Accounting, Notes to Financial Statements and Annual Reports of Commercial Corporations

In connection with the impact of the COVID-19 pandemic on the business of commercial corporations not only in the Czech Republic and the EU, but also virtually worldwide, truly extraordinary situations and events have arisen in 2020 and 2021 and are likely to arise in 2022. These must be faithfully and fairly presented in the accounting and in the notes to the financial statements and annual reports of these corporations. These exceptional events also had an impact on the reduction in the profit after tax and other economic and tax effects. The pandemic has adversely affected the economic situation and the related gradual anti-pandemic measures adopted by the government of the Czech Republic during this period have caused an unplanned economic decline of 5.6% in 2020 alone. There were declines in all areas except public spending. By 2022, the effects of the epidemic are expected to be less pronounced, with a deficit below 6% of GDP and a debt of over 43% of GDP shown in figure 1 and figure 2.

Figure 1: General Government Balance

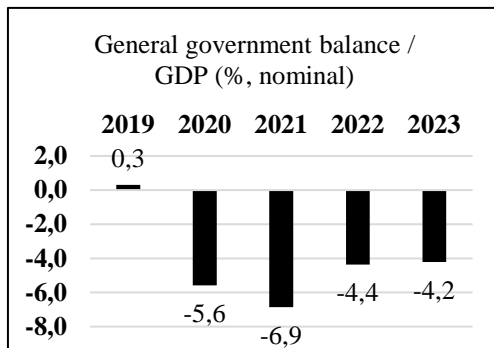
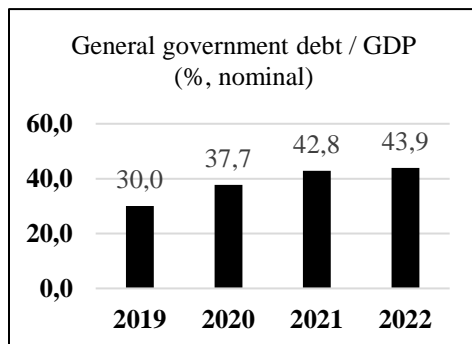


Figure 2: General Government Debt



Source: Czech National Bank [online] (2021) Source: Czech National Bank [online] (2021)

The macroeconomic forecast is burdened with a number of risks, the main negative factor being the development of the epidemic situation and the course of vaccination of the

population. Despite the European Union and the United Kingdom reaching agreement on the future arrangements for their relationship, there is still some uncertainty in the area of international trade. Internal risks include developments in the automotive industry, the labour market's reaction to possible structural changes in the economy, overvaluation of residential property prices and a possible increase in non-performing loans (MF ČR [online], 2021). Family-owned businesses and businesses in the accommodation and food service sector faced the worst effects of the COVID-19 pandemic. In contrast, the lowest losses were in the energy, telecommunications and IT industries. The pandemic has also brought some positive changes such as the need to adapt to coronavirus measures, accelerating digitalisation in commercial corporations, increased use of e-commerce or changes in corporate culture to accommodate working from home, as follow from the current Global Risk Landscape Report 2020 (BDO [online], 2020).

The extraordinary situation caused by the COVID-19 pandemic is negatively reflected not only in the economy and business environment, but also affects the choice of correct procedures to be applied in business accounting not only in terms of national regulation but also from the international point of view (IFRS). As a result of the COVID-19 pandemic, commercial corporations had to deal with new accounting events in their accounts that they had not yet accounted for. This mainly involved accounting, for example, for various state aids and protective equipment. The accounting department was also expected to process accounting documents more quickly and to produce more frequent analyses of the current state of the company's operations, which were required by management for immediate decision-making. In the context of the pandemic, the following areas had to be given increased attention:

- analysis of overdue receivables and payables,
- cash flow planning,
- accounting for subsidy programmes,
- accounting for provisions and adjusting entries,
- impact on the financial statements.

During the COVID-19 pandemic, it was desirable to conduct more frequent analysis of outstanding receivables (claims) as due to the limitations of production and commercial activities of individual customers the receivables were not paid to the due date to a greater extent. It could be caused by to the economic situation of a business partner, but also by the limited activity of the accounting department staff, for example, due to illness or quarantine. The analysis of the receivables then led to the need to create accounting adjustments to receivables to adjust the nominal value of the receivables to the value that the company would be able to realistically obtain. The corresponding value of the receivables, that is the actually recoverable value, was also necessary for the preparation of the cash flow plan. It was also desirable to reduce supplies to non-paying customers and to seek new customers. Attention had to be paid also to the analysis of unpaid liabilities as each supplier evaluates its business partners also in terms of their payment habits. In the event of default, there is also a risk that suppliers will reduce the supply of necessary raw materials and supplies, which may lead to further dampening business activities of the company and there is also a risk of interest on late payments being assessed.

Based on the analyses of receivables and payables and the planned investment and non-investment purchases and sales in future periods, it was desirable to draw up cash-flow plans on a regular basis. Managing solvency is important for any business. Only a company that is able to pay its obligations on time creates the conditions for its continued existence and preservation. It is therefore important to have sufficient funds available at all times. During the pandemic, it was not only necessary to develop a cash-flow plan but also to evaluate it

retrospectively. If there was a significant deviation from the planned cash flow, it was necessary to urgently address this situation, for example, by deferring some payments, in the form of a loan or by optimising costs.

The government of the Czech Republic issued a wide range of measures and packages that reduce the effects of the pandemic on the business of small and large business entities. (Hakalová, Kryšková, Pšenková, 2020). Most of the aid provided in this way was in the form of subsidies. For the accountants of business companies who had not encountered accounting for a subsidy in practice before, this could have been an additional burden as the whole process of obtaining and subsequently accounting for subsidies is quite demanding. The correct recognition of the subsidy required a case-by-case assessment by the accounting entity. This concerns mainly the assessment of the likelihood of receiving the subsidy, the determination of the moment of the entitlement to the subsidy, including the document that gave rise to such entitlement. At the same time, the principle of the material and temporal connection of costs and income (accrual principle) and the principle of a true and fair view had to be always observed. Pursuant to Section 3(a) of the Act No. 218/2000 Sb., on Budget Rules and Amendments of Some Relating Acts (Budget Rules), a subsidy means funds from the state budget, state financial assets or the National Fund provided to legal persons or individuals for a specified purpose. A waiver of part of the fees, if permitted by law, or a contribution to the payment of labour costs provided by the employment office on the basis of agreements on the creation of jobs according to special legislation, or a payment of interest not included in the acquisition cost of fixed assets and technical improvement may also be considered a subsidy (Ryneš, 2021). When accounting for subsidies, the Czech Accounting Standard No. 017, Clearing / accounts receivable and short-term payable and National Accounting Standards Board Interpretation I-14, Timing of Recognition of Entitlement to Receive or Return a Subsidy, should be followed. For deciding on the method of reporting the subsidy it is not essential who provides the subsidy, on the basis of what document, for what purpose and to whom. In each individual case of a subsidy, the accounting entity is required to assess all the circumstances of its approval and provision on the basis of all available documents related to the subsidy and to determine to what period the receipt of the subsidy relates in terms of materiality, and whether and when there is a clear entitlement to receive the subsidy (National Accounting Council [online], 2019). An undisputed legal entitlement to a subsidy is debited to the appropriate account in the account group 37 - Other receivables and payables and credited to the appropriate account in the account group 34 - Settlement of taxes and subsidies. The use of the subsidy to pay for costs (such as Antivirus Program, COVID - Uncovered Costs, COVID - Rent, COVID - Spa, COVID - Tourism Promotion, COVID - Accommodation) is debited to the relevant account in the account group 34 - Settlement of taxes and subsidies and credited to other operating or financial revenues that relate in terms of materiality and time to carry costs for the specified purpose into accounts. If it would be a subsidy for the acquisition of fixed assets, (Czech Rise Up Program, COVID-19 Technology) then you need to carry it to the accounting group 04 - Intangible fixed assets under construction.

Under these extraordinary conditions in the context of proper bookkeeping and disclosed financial statements and annual reports, commercial corporations had to comply with a number of important accounting principles not only in the Czech Republic and the EU. As for the financial reporting, it became necessary and very important during the pandemic to comply with the principle of the going concern according to Section 7 (3) of the Act No. 563/1991 Sb., on accounting, which auditors verify for at least another 12 months after the balance sheet date. This principle is very important and is always verified and commented on not only in the notes to the financial statements and in the annual reports of corporations, but also in the

reports of auditors. Of course, even before the pandemic began, situations that threatened the assumption of the entity's continued existence could arise such as:

- various natural disasters, change in political situation, riots, wars, terrorism,
- loss of key suppliers and customers, limitation of production factors, insolvency, competition, market decline, or over-indebtedness,
- depreciation of assets (such as restrictions on production, reduction in demand or change in exchange rate),
- changes in legislation (national or EU), significant sanctions or penalties, production restrictions and other negative facts and events (Mejzlík [online], 2020).

It is the COVID-19 pandemic and the related restrictions on business, the closure of state borders and the ban on entry into the Czech Republic and the ban on travelling to high-risk areas within the EU and around the world that caused a number of corporations to unexpectedly jeopardise compliance with this important principle.

If this important principle is threatened and accounting entities have been or will be significantly threatened in their future business operations as a result of the impact of the pandemic, it is necessary to respond immediately to this threat, for example, by creating statutory and other provisions or adjusting entries in the accounting of commercial corporations or in the notes to the financial statements. Because these accounting items are debited to costs, they significantly affect the corporation's profit or loss (the economic result is significantly reduced) and, at the same time, the value of assets is reduced in the case of adjusting entries, which is shown in the balance sheet in adjustments to assets. Provisioning for identified and expected risks, for high future expenses, for restructuring and change in production programme, for future litigation, etc., and the creation of adjusting entries for significant temporary reductions in the assets of corporations respects another important accounting principle, namely the principle of prudence and of a true and fair view and so on. If commercial corporations do not report these accounting items in their accounts, there would be a significant distortion of financial statements and economic results, and consequently distorted and inaccurate information would be provided to their users, which could lead to incorrect economic decisions in a market economy as well as negative impacts (Hakalová, Palochová, Tušan, 2016). Under IAS 1, the international financial reporting standard applicable in the EU, management of a commercial corporation is required assess the entity's ability to continue as a going concern. If the management has substantial doubt about the entity's ability to continue as a going concern, it is necessary to disclose such uncertainty. In the current difficult economic conditions caused by the COVID-19 pandemic, the decision whether financial statements should be prepared on a going concern basis may require a higher than usual degree of judgement (Deloitte [online], 2021), (Mejzlík [online], 2020).

In the notes to the financial statements and in the annual reports pursuant to Section 21 (2) of the Act No. 563/1991 Sb., on Accounting, it is due to the ongoing pandemic also necessary to show so-called events after the balance sheet date, which reflect rapidly changing events and facts that affect the entity's ability to continue as a going concern. It is important to distinguish these events between those that were known at the balance sheet date and will be accounted for at that date (these include the creation of statutory provisions or adjusting entries), or those events that occurred after the balance sheet date and are reported by the commercial corporations as important comments in the notes to the financial statements and annual reports. This view is important for further economic decisions of users of financial statements, especially for issuers of securities registered in a regulated securities market in the EU, and especially because of the further reporting of these national financial statements on a mandatory basis and under IFRS (Hakalová, Palochová, Pšenková, Bieliková, 2018). In

accordance with international auditing standards, it is also mandatory to include a commentary in the auditor's report to verify any potential threats to the going concern principle in the audited commercial corporations (Tušan, 2020) and (Tušan, 2021).

4. Extraordinary Situations in Terms of Corporate Tax Savings for Commercial Corporations

Due to the coronavirus epidemic, nationwide measures were taken which have had an extremely negative impact on the economy and business of legal persons and individuals. To mitigate these impacts, significant measures have also been taken in the area of income tax to help businesses overcome this adverse impact. Introduction of extraordinary tax depreciation for assets classified in the first and second depreciation groups under the Income Tax Act, increase in the entry price for the acquisition of tangible assets and abolition of the tax category of intangible assets. These are significant property changes that can be applied retroactively by commercial corporations for 2020. For the purposes of the Act on Income Tax, tangible property means separate tangible movable thing, or sets of tangible movable things with a separate technical-economic purpose, having operational and technical functions for more than one year with an entry price exceeding 80,000 CZK. For many years, the threshold for valuation of tangible assets in the Czech Republic was 40,000 CZK. Under the Income Tax Act, intangible assets were assets with an entry price of more than 60,000 CZK and a useful life of more than one year. The category of intangible assets has been abolished in income taxes since 1 January 2020 which also relates to the abolition of tax depreciation of intangible assets. Therefore, the tax depreciation of these assets corresponds to the accounting depreciation that commercial corporations establish in their accounting depreciation schedules in their internal guidelines. Extraordinary depreciation of tangible assets classified in the first and second depreciation group can be used for assets acquired in the period from 1 January 2020 to 31 December 2021 for the taxpayer who is its first deprecator. For tangible asset classified in the first depreciation group, the taxpayer may write off 100% of the entry price over a 12-month period without interruption on a straight-line basis. For tangible assets classified in the second depreciation group, the taxpayer may depreciate 100% of the entry price over 24 months, with depreciation applied evenly for the first 12 months up to 60% of the entry price of the tangible asset and depreciation applied evenly for the immediately subsequent 12 months up to 40% of the entry price of the tangible asset. A similar form of effective extraordinary application of tax depreciation was already available to taxpayers in the Czech Republic at the time of the financial crisis in 2009. As the pressure for cost efficiency in commercial corporations has become increasingly important since the recent financial crisis, it is necessary to consider a comprehensive range of effects in order to adequately assess the benefits of applying extraordinary depreciation in a commercial corporation. Extraordinary tax depreciation cannot be discontinued, and the discontinuation of tax depreciation is a common tool for effective cost recovery in cases of tax loss or very low tax base. The taxpayer is not required to use the extraordinary tax depreciation. In contrast, extraordinary depreciation can significantly reduce the high tax base and thus bring savings in corporate income tax over time. The negative effect caused by the faster claiming of tax expenses in the form of extraordinary depreciation that can be expected could be the increased corporate income tax rate applied in the future to the taxpayer's future tax base, which has already been reduced in previous years due to the extraordinary depreciation already applied. As extraordinary depreciation is determined with an accuracy of months, the benefit associated with the application of extraordinary depreciation may not be shown in the first taxable period, for example for assets acquired towards the end of the tax year. Tables 1 and 2 show the calculation of the corporate income tax savings for a commercial corporation with a positive tax base in each year using extraordinary depreciation and the maximum amount of accelerated and straight-line

depreciation. The machine was acquired by the commercial corporation in February 2020 for a purchase price of 900,000 CZK excluding VAT and is under the Income Tax Act classified in the first depreciation group.

Table 1: Extraordinary Tax Depreciation and Corporate Tax Savings

Depreciation year	Extraordinary depreciation in CZK	Corporate income tax savings in CZK
2020	750.000	142.500
2021	150.000	28.500
2022	-	-

Source: The Act No. 586/1992 Sb., on Income Tax, own processing

Table 2: Accelerated and Straight-line Tax Depreciation and Corporate Income Tax Savings

Depreciation year	Accelerated depreciation in CZK	Corporate income tax savings in CZK	Straight-line depreciation in CZK	Corporate income tax savings in CZK
2020	300.000	57.000	180.000	34.200
2021	400.000	76.000	360.000	68.400
2022	200.000	38.000	360.000	68.400

Source: The Act No. 586/1992 Sb., on Income Tax own processing

Another significant change in the Income Tax Act that aims to help manage the adverse economic impact of the coronavirus pandemic in commercial corporations and the ability to raise funds for further business sooner than usual to improve cash flow is another option for claiming tax losses, the extension of the tax loss carry back to two tax years immediately preceding the tax year or tax return period for which the tax loss is determined. Until 2020, the taxpayer could have deducted the tax loss from the tax base in the following periods. Until 2003, tax losses could have been deducted in seven tax periods immediately following the period for which the tax loss was assessed. Since 2004, the loss claiming period has been reduced to five tax periods immediately following the period for which the tax loss is assessed. The basic principle in claiming a tax loss has always been that in order to be able to use the loss, the taxpayer had to make a profit in subsequent years. If the taxpayer has not made a profit in the next five tax periods, the possibility of claiming a tax loss is no longer available. Due to the coronavirus crisis, taxpayers have been given a completely new option to claim tax losses retrospectively. Thanks to the introduction of the institute of retrospective claiming of tax loss, income taxpayers could claim any tax loss reported for 2020 in their tax bases for 2019 and 2018, but in a limited aggregate amount not exceeding 30 million CZK. Thus, in the form of a refundable overpayment, the income tax payers were able to recover the funds for the tax paid or part thereof for that tax period. In the case of commercial corporations, which pay 19% corporate income tax in the Czech Republic, the additional funds raised could have been up to 5.7 million CZK. The option to claim tax losses retrospectively is one way to encourage domestic companies to maintain employment, stay healthy and continue to do business. It is a widely recommended institution that is now in operation in many countries around the world. (Albitar et al., 2021). As a result of claiming a tax loss retrospectively up to a maximum amount of 30 million CZK, the tax revenues of public budgets will decrease; according to the calculations of the Ministry of Finance of the Czech Republic, this is expected

to amount to approximately 32 billion CZK for 2020 and 2022, but it is this shortfall that will increase tax revenues in the years 2022 to 2025 when companies and entrepreneurs would claim the tax loss they incurred in 2020 and 2021 (MF ČR [online], 2022). Therefore, more funds will flow into public budgets in the coming years and the overall balance should be level out. Claiming tax loss retrospectively is also possible for entrepreneurial individuals. For more information on aspects of personal income taxation see, for example, (Krajňák, 2021).

5. Conclusion

The pandemic caused by the COVID-19 disease affected states, ordinary citizens and commercial corporations, which had to react to potential threats and completely new situations. Their reactions had to be quick because of the constantly changing situation, often from one day to the next. The advent of the COVID-19 pandemic led to a combination of economic and public health circumstances that have had and are having an impact on the accounting and accountability of organizations (Salterio, 2020). These difficult times, which inherently threatened and continue to threaten commercial corporations on their very existence, necessitated the use of special accounting tools. Commercial corporations had to create statutory and other provisions and adjustment entries to a large extent. The use of these accounting instruments always had to be commented on in the notes to the financial statements or in the annual report because of the threat to the going concern assumption, which is also required by IAS 1 applicable in the EU. The commercial corporations had to continuously identify potential threats, even after the balance sheet date when these material events had to be again disclosed in the notes to the financial statements and in the annual report. Failure to do so would result in a misrepresentation of the information disclosed in the financial statements, which could adversely affect the economic decisions of users of the financial statements, particularly commercial corporations that are issuers of securities on a European regulated market within the EU. Such situation is unacceptable. To mitigate the negative impact of the pandemic on economic entities, a number of measures have been taken. These include, for example, the use of various subsidies and aids, which at the same time from an accounting point of view were a burden for business companies had they not encountered subsidies in practice before. Another set of significant measures to mitigate the impact of the pandemic related to income tax, such as the introduction of extraordinary tax depreciation of assets, the possibility of claiming tax losses with the option of claiming tax loss retrospectively, and the possibility of obtaining funds for further business earlier than usual, which helped improve the cash flow of business entities. In view of the ongoing pandemic, further measures can be expected to be taken by the European Union as well as by EU and non-EU governments. For these reasons, the authors intend to address this issue in further detailed research, focused on a more detailed analysis of the impacts of the COVID-19 pandemic on selected commercial corporations in the Moravian-Silesian Region during 2022 to 2023 in the context of threats to their business.

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CSR as the Glue of EU Ambitions and Generation Z Commitment

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Abstract

According to Political Guidelines of the European Commission for 2019-2024 (Guidelines), the EU has 6 top ambitions to strive for its sustainable development towards 'more at home in order to lead the world.' The satisfaction of the sustainability command, along with these ambitions, is feasible only via the multi-stakeholder approach, i.e. by the involvement of businesses via their 'corporate social responsibility' (CSR) or 'responsible business conduct' (RBC) and by the responsiveness of consumers. This leads to a research question – does the CSR glue together EU ambitions and Europeans expectations? In order to answer this, it is necessary to perform (i) a content analysis with a teleological interpretation of the Guidelines employing both quantitative automatic scanning, a qualitative manual Delphi method with Likert scales plus LIWC and (ii) a survey of 228 Generation Z students from a private university in Prague while using ANOVA. The juxtaposition of these two analyses offers pioneering propositions whether we have such a glue and what kind of glue is it – effective and efficient?

Keywords: CSR, EU Political Guidelines, generation Z, sustainability.

JEL Classification: K20, M14, Q01, Q50.

1. Introduction

The eternal balancing regarding justice in distributing and using resources reflects value judgments based on the philosophical foundations of the given society (MacGregor Pelikánová et al., 2021a). Because Western civilization traces its roots back to Classical Greece, the Roman Empire and Christianity, this balancing has been shaped by Biblical and Hellenic teaching (MacGregor Pelikánová et al., 2021b), including Aristotle's distribution of awards according to merits as embedded in a geometrical model of public law distributive justice and an arithmetical model of corrective, aka rectificatory, private justice, and provides the general direction for the future (Balcerzak & MacGregor Pelikánová, 2020). Consequently, immediate gratification and reckless exhaustion has been rejected, while the idea of organized sustainability has been championed, see Ancient floodplain of the Nile, Euphrates and Tigris, the Old Testament's story of the seven years of bountiful harvests followed by seven years of crop failure, the New Testament's stories, such as taking care of talents, the Roman infrastructure and legal setting or more recently the Hanseatic *Nachhaltigkeit* trends (MacGregor Pelikánová et al., 2021a). The modern concept of sustainability rests upon the environmental, social and economic pillars, and perhaps even cultural and security pillars and its materialization requires universal support, i.e. multi-stakeholder commitments along with a cross-sector partnership (Van Tulder & Keen, 2018). Indeed, during recent decades,

International law subjects, including the EU, have progressively recognized and embraced their task to stimulate sustainability by inducing all to support sustainability and in particular businesses via their 'corporate social responsibility' (CSR) plus 'responsible business conduct' (RBC) and consumers via their responsiveness to CSR (European Commission, 2022a). CSR has become a modern business philosophy (Tasáryová & Pakšiová, 2020).

The responsibility of International law subjects for sustainability, advanced by the UN via the Universal Declaration of Human Rights in 1948 (Art. 29 about individual duties), the Brundtland Report in 1987 and most recently by UN Agenda 2030 with 17 Sustainable Goals (SDGs) in 2015 (Balcerzak & MacGregor Pelikánová, 2020; Griffiths, 2018; Šebestová & Sroka, 2020), has been expanded to the responsibility of national law subjects via their CSR, a sustainability bonus paid by consumers, etc. (MacGregor Pelikánová et al, 2021a). Stakeholders such as large corporations have been increasingly viewed as centers of power and decision-making (Carroll, 2016), as a major cause of social, environmental and economic problems and ultimately as beneficiaries at the expense of the entire society (Porter & Kramer, 2011 & 2019), potentially without any proper liability (Carroll, 2016). Indeed, stakeholders with sufficient resources and/or power (Kolk & Van Tulder, 2010) are economic, social and political actors, they are newly under pressure to take the responsibility to resolve social problems (Tasáryová & Pakšiová, 2020) and the public-at-large should be responsive to the move of these actors from profitability as reduced to a mere classical investment analysis, to real profitability based on the cost-benefit analysis (Cvik & MacGregor Pelikánová, 2021) which is able to take into account both internal and external negative and positive effects. In sum, social responsibility, not only the CSR of businesses, needs to be sustainable (Petera et al, 2021; Schüz, 2012) and the sustainability needs to be realistically responsible regarding the ultimate addressees (MacGregor Pelikánová, 2021a).

We need to move to a „more sophisticated form of capitalism“ going beyond mere trade-offs and championing the concept of shared value connecting societal and economic progress (Porter & Kramer, 2019), businesses should move from the short-term profit maximization pursuant to Milton Friedman (Friedman, 2007) and create economic value by creating societal value (Staničková & Melecký, 2014). Indeed, going for CSR should not mean “preaching pure and unadulterated socialism” (Friedman, 2007), it is not about win-lose with trade-offs, it is about an open-minded creation of shared values, i.e. a win-win extension of the pie (Lewicki et al, 2016). Modern entrepreneurship calls not only for efficiency, but as well effectiveness, not only for theoretical inventions, but as well applied innovations (Drucker, 2015). CSR is instrumental for a sustainable development and deserves support at both ends – by state actors creating a framework and by consumers selecting goods and services from CSR businesses (Borseková et al., 2021). The EU should issue pro-CSR policies and law, businesses should embrace such CSR and make it its competitive advantage and consumers should respond to it by their choices. Although sustainability primarily targets the EU (Griffiths, 2018), it would be remiss to overlook that it is not feasible without the synergetic supports within the multi-stakeholder sustainability model. This means that, regarding sustainability and CSR, EU ambitions could hardly succeed without the interest of the new generation of consumers – generation Z, aka zoomers succeeding Millennials and born between 1997 and 2012.

The EU has followed global pro-sustainability trends launching a set of voluntary and mandatory actions to promote CSR/RBC, and implement the UN guiding principles on business and human rights and the UN Agenda 2030 (European Commission, 2022a). It is noteworthy to emphasize that the above-mentioned milestone of sustainability as stated by the UN go back to 1948 and 1987, while the four-part definition of CSR as an economic, legal, ethical and discretionary (philanthropic) responsibility was stated in 1979 and depicted via the famous Carroll's pyramid in 1991 (Carroll, 2016). Hence, since 1991, it has been argued that

society requires a business to be profitable and in compliance with law, while it expects it to be just, fair and avoiding harm and it is desired to be a “good corporate citizen (Carroll, 2016). In 2001, the EU defined CSR as a voluntary integration of social and environmental aspects into a daily business operation (Tasáryová & Pakšiová, 2020). In 2010, the Commission launched the decade-long key strategy Europe 2020 with the top priority - a smart, sustainable and inclusive growth. In October 2011, the Commission issued a strategic communication COM/2011/0681 A renewed EU strategy 2011-14, which combines horizontal approaches to promote CSR/RBC with more specific approaches for individual sectors and policy areas and which spells out explicitly that “CSR is applicable to all enterprises” and that all stakeholder groups are expected to participate. In 2013, the Creative Europe Program 2014-2020 was adopted with Regulation (EU) No 1295/2013 while underlying the key role of European cultural diversity and its potential to support sustainable growth (Baculáková, 2020). In March 2019, the Commission issued an influential staff working paper SWD(2019) 143 - Corporate Social Responsibility, Responsible Business Conduct, and Business and Human Rights: Overview of Progress which provides an overview of progress implementing CSR/RBC and business and human rights. In July 2019, Ursula von der Leyen, a Candidate for President of the Commission, presented her political guidelines for the upcoming five years to the Members of European Parliament – My agenda for Europe : Political Guidelines for the next European Commission 2019-2024 with six headline ambitions (Guidelines). In December 2019, this new Commission took office entirely and Guidelines became the top strategic document for the EU. Shortly after that, the COVID-19 pandemic hit the global society, including the EU.

The COVID-19 pandemic is a crisis which brings obvious challenges and, often overlooked, opportunities, such as an impulse to to (re)consider and re(state) their identity, priorities and self-presentation (Kovoor-Misra, 2009; Popescu & Duháček Šebestová, 2022). Arguably, Albert Einstein expressed the idea that crises are indispensable for the stimulation of human progress, inventiveness and innovations (D’Adamo & Lupi, 2021). Hence, the EU with its Guidelines and European businesses with their current CSR should be advancing sustainable progress and this should be appreciated with the newest adult cohort – generation Z, known for its pragmatism (Talmon, 2019) social awareness, digital literacy (Turner, 2015), Internet and social media dependence (Bassiouni & Hackley, 2014; Choi et al, 2021; Mele et al, 2021) and recognition of the authenticity as an important determinant for consumption and other choices (Nunes et al, 2021). Recent studies from the central European context suggest that over 90% of the financially strong and solvent members of Generation Z are open to pay a CSR bonus as a demonstration of their commitment to sustainability and their willingness to support the CSR of businesses (MacGregor Pelikánová & Hála, 2021). They are inclined to endorse the stakeholder theory, provided the authenticity is established (Nunes et al. 2021) and the asymmetry of information minimalized (MacGregor Pelikánová & Hála, 2021).

Manifestly, the new EU ambitions are a part of the large global pro-sustainability trend and the Commission projects them in law and policies to induce the CSR of businesses in hopes that consumers will reward it. Newly, this has been expressed by the Commission via a Press Release “New approach to enable global leadership of EU standards promoting values and a resilient, green and digital Single Market”, i.e. on 2nd February 2022, the Commission presented a new Standardisation Strategy outlining its approach to standards within the Single Market as well as globally (European Commission, 2022b). The Commission is very clear that “Standards are the silent foundations of the EU Single Market and global competitiveness” (European Commission, 2022b). Further, it can be argued that CSR should be the glue binding together the state “standardized” sustainability ambitions with “standardized” consumer preferences. However what are these EU ambitions and what are the expectations of consumers? Do we have an effective and efficient match? Indeed, CSR is conceived as the

glue of EU ambitions and Generation Z's commitment to sustainability – so, in the real world, what kind of glue is it?

In order to assess the (lack) of the synergetic overlap and mutual support of sustainability by EU ambitions and Generation Z's commitment to sustainability, two explorations need to be performed and their outcomes critically juxtaposed. Hence, the methodology should facilitate (i) the research and content processing of EU ambitions as stated in Guidelines, (ii) the case study involving a survey of perspective members of generation Z and its ANOVA analysis and (iii) a critical comparison of yielded results, their Meta-Analysis refreshed by open-minded glossing and Socratic questioning. This leads to a problem solution, namely to the assessment of the overlap and mutual support of sustainability by EU ambitions and Generation Z's commitment to sustainability.

2. Problem Formulation and Methodology

The employed methodology reflects the need to process and compare two sets of yielded data based on their sources – Guidelines obtained from the official Internet page of the Commission and a survey from Spring 2021 of Generation Z.

2.1 Guidelines – Content analysis

EU ambitions are included in Guidelines, which represent a legal document issued by the Commission having the authority so to do. Since it is a typical instrument of the EU law, the teleological approach to the interpretation needs to be advanced and a literate approach should be used in a mere auxiliary manner (Brittain, 2016). These legal interpretation methods should build upon a proper exploration of the very content of the Guidelines, either by looking into their contextual meaning and the spirit of the entire EU legal system (teleological approach) or by merely following their common linguistic meaning (literate approach). This exploration of the wording needs to be done by the content analysis adjusted to sustainability and CSR concerns (Vourvachis & Woodward, 2015) while using automatic LIWC and a manual Delphi assessment with the use of the Likert scale. A mere key word absolute calculation (absolute frequency) or relative calculation (ratio = frq/aw) is inappropriate and not sufficiently robust for such an advanced content analysis and hence it is not employed.

The automatic content analysis of the Guidelines is to be done via a multilingual Analysis With Linguistic Inquiry and Word Count 2015 aka LIWC2015. It is based upon a simplistic operation modus, namely it consists of an internal dictionary and a piece of software designed for tokenization and word counting, while reflecting pre-established categories and psychological theories (Pennebaker et al., 2015). LIWC2015 scans the text, such as the Guidelines, and makes a word-by-word comparison with the dictionary, and computes the percentage of words found in each category (Dudău & Sava, 2021). LIWC offers two sets of data – traditional LIWC dimension aka total words and four summary variables as research-based composites that have been converted to 100-point scales where 0 = very low along the dimension and 100 = very high. These summary variables are algorithms made from various LIWC variables based on previous language research and they include:

- analytic thinking variable (formal, logical, and hierarchical thinking patterns) (Pennebaker et al, 2015);
- clout (social status, authoritative, confident, and exhibits leadership),
- authenticity (personal, honest, personal, humble, vulnerable) and
- emotional (higher numbers are more positive and upbeat and lower numbers are more negative) (Tausczik & Pennebaker, 2010).

The manual Delphi content analysis (Okoli & Pawlowski, 2004) is to be done with the use of a panel of three experts ranking Guidelines based on pre-set CSR and other categories (MacGregor Pelikánová et al, 2021a et 2021b) and employing Likert scale (Allen & Seaman, 2007). The scoring (+), (++) and (+++) is used for the employment of 3 key words representing general sustainability (sustainability+SDG+CSR) and 6 key words representing 6 special CSR categories (environment, employees, social/community, human rights, anti-corruption, research and development) (MacGregor Pelikánová, 2021; Turečková & Nevima, 2019). The subjectivity problem is offset by the two rounds procedure and by the critical glossing input (MacGregor Pelikánová et al, 2021a et 2021b).

2.2 Generation Z survey – ANOVA Analysis and Complementary Explanatory Questioning

The commitment of generation Z and, in particular, their readiness and willingness to pay either a direct or indirect sustainability/CSR bonus or premium is to be established based on a survey. To maintain the relevancy and representativeness, the survey was performed in the Spring of 2021 and included 300 students attending business and law courses at a private university in Prague. In total 228 of them provided a proper answer to the given question: "Considering the current situation and global society challenges, would you please indicate how much extra in % you are open to pay for an identical product/service of a business which goes strongly for sustainability and CSR as opposed to a neutral business, i.e. doing nothing for or against sustainability and CSR (nothing for or against the environment, neutrally treating employees, neither helping nor damaging society, etc.)." These students included 110 males and 118 females and they all had to pay for their business and law study, i.e. there were no scholarship recipients. Therefore, the sample was sufficiently homogenous and matching the criteria of the new wave of consumers, and perhaps even some future managers, in Central and Eastern Europe (MacGregor Pelikánová & Hála, 2021). The collected answers allowed for departing from the plain binary setting leading to the logistic regression and to move to a diffusion methodologic approach via the analysis of variance (ANOVA) and contingency tables (Larson, 2008). To expand this quantitative approach, after the survey was performed and assessed, the students were asked, via open-ended questions, to provide explanations and/or reasoning and/or arguments for their answers, i.e. both unstructured interviewing and field observations were employed following generally acceptable guidelines (Jamshed, 2014). During both informal open-interviews and the field observation, particular attention targeted the discrepancies revealed by the ANOVA table.

2.3 Critical comparison – Meta-Analysis

The content analysis of the Guidelines and the ANOVA exploration of the survey complemented by the informal open-ended question interview offers a comparative potential. Namely, the juxtaposition of their results facilitates a comparative holistic Meta-Analysis (Glass, 1976; Schmidt & Hunter, 2015), which serves here well as a quasi-statistical analysis of a heterogenous pool of data from documents (Guidelines) and individual studies (survey) with the goal to reconcile them and to integrate their findings (Silverman, 2013). The case study format fits investigation demands (Yin, 2009) and the open-minded elaboration towards a deeper understanding is boosted by glossing and Socratic questioning (Areeda, 1996).

3. Problem Solution

As stated above, in order to assess the (lack) of the synergetic overlap and mutual support of sustainability by EU ambitions and Generation Z's commitment to sustainability, two explorations need to be performed and their outcomes critically juxtaposed: processing of (i) Guidelines, (ii) survey and (iii) their forensic juxtaposition.

3.1 Guidelines – Content Analysis

Guidelines is a freely available document posted on the www of the Commission (European Commission, 2022a). Its downloading and re-adjusting to be processed by LIWC2015 do not pose any complications. The only issue is the classification of Guidelines for LIWC2015 purposes. In order to achieve the highest academic robustness, all three close options, i.e. similar types of writing, were used and placed next to each other as columns in Table 1.

Table 1: Guidelines – Content Analysis by LIWC2015

	Guidelines	Average for Profess. or scientific writing	Average for Soc. media	Average for other
TRADITIONAL DIMENSION				
I-words (I, Me, My)	1.7	0.63	5.51	4.99
Social words	11.2	7.62	9.71	9.74
Positive Emotions	4.2	2.32	4.57	3.67
Negative emotions	1.1	1.45	2.10	1.84
Cognitive Processes	8.5	7.52	10.77	10.61
SUMMARY VARIABLES				
Analytic	86.5	92.57	55.92	56.34
Clout	90.5	68.17	55.45	57.95
Authenticity	46.5	24.84	55.66	49.17
Emotional tone	81.7	43.61	63.35	54.22

Source: Authors' own elaboration (2022)

Pursuant to LIWC2015, the Guidelines are distant, moderately emotional, analytic statements showing confidence, but not authenticity. The automatic content analysis administrated by digital instruments of artificial intelligence suggests that the Guidelines have patronizing features. The content analysis performed by a simplified Delphi with Likert scoring offers interesting propositions about what is pushed by this confident patronizing approach via the well-established 3 general (sustainability+SDG+CSR) and 6 special CSR categories (environment, employees, social/community, human rights, anti-corruption, R&D) (MacGregor Pelikánová, 2021a), see their total numbers and their assessment in Table 2.

Table 2: Guidelines – content analysis by Delphi based on key words Likert scoring

Sustai nab.	SDG	CSR – resp.	Enviro n	Emplo y	Social/ comm	Hum Rights	Anti-corr	R&D
12/++	1/++	1/+	7/++	2/+	24/+++	0	0	4/++

Source: Authors' own elaboration (2022)

Rather surprisingly, the manual Delphi content analysis with Likert scoring reveals that the top 6 ambitions as set by the Guidelines are predominantly from the social pillar of sustainability, i.e. the economic pillar and even the environment pillar are less pronounced. This does not match up with the general expectations and discourses about the Green Deal, Covid-19, etc. The patronizing tenor suggested by LIWC2015 matches with the findings of Delphi and further it can be added that the push from above underlines strongly the “social market economy”. The responsibility towards it, especially from businesses, is expected, but no propositions for its discussion are presented. Indeed, the CSR as such is not directly mentioned and the Guidelines deal with sustainability in a general and abstract manner, while oscillating between dramatically different concepts, see Sustainable Europe Investment Plan v. sustainable use of resources v. sustainable food. In sum, the Guidelines is about a from above down patronizing approach of the Commission to sustainability expecting engagement of all stakeholders, without consistently and directly engaging in a dialogue with them. The authenticity (personal, honest, personal, humble, vulnerable drive) is definitely underplayed.

3.2 Generation Z survey – ANOVA analysis

In the Spring of 2021, the survey led to 228 questionnaires completed by students from a private university in Prague, i.e. to 228 qualified answers about each respondent’s age, gender, origin and willingness to pay a CSR bonus. Table 3 provides the results regarding the age and CSR bonus and, due to the p-value ($p=0.197$) that is above usually used benchmark 0.05 (or even above 0.10), the null hypothesis 1 (H1) that the average CSR bonus is the same for each age group, cannot be rejected. At the same time, it needs to be pointed out that 210 out of the 228 respondents declared their readiness to support sustainability carried out via CSR by a payment of at least a symbolic CSR bonus

Table 3: (H1) The Average Amount of the CSR Bonus Is the Same for Each Age Group

One-Way ANOVA (Welch’s)					
	F	Df1	Df2	p	
Amount of CSR bonus	1.59	3	110	0.197	
Group Descriptiveness					
	Age category	N	Mean	SD	SE
	19-20	42	19.2%	13.3%	0.0205
	21-22	63	20.9%	18.9%	0.0239
	23-25	84	25.2%	20.6%	0.0224
	26-50	39	24.4%	19.0%	0.0305

Source: Authors’ own elaboration (2022)

The survey revealed that over 92% of respondents – members of Generation Z want to support sustainability by paying extra for products, both goods and services. The amount of such a CSR bonus had oscillated between 5% and 50%, with means as stated in Table 3. This fragmentation and diversity led to informal interviews and field observation. All 210 students confirmed their willingness to support the sustainability via CSR and provided their reasons for paying a higher or a lower CSR bonus.

The top reasons for a robust CSR bonus were:

1. Sustainability is needed, CSR is a good vehicle for that and I want to make a change.
2. COVID-19 calls from my engagement.
3. Competition can go too far and I want to make it fair.

The top reasons for a symbolic CSR bonus were:

1. Sustainability is needed, CSR can be a good vehicle, but there is a huge asymmetry of information, i.e. reliable information about CSR is not easily obtainable.
2. I have limited resources and cannot pay too much more.
3. CSR is a duty set by the state, businesses should implement it and the state should sanction it, I am not included (welcome).

Generation Z believes in sustainability and CSR, but it does not feel welcome in the multi-stakeholder model. It has issues with the way how the mechanism is set (3rd reason – not including consumers) and operated (1st reason – asymmetry of information).

3.3 Critical comparison – Meta-Analysis

The common tenor calls for a multi-stakeholder model and cross-sectorial partnership and the UN, EU, states and even businesses and citizens feel that sustainability is the responsibility of each one of us. However, the performed LIWC and Delphi content analysis of Guidelines with the 6 top ambitions reveals a patronizing, distant and not authentic approach. The performed survey confirmed that members of Generation Z are genuinely ready to support sustainability via a CSR bonus (Talmon, 2019) if the information (Turner, 2015) and its authenticity (Nunes et al, 2021) are provided. They behave very similarly to investors who use the Creditworthiness Index as a critical tool for decision making (Tasáryová & Pakšiová, 2020).

In sum, the Guidelines excel in all summary variables except one, authenticity and it is exactly authenticity, along with transparency and respect that members of Generation Z want the most. The EU should have the courage to go for the sustainability in a sustainable manner without overplaying social pillar and communicate about it honestly to consumers while being open to the bottom-up approach. Empiric studies and academic analyses have been consistently showing what Generation Z wants, and genuine, authentic and not patronizing CSR is definitely something they desire. However, the Commission still does not want to cross completely the Rubicon.

4. Conclusion

On the background of the review of academic literature and empirical studies, a dual content analysis of Guidelines with EU ambitions was performed, along with an ANOVA analysis of a survey complemented by informal interviews. These instruments clearly confirm that CSR is an integral, if not the pivotal, element of the current pro-sustainability framework. However, the synergetic overlap and mutual support of sustainability by EU ambitions and Generation Z's commitment to sustainability seem to be seriously impacted by the patronizing attitude of the Commission and its standardization drive. Longitudinal and multi-jurisdictional studies with critical Meta-Analyses should be performed to confirm the proposition that CSR is the glue of EU ambitions and that Generation Z's commitment is impaired by the lack of the authenticity to which Generation Z is extremely sensitive. These studies should offer as well recommendations for the correction of such a mismatching.

Acknowledgements

This research and resulting paper are the outcome of Metropolitan University Prague research project no. 87-02 "International Business, Financial Management and Tourism" (2021) based on a grant from the Institutional Fund for the Long-term Strategic Development of Research Organizations. The authors are grateful for the ongoing institutional research support arranged by the Centre for Research Support at the Metropolitan University Prague, especially Dr.

Tereza Vogeltanzová and Ing. Hana Raková, and highly relevant useful comments and suggestions provided during the peer-review.

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Research and Development in EU Countries: Analysis of Selected Indicators in Relation to Sustainable Development

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Abstract

The aim of the EU policy regarding research and technological development is to contribute to stronger competitiveness on an international scale. The paper focuses on the evaluation of selected indicators of research and development in the EU27, accentuating sustainable development in years 2010, 2015 and 2020. Scandinavian countries have the best position in the majority of the observed indicators of research and development. Luxembourg has a dominant position in granted patents, employment in the knowledge-intensive service sector and in the representation of R&D personnel. Further, hierarchical cluster analysis is applied to evaluate similarities between the EU countries by financial and performance R&D indicators in 2020. The results of cluster analysis show three groups of similar countries according to the R&D indicators with a high, moderate and weak innovation performance and competitiveness.

Keywords EU countries, indicators R&D, research and development, sustainable development.

JEL Classification: C38, O32, O33

1. Introduction

Science and Technology policy is regarded as an essential factor for future growth in the EU and to the increased global competitiveness of the Union (Tkač et al., 2017; European Commission, 2020). The Union invests in research and innovation to address emerging challenges, to reach economies of scale, scope and speed, to strengthen the Union's scientific excellence, to create cross-border, multidisciplinary networks, to reinforce human capital and the structure of national research and innovation systems (Pisar et al., 2020; Paramati et al., 2021). The European Research Area is defined as an internal market for research, in which researchers, scientific knowledge and technology can circulate freely (European Commission, 2020). Research and innovation must be able to deliver concrete technical solutions across the whole value chain to ensure the transformation of the EU into a more sustainable and competitive economy by 2050 (Stanickova and Melecky, 2019; Adedoyin et al., 2020). Research and development (R&D) are also key to achieving sustainability (Constantin et al., 2021). Policies on research and technological development and innovation policy are intertwined with other EU strategies, such as employment policy, competitiveness, or the environment (Moagar-Poladian et al., 2017; Pisar et al., 2020). Research and development also aim for industrial sustainability and focus on air pollution, and climate change is also among

its priorities (Kim and Yoo, 2019; European Commission, 2020; Paramati et al., 2021). The aim of the paper is to evaluate research and development in EU countries, accentuating sustainable development, innovation performance and competitiveness, and to evaluate similarity of EU countries in terms of R&D by use of selected indicators.

2. Literature Review

Competitiveness, innovation performance and sustainable development play an important part in R&D (Della Malva and Carree, 2013; Ferraro et al, 2017; Halaskova et al., 2016; Raszko and Klimova, 2018; Kim and Yoo, 2019; Pegkas et al, 2019; Prokop et al, 2021). A number of existing studies analysed EU countries according to either their R&D indicators, or their performance in innovation. Moagar-Poladian et al. (2017) analyses competitiveness of European Union Member States in terms of research and innovation from the perspective of attracting EU funding for research and from the viewpoint of key science and innovation performance indicators over the 2007-2015. Kowalska and Kovarnik (2018) present results of changes in innovation and competitiveness of economies of the V4 countries with the use of several assessment indices (Summary Innovation Index, European Innovation Scoreboard, Competitiveness Report and Global Competitiveness Index). Kim and Yoo (2019) evaluated changes of EU policies in the areas of science and technology, starting with the Framework Programme up to the Horizon 2020 programme, and provide research organisations with key information.

The initial role of total expenditures on research and development (R&D intensity) is emphasised in some research as a precondition for the development of competitiveness, innovation performance and sustainable development in European countries (e.g. Ferraro et al, 2017; Adedoyin et al, 2020; Celli et al., 2021; Constantin et al., 2021). For instance, Pegkas et al. (2019) have carried out research into the relationship between innovation and expenditures on research and development in EU countries in the period 1995-2014. The results have shown a co-integration relation between innovation and research. The EU should support partnership to strengthen cooperation between R&D sectors. Other authors (e.g. Kiselakova et al. 2018) have evaluated the relation between R&D expenditures and the development of global competitiveness in Slovakia and other EU member states from Central and Eastern Europe. The findings show that expenditures on research and development can considerably increase competitiveness in these countries. Paramati et al. (2021) examined the long-run relationship between R&D investment and environmental sustainability in 25 European Union member countries over a period of 17 years (1998-2014). The findings confirm that the growth of R&D expenditures promotes renewable energy consumption.

3. Methodology

Eurostat data (statistical database) – Science, technology, digital society and Sustainable development indicators (goal 9- Industry, innovation and infrastructure) – are utilised in this paper. Indicators on sustainable development, innovation performance and the financial and personnel aspect of R&D have been selected for the purposes of the analysis and evaluation of key areas of R&D. These are available R&D indicators, which appropriately reflect on the areas of sustainable development and competitiveness in the European context (Eurostat 2021a, 2021b, 2021c). In particular, five indicators are applied to analyse the 27 EU states: 1) Gross domestic expenditure on R&D by sector % of GDP (ER&D); 2) Share of government budget appropriations or outlays on R&D % of government expenditure (GBARD); 3) Patent applications to the EPO per million inhabitants (PAAP); 4) Employment in knowledge-

intensive service sectors % of total employment (EKISS) and 5) Total R&D personnel by sector % of population in the labour force FTE (R&DP). The analysis covers the years 2010, 2015 and 2020. These years reflect the development of the Europe 2020 strategy (the beginning, half and end of the period).

The selected set comprises 27 EU countries. The selected set comprises 27 EU countries. Austria (AT), Belgium (BE), Bulgaria (BG), Croatia (HR), Cyprus (CY), the Czech Republic (CZ), Denmark (DK), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (EL), Hungary (HU), Ireland (IE), Italy (IT), Latvia (LV), Lithuania (LT), Luxembourg (LU), Malta (MT), Netherlands (NL), Poland (PL), Portugal (PT), Romania (RO), Slovakia (SK), Slovenia (SI), Spain (ES), Sweden (SE).

Similarities between these countries are evaluated by means of hierarchical cluster analysis according to the selected R&D indicators in 2020. The selected R&D indicators are evaluated by use of the Pearson correlation coefficient, which indicates the strength of a linear relationship between two variables (Rodgers and Nicewander, 1988). The correlation matrix of the utilised R&D indicators in the EU countries for the purposes of the application of hierarchical cluster analysis is seen in Table 1.

Table 1: Correlation Matrix of the Selected R&D Indicators in the EU (2020)

	ER&D	EKISS	PAAP
EKISS	0.521**		
PAAP	0.560**	0.832**	
GBARD	0.702**	0.443*	0.543**

Note: *Correlation is significant at the 0.05 level (two-tailed); ** Correlation is significant at the 0.01 level (two-tailed)

Source: Own elaboration (2022)

Hierarchical cluster analysis is applied in order to sort units into groups (clusters) in such a manner that units belonging in the same group are more similar than units from other groups. This study makes use of hierarchical agglomerative clustering, stemming from the individual objects, clusters composed of a single unit, which are then connected. The individual steps of a cluster analysis are visualised in a dendrogram (Scitovski et al., 2021). A box-plot is a standardised way of displaying the distribution of data based on a five number summary (minimum, first quartile (Q1), median, third quartile (Q3), and maximum). The middle part of the diagram borders the third quartile from the top and the first quartile from the bottom, whereas the line between them shows the median. Box-plots can contain lines stemming from the middle part of the diagram vertically, referred to as “whiskers”, which express data variability below the first and above the third quartile. Outliers are indicated as individual points (Tovars Data Science, 2018). The indicator R&D personnel by sector % of population in the labour force FTE has been excluded from the use in hierarchical cluster analysis on account of high correlations with the majority of the given indicators. The analysed R&D indicators have been transformed from the originally measured or otherwise found values for the use of the dendrogram and box-plot, for the resulting distribution to have pre-defined properties (standardised score). The most frequent example of a standardised score is the z-score with the mean of 0 and standard deviation of 1 (see Glen, no year).

4. Problem Solution

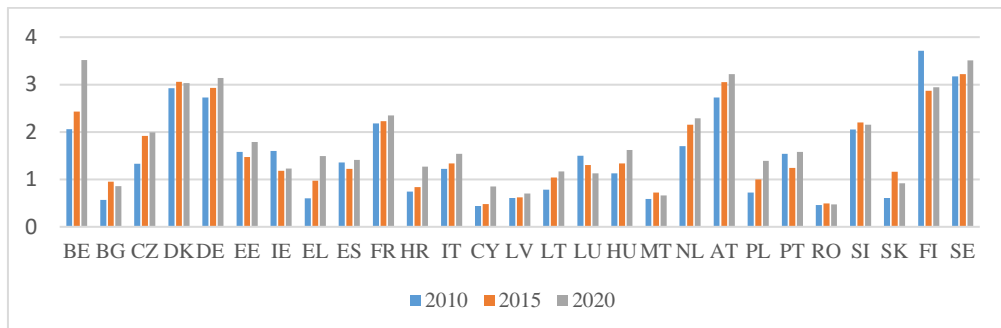
This part presents of the analysis and evaluation of R&D indicators, with a particular focus on sustainable development, innovation performance and financial dimension in the EU countries

in years 2010, 2015 and 2020. Also, similarities between the EU countries are evaluated according to the selected R&D indicators in the countries by use of hierarchical cluster analysis in 2020.

4.1 Analysis and Evaluation of Indicators of Research and Development in EU Countries with Focus on Sustainable Development and Innovation Performance

A significant indicator for sustainable development, competitiveness and innovation performance of R&D is gross domestic expenditure on R&D. R&D intensity is the indicator of ratio of total expenditure on R&D (GERD) to GDP used most frequently in international comparison (Ferraro, et al., 2017; Torrecillas et al., 2017; Kiselakova et al., 2018; Pegkas et al., 2019; Celli et al, 2021). The indicator of expenditures on R&D in relation to GDP enables a view of a country's innovation capacity and allows for assessing the effort of a country in generating new knowledge and using the results of research with verifiable positive externalities. The higher these expenditures are, the better potential for the growth of competitiveness and innovation potential of a given country is created. The trend of expenditure on R&D as % of GDP in years 2010, 2015 and 2020 in the EU countries is seen in Figure 1. The highest total expenditure on R&D (R&D intensity) is seen in Scandinavian countries, Germany, Austria and Belgium. The lowest R&D intensity has been observed for a long time in Romania, Cyprus and Malta. The largest changes associated to the growth of expenditure on R&D in years 2015 and 2020 in comparison to 2010 are seen in Czechia and the Netherlands. By contrast, the largest decline in expenditure on R&D in years 2015 and 2020 in comparison to 2010 is seen in Finland.

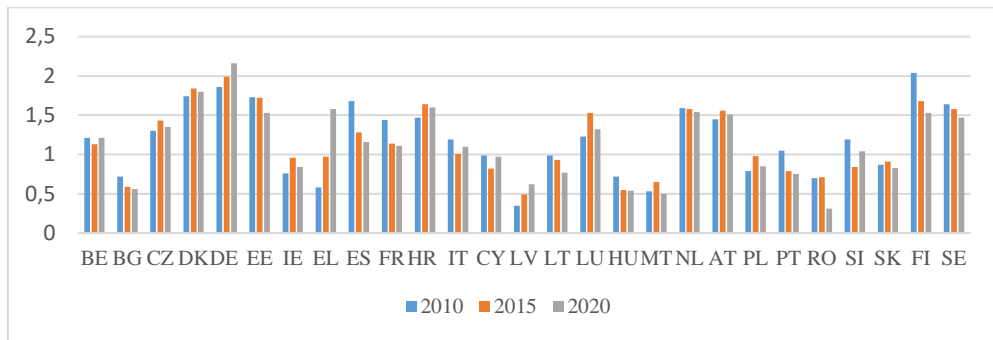
Figure 1: Gross Domestic Expenditure on R&D by Sector in EU countries (% of GDP)



Source: Authors according to Eurostat (2021a)

Another financial indicator of R&D is government budget appropriations or outlays on R&D (GBARD), which is categorised as an input indicator and observes investment in research and development. EU member states use GBARD data as support for decision-making on areas of research and development that should receive investments. Figure 2 presents the overview of GBARD as % of government expenditure in the EU countries in years 2010, 2015 and 2020. The highest share of GBARD as % of government expenditure in the EU countries in years 2010, 2015 and 2020 was found in Scandinavian countries, Germany, Austria and the Netherlands. The lowest share of GBARD in all observed years was found in Latvia, Malta and Bulgaria. The highest rise in the share of GBARD in years 2015 and 2020 compared to 2010 was seen in Greece, and the sharpest drop in the share of GBARD was seen in Spain and Finland (see Figure 2).

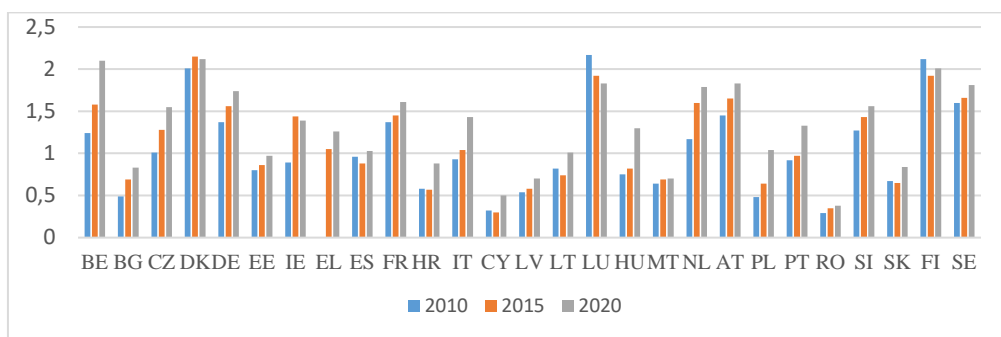
Figure 2: Share of Government Budget Appropriations or Outlays on Research and Development in EU Countries (% of Government Expenditure)



Source: Authors according to Eurostat (2021b)

A precondition for sustainable development and competitiveness of research and development are human resources. A great deal of research addresses the topic of human resources and structure of employees in research and development in the EU (e.g. Ivancheva and Gourova, 2011; Della Malva and Carree, 2013; Veugelers and Van Bouwel, 2015). The quality of human resources determines the quality of the performed research and is a precondition for the development of new findings and technologies, which leads to the implementation of innovative features, thereby increasing competitiveness. R&D personnel include all persons employed directly on R&D, plus persons supplying direct services to R&D, such as managers, administrative staff and office staff. Figure 3 shows total R&D personnel full time equivalents in EU countries as a percentage of the economic active population. While Denmark, Luxembourg and Finland show the highest R&D personnel representation in all sectors as % of population in the labour force (FTE) in 2010, 2015 and 2020, Cyprus and Romania have the lowest % representation. The largest changes associated with the increasing trend of R&D personnel as % of population in the labour force (FTE) in 2015 and 2020 (compared to 2010) can be seen in Ireland and the Netherlands.

Figure 3: R&D Personnel in all Sectors in EU (% of Population in the Labour Force FTE*)



Note: Data on Greece was unavailable in 2010; *FTE- full time equivalent

Source: Authors according to Eurostat (2021a)

Nevertheless, when evaluating the number of total researchers in all sectors of performance in 2010, 2015 and 2020, the highest number of researchers (FTE) is in Germany, France and Spain. In contrast, the lowest number of researchers (FTE) is seen in Cyprus and Malta. A low number of researchers (FTE) in EU countries is also typical of Latvia and Estonia.

Another indicator of innovation performance and sustainable development in the EU are patent applications to the European Patent Office (EPO) per million inhabitants (Ferraro, et al., 2017; Agovino et al., 2018). The indicator measures the number of requests for patent protection of an invention filed with the European Patent Office (EPO) regardless of whether they are granted or not. Table 2 shows the total number of applications per country and per million inhabitants. The evaluation of the years 2010, 2015 and 2020 shows that the dominant position in the number of patent applications per million inhabitants is held by Luxembourg, followed by Sweden, the Netherlands, Denmark, Germany and Finland. The lowest patent activity is seen in Romania, Bulgaria and Croatia. When evaluating changes related to patent activity in years 2015 and 2020 in comparison to 2010, the highest increase in patent applications is seen in Malta, whereas the sharpest decrease is seen in Luxembourg.

Table 2: Patent Applications to the EPO and Employment in Knowledge-Intensive Services in EU Countries

	Patent applications to the EPO (per million inhabitants)			Employment in KISS (% of total employment)		
	2010	2015	2020	2010	2015	2020
Belgium	187.7	181.0	208.3	46.1	47.6	50.0
Bulgaria	1.5	4.6	7.5	28.9	31.2	31.4
Czechia	15.9	20.2	19.2	31.8	32.0	34.5
Denmark	327.5	337.8	412.9	50.1	49.0	49.2
Germany	334.2	303.7	312.1	40.2	40.0	42.3
Estonia	20.3	24.3	42.9	35.3	35.8	38.3
Ireland	139.7	130.6	195.4	44.6	45.0	47.0
Greece	7.5	8.4	12.7	33.4	35.9	38.3
Spain	30.7	32.7	37.8	34.9	35.9	37.4
France	147.7	161.7	156.8	43.8	46.3	47.7
Croatia	3.9	2.2	5.4	30.2	33.5	35.9
Italy	68.8	65.6	77.1	34.0	34.5	35.4
Cyprus	59.1	46.0	72.1	35.4	38.6	40.3
Latvia	15.3	15.2	14.2	35.0	36.0	37.1
Lithuania	2.9	13.4	17.9	34.2	33.8	36.8
Luxembourg	828.5	746.2	629.3	55.2	52.1	56.4
Hungary	10.7	9.9	10.9	35.1	35.9	35.6
Malta	74.8	211.2	126.3	40.2	46.3	48.0
Netherlands	359.0	421.9	366.2	45.4	46.3	46.7
Austria	208.5	230.1	258.7	37.2	38.3	39.4
Poland	5.4	14.9	12.7	30.1	31.2	32.2
Portugal	7.7	13.6	24.2	30.2	35.9	37.9
Romania	0.7	1.5	2.8	19.8	21.8	23.0
Slovenia	63.9	57.2	78.7	33.5	35.1	37.6
Slovakia	4.6	8.7	10.1	32.3	33.8	35.5
Finland	301.5	363.7	342.9	42.9	45.4	47.5
Sweden	382.8	391.8	428.3	50.6	52.8	54.6

Source: Authors according to Eurostat (2021a, 2021c)

Indicator of innovation and innovation performance is the employment in knowledge-intensive services sectors (EKISS) as % of total employment (Cardinaleschi et al., 2018). The indicator of knowledge-intensive services is based on a selection of relevant items of NACE Rev. 2 and

is oriented on the ratio of highly qualified staff in these areas. Table 2 shows the employment in knowledge-intensive service sectors as a share of total employment in EU countries. The highest employment in knowledge-intensive service sectors as % of total employment in years 2010, 2015 and 2020 is seen in Luxembourg, Sweden, Denmark and the Netherlands. A high employment rate in knowledge-intensive service sectors was also found in Belgium, the Netherlands, Ireland, France or Finland in the observed years. The lowest employment in KISS is seen in Romania, whose employment rate in terms of KISS is two to three times lower compared to other countries. The highest rise in the employment rate in KISS in years 2015 and 2020 in comparison to 2010 is seen in Malta and Portugal.

4.2 Evaluation of Similarities of R&D Indicators in EU Countries by Use of Cluster Analysis

Selected indicators of research and development in the EU countries are evaluated in this section by use of hierarchical cluster analysis. Four indicators have been selected for the purposes of the evaluation (Gross domestic expenditure on R&D by sector % of GDP; Share of government budget appropriations or outlays on R&D % of government expenditure; Patent applications to the EPO per million inhabitants and Employment in knowledge-intensive services sectors % of total employment). Table 3 and the dendrogram (Figure 4a) view the results of three similar groups (clusters) of the EU27 according to the R&D indicators in 2020.

Table 3: Similarity of R&D indicators in the EU Countries (2020)

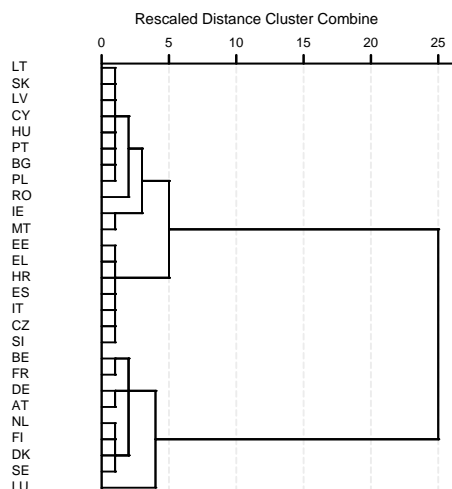
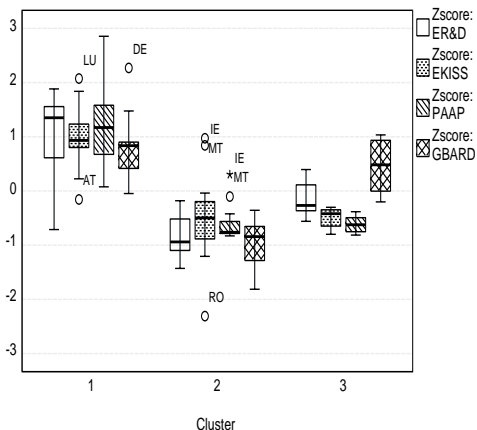
First Cluster	Second Cluster	Third Cluster
BE, DK, DE, FR, LU, NL, AT, FI, SE	BG, IE, CY, LV, LT, HU, MT, PL, PT, RO, SK	CZ, EE, EL, ES, HR, IT, SI

Source: Own elaboration (2022)

Figure 4b (Box-plot) shows the median values according to R&D indicators in the individual clusters of EU countries in 2020.

The first cluster is composed of nine countries. The largest similarity according to the financial R&D indicators and innovation performance can be seen in four countries (the Netherlands, Finland, Denmark and Sweden), but also in two pairs of countries, Belgium and France, or Germany and Austria. *The second cluster* comprises 11 countries. The largest similarity in R&D indicators in the second cluster was found in eight countries (Poland, Bulgaria, Portugal, Hungary, Cyprus, Lithuania, Latvia, and Slovakia). Seven countries are found in *the third cluster*, which show similar characteristics in terms of the R&D indicators, both financial (total R&D expenditure and GBARD) and innovation performance (patent applications per million inhabitants and employment rate in knowledge-intensive services). For detailed information, see Figure 4a.

The first cluster is composed of countries with the highest values in terms of all indicators (R&D intensity, share of investment in R&D, patent application, and employment rate in KISS). Luxembourg represents an outlier, with the highest employment rate in knowledge-intensive services, and Austria, with the lowest employment rate. Besides, Luxembourg also shows the highest patent activity, and at the same time, the lowest R&D intensity (total R&D expenditure in % of GDP). Germany is another outlier, with a significantly higher GBARD share (investment in R&D) compared to the other countries of the first cluster.

Figure 4: Dendrogram and Box Plot according to the Selected R&D Indicators in the EU Countries**a) Dendrogram****b) Box plot**

Source: Own elaboration according to Eurostat (2021a, 2021b, 2021c)

The second cluster is characterised by countries with the lowest values of the indicators innovation performance and sustainable development. Malta and Ireland show extreme values with the highest number of patent applications. Both of these countries also represent outlying values in the case of the highest employment rate in KISS out of all countries in the second cluster. Romania is another outlier, with the lowest employment rate in KISS. The third cluster, when compared to the countries of the second cluster, shows a higher GBARD share (comparable to the median value of the countries found in the first cluster) and slightly higher values of the remaining indicators (R&D expenditure in % of GDP, employment rate in KISS, and patent activity).

5. Conclusion

Science and technology policy and research and development are regarded as essential factors for future growth in the EU, and against the backdrop of an increased global competitiveness and are also key to achieving sustainable development. The evaluation of financial R&D indicators in years 2010, 2015 and 2020 in EU countries has shown that it is Scandinavian countries, Germany and Austria that reach the highest R&D intensity (total R&D expenditures) and investment in R&D, i.e. share of government budget appropriations or outlays on R&D (GBARD) as % of government expenditure. By contrast, Romania, Cyprus and Malta show the lowest R&D intensity, whereas Latvia, Malta and Bulgaria show the lowest GBARD share as % of government expenditure. The results on innovation performance and sustainable development in research and development have also shown that Luxembourg, Sweden, the Netherlands and Denmark have a dominant position in the number of patent applications per million inhabitant and the highest employment in knowledge-intensive services sectors as % of total employment. Romania shows the lowest patent activity and employment in knowledge-intensive service sectors, while Bulgaria and Croatia have also shown a low patent activity. When evaluating human resources in R&D, it can be said that Denmark, Luxembourg and Finland have the highest % representation of R&D personnel in all sectors as % of

population in the labour force (FTE). Romania and Cyprus show a two to three times lower representation of R&D personnel compared to the other countries. Three groups of similar countries were found based on the results of hierarchical cluster analysis according to of R&D indicators in EU countries in 2020, with a high, moderate and weak innovation performance and competitiveness. The largest differences are seen between the countries found in the first cluster (with the highest values of indicators according to innovation performance and sustainable development) and the second cluster (with the lowest values in the analysed indicators). These findings show different potential for R&D in relation to sustainable development. These findings can also be a supporting material for creators of national policies concerning R&D and innovation strategies in the EU countries. The authors evaluated sustainable development and competitiveness, using the example of selected R&D indicators in EU countries. They believe that the topic for future research could lie in the extension of the evaluation of sustainable development and competitiveness in the European context with other indicators, not only related to R&D. The theme for future research also involves evaluate into the effect and relations between R&D indicators by use of other research methods.

Acknowledgements

This paper was created within the project VEGA 1/0683/21 “Generation Gap and Provision of Public Services and Administration“ and SGS Project SP2022/74 “Computational Intelligence in the Prediction of Economic Quantities, Data Mining and Economic Process Modeling”.

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Social Protection in European Union Countries: Analytical Approach of Selected Indicators

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Abstract

Comprehensive social protection systems are the cornerstones of European Union Member State welfare systems. The paper focuses on socio-economic indicators (poverty or social exclusion, unemployment, GDP per capita) and social protection indicators (social protection expenditure and benefits by function) in 27 EU countries. Changes to the selected social indicators in the European Union are evaluated in the years 2010, 2015 and 2020. With the use of hierarchical cluster analysis, the similarity in socio-economic indicators of EU countries is evaluated in the period 2010-2018, leading to the division of these countries into five clusters according to economic and living standards. The results of social protection in the EU countries in the period 2010-2018 based on correlation analysis proved a moderate relationship, in particular between social protection benefits (aggregate) and benefits of social protection in specific areas (sickness/health care, family/children, disability) on one side, and the evaluated socio-economic indicators (poverty or social exclusion, GDP, income inequality) on the other. The findings demonstrate the significance of social protection policies in EU countries in connection to the tackling of social risks.

Keywords: EU countries, socio-economic indicators, social protection, social protection indicators

JEL Classification: C38, H53, I38

1. Introduction

Social protection is concerned with preventing, managing, and overcoming situations that adversely affect people's well-being (UNRISD, 2010). Social protection systems strive to implement programmes of social within a larger developmental framework to reduce poverty, strengthen economic growth and support social development (Spasova and Ward, 2019). Social protection systems in the European Union are devised in such a way as to protect citizens from social risks associated with unemployment, sickness/health care and disability, old age, housing and social exclusion (Eurostat [online], 2021f). Differences between EU countries can be found in economic levels and living standards (Kovářová, 2017; Staničková, 2018), in the institutional and organisational structure of social protection systems and in the structure of social protection financing (Halásková, 2018b; Otto, 2018; Eurostat [online], 2021f). At the same time, systems of social protection must be set to ensure a long term social and financial sustainability, among others in relation to the current epidemiological situation in Europe and beyond (Halásková, 2018b). Topics associated with financing of social

protection are the subject of economic, social and political discussions in the EU as a whole and in the individual countries alike (Spasova and Ward, 2019; Schmitt et al., 2020).

The subject of this research are socio-economic indicators related to well-being and social protection. The authors focus on an analytical approach of the indicators, expanded with social protection indicators, i.e. social protection expenditures and social protection benefits (aggregate and by key areas social protection) in 27 EU countries in the period 2010-2018. The paper aims to evaluate similarities of the EU countries on the basis of socio-economic indicators, and, making use of key areas of social protection, to analyse the relation between social protection benefits and the selected socio-economic indicators.

2. Literature Review

Authors have different perspectives regarding the evaluation of social protection and financing of social expenditure. Scur (2016) examined social protection and social expenditure and highlights the significance of social protection (welfare state) in a crisis management strategy. This is particularly significant at this juncture in relation to the COVID-19 pandemic. Chugunov and Nasibova (2021) performed an analysis of systems of social protection of the population, which affect the selection of principles of the financing of social expenditure in countries with advanced and transformation economies. Other authors, such as Lind et al. (2021), ponder over forms of social protection in different scenarios (short-term, mid-term, short-term) and emphasise the importance of more comprehensive social protection systems for future periods, including the use of international assistance.

In relation to an adequate use of financial resources of social protection, social expenditure programmes are evaluated with a particular emphasis on redistribution effects of public and private social programmes, social transfer programmes and taxes (Caminada et al., 2019; Caminada et al., 2021; Freda et al., 2021). Specifically, Caminada et al. (2021) analysed the effectiveness of social transfers and income taxes in alleviating poverty. Only three social programmes account for the bulk of total poverty reduction. These were the old-age/disability/survivor scheme (81%), social programmes for family and children (14%) and the unemployment scheme (8%). Many pieces of research predominantly analyse total social protection expenditure and indicators of socio-economic development, namely in connection with mitigation of social risks (Balvociute, 2020; Halásková and Bednar, 2020) or in relation to economic risks, such as unemployment rate or economic growth (Cammeraat, 2020; Crociata et al., 2020).

Other authors examined social expenditure in the context of employment rate and flexibility of the labour market. Results of research by Anderson and Pontusson (2007) show that measures of social protection reduce job insecurity, but also that a high degree of generosity of welfare states is not related to employees' feeling safe on the labour market. More recent research, such as Mina (2020) and Mina (2021), delivered the analysis of the relationship between expenditure on social protection and flexibility of the labour market, using the example of developed and developing economies. Bakker and Van Vliet (2021) focus on the extent to which results of employment rate are affected by social investments.

Selected social expenditure schemes are also a topic of research. From earlier research, the relation between social protection expenditures by selected functions (old-age, family/children and unemployment) and Human development index was addressed by Mikušová Meričková and Halásková (2014a, 2014b). As regards more recent studies, the relationship between different social expenditure schemes and poverty, income inequality and economic growth was analysed by e.g. Cammeraat (2020). Other authors, Halásková (2018b) analysed the structure

of government social protection expenditures by all key areas of social protection. Spasova and Ward (2019, p. 16) focused on more detailed examination of the functions of social protection, or the risks that are covered by the expenditure on these across Europe. The authors Spasova and Ward focused on two areas of social protection benefits in detail (old-age and healthcare). These areas of social protection account for “the largest part of overall expenditure and together largely determine the need for financing”.

3. Methodology

Available data from the Eurostat database are used from specific areas: 1) Sustainable development indicators – economic growth (Eurostat, 2021d); 2) People and social conditions – Living conditions and welfare – Income and living conditions (Eurostat 2021b, 2021c.); 3) Social protection and key areas of social protection (Eurostat, 2019; 2021a, 2021e). The selected socio-economic and social protection indicators are listed in Table 1.

Table 1: Socio-economic and Social Protection Indicators

Indicator	Abbr.	Unit
People at risk of poverty or social exclusion	AROPE	Percentage
Unemployment rate	UNEMR	Percentage
Real GDP per capita	GDP p.c.	Euro per capita
Gini coefficient	GINI	scale from 0 to 100
Social protection expenditure	SPEXP	Percentage of GDP
Social protection benefits (aggregate)	SPBEN	Percentage of GDP
Social protection benefits by function	by function*	Percentage of GDP

Note: *Sickness/ health care (SICK); Disability (DISA); Old age and survivors (OLDSURVIV); Family/children (FAM); Unemployment (UNEMPLOY); Housing and social exclusion (HOUSEEXCLU).

Source: Eurostat (2021a-e); Own elaboration (2022)

Social contributions, on average in the EU, financed over half of total expenditure on social protection (in years prior to the pandemic). However, social expenditure only is insufficient to define a social protection system (Baptista et al., 2021). Additional analyses referring to the socio-economic outputs of this expenditure are necessary. The selection of indicators for the analysis is related to the fulfilment of social goals under the Europe 2020 strategy. In connection to the period defined to fulfil the goals of the Europe 2020 strategy, 1) the analysis of the EU-27 as a whole is performed in years 2010, 2015 and 2020; 2) analysis of the 27 EU countries is performed in the period 2010-2018 due to the availability of data on social protection expenditure and social protection benefits (only till 2018 at the time of writing the study).

The object of the analysis is a set of 27 EU countries, comprising: Austria (AT), Belgium (BE), Bulgaria (BG), Croatia (HR), Cyprus (CY), the Czech Republic (CZ), Denmark (DK), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (EL), Hungary (HU), Ireland (IR), Italy (IT), Latvia (LV), Lithuania (LT), Luxembourg (LU), Malta (MT), Netherlands (NL), Poland (PL), Portugal (PT), Romania (RO), Slovakia (SK), Slovenia (SI), Spain (ES), Sweden (SE).

The Pearson correlation coefficient is applied to evaluate the relation between social protection benefits and socio-economic indicators. This coefficient indicates the strength of a linear relationship between two variables (Rodgers and Nicewander, 1988). Hierarchical cluster analysis is applied to evaluate the similarity between EU countries according to the selected

socio-economic indicators. This method is used to sort the units into groups (clusters), where the units found in the same cluster are more similar than units found in other clusters. In the present case, hierarchical agglomerative clustering is used, stemming from the individual objects, single-unit clusters, which are then connected. The individual steps of cluster analysis are visualised by means of a dendrogram (Scitovski et al. 2021). A boxplot is a standardised way of displaying the distribution of data based on a five number summary (minimum, first quartile (Q1), median, third quartile (Q3), and maximum). The middle part of the diagram is delineated by the 3rd quartile from the top, the 1st quartile from the bottom, and between them is found a line defining the median. Box-plots can contain lines stemming from the middle part of the diagram vertically, referred to as whiskers, which express the variability of data below the first and above the first quartile. Outliers are indicated as individual points (Tovars Data Science, 2018).

The Gini coefficient has been excluded from the use of the cluster analysis as a result of a strong correlation. As regards GDP per capita, Luxembourg is an outlier. Therefore Luxembourg, which fails to fulfil the conditions of clustering, has been excluded from the analysis. Also, the result of discrimination analysis has proved the quality of the suggested solution without Luxembourg. The originally measured or found values of the analysed socio-economic indicators have been transformed for the resulting layout to have specific properties (standardised score) for the dendrogram and the box-plot. The most frequent example of a standardised score is the z-score with the mean value of 0 and the standard deviation of 1 (Glen, no year).

4. Problem Solution

Firstly, the trend and changes of socio-economic indicators in years 2010, 2015 and 2020 (or the most recent year available) are evaluated for the EU-27 as a whole. Afterwards, the EU countries are evaluated according to the similarity of socio-economic indicators, and the relations between social protection benefits and socio-economic indicators in the period 2010-2018.

4.1 Trend and Changes of Selected Socio-economic Indicators in the European Union

Table 2 shows a slightly improving trend of the evaluated socio-economic indicators for the EU-27 as a whole in the years 2010, 2015 and 2020. However, it must be taken into account that the latest data available are from 2020; as regards social protection expenditure and the Gini coefficient from 2019. A trend of increasing social protection expenditures, and an ensuing increase in the indicators “people at risk of poverty or social and social exclusion” and “unemployment rate” can be expected in the following years at the level of the EU-27 as well as the individual EU countries, in particular in relation to the current pandemic of COVID-19.

Table 2a: Selected Socio-economic Indicators for the EU-27 in Years 2010, 2015 and 2020

Indicator	2010	2015	2020	change 2010/2015	change 2015/2020	change 2010/2020
People at risk of poverty or social exclusion (in %)	23.9	23.8	22.0	-0.1	-1.8	-1.9
At-risk-of- poverty after social transfers (in %)	16.5	17.4	17.1	0.9	-0.3	-0.3
Unemployment rate (in %)	9.9	10.1	7.1	0.2	-3.0	-2.8

Note:* data for 2019

Source: Eurostat (2021a-d) and authors' calculations.

Table 2b: Selected Socio-economic Indicators for the EU-27 in Years 2010, 2015 and 2020

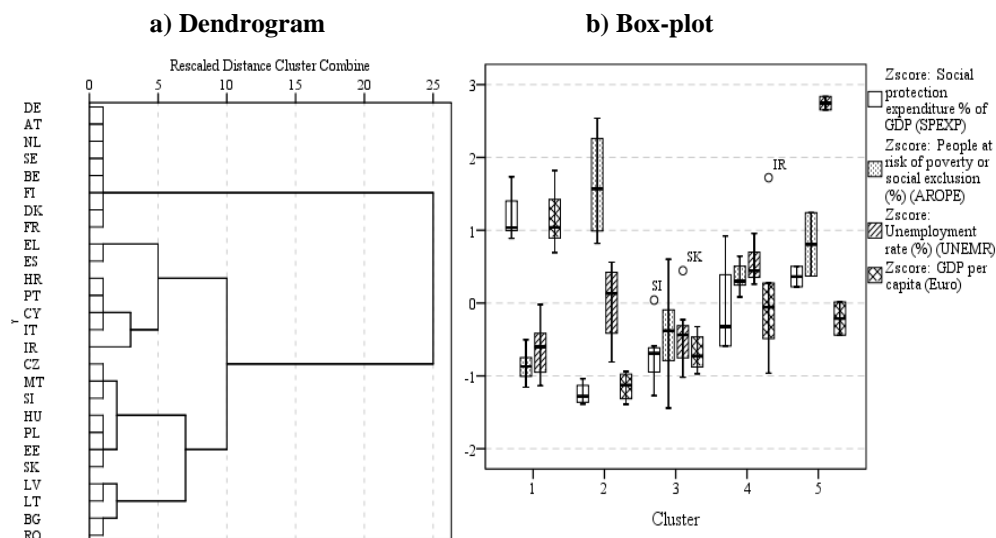
Indicator	2010	2015	2020	change 2010/2015	change 2015/2020	change 2010/2020
Social protection expenditure (% of GDP)	28.6	28.6	28.1*	0	-0.5	-0.5
Real GDP per capita (Euro per capita)	24 900	25 950	26 380	1050	430	1480
Gini coefficient (scale from 0 to 100)	30.2	30.8	30.2*	0.6	-0.6	0

Note:* data for 2019

Source: Eurostat (2021a-d) and authors' calculations.

4.2 Similarity of EU Countries according to Selected Socio-economic Indicators in the Period 2010-2018

A total of 26 EU countries have been analysed by means of hierarchical cluster analysis in terms of the period 2010-2018 according to four indicators - social protection expenditure (SPEXP), people at risk of poverty or social exclusion (AROPE), unemployment rate (UNEMR), real GDP per capita (GDP p.c.), which reflect the economic level and the standards of living in the countries. On the basis of the results of the cluster analysis, the EU countries have been divided into five clusters according to the similarity of socio-economic indicators. More detailed information is viewed in the dendrogram (figure 1a) and the box-plot (figure 1b).

Figure 1: Division of the EU Countries according to the Similarity of Socio-economic Indicators in 2010-2018

Source: Own elaboration (2022)

The first cluster consists of eight countries (AT, BE, DE, DK, FI, FR, NL, SE). These are the economically most developed countries, with the highest real GDP per capita and the highest volume of expenditure on social protection. At the same time, these countries have the lowest average risk of unemployment and poverty or social exclusion compared to the other EU countries. *The second cluster* is composed of four countries (BG, LV, LT, RO). These are the economically least developed countries, with the lowest real GDP per capita, and these countries also show the lowest volume of expenditure on social protection. By contrast, these countries have the highest average rate of risk of poverty or social exclusion (BG, RO, LV) and a higher unemployment rate (in particular, LV, LT). *The third cluster* is composed of seven countries (CZ, EE, HU, MT, PL, SI, SK). On average, these countries show the second lowest real GDP per capita, the second lowest volume of expenditures on social protection, and the second lowest unemployment rate in comparison to the other EU countries. In the case of the indicator “people at risk of poverty or social exclusion”, a larger dispersion of values is apparent, thus also larger differences, in particular between CZ and HU. SI is an outlier in social protection expenditures, SK then in the case of unemployment rate. *The fourth cluster* comprises five countries (IR, HR, IT, CY, PT), which, on average, show the second highest real GDP per capita and an average volume of expenditure on social protection, compared to the other EU countries. Countries in this cluster are characterised by a higher rate of risk of poverty or social exclusion and unemployment rate. Ireland is an outlier in the GDP per capita. *The fifth cluster* is composed of two countries, EL and ES, which, on average, show the second largest volume of expenditure on social protection. These countries can be characterised by a high rate of the risk of poverty or social exclusion and the highest unemployment rate, compared to the other countries. A higher dispersion of values is apparent in the indicator “people at risk of poverty or social exclusion”.

When evaluating the EU countries on the basis of the average values of the indicators, it is countries from the first and fourth clusters that are among the countries with the highest GDP per capita and the highest volume of SPEXP. On the contrary, countries in the second and the third clusters are among the countries with the lowest GDP per capita and the lowest volume

of SPEXP. The largest differences as regards the indicators GDP per capita, SPEXP and AROPE can be seen between the countries of the first cluster and the second cluster, whereas the countries of the first cluster and fifth cluster show the largest differences in the UNEMPR (see Figure 1b).

4.3 Mutual Relationship of Social Protection Benefits and Socio-economic Indicators in EU Countries in the Period 2010-2018

These results are a follow-up on research already carried out (Halásková, 2018a; Halaskova and Bednar, 2020). The relationships between 1) SPBEN - social protection benefits (aggregate) and selected socio-economic indicators, and between, 2) social benefits by key areas of social protection and selected socio-economic indicators are examined in the 27 EU countries in the period 2010-2018.

Table 3: Correlation between Social Protection Benefits and Socio-economic Indicators in EU Countries (2010-2018)

Pearson's correlation coefficient	AROPE	UNEMR	GDP p.c.	GINI
SPBEN	-0.531**	-0.048	0.533**	-0.403*
SICK	-0.595**	-0.211	0.455*	-0.514**
DISA	-0.439*	-0.194	0.495**	-0.337
OLDSURVIV	-0,22	0,211	0.177	-0.125
FAM	-0.465*	-0.460*	0.641**	-0.428*
UNEMPLOY	-0.297	0.23	0.533**	-0.162
HOUSEXCLU	-0,276	-0.341	0.375	-0.285

Note: ** Correlation is significant at the 0.01 level (2-tailed) * Correlation is significant at the 0.05 level (2-tailed)

Source: Own elaboration (2022)

Table 3 shows the results of correlations by use of the Pearson's correlation coefficient in the period 2010-2018. A statistically significant moderate negative correlation has been found between aggregate social protection benefits (SPBEN) on one side, and AROPE ($p < 0.01$) and GINI ($p < 0.05$) on the other. On the contrary, a statistically significant moderate positive correlation has been found between aggregate social protection benefits (SPBEN) and GDP per capita ($p < 0.01$).

The following statistically significant relations were found based on the results of social benefits by key areas of social protection and selected socio-economic indicators, applying the Pearson's correlation coefficient (Table 3):

- moderate negative correlation between social protection benefits (for sickness/health care, disability and family/children) on one side, and poverty or social exclusion (AROPE) on the other;
- moderate negative correlation ($p < 0.05$) between social protection benefits for family/children (FAM) and unemployment rate (UNEMR);
- moderate positive correlation between social protection benefits (for sickness/health care-SICK, disability-DISA, family/children-FAM, unemployment) on one side, and GPD per capita on the other;
- moderate negative correlation between social protection benefits (for sickness/health care-SICK and family/children – FAM) on one side, and income inequality, measured by means of the Gini coefficient (GINI), on the other.

Table 3 also shows a moderate negative correlation between social benefits on housing/social exclusion and the unemployment rate. By contrast, only a weak correlation exists between social protection benefits in the case of old age and survivors (OLDSURVIV) and the evaluated socio-economic indicators, or between social protection benefits for unemployment (UNEMPLOY) and the evaluated indicators (with the exception of GDP per capita).

On the basis of the results of the 27 EU countries in the period 2010-2018, it can be said that similar findings were seen also in research dealing with social expenditures, social protection expenditures or social protection benefits and the selected socio-economic indicators conducted earlier (Halásková 2018a; Cammeraat 2020; Halásková and Bednář 2020). The present results as well as the results of previous research have confirmed the existence of a negative moderately strong correlation between social protection expenditure (benefits) related to poverty, social exclusion and income inequality. At the same time, the present findings confirm the differences between different structures of expenditure on social protection. This has also been confirmed by other research (Halásková, 2018a; Cammeraat, 2020).

5. Conclusion

Social protection represents a set of policies and programmes designed to managing, and overcoming situations that adversely affect people's well-being. The aim of this research was to evaluate similarities between EU countries according to socio-economic indicators and use key areas of social protection to examine the relation between social protection benefits and selected socio-economic indicators in the period 2010-2018. Results of cluster analysis based on the evaluated socio-economic indicators show a stronger similarity of Scandinavian countries and countries of continental Europe (the first cluster). These countries demonstrate a high economic level and living standards and a low rate of social risks. Similar countries placed in the third cluster allocated a lower volume of expenditure on social protection and on average reach a lower rate of the risk of poverty, social exclusion or unemployment. The results also show that in particular South-European countries, located in the fourth and fifth clusters, despite allocating a higher volume of expenditure on social protection, are failing in eliminating social risks considerably. The results of social protection in the EU countries in the period 2010-2018 based on the Pearson's correlation coefficient proved a moderate negative correlation, in particular between social protection benefits (aggregate) and benefits of social protection in specific areas (sickness/health care, family/children, disability) on one side, and the indicators (poverty or social exclusion, income inequality, unemployment) on the other. By contrast, a moderate positive correlation has been confirmed in the case of social protection benefits (aggregate) and social protection benefits in the majority of the key functions on one side, and real GDP per capita on the other. The topic for further research can be a more detailed analysis of indicators of social protection according to similar groups of EU countries.

The reached findings demonstrate the significance of social protection policies in EU countries in connection to the tackling of social risks. According to Baptista et al. (2021), in relation to the pandemic of COVID-19, EU countries have extended existing social protection and social inclusion schemes. In particular, this includes sickness benefit schemes, short-time work schemes, unemployment benefits, leave for parents having to care for children during the closure of child facilities.

Acknowledgements

This paper was created within the project VEGA No. 1/0683/21 “Generation Gap and Provision of Public Services and Administration“ and SGS project SP2022/74 “Computational Intelligence in the Prediction of Economic Quantities, Data Mining and Economic Process Modeling”.

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Limitation on Obligation to Maintain Secrecy by Attorney and Tax Adviser in Czech Republic and Other EU Countries

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Abstract

The basic precondition for the provision of legal assistance by a lawyer and the advice of a tax advisor, and a necessary condition for the functioning of a democratic society, is the duty of confidentiality of these persons. This is not a privilege which should constitute an exemption from the generally applicable legal order, but an obligation imposed on them by a lawyer and a tax adviser in the interests of their clients and for their protection. The aim of the paper is to explain the concept of confidentiality in legal practice, to summarize the development of the perspective of the duty of confidentiality of lawyers and tax advisers, including European law, adjacent case law and considerations of the authors de lege ferenda. The authors begin with an interpretation of the concept of secrecy and its meaning in legal practice, the historical development of given legal regulation in the frame of criminal and tax proceedings and the related court interpretation. The new legislation contained in the Tax Code brought a certain breakthrough, so the contribution cannot avoid its analysis, assessment, and concrete examples of the negative impact in practice.

Keywords: criminal procedure rules, confidentiality, obligation to maintain secrecy, tax code

JEL Classification: K10, K14, K40

1. Introduction

The topic of confidentiality of a lawyer or tax advisor can be considered a problematic area in practice. We classify the profession of lawyer or tax advisor among the professions that have a legal duty of confidentiality as one of the basic duties. In practice, we may encounter problems related to the application of legislation, including case law and problems of interpretation.

Problematic are situations where tax administrators are guided by the efforts, within the limits of possibilities and the law, to assist the moribund tax in the most effective way in finding and setting taxes and securing their payment. The possibilities of the tax administrator in this activity are very limited in relation to obtaining information from lawyers and tax advisors in tax proceedings (not to mention the local investigation). It is the legal regulation of the protection of information provided to a lawyer and a tax advisor, in the form of a practically unlimited possibility to refer to one's own duty of confidentiality, that creates an insurmountable barrier for tax administrators to obtain relevant information.

Without going beyond the acceptable professional imagination, it can be assumed that several lawyers and tax advisers take a similar view on this issue, without taking a closer look at this issue. At the same time, the above-mentioned notions of the "unbreakability" of the protection of confidentiality have no support in the previous or current legislation.

According to the law, a lawyer is obliged to maintain confidentiality about all facts of which he has learned in connection with the provision of legal services (Act on the Legal Profession). Similarly, a tax advisor, his employee or representative, as well as a person who has lost the right to provide tax advice, are obliged to maintain confidentiality of all facts they have learned in connection with this activity (Section 6, Subsection 9 of the Act on the Tax Advisory Services and the Chamber of Tax Advisers of the Czech Republic).

The principle of the lawyer's secrecy cannot be regarded as a privilege or the prerogative of a lawyer but must be regarded as an obligation arising from the client's fundamental right (Bělohávek, 2021).

The aim of the article is to explain the concept of confidentiality in legal practice, to assess the development of the view of the duty of confidentiality of lawyers and tax advisers, related case law and considerations of the authors *de lege ferenda*. A partial goal is the subsequent analysis of the regulation of confidentiality in the countries of the European Union, or in Europe with a focus on tax advice. The issue of confidentiality has been studied in countries such as Austria, Poland, Slovakia, Germany, Belgium, Portugal, the United Kingdom, and the Netherlands. Methods of analysis, synthesis and deduction were used to meet the set goals. The individual legal regulations, whether the laws themselves or the decisions of the Constitutional Court and other case law related to this issue, were examined.

2. Development of Relevant Legislation

First, the content of the term "*duty of confidentiality*". The concept of confidentiality can be found in almost every area. According to Yu (2008), this concept comes from the medical field, but over time it has spread to almost all areas and is now an integral part of the ethical principles of various professions. It would be difficult to find a general definition of confidentiality in the law. Novoa and Weil (2021) define confidentiality as an obligation which consists in the lawyer's obligation to refrain from disclosing any information which he has obtained in the exercise of his profession. It must be emphasized that we did not find anything in the explanatory memorandum to the Advocacy Act or in any other norm that would precisely and even explicitly define this concept. Section 21(1) of the Act on the Legal Profession imposes an obligation on a lawyer to maintain confidentiality about all facts of which he has learned in connection with the provision of legal services in connection with the performance of his profession. It is the regulation of the obligation to maintain secrecy and professional secrecy that reflects the company's understanding of the law and the role of the lawyer (Novoa and Weil, 2021).

It is logical that in both cases the legislator could not have meant absolutely all the facts that a member of this profession learns from the client during his activities. So, these are certainly facts that have real or at least potential value and, of course, are not commonly available to everyone. We believe that the nature of these facts could be close to what commercial law regulates as a trade secret. However, a positive and no exhaustive definition is hardly possible. Therefore, we believe that the obligation in question can cover practically all facts except those which the law negatively in the sense of Section 21 of the Act on the Legal Profession and Section 6, Subsection 9 of the Act on the Tax Advisory Services and the Chamber of Tax Advisers of the Czech Republic states as facts for which the competent the adviser cannot invoke the obligation of confidentiality. This is, for example, a legal obligation to prevent the commission of a criminal offense or when a criminal offense is detected. For example, Hasbani (2010), in his article deals with a case of secrecy in the event of a false conviction. A lawyer and a tax advisor cannot invoke the obligation to maintain secrecy even in the performance of their duties under the Act on Certain Measures against the Legalization of Proceeds from

Crime and Terrorist Financing. According to Jančíková and Pásztorová (2018), the fight against money laundering is part of the fight against terrorist financing, and tax advisers or lawyers can contribute to this. However, Šefl (2010) points out that the client does not turn to these professions when committing or preparing such a crime. It is not without interest that this last-mentioned legal obligation was introduced into the Act on the Tax Advisory Services and the Chamber of Tax Advisers of the Czech Republic only by its amendment by Act No. 94/2018 Coll. In addition, we can also include the issue of financial fraud here. Zipursky (2020), for example, dealt with this topic in connection with confidentiality.

In criminal and financial proceedings, especially until 2006, the legislation posed application problems in assessing how to proceed with house searches or searches of other premises in which the lawyer practices law, and whether the various documents and information mediums placed there contain facts, to which confidentiality applies.

It should be recalled that the previous regulation, with the possibility that documents, or information mediums affected by the obligation of confidentiality may arise during these inspections, did not in fact provide for. The problems encountered were therefore resolved only in specific cases according to interpretative rules or case law. For example, according to the interpretative opinion of the Supreme Public Prosecutor's Office No. 9/2001 Coll. v. s. *„computer technology and recording media can be provided as important matters for criminal proceedings, although there is a possibility that the seized information mediums contain, in addition to records of facts relevant to the criminal proceedings, information on facts which do not relate to the ongoing criminal proceedings and to which a duty of confidentiality imposed or recognized by the State is attached“*.

Similarly, according to decision of the Constitutional Court of the Czech Republic 1999/01/21 – file no. III. ÚS 486/98 there can be no objection that the issuance of a search warrant was hindered by the fact that, as a lawyer who is required by a statutory obligation to maintain secrecy, he had several confidential information entrusted to him by his client; even if it is an obligation imposed by the state and therefore generally protected. It cannot be overlooked that this is not the prerogative of a lawyer, which should establish an example of binding legal imperatives, and that it is an obligation imposed on a lawyer in the interests of his clientele and for his protection, and which also enjoys appropriate protection in this sense and scope. The protection of such protected interests of third parties by the house search was not affected, because the investigator conducting the house search, as well as other criminal authorities (public prosecutor, judge) is required by law to maintain confidentiality of matters (facts) of which they learned in connection with the exercise of their powers. Also, according to decision of the Constitutional Court of the Czech Republic 2002/01/17 – file no. IV. ÚS 2/2002 Also according to the decision during the inspection of other premises, for the order of which the legal conditions were met, computer technology and recording media, or their copies, can also be provided as important matters in the procedural proceedings, although there is a possibility that the seized media contain, in addition to records of facts relevant to the criminal proceedings, information on facts which are not related to the ongoing criminal proceedings and to which a obligation to maintain secrecy imposed or recognized by the State is attached. According to this decision, the unjustified breach of the duty of confidentiality cannot be regarded as the fact that the information mediums also contain data which are not relevant and unusable for ongoing criminal proceedings, as this objective was not pursued by the inspection. It is only a side product of the search which could not have been prevented and not a deliberate acquisition of data protected by the obligation of confidentiality in a manner which would be contrary to the rules governing breach of the obligation of confidentiality.

Regarding to tax advisers, the missing legislation has been replaced by the application of Section 8, Subsection 5 of the Criminal Procedure Code. According to this regulation, unless a special law stipulates the conditions under which classified information may be disclosed for the purposes of criminal proceedings or which are subject to the obligation of confidentiality, these facts may be required for criminal proceedings with the prior consent of the judge.

The conclusions of the Criminal Chamber of the Supreme Court of the Czech Republic can be mentioned in the same spirit. „In this case, a special legal regulation, which is Act No. 523/1992 Coll. on the Tax Advisory Services and the Chamber of Tax Advisers of the Czech Republic, as amended, in its provision of Section 6, Subsection 9, enshrines the obligation to maintain secrecy about all facts of which the tax advisor learned in connection with the performance of tax advice, while this obligation can be released only by the client by his statement. It is not without interest that even in this case, the tax advisor is obliged to maintain confidentiality if it is in the client's interest. However, addressing this issue would go beyond the purpose of this paper. On the other hand, the cited law does not stipulate the conditions under which, for the purposes of criminal proceedings, facts may be communicated which are subject to the obligation to maintain secrecy of a tax adviser. Therefore, in such a case, it is possible to proceed according to Section 8, Subsection 5 of the Code of Criminal Procedure.“ (Report of the Criminal Chamber of the Supreme Court of the Czech Republic, On Analysis and Evaluation of The Effectiveness of the Amendment to the Criminal Regulation).

Thus, previously, the provisions of Section 8, Subsection 5 of the Code of Criminal Procedure were not generally an institution permitting a breach of legal secrecy in all cases but were interpreted as meaning that the absence of special provisions in another law established the possibility of replacing non-existent conditions. Of course, the possibility to obtain data with the prior consent of a judge under Section 8, Subsection 5 of the Code of Criminal Procedure was conditioned by the fact that it was possible to request only information necessary to fulfil the purpose of criminal proceedings in a particular case and this information could not be obtained in a less intensive manner. The scope of this information had to be limited to what was strictly necessary to clarify the matter. In practice, therefore, such a judge's consent should also contain a proper statement of reasons and thus meet the requirement of its reviewability.

Regarding to house searches and searches of other premises in which the tax adviser carried out his activity, the prevailing view in practice was that the protection of the interests of third parties is ensured through the mandatory confidentiality of law enforcement authorities. Accordingly, even in these cases, the tax adviser could not claim his legal obligation to maintain confidentiality.

The absence of the relevant amendments was terminated by an amendment to the Criminal Procedure Code made by Act No. 79/2006 Coll., in which a special provision has been included (Section 85b of the Code of Criminal Procedure), which regulated the co-operation of the Czech Bar Association (hereinafter referred to as the CBA) in carrying out such inspections. The procedure is similar to the regulation described below in the tax audit, including the fact that in disputable cases the court decides authoritatively in the manner described below. What is crucial, however, is that this procedure can only be applied in criminal proceedings if there is a reasonable suspicion that a thing or person is important for the criminal proceedings in these premises (Section 82, Subsection 1 of the Code of Criminal Procedure).

Regarding to the administration of taxes, or the detection, determination and fulfilment of tax obligations, the previous regulation also breached the lawyer's obligation to maintain secrecy in a manner that the tax administrator can choose, but only within the framework of proper tax control. According to the relevant provisions of the Act on the Administration of Taxes and

Fees (Section 16, Subsection 9, Subsection 10 and Subsection 11 of the Act on the Administration of Taxes and Fees) when conducting tax audits in the relevant premises, in which the lawyer performs advocacy, or in which there may be documents or other information mediums containing facts covered by a special regulation of the lawyer's confidentiality obligations, the tax administrator performing the tax audit was obliged to request the cooperation of CBA. The employee of the tax administrator was entitled to become acquainted with the contents of such documents or media only in the presence and with the consent of the CBA representative appointed by the CBA chairman from among its employees or from among lawyers. If the CBA representative refused to grant this consent, the documents or other information mediums had to be secured in the presence of an employee of the tax administrator, a lawyer, and a CBA representative so that no one could become acquainted with their contents. If necessary, destroy or damage them so that the purpose of the tax audit can be defeated. Immediately afterwards, the relevant documents or other information mediums had to be handed over to CBA. The CBA returned them to the lawyer without delay after the deadline for filing the motion with the court had expired in vain, or if the motion had been filed in time. CBA dealt with them in accordance with the decision of the court, which could replace the consent of the CBA representative.

This type of court proceedings was previously regulated in the provisions of the Civil Procedure Code (Section 200j, Section 200m of the Civil Procedure Code) on the replacement of the consent of the CBA representative to become acquainted with the content of documents, which may contain facts to which the obligation to maintain secrecy applies. At present, the regulation of the procedure for replacing the consent of the CBA representative to become acquainted with the content of documents can be found in Part 5 of the Act on Special Judicial Proceedings, entitled Procedure for replacing the consent of the CBA representative to acquaintance with the contents of documents. (Section 332 - Section 341 of the Act on Special Judicial Proceedings). In this special proceeding, which also applies to the replacement of the consent of a representative of the Chamber of Tax Advisers, the court will grant such a request if it concludes that the document does not contain facts about which the lawyer concerned is obliged to maintain confidentiality under special regulations; otherwise, it shall reject the proposal. What is important, however, is that it decides on these matters by a resolution against which no legal remedy is admissible, and which is enforceable by a declaration (Section 339, Subsection 2, Act No. 292/2013 Coll.).

In this situation, however, the legislator in the new legislation on tax administration, namely in the Tax Code, introduces a special regulation on the protection of confidentiality imposed by advisers as follows:

- the tax administrator may enter the premises where documents containing facts which are subject to the obligation to maintain secrecy of the adviser may be found only in the presence of the adviser who is bound by the obligation to maintain secrecy (legislative abbreviation contained in Section 29, Subsection 2, of the Tax Code, by this adviser is meant a tax adviser or lawyer)
- the tax administrator may acquaint himself with the content of documents which the lawyer declares contain facts which are subject to the lawyer's secrecy according to another legal regulation only in the presence and consent of a representative of the Czech Bar Association appointed by the tax administrator at the request of the tax administrator chairman from among its employees or lawyers.; the opinion of the Czech Bar Association shall be set out in the records. This procedure is applied similarly to tax advisors.
- if the representative of the relevant chamber refuses to give such consent, the documents must be secured in the presence of the tax administrator and the adviser

and the representative of the relevant chamber so that no one can become acquainted with their contents or destroy or damage them to defeat the tax administration's goal. The Chamber shall return these documents or other information mediums to the Adviser without delay after the deadline for filing a court motion to replace the consent of the Chamber's representative has expired in vain. However, if this motion has been filed, the relevant chamber will deal with them in accordance with the decision of the court, which may replace the consent of the representative of the relevant chamber. (Section 255, Act on Tax Regulations).

The issue of confidentiality with a focus on tax advice is regulated with varying intensity in individual countries. To a certain extent, the duty of confidentiality of the tax advisor is set in all countries. Somewhere directly by law (eg Austria, Poland, Slovakia, Germany, Belgium, Portugal and others), elsewhere by professional regulations of relevant organizations (eg Great Britain, the Netherlands). Probably the widest secrecy for a tax advisor is contained in the German legislation, according to which it can maintain it against the tax administrator, the public prosecutor and the court in tax and criminal proceedings.

In many EU countries, the regulation of confidentiality has different specifics. In Romania, for example, the law allows the adviser to remain confidential in relation to the tax administrator even during the tax audit phase. However, if this control escalates into further proceedings (eg criminal), then the adviser must provide the information to the state authorities. Counsellors have different options in Portugal, depending on which counselling profession provides. The accounting officer or auditor may not refuse to provide confidential information either to a police authority, to a public prosecutor or to a court, or in tax proceedings. Even a lawyer providing tax advice cannot claim this refusal in him. However, he can use this option against a police authority, public prosecutor, or court. However, in case of suspicion of the advisor's participation in the tax crime, he obviously has the right to reject the information related to the tax advice.

In all countries, confidentiality is broken by the client's act, in some in relation to serious crimes (murder, crimes against the republic, etc.), similar to the Czech legislation.

A typical breakthrough is the area of measures to combat money laundering and terrorist financing. In relation to it, Russia and Ukraine have not yet accepted an adjustment comparable to that in the EU from European countries. The difference is in Switzerland, where the consultant does not have to report suspicious transactions, but in this case may not continue to provide advice to this client, otherwise he could be excluded from the chamber.

In some cases, there is the possibility of the court being deprived of its secrecy, or the tax advisor's option not to comply with it in his own defence in court proceedings. An exceptional breakthrough can be described as a case of conflict between the duty of confidentiality and another "higher" value, which is considered, for example, in Belgium - child safety, state of emergency, etc.

Usually, a tax advisor in EU countries is not obliged to notify the tax administrator of the tax reduction by the client. In contrast to most countries, the obligation to report tax avoidance to clients is imposed in Portugal. It is not without interest that the legal regulation of tax advice is lacking here. The duty of confidentiality is regulated by applicable laws for accountants, auditors and lawyers who provide tax advice.

In conclusion, it should be noted that, of course, breaches of confidentiality may be subject to private law penalties (eg in the event of damage to the client) or disciplinary penalties (according to the professional regulations governing their activities). However, to address this issue in more detail would be beyond the scope of this article.

3. Application of Relevant Provisions in Practice - Discussion

This legislation presents several pitfalls. Unlike criminal proceedings, which regulate a similar procedure of law enforcement authorities in the manner described above and where it can only be applied in ongoing criminal proceedings, according to the mentioned new regulation in the Tax Code, none of its provisions require that the above-described procedure of the tax administrator can be performed only within the framework of tax control. It does not have to be conducted at all, and it does not even have to be tax administration procedures (search activities, explanations, local inquiries) conducted against the client of the relevant lawyer or tax advisor.

This is therefore an extremely important qualitative difference in a situation where no "qualified suspicion" of committing a tax offense is required for this possible procedure of the tax administrator. The broad authority of the tax administrator is that he can apply the procedure in question at virtually any time and on any initiative, or even without it. It is necessary to remind that we live in the Czech Republic.

As a result, due to the inexperience, unprofessionalism, or negligence of the tax administrator, or in the extreme, hypothetical case, at the request of the lawyer's opposing party, there may be very undesirable consequences regarding the assessed benevolent legislation.

In accordance with the procedure provided for in the Tax Code, a document with an extremely important substantive or procedural significance may be removed from the law file for a period of time, deciding on the exercise of the lawyer's client's rights. This may be, for example, a bill of exchange which the lawyer took over from the party to the bill of exchange legal relationship based on his representation and which he will not be able to apply within the time limit. We acknowledge that this example is not the most appropriate because, according to case law, the content of a bill of exchange is not subject to the obligation of professional secrecy. However, it is mentioned here only as an example of a possible abuse of the institute of securing things for criminal proceedings, or for the mentioned fiscal purposes. In practice, therefore, it may rather be a significant contract, which has the character of key evidence in the proceedings, which will also not be possible to submit to the court.

It is also possible to imagine possible extreme consequences such as the sale of a company of significant value to a competing entity in a situation where the subject of the administrator's interest will be bearer shares based on the lawyer's file. And because of their withdrawal, the shareholder, represented by the lawyer, will not be able to present the shareholder's rights at the general meeting, which decides on the sale of the company.

This situation is conceivable not only on a hypothetical level. We can recall the ingenuity of various entities in the field of competition, who do not hesitate to use unfair practices to achieve their goals, for example in the form of purposeful insolvency proposals to exclude a competitor from the possibility of participating in a public tender. Similarly, such an entity could initiate, for example, the de facto impossibility of using the said shares (see example above) for a certain period through the procedure under Section 255 of the Tax Code.

The possible claim for damages (probably against the state) in such cases can then only be a possible and often weak patch for the consequences that may occur in the indicated - borderline and hypothetical - cases.

According to the authors, there is no objection that, in disputes, the tax administrator's unprofessional or negligent conduct (or even its abuse, even if he acted in good faith) will prevent a qualified court assessment. Without questioning the level of court decisions in general, the fact remains that here and there in practice we will encounter faulty court

decisions, the correction of which may be complicated and even impossible (especially in terms of time). It would lead in these cases only through extraordinary remedies or constitutional complaints, in a situation where these judicial decisions in question, which replace the consent of the CBA representative to become acquainted with the content of documents that may contain facts covered by confidentiality, are enforceable by their promulgation.

An example is the matter described in the opinion of the Committee on Technical Assistance and the Protection of the Interests of Lawyers 2010/06/17 - file no. 440/VOPOZA/10-Design/12 (Nespala, 2010). According to this opinion, this is a very clear legal matter in which bona fide errors and conduct can be ruled out with a probability bordering on certainty. On the contrary, on the basis of available information, there can be a reasonable suspicion that the law is intentionally abused to the detriment of a lawyer if the court, within the meaning of Section 85b, Subsection 9 of the Criminal Procedure Code with an information medium that contains facts that are subject to the lawyer's obligation to maintain secrecy, while at the same time the individual information mediums and the facts contained in them do not indicate exactly, do not evaluate their content and do not duly justify their decision. Especially in the case where, under the current legislation, no appeal is admissible against such a decision.

This was a case of a court resolution in which the competent judge dealt with the opinion of the authorized representative of the CBA simply, inadmissibly only in general and unreviewable. So that the statutory duty of confidentiality of a lawyer cannot be endangered, as they are information mediums that are related to the business activities of his client.

Fortunately, this rather paradoxical conclusion was corrected by the Constitutional Court in its decision 2010/11/25 – file no. II. ÚS 889/10. According to the cited finding: *“The purpose of criminal proceedings is not only to properly detect crimes and punish the perpetrators (Section 1, Subsection 1 of the Criminal Procedure Code). However, the discussion of matters with a full investigation of the rights and freedoms guaranteed by the Charter and international treaties on human rights and fundamental freedoms by which the Czech Republic is bound (Section 2, Subsection 4 of the Criminal Procedure Code). It is essential that the ordinary courts exercise a reasonable degree of diligence in assessing all the circumstances decisive for constitutionally consistent interference with any fundamental rights and freedoms. It is therefore important for the General Court to carefully consider for each document separately whether the lawyer concerned is required to maintain the confidentiality of its content.”*

According to the cited finding, reasonable care in acquainting the contents of all documents obtained in the lawyer's office, which are to be issued to public prosecutor's offices for the purposes of evidentiary proceedings, serves primarily to protect the rights of those lawyer's clients who have nothing to do with the criminal case. In these circumstances, this diligence requires some time, technical capabilities, and the overall approach of the judge making the case. Any generalization is completely unacceptable. In this case, the police had to recruit an expert to find out the data on the secured mobile phones. While it was sufficient for the General Court to acquaint those data and all the other documents, as well as to evaluate them, to evaluate all the parties' submissions and objections and to draw its own conclusions, it took only seventeen minutes. The General Court evidently failed in its duty to acquaint in detail all the documents (mobile phones) obtained in the lawyer's office, and which are to be issued to the public prosecution authorities as evidence in criminal proceedings. Therefore, the appellate review of the General Court in the present case was not an effective protection of the rights of all persons concerned. For the appellate review to be effective, the general court would have to ensure that the data on the seized mobile phones were made available before the decision, as the police authority did afterwards.

The Constitutional Court therefore found the complaint to be well-founded and upheld it. The General Court violated the applicant's fundamental rights under Article 8, Subsection 2, Article 13 and Article 26, Subsection 1 of the Charter of Fundamental Rights and Freedoms. The contested decision was annulled on the ground that, in the new proceedings, the general court must carefully consider for each document separately whether the lawyer concerned is required to maintain the confidentiality of its content.

Let us turn to the area of measures to combat money laundering and terrorist financing. In relation to it, Russia and Ukraine have not yet accepted an adjustment comparable to that in the EU from European countries. Recently, initiatives related to the fight against aggressive tax planning and the obligation to identify suspicious transactions in the fight against money laundering have been considered a threat to legal confidentiality (Bělohávek, 2021). In this context, the relationship of DAC 5 (Council Directive (EU) 2016/2258) and DAC 6 (Council Directive (EU) 2018/822) to confidentiality is also being discussed. The directive DAC 5 required Member States to provide access to selected mechanisms, procedures, documents and information to tax authorities. The Directive DAC 6 addresses the issue of mandatory automatic exchange of tax information in relation to cross-border arrangements to be reported. In the case of confidentiality, the DAC 6 formally maintains the possibility of legal confidentiality. But it stipulates the obligation of an intermediary - in our case a lawyer - to notify this fact to another known intermediary or user of the notified scheme.

The tendency to break legal confidentiality is growing stronger. Macquill (2019) states that "many lawyers in Europe are on the verge of exhaustion, as they must constantly avert attacks by Member States and the EU against the essence of their profession. All this only to protect the financial interests more than the rights of their citizens." Haug, vice president of the German Bar Association, shares this view. Moreover, according to him, if the state restricts legal confidentiality, it may mean a reduction in the interests protected by the constitution.

4. Conclusion

In conclusion, we would like to state that if the courts proceeded in a similar way to the regional court in replacing the consent of the representative of the relevant chamber in the case discussed above in connection with the Constitutional Court's decision of November 2010 (Decision of the Constitutional Court of the Czech Republic 2010/11/25, file no. II. ÚS 889/10), As a result, it would mean that they would make the Czech Bar Association only an advisory body. The co-operation of the CBA, as defined in Section 85b, Subsection 1 of the Criminal Procedure Code and Section 255 of the Tax Code, is in fact limited to expressing an opinion which may or may not be accepted by the competent judge. Thus, the autonomy of lawyers in the provision of legal services, and especially the public corporation of the Czech Bar Association, as a guarantor of the independence and legality of the practice of advocacy, is completely degraded (Nespala, 2010). Of course, the same is true for the Chamber of Tax Advisers.

We believe that in the next amendment to the Tax Code (a total of 17 of them were adopted in 12 years), the provisions of Section 255 should be amended so that the procedure modified there cannot be applied by the tax administrator at any time, but only and only within the ongoing tax audit. Until the relevant case law is issued, where the first decision of the Constitutional Court of November 2010 could be perceived as the first impulse, in our opinion the cited provision of Section 255 of the Tax Code (as well as of Section 85b of the Criminal Code) should not be perceived otherwise than as follows. Its sole purpose is to establish a system in which someone - a representative of the relevant chamber - qualified to inform the tax administrator, who does not need to be informed of the professional characteristics of a

lawyer and a tax adviser in relation to the obligation of professional secrecy of facts which he becomes aware of in the course of his work, that the required documents or information mediums are subject to a confidentiality regime. The adviser in question objectively often meets privileged information deserving of that protection. Such an interpretation would undoubtedly also contribute to increasing the necessary authority of the Czech Bar Association or the Chamber of Tax Advisers.

The point is that the obligation of confidentiality is a basic precondition for the provision of legal aid, and thus a necessary condition for the functioning of a democratic society. As it is mentioned in relation to lawyers in the decision of the Constitutional Court of the Czech Republic 2010/11/25, file no. II. ÚS 889/10. The performance of the profession of lawyer and tax advisor is based on the confidential relationship between them and the client and on the client's trust in their confidentiality (compare Bělohlávek, 2021). This is not a privilege that should constitute an exemption from a generally applicable and binding legal order, but an obligation imposed on a lawyer and a tax adviser in the interests of their clients and for their protection. In this sense, professional secrecy and its observance also enjoy appropriate protection. Especially in situations where this obligation may be jeopardized in cases such as a house search at a lawyer and a tax advisor or at their office. The court deciding on the proposal to replace the expression of the will of the chamber enabling the public prosecution authorities to become acquainted with the matters secured during the inspection of the office is in the position of not only the guardian of positive state obligations in the field of fundamental rights and freedoms. But also, the defender of a virtually unknown group of persons who, through secrecy, enjoy the fundamental right to legal aid under Article 37 (2) of the Charter of Fundamental Rights and Freedoms. Thus, from a procedural point of view, the lawyer, the tax adviser, and their chambers are not representatives of their own interests, but representatives of the holders of the latter fundamental right. By exercising his own fundamental right to practice advocacy and tax advice - according to Article 26 (1) of the Charter of Fundamental Rights and Freedoms - the lawyer and tax advisor also substitutable asserts the fundamental right of his (affected) clients to legal aid under Article 37 (2) of the Charter. In such a case, both are affected at the same time.

After examining the issue of confidentiality in the countries of the European Union, we concluded that in individual countries this issue is regulated with varying intensity – it is regulated directly by law (eg Austria, Poland, Slovakia, Germany, Belgium, Portugal, etc.), elsewhere by the professional regulations of the relevant organizations (eg the United Kingdom, the Netherlands). Probably the widest secrecy for a tax advisor is contained in the German legislation, according to which it can maintain it against the tax administrator, the public prosecutor and the court in tax and criminal proceedings. The regulation of confidentiality is therefore not regulated directly at EU level. After examining the relevant jurisprudences of the Court of Justice of the EU, it can be found that it does not specifically address this issue. Only isolated cases can be found, like Judgment of the Court (Grand Chamber) 26 June 2007, which concerns, inter alia, the lawyer's obligation to provide information (on money laundering).

Further research following this paper will examine the relationship between DAC 5 (Council Directive (EU) 2016/2258) and DAC 6 (Council Directive (EU) 2018/822) and monitoring how these Directives are applied in individual countries of the European Union.

Acknowledgements

This research was financially supported within the VŠB–Technical University SGS grant project No. SP2022/71 (Analysis of fraud in cross-border transactions and their impact on the identification of risks in business activities).

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Two Decades of European Integration in View of Peripheral Regional Border Effect without Language Barrier

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Abstract

The European integration struggles with several problems, especially on the regional level. One of these issues is cross-border mobility. Thus, our research aims to assess the potential for cross-border mobility in peripheral border areas. In this point of view, mobility includes mobility at the micro-regional or commuter level. The research question is not a quantitative assessment of this potential in the context of the border effect but a qualitative identification of the characteristics in cross-border mobility in the specific case of very close language and a shared history. It enables people in the border area to communicate regularly, but there are still some barriers. For this reason, the Czechoslovakian border region was selected for the research as it meets these characteristics. A questionnaire survey was carried out, including responses from 968 municipalities (234 in the Czechoslovak Borderlands). Results show that the distance from the national border matters because 51% of respondents use only car mode for cross-border mobility and another 29% use car in combination with another transport mean. Thus, there is a significantly higher motivation to use the car (around 80% together) in the very close border region. The most crucial travel motive is daily visiting without an overnight stay. The most important provider of cross-border public transport in the Czech municipalities is the integrated regional system, while in Slovakia, these are the municipalities. The essential cross-border public transport providers in Czechia are regions, while in Slovakia, these role lies in municipalities. Municipalities in border regions are more active than inland municipalities in organising cross-border transport in Czech and Slovak cases.

Keywords: *European integration, cross-border transport, border effect, mobility behaviour, inter-municipal cooperation,*

JEL Classification: *R41, R11, R58, F55*

1. Introduction

Our paper aims at the European integration process on the specific example of almost two decades of “re-integration” after entering the European Union in 2004 of Czech and Slovak border regions. The process of European integration on the regional level is the long-term goal reflected in the concept of Euroregion based essentially on cross-border cooperation (Durà,

2018) and defined as a territorial unit formed by two adjacent sub-national units belonging to two separate states (Perkmann, 2002). When facing cross-border integration, one essential area is transport struggling with the border effect. It has been described using the example of a significant decline in transport demand for airlines that cross domestic borders (Klodt, 2004; Hazledine, 2009; Zijlstra, 2020; Klenka, 2018). In the case of other transport modes, mainly focusing on daily commuting, he pointed out the importance of the border effect primarily in German (but also Austrian or Swiss) border regions (Cavallaro and Dianin, 2019). The issue of cross-border mobility is particularly relevant in the case of geographically less extensive countries, where the border effect has to be taken into account precisely at relatively short distances when planning transportation projects. The studies referred to above deal mainly with quantifying the decline in transport demand. Qualitative barriers to mobility in border regions were analysed by Medeiros (2019, Medeiros et al. 2021), who identified administrative and bureaucratic barriers as crucial barriers. Institutional barriers (Turrini, van Ypersele, 2010) may play a key role, affecting joint cross-border mobility and the unequal status of local markets and their characteristics on both sides of the border (Balaguer, Ripollés, 2018). Border effects from the perspective of major metropolitan areas are also addressed by Sohn and Licheron (2017). This research, however, focuses on differences in cross-border mobility, precisely considering differences in mobility behaviour in its institutional preconditions and barriers. It is done by analysing representatives of municipalities mainly from peripheral regions on both sides of a shared border between the Czech Republic and Slovakia. Quantitative identification of the border effect in the case of the peripheral Liberec region was carried out by (Drápela, Bašta, 2018). The causes of border effect often lie in socio-cultural differences. The studied example Javorník on the Czech and Polish border represents historically very close areas but still with closer relations to Czech inland (Vaishar et al. 2013).

2. Problem Formulation and Methodology

This research aims to assess the potential for cross-border mobility in peripheral border areas. In this point of view, mobility includes mobility at the micro-regional or commuter level instead of long-distance mobility. The research question is not a quantitative assessment of this potential in the context of the border effect but a qualitative identification of the characteristics in cross-border mobility in the specific case of very close language and a shared history. It enables people in the border area to communicate regularly, but there are still some socio-cultural barriers. For this reason, the Czechoslovakian border region was selected for the research as it meets these characteristics.

2.1 Survey and Data

Within the research framework, a questionnaire survey among mayors and mayoresses of municipalities in the Czech Republic and Slovakia was carried out during September 2020 (Own survey, 2020). Thus, in this period, the influence of COVID-19 was relatively minimised. Two questionnaire surveys were conducted for each country with the same questions (including 13 questions on inter-municipal and cross-border cooperation, see Appendix 1). The questionnaire survey in the Czech Republic eventually involved 675 representatives out of 6,255 municipalities questioned. Thus, the rate of return was nearly 11% (regarding 95% confidence level, the sample reached confidence interval 3.56). The questionnaire survey carried out in the Slovak Republic contains responses from 293 municipal representatives out of 2,887 municipalities in Slovakia with a rate of return over 10% (achieving confidence interval 5.43). The results are presented on the whole national sample and the border zone, which consists of municipalities belonging to border regions (see Table

1). In the case of the Czech Republic, these are the Zlín, Moravian-Silesian and South Moravian regions. In the case of the Slovak Republic, the municipalities are from the Trenčín, Trnava and Žilina regions.

Table 1: The Survey Sample Structure

population category	0-300	301-500	501-1,000	1,001-3,000	3,001-5,000	5,000-10,000	10,001+	total
CZ	149	115	149	149	47	33	33	675
- border regions	21	23	39	54	19	11	9	176
SK	23	56	93	88	9	6	18	293
- border regions	4	9	20	17	1	3	4	58

Source: Own survey (2020)

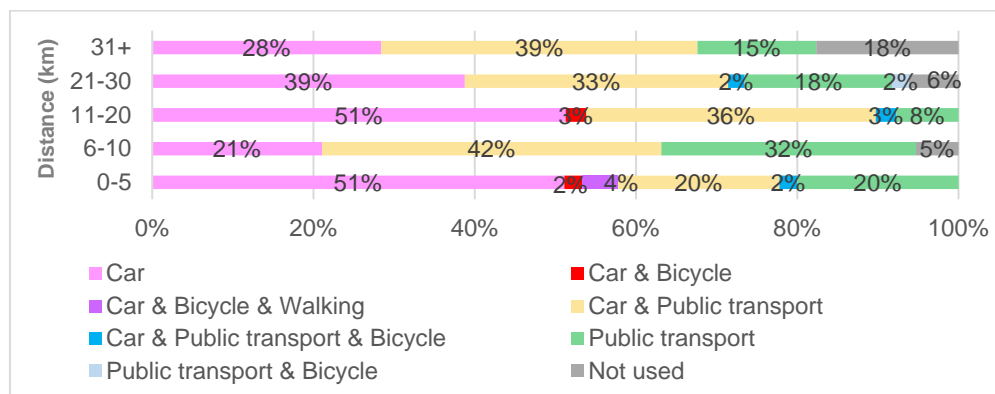
3. Solution and Results

Following part bring the results according to different aspects of cross border mobility from pour survey. Each of following subchapter presents results firstly to Czechia and consequently to Slovakia.

3.1 Results on Modes of Transport

The following parts of the questionnaire survey focus on residents or incoming travellers from abroad regarding work, trip, or tourist mobility. This part of the questionnaire is the subject of the final six questions (excluding any further comments or the provision of a contact email). The opening question focusing on mobility addresses the mode of transport used by residents to travel abroad. This question was answered by almost 57% of the total sample, but over 70% of respondents in the relevant counties. Thus, the higher response rates in these areas suggest that transportation across the border is significantly more critical for these counties than other communities. This “urgency” of the transportation area across the border is illustrated in the following Figure 1, which compares the most common modes used with the reported distance from the state border.

Figure 1: Modes of Transport Combinations Used in Cross-Border Mobility

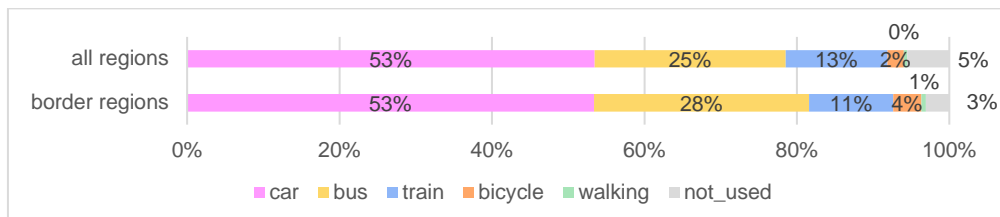


Source: Own survey (2020), Own elaboration (2022)

Results shows that the bicycle mode of transport appears logically only in the distance categories within 30 km of the border. The use of the private car, i.e., individual automobile transport only, is around one-third of respondents (regarding the distance longer than 21 km), with a higher proportion (51%) in the range between 11 and 20 km from the border. The use of public transport (PT) only is significantly higher for communities located within 10 km of the border (20% or even 32%) compared to 11 to 20 km (only 8%). Interestingly, the combination of individual and public transport is more frequent in municipalities within 11 to 20 km of the border (36%) or within 6 to 10 km even 42%, while only 20% of respondents use this combination in municipalities within 10 km of the border. These data provide interesting results, suggesting that communities within 10 km of the state border are better connected to public transportation providing lines across the state border. On the other hand, municipalities that lie between 11 and 20 km from the border appear to be without direct connection to direct cross-border lines and then must solve this transport handicap by commuting by private car either to a stop of such a cross-border public transport line or by driving directly across the border. This fact reveals an exciting situation whereby municipalities located directly at the state border are in a less peripheral area in terms of transport accessibility abroad than municipalities that lie as far as 11 to 20 km away, a phenomenon that has not yet been studied much in the transport geography literature, as accessibility is almost always examined concerning regional or local centres providing employment, amenities, and services, and not in relation to the foreign country.

The following question looks at how to transport across the state border will be provided in more detail. This question focuses on the following graphs comparing the situation in the Czechoslovak border area with the whole sample (Figure 2). The results show that the Czechoslovak border region has a higher rate of using bus transport across the border (28% compared to 25%), a lower rate of train use (11% compared to 13%), and of course, a higher rate of cycling (4% compared to 2%) and walking or walking (1% compared to 0%). At the same time, however, there is a almost the same level of individual car use (53%). The situation illustrates the relatively rare availability of rail connections in terms of transport modes.

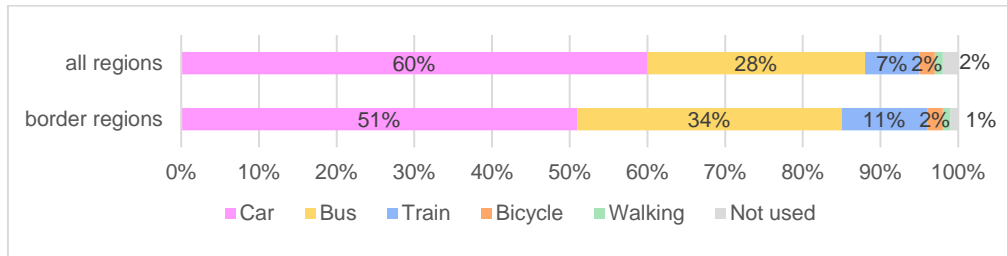
Figure 2: Modes of Transport Used for Mobility Across the Border in Czechia



Source: Own survey (2020), Own elaboration (2022)

The corresponding part of the questionnaire survey in Slovakia focuses on residents or travellers coming from abroad regarding work, trips, or tourist mobility. The initial question focuses on mobility deals with the mode of transport used by residents to travel abroad (Figure 3). The graphical representations show the differences between respondents' answers from the Slovak-Czech border regions and all respondents' answers. In general, individual car transport is used as a means of transport across the state border, which was indicated by 60% of respondents. Furthermore, bus (28%) and train (7%) are used to transport. In the case of border regions, the share of individual car transport use is lower, at 51%, due to the more frequent use of buses (34%) and trains (11%).

Figure 3: Modes of Transport Used for Mobility Across the Border in Slovakia

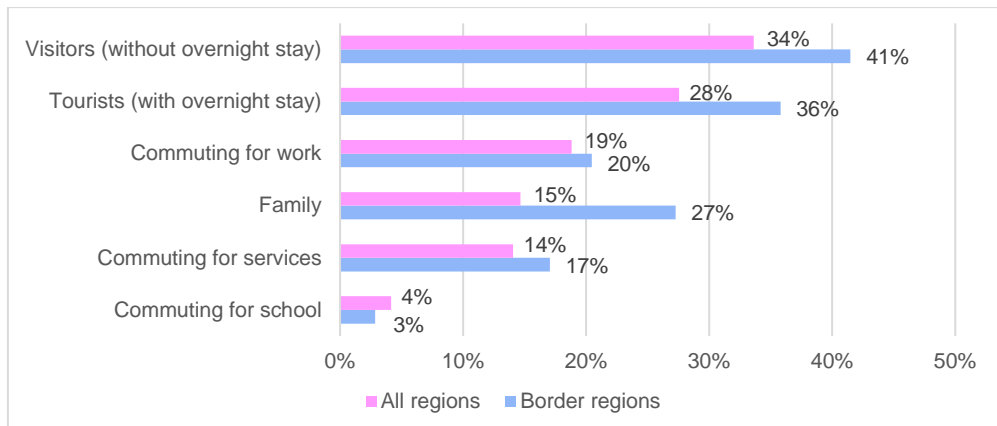


Source: Own survey (2020), Own elaboration (2022)

3.2 Results on Mobility Motivation

The other two questions on mobility in border areas focus on the motivation of transport users to make a given journey, from a two-way perspective, i.e., from the perspective of going abroad and from the perspective of commuting from abroad to the domestic area. In both variants, the survey results from the whole sample are again compared with the Czechoslovak border area. The first focuses on commuting residents across the border in Czechia (Figure 4). Day trips by visitors to the area are the most crucial motive, accounting for approximately 34% to 41% (in the case of the CZ-SK border), and multi-day tourism ranks second, reaching a level of 28% to 36% (in the case of the CZ-SK border). Work trips account for roughly one-fifth of the travellers in both samples. It is a rather exciting finding, as there is no language barrier in the case of the Czechoslovak border. However, this can be explained by the level of wages in the Czech Republic and Slovakia, where the Slovak side does not reach a sufficiently motivating level for domestic workers). There are significant differences in the intensity of family ties, as a common Czechoslovak history is evident here, with 27% compared to 15% in the whole sample (and the difference would be even more pronounced if this border area were excluded from the total sample). Commuting for services is around 14 to 17 % and commuting for school is 3 to 4 %.

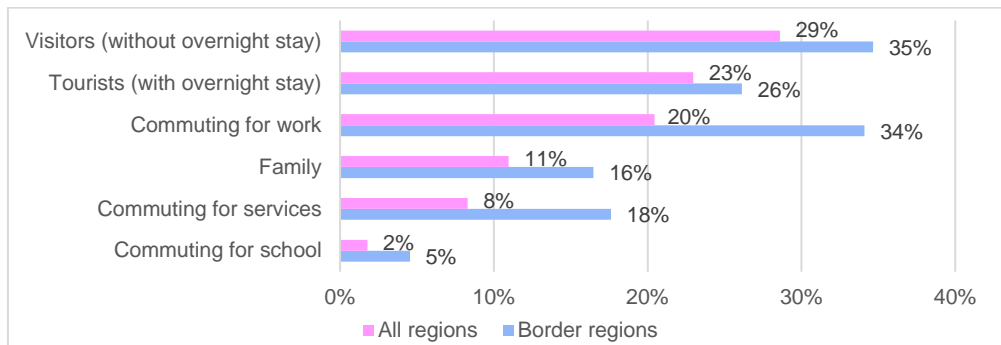
Figure 4: Motivations for Travelling Abroad from Czechia



Source: Own survey (2020), Own elaboration (2022)

The follow-up question focuses on commuting from abroad to domestic municipalities, shown in the following graph, again comparing the situation across the entire sample of respondents with the situation of municipalities in the Czechoslovak border region (see Figure 5).

Figure 5: Motivations for Commuting from the Abroad to Czechia

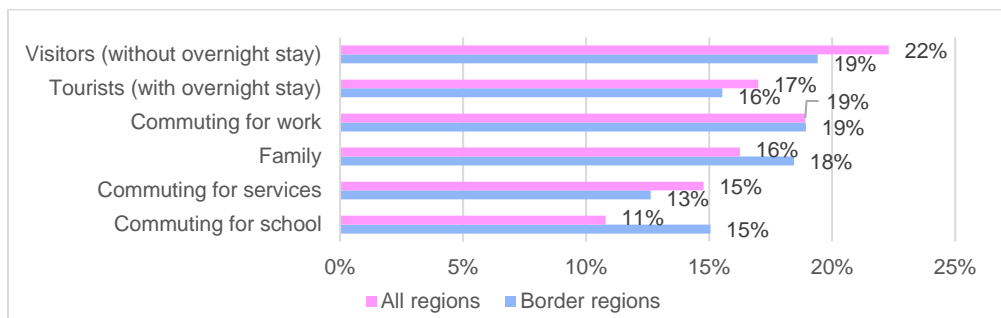


Source: Own survey (2020), Own elaboration (2022)

As can be seen, the two samples of municipalities, i.e., the total sample and the sample from the Czechoslovak border, correspond considerably. The most important reasons for commuting from abroad are one-day and multi-day tourist trips (i.e., visitors and tourists according to Czech Tourism), which are around one third (tourism without overnight stays) or one quarter (in the case of tourism with overnight stays). However, the most significant difference is the intensity of family ties, which is the reason for arrival for more than one-third of arrivals in the Czechoslovakian border region, while in the whole sample, it reaches only 20%. These results are consistent with the previous section on outbound travel.

Slovak responses to the question on motivation for travelling abroad (Figure 6) across the whole sample of respondents show that day trips are the biggest motivation, with 22% of respondents indicating this. Travel for work is second, followed by travel for multi-day stays and family ties. As for the responses to the regions, they also most frequently indicated travelling for day trips and travelling for work (19% each). Compared to the whole survey sample, respondents from border regions reported higher motivation for school travel (by 4%) and family ties (by 2%).

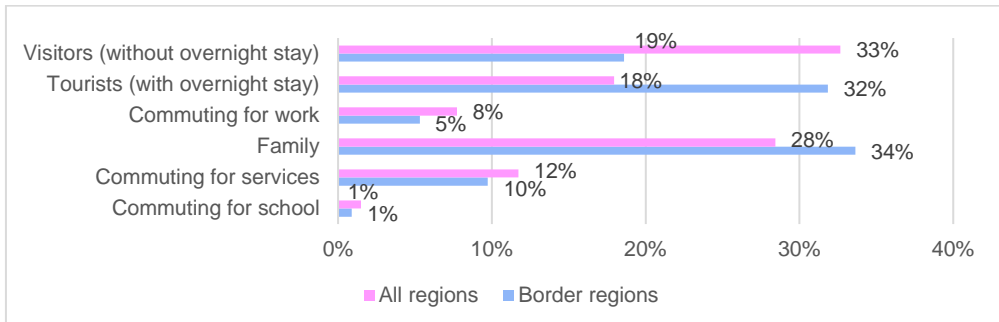
Figure 6: Motivations for Travelling Abroad from Slovakia



Source: Own survey (2020), Own elaboration (2022)

In the case of the motivation for travelling from abroad to Slovakia (Figure 7), there are more significant differences in respondents' answers from the whole research sample and respondents from the border regions of the Slovak Republic and the Czech Republic. While travel for day trips prevails in the whole research sample, in the case of the border regions, travel for family ties comes first. The difference in the answers of the individual groups represents up to 14% between day trips and multi-day stays.

Figure 7: Motivations for Commuting from the Abroad to Slovakia

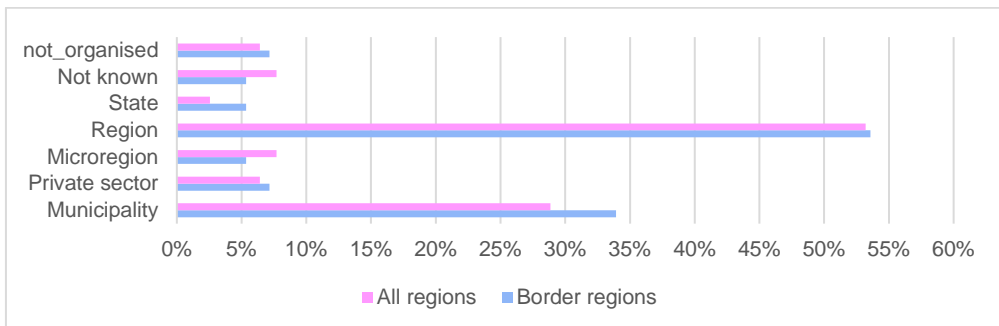


Source: Own survey (2020), Own elaboration (2022)

3.3 Results on Public Sector Role in Cross-Border Mobility

The next question reflects the crucial role of the cross-border public transport provider. Firstly, the results in Czechia are presented. The following Figure 8 compare the whole sample’s situation and the Czechoslovak border area.

Figure 8: Method of Providing Public Transport Services to a Municipality in a Neighbouring State

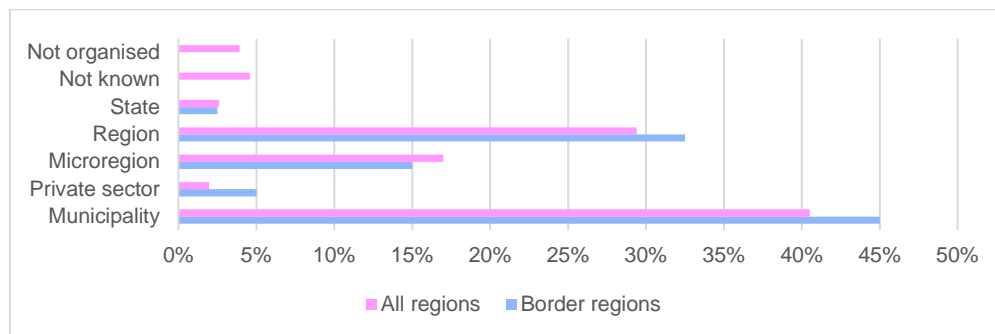


Source: Own survey (2020), Own elaboration (2022)

A reasonably logical result is that the critical coordinator of cross-border routes is the regionally integrated transport system (ITS), but this is not very high at just over 50%, which means that less than half of cross-border connections are organised differently. The municipalities themselves provide one-third of these connections, and up to ten per cent of such connections are provided by micro-regions or private carriers, while the state provides up to five per cent. In about 6 to 7 per cent of cases, cross-border connections are not provided. A complementary question was the area of shared transport (organised carpooling), which appears to be a way to address transportation needs in peripheral areas and is used by 4% of municipalities. However, only one mayor responded positively in the Czech-Slovak border areas, saying that the municipality organises this form of shared transport.

The related question in Slovakia looks at how to transport across the state border will be provided in more detail. The structure of respondents’ answers from border regions and the whole research sample (Figure 9) does not differ significantly.

Figure 9: Method of Providing Public Transport Services to a Municipality in a Neighbouring State



Source: Own survey (2020), Own elaboration (2022)

In both cases, the most frequent provider of cross-border transport is the municipality (45% and 41% of all respondents from the Czech-Slovak border region, respectively). Regional ITSs are listed as cross-border transport providers in second place, with micro-regions in third place. Other cross-border transport providers received only a small percentage of the respondents' answers. A complementary question was focused on shared mobility and organised carpooling, which seems to be a possible way of addressing transport needs in peripheral areas. Results show that only 4% of respondents use shared transport, with a higher proportion of respondents from the Czech-Slovak border regions.

4. Conclusion

After two decades of European integration aiming to break the border barriers, it is still an ongoing challenge for public policy, even in the case of cross-border mobility. In the case of the Czech-Slovak border region, cross-border public transport is provided, but especially in the closest areas to the national border, it is significantly limited. The most frequent motive for mobility across borders is one-day visiting or multi-day tourism. A fifth of respondents mentioned commuting to work as a crucial reason, which can be explained by the fact that workers do not face a language barrier in both countries, Czechia and Slovakia. The family is a relevant and vital reason to travel across borders in border areas compared to the whole sample. Regarding modal shift, the share of individual car use is 51% in the border regions, specifically in the distance lower than five kilometres from the border. Nevertheless, 80% of cross-border trips are based on cars or some combination with cars. Thus, the public transport accessibility and service can be expected on the insufficient level in border areas. The municipality is the most frequent cross-border transport provider in Slovakia, followed by regional ITS providers and micro-regions. On the contrary, in Czechia, the public transport providing cross-border services is based on regional systems, and municipalities provide only one-third of these services. In conclusion, it can be stated that borders in the European Union still represent a particular invisible imaginary barrier not only for international trade (Fojtíková, 2020), but also a barrier in transport or inter-municipal cooperation, despite the long-lasting process of European integration and, in the case of the Czechoslovak border, despite a shared history and a common language. The border regions are still, from a particular perspective, peripheral areas that face specific problems arising precisely from the proximity of the state border. European integration policy should therefore emphasise connectivity of border micro-regions to the major transport corridors within the TEN-T network through efficiently set up integrated transport systems.

Acknowledgements

This contribution is the output of the internal grant of the Faculty of Economics and Administration, Masaryk University, titled "*Identification and mapping of good practice examples of inter-municipal cooperation (CSIMC)*" (MUNI/A/1714/2020). This article was also supported by "*New Mobility - High-Speed Transport Systems and Transport-Related Human Behaviour*", Reg. No. CZ.02.1.01/0.0/0.0/16_026/0008430, co-financed by the Operational Programme Research, Development and Education and by "*Strengthening municipal cooperation to tackle the "Invisible border" (MOSINVI)*", Reg. No. NFP30304030R566, co-financed by the program INTERREG V-A SR-CR (2014-2020).

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Appendix 1: The Survey's Questions

1. Is or has your municipality been involved in any form of municipal cooperation in the past?
2. In which thematic areas is/was inter-municipal cooperation taking place?
3. If this or any of your other activities are no longer being carried out in the framework of municipal cooperation. What led you or your predecessors to do so?
4. Do you have, or have you had a good practice tip within your municipal cooperation (informal, formal - contract, DSO, LAG)?
5. Does your municipality cooperate, or has it cooperated with a municipality of another (transboundary/border) state?
6. If you are not a hinterland municipality (i.e., cross-border cooperation is not relevant for you), why are you not cooperating? Do you see any disadvantages/barriers to cooperation?
7. Respectively, do you see any scope or opportunities for cooperation with municipalities/municipalities of a foreign (cross-border/borderline) country?
8. If you cooperate or have cooperated with a municipality/municipality of a foreign state, what funding do you use to do so?
9. Have you participated in the preparation of a joint project, e.g., in the form of small projects?
10. Do you support or have you in the past supported cross-border cooperation of other entities within your municipality (NGOs, entrepreneurs, schools, associations)?
11. Do you have a good practice tip within your cross-border municipal cooperation (informal, formal)?
12. In what way is the public transport service in your municipality-provided to the municipalities of the neighbouring state? (train, bus / integrated transport systems, etc.)
 - a. Do you use public transport across the border? (bus / train / other)
 - b. Are these cross-border connections provided by (regional ITS / municipality / micro-region / other (e.g., combination)
 - c. Is there a demand for cross-border travel in your municipality? What is their motivation? (work / school / services / visitors - day trips / tourism - multi-day / family)
 - d. Do you know how often people visit your municipality? (daily, weekly, monthly)
 - e. Do people come to your village from villages across the border from a neighbouring state? And are they motivated by work / school / services / visiting - day trips / tourism - multi-day stays
 - f. Does your municipality organise a shared form of transport with the surrounding municipalities? (carpooling, etc.).
 - g. Does the micro-region organise it?
13. If one of your activities is no longer taking place in the framework of cross-border cooperation between municipalities (has been terminated), what led you or your predecessors to terminate the activity?

Impact of COVID-19 Pandemic on Main Macroeconomic Indicators: Evidence from the Czech Republic

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Abstract

The coronavirus crisis has many devastating global consequences not only throughout the European Union. COVID-19 produced variations in many key macroeconomic variables that affected economic activity. We estimate a monthly VAR (2) model for the Czech Republic for macroeconomic variables. We investigate the effect of inflation on changes in interest rates and the effect of sentiment, interest rates and inflation on the development of unemployment for the period before the COVID-19 crisis (March 2015 - February 2020) and during the COVID-19 (March 2020 - December 2021). These effects are evaluated, using Granger causality analysis, by estimating the parameters of the VAR model and examining generalized impulse response functions. The results document the same conclusions as for the selected country of the European Union. Inflation shocks cause a positive rise in interest rates over the next 2 months at the time of COVID-19 and then return to equilibrium in the 4th month. Innovation of sentiment, interest rate and inflation also cause a more intensive decline in the unemployment rate during the COVID-19 crisis and the market returned to equilibrium within the next 3 months.

Keywords: COVID-19, the European Union, generalized impulse response function, main macroeconomic indicators, VAR model

JEL Classification: C32, C51, E30

1. Introduction

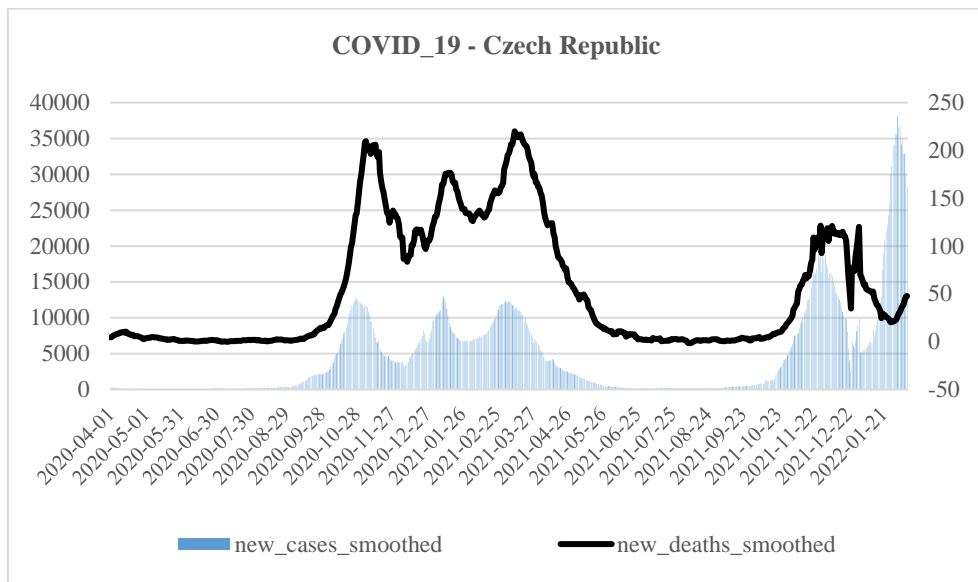
The COVID-19 crisis began in December 2019 in Wuhan, China. The new coronavirus (SARS-CovV-2) first spread in the Hubei region and later across mainland China. Due to the prevention of non-spreading infection, the Chinese government decided to shut down Wuhan with restrictions on unnecessary public activities. The first European country to experience a major outbreak was Italy, especially the Lombardy region at the end of February 2020. By 17 March, every country in Europe had confirmed the case and the EU closed borders to non-nationals. As the outbreak became a major crisis across Europe, national and European Union responses have led to debate over restrictions on civil liberties and the extent of European Union solidarity.

The Covid-19 pandemic began in the Czech Republic in March 2020. Figure 1 presents the development of the new confirmed cases of COVID-19 and new death attributed to COVID-19 in the Czech Republic (both time series are 7-day smoothed). The development documents

5 waves in terms of the new cases of COVID-19. The peak of the first wave was at the turn of October / November 2020, the second wave peaked in mid-January 2021 and the third wave peaked in mid-March 2021. A break followed and the fourth wave ran from mid-October to December 2021 with a peak at the end of December. So far, the last wave appeared at the beginning of 2022 and the highest values of the indicator of new cases were recorded at the beginning of February 2022. The numbers of new deaths essentially copy the first three mentioned waves and in the last two waves, the vaccination of the population is already significant.

The COVID-19 pandemic has triggered several measures that have reduced economic, social and health risks. The crisis had a significant impact on the development of the economy in the Czech Republic. In this paper, we deal with the influence of the COVID-19 pandemic on the development of key macroeconomic variables in the Czech Republic. We use estimates of the VAR models and examine in particular inflation shocks on changes in interest rates and the effects of economic sentiment shocks, interest rates and inflation on changes in the labour market - the unemployment rate. These effects are investigated based on Granger causality analysis, using estimates of VAR model parameters and generalized impulse response functions (GIRFs) for the period before the COVID-19 crisis (March 2015 - February 2020) and during this pandemic (March 2020 - December 2021).

Figure 1: COVID-19 in the Czech Republic



Source: WHO COVID Dashboard (2020); Own elaboration (2022)

The main contribution of our study are as follows:

1. Inflationary shocks caused interest rates to increase and their volatility during the COVID-19 pandemic,
2. Shocks in economic sentiment, interest rates and inflation have led to a statistically significant and significant reduction in the unemployment rate during the COVID-19 crisis.

The rest of this paper is organized as follows. Section 2 provides a brief introduction to the relevant literature. Sections 3 and 4 describe research methods and research data. The results and discussion are presented in section 5. Finally, section 6 concludes our main findings.

2. Literature review

Several expert articles deal with the impact of the COVID-19 pandemic on macroeconomic developments in financial markets, the labour market, economic performance, but also confidence in the economy from the perspective of various entities.

McKibbin and Fernando (2020) examined the relationship between COVID-19 and the macroeconomy. They concluded that the outbreak of a pandemic COVID-19 could impact the global economy significantly in the short term. Other authors (Jorda, Singh and Taylor, 2020) explored the long-term economic consequences of pandemics and found that pandemics could induce a shift to greater precautionary savings. Another group of studies indicate that COVID-19 affected spending on goods and services significantly (Andersen, Hansen, Johannesen and Sheridan (2020); Fernandes (2020)). The article was written by Ma, Rogers and Zhou (2020) estimated disease shock on GDP growth, expectations and financial markets.

The response of world output to an uncertainty shock of the COVID-19 outbreak was estimated by Caggiano, Castelnuovo and Kima (2020). They predicted a cumulative output loss over one year of about 14 %. Another group of authors (Altig, Baker, Barrero, Bloom, Bunn, Chen, Davis, Leather, Meyer, Mihaylov, Mizen, Parker, Renault, Smietanka, and Thwaites (2020)) devoted themselves to economic uncertainty for the US and UK before and during the COVID-19 pandemic. The results of the study confirmed that all indicators (stock market volatility, manufacturing employment, industrial production) Most indicators showed uncertainty jumps in reaction to the pandemic and its economic fallout. Most indicators reached their highest values and also peak amplitudes differ greatly. Implied stock market volatility also rose rapidly. For example, a COVID-19-size uncertainty shock foreshadowed a peak drop in industrial production of 12-19 % for the US. Estimated a threshold-augmented Global VAR model was used by authors Chudik, Mohaddes and Raissi (2021) to quantify the macroeconomic effects of countries' discretionary fiscal actions in response to the COVID-19 pandemic. They concluded that fiscal policy plays an important role in mitigating the effects of the pandemic and emerging markets had also an advantage for synchronized fiscal actions globally and reduced financial volatility.

Younes. and Sumru (2021) used a Bayesian VAR model to study the effects of the COVID-19 pandemic on prices, unemployment rates, and interest rates in nine countries. They found out that in most countries the unemployment rate rose, interest rates fell or turned negative, and prices fell initially following the implementation of the lockdown measures.

3. Methodology of VAR Modelling

The vector approach to time series modelling uses economic theory to model the relationship among the variables of interest. Unfortunately, economic theory is often not rich enough to provide a dynamic specification that identifies all of these relationships. This study used the vector autoregression (VAR) model to find the short-term relationship between systems of interrelated time series and for analysing the dynamic impact of random terms on the system of variables. In this study, we will examine the behaviour of the system of macroeconomic variables in the period before the COVID-19 crisis and during the COVID-19 crisis in the Czech Republic.

This part of our paper shortly describes the estimation and analysis of the VAR model without the inclusion of exogenous variables. A structural form of the VAR model, which has been described by Garratt, Lee, Pesaran and Shin (2006) for a $(k \times 1)$ vector of endogenous variables y_t is given by (1):

$$Ay_t = \sum_{i=1}^p A_i y_{t-i} + \varepsilon_t, \quad t = 1, 2, \dots, T, \quad (1)$$

where ε_t is a $(k \times 1)$ vector of serially uncorrelated errors with a zero mean and a constant positive definite variance-covariance matrix $\Omega = (\omega_{ij})$. For given values of y_t the above dynamic system is stable if all the roots of the determinantal equation $|A - A_1\lambda - A_2\lambda^2 - \dots - A_p\lambda^p| = 0$, lies strictly outside the unit circle. The reduced form of the VAR(p) model (1) as a function of p -lagged values of all of the endogenous variables in the system is given by equation (2):

$$y_t = \sum_{i=1}^p \Phi_i y_{t-i} + u_t, \quad t = 1, 2, \dots, T \quad u_t \sim N(0, \Omega), \quad (2)$$

where $\Phi_i = A^{-1}A_i$, $u_t = A^{-1}\varepsilon_t$. Φ_i are matrices of coefficients to be estimated, and u_t is the vector of the white noise innovation process with $E(u_t) = 0$, $E(u_t u_t') = \Omega_u$, and $E(u_t u_s') = 0$ for $t \neq s$. The VAR(p) model indicates that changes in y_t are influenced by the past state of itself and other endogenous variables, while the Granger causality test (Granger, 1969) examine whether there is a lead-lag causality between variables and whether it is bidirectional. The reduced form of VAR is estimated via OLS. One of the main features of the traditional macro-models was their dynamic multipliers, where which measured the effect of a shock to a variable, or shock of one of the structural errors ε_t on the expected future values of the endogenous variables.

4. Data Source and Data Description

This section describes the data used in this paper. We consider the five-variable system: IP_t , CPI_t , $SENTIMENT_t$, IR_t and UR_t , where IP_t is the volume index of production in industry, CPI_t represents harmonized index of consumer prices, $SENTIMENT_t$ is the economic sentiment indicator, IR_t is the money market interest rate UR_t is harmonized unemployment rate. These macroeconomic indicators were monitored in the period from February 2015 to December 2021) for the Czech Republic. A more detailed description of the data and their source is given in Table 1.

In the first step of the empirical analysis, the time series were tested for the presence of a unit root. We choose the Augmented Dickey-Fuller (ADF) test. Since most indicators were not stationary at the 5% level of significance, transformations were performed for all variables:

- $ip_t = 100 \cdot (\log IP_t - \log IP_{t-1})$,
- $inf_t = 100 \cdot (\log CPI_t - \log CPI_{t-1})$,
- $sent_t = 100 \cdot (\log SENTIMENT_t - \log SENTIMENT_{t-1})$,
- $ir_t = 100 \cdot (\log IR_t - \log IR_{t-1})$,
- $ur_t = 100 \cdot (\log UR_t - \log UR_{t-1})$.

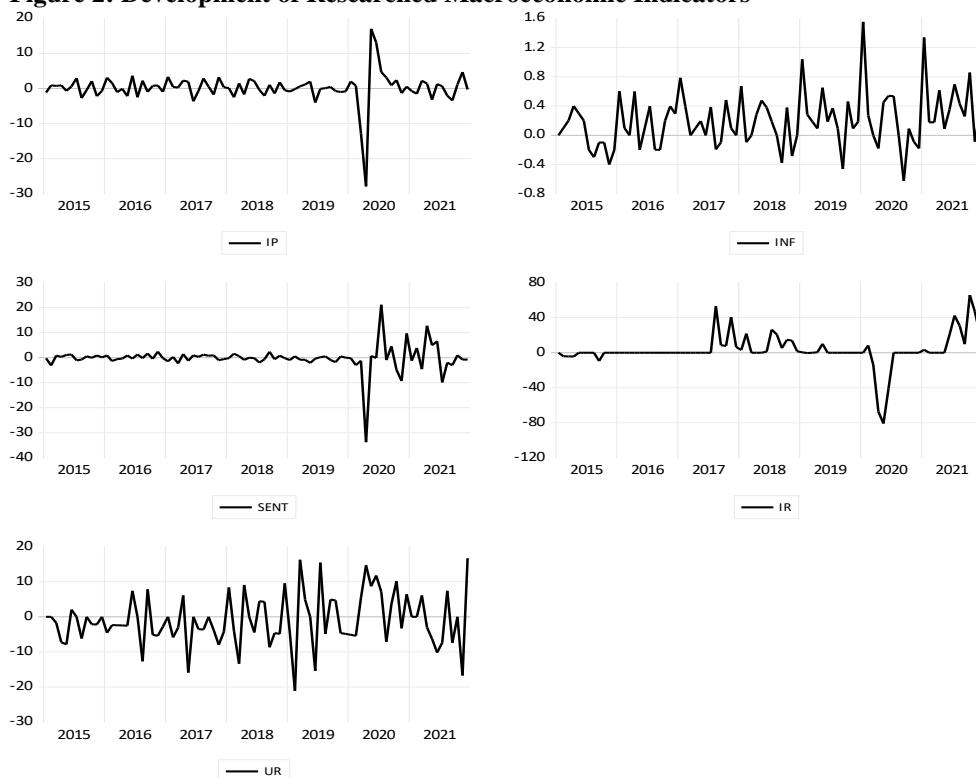
The transformed time series was already stationary at the 5% level of significance. Figure 1 shows the evolution of the investigated transformed variables that will enter the vector autoregression (VAR) model ie. $y_t = (ip_t, inf_t, sent_t, ir_t, ur_t)'$.

Table 1: Data Description and Data Sources

variable	description	units and adjustment	Data source
IP_t	Volume index of production in industry	Seasonally and calendar adjusted data, 2015=100	[sts_inpr-m]
CPI_t	The harmonized index of consumer prices	2015=100	[prc_hicp_midx]
$SENTI-MENT_t$	Economic sentiment indicator	Seasonally adjusted data, not calendar adjusted data	[ei_bssi_m_r2]
IR_t	Money market interest rates - monthly data	Day-to-day-rate 1 month-rate unadjusted data	[irt_st_m]
UR_t	Harmonized unemployment rate (%)	Seasonally adjusted data, not calendar adjusted data	[ei_lmhr_m]

Source: Eurostat (2022)

Figure 2: Development of Researched Macroeconomic Indicators



Source: Own elaboration (2022) in EViews 12

The development of transformed macroeconomic variables shows in Figure 2. The growth of industrial production (ip_t) shows a significant break in April 2020, when a state of emergency was declared on April 7 in connection with the spread of COVID-19 in the Czech Republic. Inflation volatility (inf_t) was also more pronounced during the coronavirus crisis. The growth of economic sentiment ($sent_t$) responded at the beginning of the COVID-19 pandemic with a significant break and subsequent drastic variability. The interest rate growth (ir_t) chart shows increased volatility as early as the end of 2017 with the onset of the coronavirus crisis, followed by a sharp break in April 2020. The latest graph of the growth rate of unemployment (ur_t) increases the variability since 2015, which culminates at the beginning of 2019 and the end of 2021.

5. Results

This section describes the empirical results of estimated VAR models, and Granger causality analysis and deals with the analysis of the dynamic effects of a global economic shock on selected economic variables using the generalized impulse response function (GIRF).

The VAR model was estimated for a system of five variables $y_t = (ip_t, inf_t, sent_t, ir_t, ur_t)'$. The whole period under study was divided into two parts: the period before the COVID-19 pandemic (March 2015 - February 2020) and during this COVID-19 crisis (March 2020 - December 2021). We proved that two lags (months) were the optimal lag number for this specification of the VAR(p) model, based on the minimum value of the Akaike information criterion with a value of 21.94. The inverse roots of the characteristic AR polynomial confirm that the estimated VAR(2) is stable (stationary) because all the roots have modulus less than one and lie inside the unit circle.

Detailed results of the estimated VAR(2) model for the pre- COVID-19 period are given in Appendix 1 and for the COVID-19 period in Appendix 2. The statistically significant estimated parameters are summarized in Table 2. The results document that the interest rate is very strongly and positively affected by delayed inflation by 1 month, which is not the case at the time of COVID-19. In terms of the impact of variables on the growth of the unemployment rate, we find a strong and negative impact on inflation, economic sentiment and interest rates, especially in the period before COVID-19. Conversely, in the COVID-19 period, the unemployment rate is negatively affected only by economic sentiment and the interest rate.

Table 2: Estimated and Statistical Significant Connections in the VAR(2) Models

	Before the COVID-19	The COVID-19 period
<i>ip</i>	$-0.42^{***} ip_{t-1}, -0.25^* ip_{t-2}$	$-0.76^{***} ip_{t-2}, 0.75^* ur_{t-2}$
<i>inf</i>		
<i>sent</i>	$-0.18^{**} ip_{t-1}, -0.18^{**} ip_{t-2}, -1.07^* inf_{t-2}, -0.24^* sent_{t-1}$	
<i>ir</i>	$+8.72^{**} inf_{t-1}, +0.24^* ir_{t-1}$	
<i>ur</i>	$-7.36^{***} inf_{t-1}, +8.26^{***} inf_{t-2}, -1.45^{**} sent_{t-1},$ $-0.16^{**} ir_{t-1}, -0.34^{**} ur_{t-1}, -0.37^{***} ur_{t-2}$	$0.66^* ip_{t-2}, -0.45^{**} sent_{t-1},$ $-0.33^{**} ir_{t-1}$

Source: Own elaboration (2022) in EViews 12, (sign. 1 % (***), 5 % (**), 10 % (*))

Pairwise Granger Causality tests examine whether an endogenous variable can be treated as exogenous. We used Wald χ^2 statistics for the joint significance of each of the other lagged endogenous variables in that equation. The statistic all is χ^2 statistics for joint significance of all other lagged endogenous variables in the equation. The results of the Granger Causality analysis show that the variables of industrial production growth and inflation can be treated as exogenous variables throughout the observed period March 2015 - December 2021, because they do not affect them statistically significantly at 1 % (**), 5 % (*) or 10 % (*) significance level no other lagged endogenous variable. The economic sentiment variable is determined by the delayed values of these exogenous variables, but only in the period before the COVID-19 crisis. The key endogenous variable is the growth of the unemployment rate, which is affected by delayed variables in sentiment and interest rate changes throughout the period under review, and before the COVID-19 pandemic, a very significant change in inflation is added.

Table 3: The Results of VAR(2) Granger Causality

Dependent variable	Period	Before the COVID-19	The COVID-19 period
<i>ip</i>			
<i>inf</i>			
<i>sent</i>		<i>ip**</i> , <i>inf*</i> , <i>all**</i>	
<i>ir</i>		<i>inf*</i>	
<i>ur</i>		<i>inf***</i> , <i>sent*</i> , <i>ir*</i> , <i>all***</i>	<i>ip*</i> , <i>sent*</i> , <i>ir**</i> , <i>all**</i>

Source: Own elaboration (2022) in EViews 12, (sign. 1 % (***), 5 % (**), 10 % (*))

The third part of the analytical part is the results associated with the study of shocks to the *i*-the variable directly, but also indirectly using transmitted channels to all of the other endogenous variables through the dynamic (lag) structure of the VAR(2). We use a general impulse response function to trace the effect of a one-time shock to one of the innovations on the current and future values of the endogenous variables. We will focus in particular on the shocks associated with the research objectives of this article.

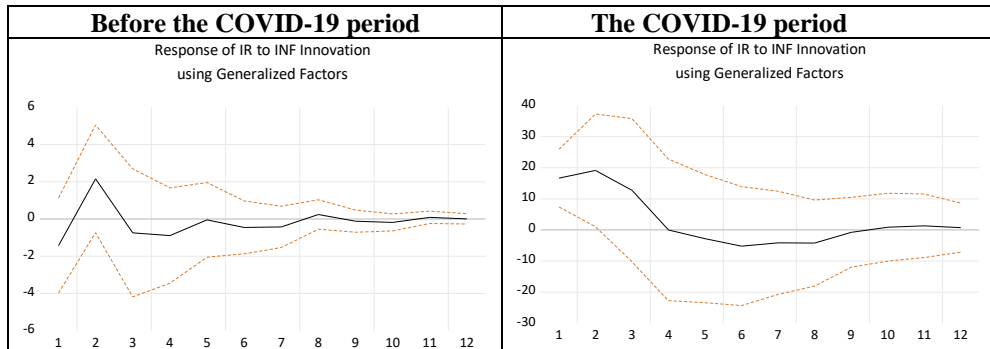
Figures 3 - 6 present the generalized impulses described by Pesaran and Shin (1998) for the period before the COVID-19 crisis (March 2015 - February 2020) on the left side of the table and for the COVID-19 period (March 2020 - December 2021) on the right side of the table over 12 months. Generalized impulses constructed an orthogonal set of innovations that do not depend on the VAR(2) ordering.

The generalized impulse response function in Figure 4 shows that *inf_t* innovation causes a significant and significant increase in interest rates *ir_t*, during the COVID-19 crisis and within 4 months the situation returns to adjustment.

Figure 5 documents that economic sentiment shocks cause a statistically significant, negative and deeper decline in the change in the unemployment rate by 4 % in the first month of the period of the COVID-19 crisis and a return after about 4 months. The decline in economic confidence, especially in April-June 2020, was interrupted mainly due to expectations of employment in construction, growth in demand in selected service sectors, and a reduction in inventories in the industry.

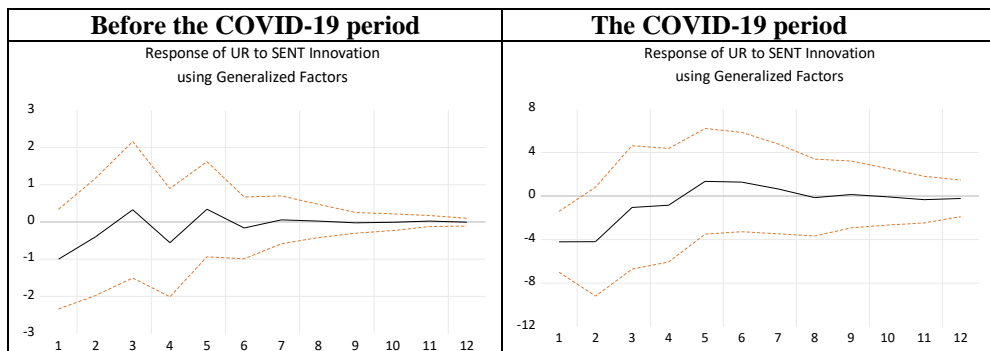
Figure 6 presents the results of the impact of the interest rate shock on the unemployment rate, which is statistically significant, negative, and within 3 months the system returns for the period with COVID-19. The impact of these shocks in the period before COVID-19 oscillates slightly and statistically insignificantly and the return to the original level lasts up to 8 months.

Figure 4: A Shock to the Inflation on Current and Future Values of the Interest Rate



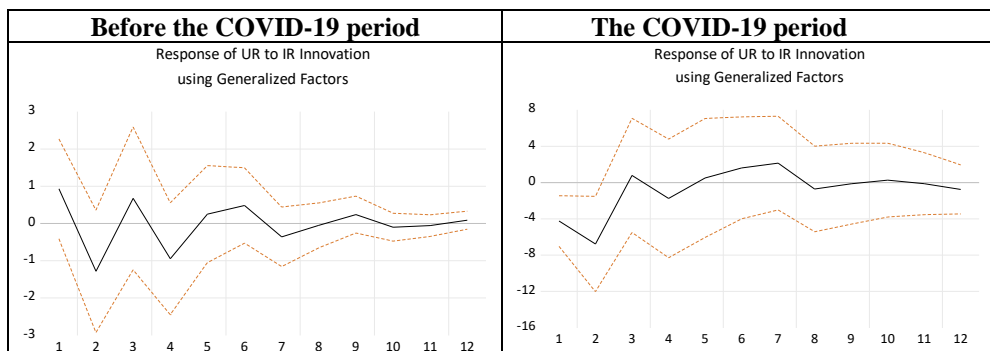
Source: Own elaboration (2022) in EViews 12 (dashed lines are 95% confidence bands, point estimates as a solid line)

Figure 5: A shock to Economic Sentiment on Current and Future Values of the Unemployment Rate



Source: Own elaboration (2022) in EViews 12

Figure 6: A shock to Interest Rate on Current and Future Values of the Unemployment Rate

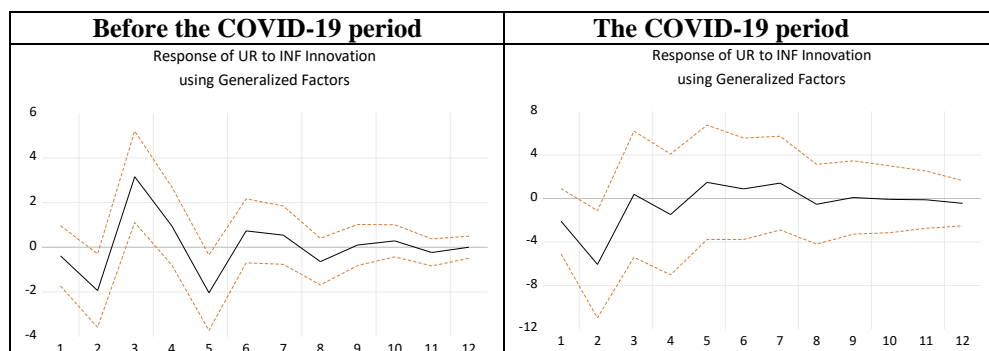


Source: Own elaboration (2022) in EViews 12

The last Figure 7 shows the effect of inflation shocks on the unemployment rate in the Czech Republic during the period of COVID-19 with a negative decline in the unemployment rate.

The GIRF implies that during the COVID-19 crisis and the significant decline in the unemployment rate was at 6 % over two months. Whereas before COVID-19 volatility took place with a slow adjustment for about 1 year. These findings are consistent with a modification of modern models of the short-term Phillips curve, where there is an inverse relationship between inflation and the unemployment rate. However, in the long run, this relationship is falling apart, and the economy is returning to natural unemployment regardless of inflation, as documented by the period before COVID-19.

Figure 7: A Shock to the Inflation on the Current and Future Unemployment Rate



Source: Own elaboration (2022) in EViews 12

6. Conclusion

We estimated a monthly VAR(2) model for the Czech Republic for macroeconomic variables: production in industry, harmonized index of consumer prices, economic sentiment indicator, interest rate and harmonized unemployment rate. We investigate the effect of inflation on changes in interest rates and the effect of sentiment, interest rates and inflation on the development of unemployment for the period before the COVID-19 crisis (March 2015 - February 2020) and during the COVID-19 (March 2020 - December 2021). These effects were analysed using Granger causality, estimating the parameters of the VAR(2) model, and finally examining the shocks of the random component on macroeconomic variables across transmission channels using generalized impulse response functions.

The findings of this study are supported by other publications such as Chudik, Mohaddes and Raissi (2021) that fiscal and monetary policy play a key role in mitigating the effects of the COVID-19 pandemic. For selected countries of the European Union, it has been shown that if they implement monetary and fiscal policy, they mitigate the effects of the pandemic and contribute to reducing unemployment. The results confirmed that the variables industrial production growth and inflation are rather exogenous variables. Inflation shocks during the COVID crisis caused a strong and positive rise in interest rates over two months, and the system adjusted back within four months of the shock. On the other hand, the labour market, especially the unemployment rate, has fallen significantly after one innovation of sentiment, interest rate or inflation at the time of COVID-19, but the labour market is returning to normal within three months.

Further research in this area will focus on the possibility of extending the proposed VAR(2) model to the including linear restrictions due to a large number of estimated parameters. It will also be appropriate to test the stationarity of macroeconomic variables for individual periods and, if necessary, more robust tests and to propose adequate transformations of variables. The

last topic is the inclusion of another variable - changes in energy prices.

Acknowledgements

This research was supported by the Czech Science Foundation within the project GA 19-13946S and the Student Grant Competition (SGS) within the project SP2022/111.

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Appendix 1: Vector Autoregression Estimates before COVID-19

	IP	INF	SENT	IR	UR
IP(-1)	-0.418***	0.002	-0.179**	-0.952	0.097
IP(-2)	-0.252*	0.006	-0.184**	-0.700	-0.383
INF(-1)	0.552	0.051	-0.447	8.717**	-7.360***
INF(-2)	1.097	-0.021	-1.065*	-0.260	8.257***
SENT(-1)	0.342	-0.013	-0.239*	1.218	-1.449**
SENT(-2)	0.278	-0.001	-0.014	2.032	0.261
IR(-1)	-0.003	-0.008	0.018	0.241*	-0.156**
IR(-2)	-0.016	0.008	0.001	0.144	0.104
UR(-1)	0.054	0.001	-0.028	0.140	-0.341**
UR(-2)	0.011	-0.006	0.003	0.167	-0.367***
C	0.330	0.162**	0.140	1.969	-3.005***
R-squared	0.269	0.114	0.256	0.210	0.520
Adj. R-squared	0.120	-0.067	0.103	0.049	0.423
Sum sq. resids	138.367	6.571	54.174	4842.414	1342.402
S.E. equation	1.680	0.366	1.052	9.941	5.234
F-statistic	1.802	0.628	1.680	1.301	5.320
Log likelihood	-110.203	-18.785	-82.072	-216.861	-178.372
Akaike AIC	4.040	0.993	3.102	7.595	6.312
Schwarz SC	4.424	1.377	3.486	7.979	6.697
Mean dependent	0.231	0.177	-0.047	3.752	-1.950
S.D. dependent	1.791	0.354	1.111	10.191	6.889
Determinant resid covariance (dof adj.)		868.2137			
Determinant resid covariance		315.3921			
Log likelihood		-598.2961			
Akaike information criterion		21.77654			
Schwarz criterion		23.69635			
Number of coefficients		55			

Source: Own elaboration (2022)

Sample (adjusted): 2015M03 2020M02

Included observations: 60 after adjustments

Appendix 2: Vector Autoregression Estimates during COVID-19

	IP	INF	SENT	IR	UR
IP(-1)	0.054	0.004	0.539	0.818	0.408
IP(-2)	-0.756***	0.009	0.129	-0.222	0.6587*
INF(-1)	-6.772	0.150	-0.540	-2.173	-2.200
INF(-2)	1.685	-0.203	3.132	-7.595	-0.408
SENT(-1)	-0.216	0.002	-0.493	0.002	-0.448**
SENT(-2)	0.247	-0.017	0.168	0.129	-0.385
IR(-1)	0.274	-0.008	0.110	0.867	-0.329**
IR(-2)	-0.204	0.003	-0.100	-0.241	0.155
UR(-1)	0.301	-0.013	0.054	-1.023	-0.566
UR(-2)	0.750*	-0.026	0.624	0.698	-0.355
C	-0.469	0.338*	-2.406	3.400	3.379
R-squared	0.501	0.216	0.477	0.707	0.640
Adj. R-squared	0.048	-0.497	0.002	0.441	0.313
Sum sq. resids	748.026	2.893	1143.022	6739.850	568.830
S.E. equation	8.246	0.513	10.19368	24.753	7.191
F-statistic	1.106	0.303	1.004	2.659	1.955
Log likelihood	-70.007	-8.899	-74.671	-94.189	-66.995
Akaike AIC	7.364	1.809	7.788	9.563	7.090
Schwarz SC	7.910	2.355	8.334	10.108	7.636
Mean dependent	-0.004	0.263	-0.337	1.653	1.672
S.D. dependent	8.452	0.419	10.204	33.117	8.673
Determinant resid covariance (dof adj.)		3985193.			
Determinant resid covariance		124537.3			
Log likelihood		-285.1392			
Akaike information criterion		30.92175			
Schwarz criterion		33.64935			
Number of coefficients		55			

Source: Own elaboration (2022)

Sample (adjusted): 2020M03 2021M12

Included observations: 22 after adjustments

Comparison of the Development Processes in Selected Mining Regions within the European Union

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Abstract

The article focuses on the transformation of coal regions within the European Union, with a focus on the restructuring of the economies of coal regions where mining had a significant economic position in the past. The aim of the paper is to analyse the evolution of mining regions in terms of economic and innovation performance and changes in labour markets, which are also affected by the current regional conversion. The research finds that the economic development of the regions essentially corresponds to the economic performance of the states in which the regions are located. In the area of R&D, the positive trend in the growth of innovation potential is more significant in Central European regions than in Southern or Western European regions. However, it should be noted that the coal regions in Western Europe have considerably higher levels of economic and innovation performance than the other regions.

Keywords: Coal regions, labour market, regional transformation

JEL Classification: R11, R12, R58

1. Introduction

For at least three decades, society has been aware of climate change and its impacts on the planet, but also on society. One of the main causes of these changes is greenhouse gases. The mining industry is significant in terms of physical impacts which affect the landscape and urban development (Marot, 2006). These negative externalities, which are mainly produced by the burning of fossil fuels, are now being counteracted through international agreements and systems based on emissions trading (Schulz & Schwartzkopff, 2018).

Currently, one of the main topics for the European Union is how to contribute to the mitigation of the rate of climate change within the framework of the Green Deal policy and the development of a low-carbon economy, which is also to be helped by the planned shift of EU Member States away from coal mining or from a large carbon footprint. This decline in the use of coal as the main source of energy must lead to a major transformation of the economies of European countries and regions. The structural changes will affect every state and citizen in the EU, but this change will be felt mostly by the states and regions which are economically dependent on coal mining and processing. Changes are thus not only expected in the energy segment, but the transformation will affect the whole of society in its consequences, which is why it is beneficial from a research point of view to analyse how these changes are taking place within the European Union. The aim of the paper will be to analyse the development of mining regions in terms of economic and innovative performance and changes in labour markets which development phase mining regions are in and whether there are differences in

the dynamics of developmental changes in different areas of the transformation of mining regions. While it is now evident that mining regions in particular will be more intensely affected by these processes, there is still insufficient analysis of what and how strong the effects of the transition will be on the socio-economic development of coal regions. In order to analyse these developmental changes, it is necessary to select certain areas where the mining regions will be analysed in view of the holistic impacts of this transformation. In this paper, the focus will be on the development of mining regions in the areas of labour markets, changes in economic performance and changes in research and development expenditures, which can be considered indicators of changes in the growth of new innovative potential of regions and support the growth of their competitiveness. The developmental changes in these areas will then be used to evaluate general changes and the different phases of the restructuring processes in the mining regions.

1.1 Socio-economic and Political Background to the Ongoing Changes

Very soon after the adoption of the 2020 climate and energy package, the European Council set a target in 2009 to reduce emissions by up to 80-95 % below 1990 levels by 2050. As Fischer and Geden (2014) note, this long-term outlook remains a political target without clear binding policy measures to implement it. It can also be argued that it does not represent a consensual and unconditional commitment, which is also commonly assessed as highly ambitious to unrealistic. Schulz & Schwartzkopff (2018), on the other hand, state that the decline of hard coal and lignite mining in Europe was not caused by poor profitability of raw materials or products, but mainly by international agreements on climate and environmental protection. Thus, the pressure on European integration is now even stronger because of the New Green Deal and the transformational changes, and each member state has to deal with the changes that have been adopted (Kasztelan, 2020).

Most country-level transition analyses focus on regional transitions away from coal-based employment. In order to smooth the transition of the so-called coal regions, the EU has created an instrument to help those regions with significant mining links in particular. One of the pillars of the EU Green Deal is the 'Just Transition Mechanism', which is interpreted as providing equitable access to diverse energy resources – in particular, a far-reaching reorientation of the approach to regional development and policy-making processes (Nowakowska, Rzeńca and Sobol, 2021). In this context, it is crucial that communities dependent on fossil fuel extraction and production for employment do not become 'victims' of decarbonisation (Harrahill and Douglas, 2019). Support for a 'just transition' was included in the 2012 Earth Summit Outcome Statement, emphasising the need to develop 'programmes to help workers adapt to changing labour market conditions' (Stavis and Felli, 2015). This concept seeks to address the social concerns and inequalities that arise from clear efforts to overcome environmental challenges (Snell, 2018, p. 550) and brings with it economic and social coping mechanisms for regions previously dependent on 'old' industries (Harrahill and Douglas, 2019).

1.2 Restructuring Processes in Mining Regions in Europe

Unlike most post-socialist countries that are now members of the EU, the closure of coal mines and the subsequent necessary transformation in Western Europe has been underway for several decades. For example, in Germany, where the Ruhr area is probably the best known mining area. It is the German government that has been continuously and consistently reforming the industry since 1969. That year, the German government signed an agreement with 26 existing coal companies in the form of the so-called "Rurkole AG" group agreement. The objectives of the agreement were: adapting coal production volumes to changing conditions; operating coal

mines with maximum efficiency; centralised policy regarding labour groups, preventing mass unemployment; and implementing measures to improve the structure of the industry (Sapytska, Chudek and Maltseva, 2017). The German model is primarily based on dialogue and coordination between all levels of government (and state governments) along with representatives of local communities. Trade unions are the most successful model of organisational change. Their achievements include: implementation of environmental projects (land reclamation, waste recycling), establishment of universities, industrial parks and technology centres with new jobs (Sapytska, Chudek and Maltseva, 2017).

Another European country that already has experience with post-coal transition is the UK. Here, the history that influenced the outcome of the closure is also interesting. In the UK, the coal industry was nationalised as early as 1947. It was re-privatised in the mid-1990s. Over the years, coal production has declined several times, with the number of mines falling from 211 to 20 at its lowest point and the number of employees falling from half a million to just 15,000. The privatisation of the coal industry was relatively rapid. The state provided significant support through guaranteed sales of coal to the country's coal-fired power plants under long-term government-backed agreements. Direct subsidies were provided to cover losses. Severance payments were paid to dismissed miners, as well as the use of economic incentives and voluntary redundancies. At the same time, severance payments were gradually increased and the age limit for voluntary redundancy was lowered. Miners were offered benefits roughly equal to their annual earnings. Alternatively, miners could move to another mine that was not closed. The government limited the number of employees by offering compensation equal to twice the salary and pension after age 50. In order to provide alternative employment opportunities in regions where coal mines had closed, a specialist company called 'British Coal Enterprise' was created in 1985 (Beynon, 2017). This resulted in the creation of 90,000 jobs, equivalent to 70 % of the proportion of outgoing mine workers, including retirements. In some cases, miners actually participated in the privatisation of enterprises (Sapytska, Chudek and Maltseva, 2017).

In France, the government has created a national company "Charbonnages de France", as the state's goal is to ensure the sale of coal to the state-owned company "Electric de France" through support. This state support is aimed at direct energy production and social issues. Priority has not been given to early retirement, retraining or employment of miners in France. Public funding for the organisation of new jobs in the mining regions has been implemented through a special company, SOFIREM, which, with funding of approximately \$50 million, has been implemented. This step created about 6,000 jobs per year.

In the 1990s, the Mining Act was amended to pay attention to environmental protection and changes in the training of technical personnel. Training and research were redirected to structures for different purposes – for example, waste treatment and oil production (Sapytska, Chudek and Maltseva, 2017).

The Belgian government's decision to reduce and then completely eliminate coal mining in the country was mainly due to increasing public pressure to stop industrial subsidies and for environmental reasons. The government created the 'FutureContract' programme, which not only targeted the closure of mines but also modernised the economic activity of coal regions. It was planned to raise employment and education levels in the coal regions to the national average. Also on the agenda was the transformation of industrial sites and waste storage facilities into business and educational centres. The coal mines were nationalised in 1987 and the closure of the coal mines was brought forward to 1996. However, the transformation and "restart" of the region's economic activity has been quite difficult. The development cost \$2.2 billion which was not sufficient. The restructuring process required further investment of £550

million from various European funds. The company "Permanente Werkgroep Limburg" set up the administration of the new investment programme, including representatives of all stakeholders and trade unions. This enabled the creation of over 24,000 jobs over a period of 5 years. The restructuring process of the coal industry in Belgium was carried out according to a 'soft' scenario, thanks to the cooperation of all stakeholders, and was supported by significant investments to alleviate social tensions (Foidart, Oliver-Solá, Gasol, Gabarrell and Rieradevall, 2010).

1.3 Impact on the Labour Market

Along with the closure of mines and connected institutions, it is also necessary to deal with redundancies. Labour laws can impose significant obligations on employers. These obligations may include early termination notice requirements as well as the need to provide termination benefits (Krzysztofik, Kantor-Pietraga and Kłosowski, 2019; Suchacek et al., 2017). Statutory requirements to provide training (retraining) so that dismissed workers can find work in another occupational field are rare, but have been a feature of some state mine closures (for example, coal mine closures in Poland, Ukraine and the UK) (Beer and Holz, 2021). In the Czech Republic too, there are now clear links to the information that redundant coal mine and quarry workers receive financial compensation (according to length of employment) and are also offered retraining courses. A typical example of the retraining courses offered is in the Moravian-Silesian region at OKD. The question remains, however, how much interest the retraining courses offered arouse among employees (Magic and Tomaña, 2020).

If a mining company is a major employer in a given area, mine closures can have a large impact on unemployment rates. However, this phenomenon is not limited to direct employees. For every one worker who works in a coal mine there is more than 1 job in the wider economy. This is referred to as the employment multiplier effect. Depending on the nature of the coal mine and the local economy, the employment multiplier effect is either small or large (Abraham, 2017).

1.4 Economic Impacts of Restructuring

As a result of economic, technological and political developments, structural changes are taking place in post-industrial and extractive regions around the world. While Western Europe has already started the reduction of mining (and the associated revitalisation process) in advance, Central and Eastern European countries are still mining coal and even breaking the limits to end mining as late as possible (e.g. Cooke, 2020; Cooke 2013; Hassink and Shin, 2005; Suchacek et al., 2018). Western Europe has seen successive waves of mine closures since the 1970s (Kretschmann, 2017), while in CEE heavy industry has been reduced since the collapse of centrally planned economies (i.e. since the 1990s) (Müller, Finka and Lintz, 2005). Although the transition processes took place under different conditions and in different countries, the situation in the affected regions was quite similar: a decline in economic roles, an increase in unemployment, a reduction in the tax base, and an outflow of mainly skilled labour across regional borders (Conesa, Schulin and Nowack, 2008; Marot and Harfst, 2012). Overall, the future of these post-industrial mining sites is often perceived as economically problematic decline and the absence of new public investment. Last but not least, the disturbed landscape character and the generally assumed lower environmental quality is a problem. These prejudices are very often identified as obstacles to their future development (Kivinen, Vartiainen and Kumpula, 2018).

For climate and energy policy makers, the significant impacts of restructuring coal regions include the effects on regional competitiveness and trade (Vrontisi, Charalampidis and Paroussos, 2020). Concerns about the competitiveness of individual regions and their economies are usually the result of different policy ambitions emanating from different decision-making levels. Indeed, different policy views are often determined from different perspectives at local, regional or national and supranational levels (Dechezleprêtre and Sato, 2017). However, the closure of coal mines will inevitably lead to a loss of economic performance and weaker competitiveness of regions, so it is in the interest of these regions to actively seek new sources of economic growth and new competitiveness in sectors other than the ones the regions have been focused on so far.

1.5 The Importance of Science and Research as a Tool for Transformation

The industry faces significant challenges from globalisation, technological development, environmental regulations, the transformation of coal-fired power generation and so on. It is precisely because of the transformation of the economy to carbon-free sources that those regions which have been oriented towards the coal industry for many decades are most affected. These changes require relevant responses from economies at regional and national levels. According to Martin (2010), regions must manage economic restructuring through innovation. Industrial restructuring through innovation is already occurring, both at the regional, national and supranational levels.

According to Weber and Truffer (2017), a regional innovation ecosystem brings new growth directions, but a prerequisite is that it is well set up and performs well. It also shows the importance of investing in science and research in the region, as these investments and researchers can subsequently produce innovations that are applicable to new and dynamic industries. Scientific research and university institutions also bring spillover effects and create good conditions for spin-offs. Furthermore, according to Berggren and Lindholm Dahlstrand (2009), firms originating from universities tend to cluster, which would also bring new development impulses to the restructuring of a coal region.

The question remains as to what sector it is that coal regions should individually reorient themselves towards. In the EU, a subsidy titled the Just Transition Fund (JTF) has been created, which is not only for the acquisition of new technologies for the production and use of so-called green energy, but is also a means to revitalise coal regions. The resources will be directed towards, for example, diversification of regional economies, strengthening research and development, energy efficiency, etc. (Leppänen and Liefferink, 2022). Zindulkova and Syslova (2021) give the example of Greece, where the government focuses on creating new jobs, which, workers in the coal industry will lose. Greece is planning substantial support for new renewables as well as overall support for the regions through tax breaks and other funds. In Finland, according to Zindulka and Syslova (2021), a significant share of the spending will focus on supporting education and science, which the Finnish government sees as integral to future sustainable development.

For the aforementioned reasons, indicators from this area are also included in the analytical section, namely R&D expenditure in the business sector to GDP (%) and R&D expenditure in the public sector to GDP (%) spent on R&D by institutions operating within mining regions.

2. Data and Methods

The analysis maps the development of mining regions and assesses the interrelationships between the observed dimensions of regional processes in this specific group of regions. EU mining regions with a higher proportion of workers in coal mining were selected for the analysis. Another criterion was that regions in different countries should be represented in the analysis, as the process of regional transformation is different. The best availability of data at a regional level is associated with NUTS II, which is tracked in the Eurostat database with a greater breadth of indicators than the NUTS III level. To measure developmental changes, the Transition Performance Index (Dias et al. 2018) is methodologically based on a multidimensionally constructed index. Similarly, territorial development indices are used by the OECD (2008) in addition to the European Commission (European Commission 2020).

The methodological structure of the TPI was used to construct the indices themselves, which are based on the regional data available in the Eurostat database. Development processes are a highly complex phenomenon, which are characterised based on the research objectives and data which can be divided into three areas – economic development of regions, labour market development and R&D.

The group of indicators consists of the following data:

A. Economics

- GDP per capita in purchasing power standards (PPS) - NGDP
- Gross fixed capital formation per employee in EUR/EA ml – NGFC

B. Labour market

- Economic activity rate (%) - NEA
- Employment MHT manufacturing & knowledge-intensive services (%) - NEMP

C. Research and development

- Business R&D expenditure to GDP (%) - NRDV
- Public sector R&D expenditure to GDP (%) - NRDP

The indices for individual areas were always normalized to the highest value in a given group of data. The relative values were calculated according to the following formulae, where $I_{EC(n)}$ is the Index of economic potential $I_{LM(n)}$ represents the Index of labour market potential and $I_{RD(n)}$ represents the Index of research and development potential.

$$NX_{(1-n)} = \frac{Nx_{(1-n)}}{Nx_{max16}} * 100 \quad (1)$$

$$I_{EC(n)} = (NGDP_{(n)} + (NGFC_{(n)}))/2 \quad (2)$$

$$I_{LM(n)} = (NEA_{(n)} + (NEMP_{(n)}))/2 \quad (3)$$

$$I_{RD(n)} = (NRDV_{(n)} + (NRDP_{(n)}))/2 \quad (4)$$

Where:

X – type of indicator

n – number of selected region

Nx_{max} – maximal value within each indicator

An overview of the values which were normalised to the highest value in a given indicator is shown in Table 1, which contains data for all mining regions analysed. The table shows the normalised values, where the highest value of a region in a given group was assigned the

number 100 and the values of the other regions were then recalculated in percentage terms. An example is the Dresden region, which often had the highest value of all regions.

The second part of the analysis focused on the application of correlation analysis to the above variables. The reason for using correlation analysis was to find out what correlations exist between the variables being studied and how intensely similar the values are to each other in this relationship.

Table 1: Normalised Regional Values and Index Values for the Regions of Interest in 2019

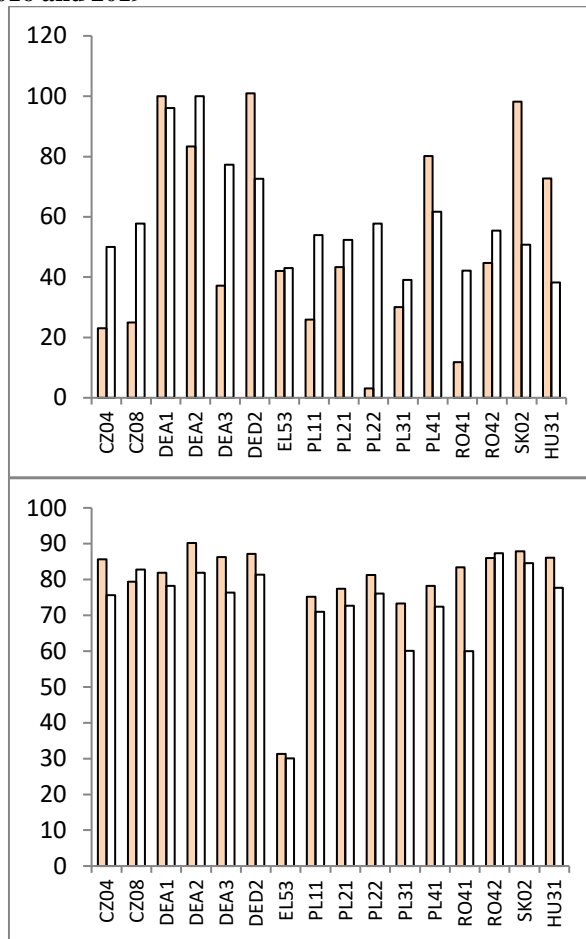
		NGDP	NGFC	NEA	NEMP	NRDV	NRDP	I _{EC}	I _{LM}	I _{RD}
CZ04	Severozápad	50	11	89	50	9,7	31,4	30,6	50,2	20,6
CZ08	Moravskoslezsko	58	12	91	73	33,5	63,6	34,7	51,2	48,6
DEA1	Düsseldorf	96	100	94	56	44,6	81,9	98	96,9	63,3
DEA2	Köln	100	96	95	64	93,2	75,6	98	95,6	84,4
DEA3	Münster	77	51	97	46	50,1	53,3	64,1	73,7	51,7
DED2	Dresden	73	32	100	58	100	100	52,5	66,2	100
EL53	Dytiki Makedonia	43	2	82	9	39,8	13,3	22,5	41,9	26,6
PL11	Łódzkie	54	15	86	42	30,6	40,1	34,3	50,3	35,3
PL21	Małopolskie	52	20	87	43	47,4	93,3	36,1	53,4	70,4
PL22	Śląskie	58	30	81	57	25,3	39,3	43,8	55,2	32,3
PL31	Lubelskie	39	10	84	19	46,8	39,2	24,6	47	43
PL41	Wielkopolskie	62	25	89	39	33,5	36,6	43,4	57	35,1
RO41	Sud-Vest Oltenia	42	8	84	18	20,4	4,5	24,9	45,5	12,4
RO42	Vest	56	11	76	100	19,3	38,7	33,2	43,4	29
SK02	Západné Slovensko	51	14	89	81	27,1	37,3	32,3	51,5	32,2
HU31	Észak-Magyarország	38	10	83	68	11,3	36,6	24	46,5	24

Source: own investigation based on Eurostat data.

3. Results and Discussion

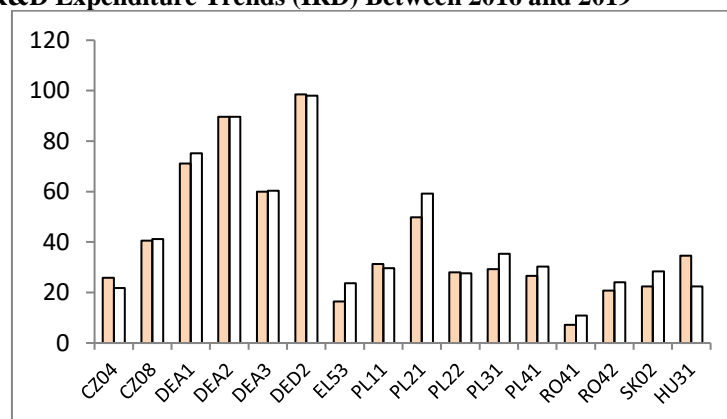
The transformation of coal regions into post-mining and restructured economies is accompanied by a number of developmental changes. The development of the economic level of the regions in 2016 and 2019 shows that the Czech regions have increased their position in the ranking of the analysed regions, while the Polish regions, as well as the Hungarian and Slovak regions, have worsened their position. The changes in the regions' positions according to their economic performance were more variable than the evolution of the regions' ranking in the labour market.

Figure 1: Trends in the Index of Economic Potential (IEC) and the Labour Market Index (ILM) between 2016 and 2019



Source: own investigation based on Eurostat data.

There were no significant changes in the labour market between 2016 and 2019 in most of the selected regions, and no major differences between the regions themselves. Comparing the differences between 2016 and 2019, a slight decrease occurred in most regions, with the highest in the Romanian region of Vest. The North-West Cohesion Region saw a comparably similar decline to, for example, the Cologne or Észak-Magyarország regions. A very low labour market decline occurred in Dytiki Makedonia, where the overall values are also the lowest of all the selected regions.

Figure 2: R&D Expenditure Trends (IRD) Between 2016 and 2019

Source: own investigation based on Eurostat data.

R&D in selected regions showed the smallest changes between 2016 and 2019. Slight changes occurred in the German regions of Cologne, Münster and Dresden. The Czech North-West region saw a decrease in R&D, while Moravian-Silesia saw a slight increase in R&D. Higher increases were also found in Małopolska and Western Slovakia. In the case of R&D, differences between regions are also evident, due to the level of development of individual countries, with higher levels of R&D in the German regions, followed by the Czech and Polish regions, and lower levels in the Romanian and Macedonian regions.

Table 2: Correlation Matrix of Monitored Variables for Mining Regions (data for 2019)

	NGDP	NGFC	NEA	NEMP	NRDV	NRDP	IEC	ILM	IRD
NGDP	1	,959**	,715**	,313	,727**	,663**	,984**	,969**	,751**
NGFC	,959**	1	,634**	,219	,665**	,599*	,994**	,991**	,683**
NEA	,715**	,634**	1	,083	,723**	,681**	,672**	,732**	,758**
NEMP	,313	,219	,083	1	,021	,353	,257	,207	,199
NRDV	,727**	,665**	,723**	,021	1	,715**	,695**	,710**	,929**
NRDP	,663**	,599*	,681**	,353	,715**	1	,630**	,646**	,924**
IEC	,984**	,994**	,672**	,257	,695**	,630**	1	,992**	,716**
ILM	,969**	,991**	,732**	,207	,710**	,646**	,992**	1	,733**
IRD	,751**	,683**	,758**	,199	,929**	,924**	,716**	,733**	1

** Correlation is significant at a level of 0.01 (2-tailed)* Correlation is significant at a level of 0.05 (2-tailed).

Source: own investigation based on Eurostat data.

In the comparison of indicators for individual regions (Table 2), a statistically significant relationship was found between macroeconomic performance indicators and the level of the labour market. A confirmed dependence (although not as strong as in the first case) exists between economic performance and R&D expenditure, with the better economically performing regions in particular showing higher R&D expenditure.

The results of the correlation analysis also show a positive dependence of some indicators in each region. The highest levels of correlation are found between macroeconomic indicators, with regions with higher levels of GDP also showing higher values of gross investment. Higher levels of economic activity of the population are also reflected in the higher economic development of the regions. On the other hand, no correlation was found between Employment MHT manufacturing & knowledge-intensive services and other indicators: this may be due to the fact that employment in the service sector is at different levels between regions, but is relatively under-represented in economies and therefore less reflected in overall economic performance.

Economic development is broadly consistent with the ranking of the countries in which the regions are located. On the other hand, regions further away from the 'average' in some aspects show improvements in some indicators. In the area of research and development, this positive trend is more pronounced in Central European regions than in Southern or Western European regions. However, it has to be said that the Central European coal regions are still not in a similar position to the German regions in terms of R&D. Reaching a similar level of expenditure on R&D activities in these regions is not realistic in the near future, given their development in recent years.

4. Conclusion

The article focused on a comparison of mining regions within the European Union and an analysis of their performance, including the changes these regions are undergoing. The comparison of the development of the most important mining regions within the European Union highlights the processes that each region within the EU is going through. The overall assessment of the mapped data shows the different stages of the transformation of these regions in five EU countries. Summarising the data, the regions in the west-east to south gradient have the highest level of development, i.e. the most developed mining regions are the German regions followed by the Central European Czech and Polish regions towards the Balkan mining regions.

Often overlooked are the potential negative impacts of a decline in mining activity on employment and the economy in the regions where mining takes place. The decline in mining activities should be linked to a strategically planned and gradual process of restructuring the regional economy. New employment opportunities and structures of the economic base can be created by forming new, competitive industries and services. Close cooperation between the actors involved is necessary to identify new development opportunities with regard to sustainable development and to optimise the impact of socio-economic transformation on the development of the region.

The EU policy on the conversion of mining regions should contribute to the adoption of timely measures to develop new industries and economic activities that will contribute to maintaining or increasing regional employment and promoting economic growth. A real opportunity for mining regions is that the European Union, following its carbon footprint reduction plan, has announced several supporting policies to implement this transformation. One of these is the so-called Just Transition Fund, which is available for European regions which will find the green path more challenging than others due to their characteristics, such as mining regions. From these resources, mining regions will be able to contribute to the diversification of local economies, to carry out the reclamation of coal and industrial landscapes, and to help regions to cushion the social impacts associated with the shift away from obsolete industrial activities.

Acknowledgement

This article was supported by the Internal Grant UJEP-SGS-2021-45-002-2 Agency of Jan Evangelista Purkyně University in Ústí nad Labem in the Czech Republic.

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Comparative Overview of the Reporting Requirements for Financial Institutions in the Czech and Slovak Republics in the View of the EU Sustainable Finance Framework

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Abstract

At present, the issue of sustainability is highly topical in the context of both the European Green Deal and the goals of sustainable growth. To limit the financial impact of sustainability-related risks, the financial system in the EU is currently being reformed to strengthen its stability by incorporating the so-called ESG factors into investment decision-making. The goal of this paper is (i.) to provide a reader with a comparative overview of the existing regulatory requirements on financial reporting of financial institutions in the Czech and Slovak Republics and (ii.) to assess the changes that are to be expected from new pieces of legislation establishing a sustainable finance framework. As the paper shows, the non-financial information are reported at the moment in both countries in a similar fashion, but new requirements are underway with an ultimate goal of reorienting capital flows to sustainable economic activities.

Keywords: *finance, reporting, sustainable finance, Taxonomy, European Union, non-financial information, financial institutions*

JEL Classification: *G20, F36, K22, M48*

1. Introduction

The move towards sustainable growth in the EU is an important and inclusive endeavour, demonstrated – among other initiatives and policies – by a recently adopted European Green Deal. The EU's unrelenting effort into a coordinated action of its member states enables to both deliver on sustainability goals and to contribute to a European integration (MacGregor Pelikánová et al., 2021a).

Building a climate-neutral and resilient European economy follows not only a European Green Deal but helps also to deliver on major international commitments (e.g., The Paris Agreement adopted by 196 parties in 2015).

Climate change is the defining issue of our time affecting and naturally attracting all fields of science, facilitating cross-disciplinary research to various cross-cutting issues posed by it. Economic nature of all human activities however plays an important role in all sectors and segments (Kljucnikov and Popesko, 2017), thus, from an economic perspective it's crucial to follow information relating to investments and capital flows (in detail see Borseková et al.,

2021, MacGregor Pelikánová et al., 2021a). Sustainable finance framework, introduced first by the European Commission in 2018 (European Commission, 2018), supports this claim as it sets out a comprehensive strategy to further align capital flows with sustainability. While a classification system (the EU Taxonomy establishing a list of environmentally sustainable economic activities) is in the last stage of adoption process, a focus is now shifting to how the reporting in a standardized fashion would look like (as well as its scope, gradual phase-in, etc.). Two pieces of European legislation are worth mentioning in this regard: so-called 'Disclosures Delegated Regulation' (European Commission, 2021) and proposal of the Corporate Sustainability Reporting Directive (European Commission, 2021a) *de iure* replacing to a significant extent a Non-Financial Reporting Directive.

While it can only be assumed that a company operating in a Taxonomy-aligned activity could perform better over its non-aligned competitors, if we'd factor in a standpoint of capital ownership, corporate economic performance depends also on a given capital structure (i.e., a split between debt and equity, see Zatrochová et al., 2021, p. 14).

However, the EU's sustainable finance framework in its broader terms comprise not only economic stability but also so-called ESG factors (environmental, social and governance) and, thus, affect every single citizen or entrepreneur (Turečková and Nevima, 2018, Lähteenmäki-Uutela et al. 2021) with a clear overlap to moral and ethical values (MacGregor Pelikánová et al., 2021b). In an interconnected socio-economic environment, it is hardly possible to engage in any sustainable activity with no interference of commercial sphere, enabling and contributing significantly to a value creation.

The European Commission is well aware of a crucial role that sustainable growth plays on a global scale. The EU's strategy and horizontal policies regularly act on sustainability-related risks and opportunities – inclusive growth and environmental and social responsibility are being translated in various legislative acts often targeting a business sector (Melecký and Stanickova, 2018). Any kind of assessment however implies that such non-financial information are reported and broadly accessible; hence, making sure that they're published in a standardized as well as true and fair fashion only gets a more traction in order to improve a decision-making process (MacGregor Pelikánová and Hála, 2021). While both accounting and reporting of financial and non-financial information is now for various entities at least to some extent mandatory, reporting of financial information significantly prevails over non-financial information. In order to be able to assess sustainability-related performance, risks and opportunities, most of the standard-setting effort is now concentrated on how reporting (via disclosures) shall look like. Number of reporting frameworks are being developed in parallel (be it coordinated with other efforts or not). In the Czech-Slovak context, a true and fair reporting is carried out within the boundaries of European legislative acts. A goal of this paper is a theoretical analysis and comparison of reporting requirements of financial institutions in the Czech and Slovak Republics, specifically in their role of a financial intermediary.

In the context of sustainability, a reporting of non-financial information becomes an integral part of entity's disclosures. Entering into a dialogue with entity's stakeholder in all stages of a sustainability-reporting framework set-up significantly helps (i.) to take on board and reflect on different interests they might have, and (ii.) to identify material content (areas, level of granularity) of sustainability reporting (Moratis a Brandt, 2017). A model developed and introduced by Friedman and Miles (2002) analyses organization/stakeholder relationship and follows upon a stakeholder theory. With a use of this model it can be explained why and how relationship between an entity and stakeholders change over time. In this regard, sustainability has also been explained via a tie-in of scarcity of resources on the one hand and an uncontrollable growth on the other, making a claim that intensive growth is impossible to

maintain forever (Petera and Wagner, 2015, Duháček, Šebestová et al., 2020). When considering all dimensions of sustainability (ESG factors as explained above), a severe information shortage exists – to some extent it can be overcome with a help of proxy, e.g., a sustainability index (Škapa et al., 2022) to improve a decision-making process.

To provide stakeholders with the sustainability performance of financial institutions, an intense debate has been triggered as to a legal framework of sustainability reporting in this regard. Until such a comprehensive disclosure regime is fully operationalized (via so-called ‘regulatory technical standards’ or ‘European sustainability reporting standards’) and put in place, an existing legal framework laid out by the Non-Financial Reporting Directive (EUR-LEX, 2014), which amended the so-called 2013 Accounting Directive (EUR-LEX, 2013). Recommendation on how non-financial information isn’t currently legally binding – guidelines on such reporting has been adopted first in 2017 to help financial institutions (among others) disclose non-financial information in a consistent and comparable manner (Publications Europe, 2017).

2. Methodology and data

Legal basis as regards non-financial information disclosures in the Czech and Slovak Republics, as well as in other member states, is provided by the national Acts on Accounting and harmonized with accordance to the European regulations. The aim of this paper is to provide a reader with a comparative analysis – based on the existing legal requirements as of February 2022 – of mandatory reporting regime of non-financial (sustainability-related) information for financial institutions. We draw on the respective legal acts applicable in both countries, which share a common political, economic and social past. We also reflect on an envisaged extension of sustainability reporting for financial institutions and a contemplated roll-out schedule. In this, we analyse nature, scope and content of sustainability-related disclosures and their assurance. Comparative analysis of mandatory reporting requirements from the Slovak Act on Accounting (Act No. 431/2002 Coll., as amended, MF SR, 2021) and the Czech Act on Accounting (Act No. 563/1991 Coll., as amended) has been carried out using a context analysis. For the sake of better clarity, the results are presented below in a table form.

3. Results

Financial institutions – including banks and insurance companies – are classified as public-interest entities (PIEs, see Table 1), as well as large accounting entities. They either operate within the Czech or Slovak Republic as a branch of financial institution established elsewhere in the EU, or they are established in the analysed countries but showing a high share of foreign equity (i.e., in both cases controlled from the ‘outside’). Both categories (as well as other financial institutions: other financial intermediaries, investment funds, pension funds, etc.) are subject to a supervision from national central banks (acting as a supervisory authority of the financial market), i.e., Czech National Bank and National Bank of Slovakia, respectively.

As discussed above, a significant amount of financial institutions operating within both analysed countries is controlled from elsewhere as a majority share of ownership comprises foreign capital. Thus, they are also subject to reporting at a consolidated level. Inflation and interest rates are driving factors of the financial institutions’ performance. In general, an increasing inflation rate corresponds to an expanding economy and leads to a higher mortgage rate; in times of recession a mortgage rate decreases. If fears of higher inflation rate are strong, interest rates rise to curb the money supply but in times when no worries of higher inflation

rate are to be expected mortgage rates will most likely fall (Zatrochová, M., Janáková, H., 2017).

Financial information are published in a form of financial statements in compliance with the International Financial Reporting Standards (IFRS) to the extent adopted by the EU. Non-financial information are disclosed as required by the Slovak and Czech Acts on Accounting.

Table 1: Legal Framework for Non-Financial Reporting – Entities Covered

Czech Act No. 563/1991 Coll., on Accounting, as amended	Slovak Act No. 431/2002 Coll, on Accounting, as amended
Title 8 – Non-Financial Information Disclosure	Title 3 – Financial Statement Section 20 – Annual Report
Accounting entity disclosing non-financial information means: a) large accounting entity established in a form of a commercial company, which is a public-interest entity , exceeding on its balance sheet date the criterion of the average number of 500 employees during the financial year, b) parent undertaking of a large group of accounting entities, which is a public-interest entity , exceeding, on a consolidated basis, the criterion of the average number of 500 employees during the financial year.	Public-interest entity exceeding the average number of 500 employees during the financial year shall disclose in its annual report non-financial information with regards to development, performance, position and impact of its operations, relating to environmental, social and employee matters, respect for human rights, anti-corruption and bribery matters (hereinafter as “standard on social responsibility“).
Accounting entity is a public-interest entity if: a) an accounting entity is a commercial company, and its securities are transferrable and admitted to trading on a regulated market in the EU, and it prepares its financial statements in accordance with international accounting and reporting standards applicable in the EU, b) a bank , which is a subject to a law regulating the activities of banks, or, a savings and credit cooperative bank, which is a subject to a law regulating the activities of savings and credit cooperative banks, c) an insurance or reinsurance company , which is a subject to a law regulating the activities of insurance or reinsurance companies, d) a pension company, which is a subject to a law regulating pension or supplementary retirement scheme, or e) health insurance company.	A public-interest entity means accounting entity, whose securities were admitted to trading on a regulated market in any member state in the EU, bank, branch of a foreign bank, Export-Import Bank of the Slovak Republic, insurance company, branch of a foreign insurance company, reinsurance company, branch of a foreign reinsurance company , health insurance company, management company, branch of a foreign management company, pension company, branch of a foreign pension company, pension assessment management company, Stock Exchange, Central Securities Depository, investment fund, payment institutions, electronic money institution, money market fund, pension funds, branch of a foreign financial institution

Source: Own elaboration as per Czech Act No. 563/1991 Coll., as amended and Slovak Act No. 431/2002 Coll., as amended, respectively.

We can observe different treatment of entities falling within a scope of non-financial disclosure requirements in both countries. In the Slovak Republic, all issuers of listed securities and financial institutions are categorized as public-interest entities. Should they exceed the average number of 500 employees during the financial year, they shall report on their sustainability-related matters. In the Czech Republic, a public-interest entity (treated similarly as a *conditio sine qua non* as in Slovakia) has in the context of non-financial reporting a narrower meaning, thus leaving some financial institutions out from the disclosure requirements.

In Table 2 and Table 3 below, we have compared both the content and form of disclosed non-financial information as required by both legal acts. In both countries, non-financial information are disclosed within an annual report prepared by all audited accounting entities. The mandatory parts, as required by the European directive, are transposed in Section 20 of the Slovak Act on Accounting and Sections 32f – 32i of the Czech Act on Accounting.

Table 2: Form, Content and Assurance of Non-Financial Reporting on Sustainability – Czech Republic

Czech Act No. 563/1991 Coll., on Accounting, as amended
<i>Title 8 – Non-Financial Information Disclosure</i>
<i>Form and Content of the Information, Assurance</i>
Accounting entity shall disclose non-financial information in an annual report , consolidated annual report or separate report. Accounting entity reporting on non-financial information can use methodology for corporate social responsibility reporting and, if it chooses to use such methodology, to disclose on their details. Accounting entity shall disclose non-financial information to the extent necessary for an understanding of the entity's (or the group's it belongs to) performance, position and impact of its activity relating to, as a minimum: a) environment, b) social and employment matters, c) respect for human rights, d) anti-corruption and bribery matters.
<i>Content</i>
Non-financial information are structured as follows: a) a brief description of the entity's (or a group' it belongs to) business model, b) a description of the policies pursued by the accounting entity (or the group it belongs to) in relation to abovementioned matters, including due diligence processes implemented; if the entity does not pursue such policy (or, policies), it shall provide a clear and reasoned explanation for not doing so, c) the outcome of such policies, d) the principal risks linked to the entity's (or, the group's) operations including, where relevant and proportionate, its business relationships, products or services which are likely to cause adverse impacts in those areas, and how the entity (or, the group) manages those risks, e) non-financial key performance indicators relevant to the particular business, Non-financial information contain, where relevant and proportionate, references to amounts reported in the annual financial statements, and accompanying additional explanations.
<i>Assurance of Non-Financial Information</i>
A statutory auditor or audit firm checks whether the non-financial information has prepared and provided such information in an annual report, consolidated annual report or in a separate report.

Source: Own elaboration as per Czech Act No. 563/1991 Coll., as amended.

Table 3: Form, Content and Assurance of Non-Financial Reporting on Sustainability – Slovak Republic

Slovak Act No. 431/2002 Coll, on Accounting, as amended (SK)
<i>Title 3 – Financial Statement</i>
<i>Form and Content of the Information, Assurance</i>
Accounting entity shall in an annual report disclose also non-financial information regarding development, performance, position and impact of its activity relating environmental, social and employee matters, respect for human rights and anti-corruption and bribery matters. Public-interest entity can use an existing EU framework or other internationally recognized framework. If it chooses to do so, an entity shall report on details on selected methodology.
<i>Content</i>
Public-interest entity shall include, as a minimum, following non-financial information: a) a brief description of its business model, b) a description and outcome of the policies pursued by the accounting entity with regards to the environmental, social and employee matters, respect for human rights, anti-corruption and bribery matters, including due diligence processes implemented, c) a description of the principal risks linked to entity's operations on abovementioned matters, which are likely to cause adverse impacts, and, where proportionate, a description of its business relationships, products or services which the entity provides, and description of how the entity manages those risks, d) material non-financial information of the entity's respective activities, e) references to the amounts reported in the annual financial statements and their explanations in the context of corporate social responsibility, where appropriate.
<i>Assurance of Non-Financial Information</i>
Annual report of the accounting entity shall provide true and fair view and auditor (or, audit firm) shall express an opinion within one year after the financial year has ended. Auditor shall, in this regard: - express an opinion regarding compliance of the annual report with the financial statements, - express an opinion regarding some specific information as required by the Act on Accounting, - express an opinion on whether the annual report includes all information as required by the Act on Accounting, - state whether, based on information about the accounting entity and its situation, any material misstatements have been identified, and if so, report on every single such misstatement.

Source: Own elaboration as per Slovak Act No. 431/2002 Coll., as amended.

As required by the Czech legal regulation, financial institution provides mandatory non-financial information via its annual report, consolidated annual report or a separate report. In Slovakia, non-financial information are provided either in annual or consolidated annual report. In the Czech Republic, a structure is aligned to a Non-Financial Reporting Directive, which is not the case in the Slovak Republic. As regards independent verification of non-financial information provided, mandatory statutory audit is more detailed in the Slovak legal law – it specifically requires that the auditor shall state any material misstatement found during the audit procedures that have been carried out, and to specify character of every single material misstatement in the auditor's report.

Based on the already existing Disclosures Delegated Regulation (European Commission, 2021), financial institutions shall disclose in 2022 (reporting on figures for 2021) some of the information regarding Taxonomy eligibility (a centerpiece of sustainable finance framework). Given that, the long-lasting EU legal framework as transposed in national law has changed substantially – delegated acts now significantly complement current national laws with a gradual and phased approach for a period between 2022 and 2025 to thoroughly reflect ESG factors. As of 2022, financial institutions shall report on proportion of their Taxonomy-eligible and non-eligible activities in their turnover, capital expenditure, operational expenditure and total assets, as well as on qualitative information.

4. Conclusion

We've carried out a comparative analysis of non-financial reporting requirements as per national laws and put them into context with a current sustainable finance framework and its dynamics. As for the differences of both national legal frameworks, we've seen minor differences in both scope and content. Current scope in Slovakia is defined wider as compared to the Czech law, leaving some of the entities out from mandatory disclosure. As regards to the content and form, transposition of the EU directive shows similar patterns and minor (regarding structure) differences (e.g., a separate report allowed in the Czech Republic as opposed to Slovakia).

However, as a climate change delegated act now finalized (EUR-LEX, 2021) and delegated act for the other four environmental objectives as defined in the Taxonomy Regulation being in its final stage before finalisation, the focus is now shifting to reporting on Taxonomy eligibility and alignment to make full use of this classification system. The period of first couple of years serves as an experimentation phase to test reporting usability as other disclosures (shall a Corporate Sustainability Reporting Directive be adopted) would gradually come into force – clearly, to report on sustainability-related matters, non-financial undertakings need to progress with their reporting as well (so that financial institutions can improve their reporting, too). Thus, a classification system introduced by the EU gradually helps to improve decision-making process and to a better comparison over a sustainability performance and exposure to sustainability-related risks and opportunities.

Adoption of Corporate Sustainability Reporting Directive would bring in a very new perspective on whole reporting process, fully integrating all ESG factors into a set of unified reporting across the EU. While it is expected that adoption would take place in the course of this year, transposition into national legal systems (supposedly into respective Acts on Accounting) would then follow. Thus, a transition period until proper legal rules would come into effect poses a limitation to our study results (with regards to financial institutions' reporting requirements). Our following research shall therefore focus on impact of such changes on reporting (quality and content) in both countries in a comparative perspective, as well as on reporting of financial institutions in general.

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The NextGenerationEU as a Tool for Green Transformation of Slovakia

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Abstract

During the ongoing pandemic crisis, The NextGenerationEU recovery plan was recently adopted in the EU. The NextGenerationEU primarily reacts to economic impact of the crisis as well as global environmental degradation. The NextGenerationEU is mainly considered as an economic tool containing reforms and investments to move EU Member States towards a green, digital future. From the point of view of the Slovak Republic, this recovery plan is a unique chance to transform Slovakia into a modern state with an innovative economy, which will also be a healthy and green country. The key task in this context will be to ensure accessible and sustainable environmental solutions in accordance with the principles of environmental justice. The aim of this paper is to provide an insight into the measures that should help Slovakia meet its ambitious environmental objectives in the coming years through European Union funding.

Keywords: *environmental justice, EU funding, EU recovery plan, green transformation, innovative economy*

JEL Classification: *K32, G18, O13, Q56, Q58*

1. Introduction

The ongoing COVID-19 pandemic has triggered a huge global economic shock at an alarming rate scale, which has led to severe recessions in many countries. Pandemics and related mitigation measures have disrupted economic activities, sharply reduced consumption and investment, and also reduced labor supply. At the same time, the COVID-19 pandemic has shown us that a healthy lifestyle approach must underpin all EU policies to promote human health, a healthy planet, a healthy economy and a healthy society with opportunities for all. In this context, a better link between health and the environment is essential and necessary. Bočáková (2015) writes that an important role is played by the social policy of the state. The center of social policy is a human whose role is to prevent, mitigate, so to set about improving the living conditions of citizen. Bočáková and Kubičková (2021) also state that a healthy lifestyle, quality of life, and good health and social care are important.

Within the European Union (EU), environmental protection has been one of the key topics for several decades, but especially nowadays, under the threat of current climate problems (Workman et. al., 2021), this area is at the forefront of the topics discussed and addressed by the European institutions and the member states. At EU level, there are a number of policy

strategies to address negative environmental impacts on health and climate changes (Schaub, 2022). Over the past 40 years, the EU has put in place policies to tackle specific problems such as air and water pollution, greenhouse gases, excessive soil and water consumption, groundwater pollution and solid waste production (Kierepka-Kasztelan, 2020) and some of these policies have had remarkable results - Europeans have cleaner air and cleaner bathing water, a larger proportion of municipal waste is recycled, more and more terrestrial and marine areas are protected, the EU is reducing its greenhouse gas emissions compared to 1990 levels, billions of euros have been invested in more viable cities and more sustainable mobility and energy generated from renewable sources grew exponentially (European Environmental Agency, 2019).

2. Materials and methods

The main objective of this paper is to provide an insight into the recently adopted financial plan by the European Commission – The NextGenerationEU, which was designed to boost the recovery of the Member States after the COVID-19 pandemic. We also focus on the recovery and resilience plan of the Slovak Republic measures that should help Slovakia meet its ambitious environmental objectives in the coming years. To achieve the objective, the methods of analysis, synthesis, deduction and induction have been used. Another key method that has been used was the descriptive statistics, and for better visualization, we used a graphical representation of the identified values (Rimarčík, 2007; Chajdiak, 2010). There are many authors who deal with environmental issues in relation to the EU and its environmental policy, such as Clement and Bachtler (1997), Corrie (1993), Favoino (1998), Hooghe and Keating (1994), Jordan (1998), Jordan (1999), Kraack, Pehle and Zimmermann-Steinhart (1998), Lenschow (1997), Liefferink and Skou Anderson (1997), Mazey and Richardson (1994), Roberts (2001), Oberthür and Gehring (2006), Turok and Bachtler (1997) or Wilkinson (1997). On the other hand, Dominelli (2013), Nicotera (2019), Watts, Hodgson (2019), Matthies et al. (2020) draw attention to the impact of climate change on the poorest sections of the population, who need special attention.

3. The NextGenerationEU recovery plan

The year 2020 was severely affected worldwide by the coronavirus pandemic associated with COVID-19, making it undoubtedly a year full of many changes, reversals and unexpected situations (Bočáková et. al., 2022). The COVID-19 pandemic is shaking Europe and the world from the ground up, while testing healthcare and social security systems, our societies and economies, as well as our way of life and cooperation. The European Commission proposes to use the full potential of the EU budget to protect lives and livelihoods, to redress the single market, as well as to achieve a lasting and prosperous recovery and sustainable environment protection.

To cope with the consequences of the pandemic, for the first time in history, the European Union will borrow hundreds of billions together to save the economies of its member states, which are facing a record recession at the time of the coronavirus pandemic. To finance The NextGenerationEU, the European Commission - on behalf of the European Union – will borrow on the markets at more favorable rates than many Member States and redistribute the amounts (European Commission, 2021). The Recovery and Resilience Plan sets out a comprehensive package of reforms and investments to be implemented by 2026, supported by the Recovery and Resilience Mechanism. The plan consists of investments and reforms that will address the challenges identified in the context of the European Semester. This mechanism is a central pillar of The NextGenerationEU, proposed by the European Commission as an

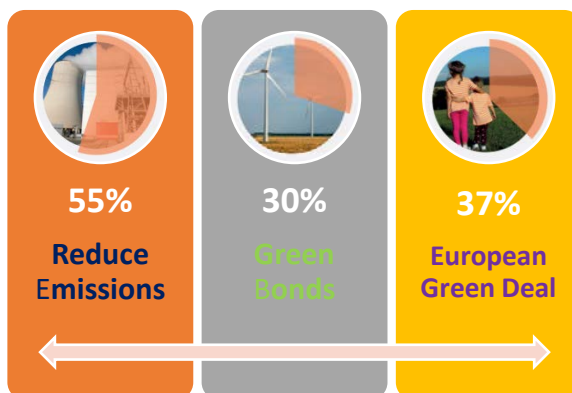
emergency interim recovery tool to help repair the immediate economic and social damage caused by the COVID-19 pandemic, support economic recovery and build a better future for future generations. The criteria are set out in particular by Regulation 2021/241 of the European Parliament and of the Council establishing a Mechanism to promote recovery and resilience of 12 February 2021.

On 27 May 2020, the European Commission presented a proposal for a major EU Next Generation recovery plan. The EU's EUR 750 billion Next Generation funding, as well as targeted increases in the EU's long-term budget for 2021-2027, will bring the total financial capacity of the EU budget to EUR 1.85 trillion.

The NextGenerationEU is a EUR 750 billion recovery tool and aims to help repair the immediate economic and social damage caused by the coronavirus pandemic as a matter of priority. This package represents the largest financial assistance ever funded in the European Union. This mechanism will be flexible, which means the ability to respond to unforeseen events and thus better manage potential future crises or problems. Following the COVID-19 pandemic, Europe will be greener, more digital, more resilient and better prepared for current and future challenges thanks to The NextGenerationEU. As part of the comprehensive Recovery Plan for Europe package, Member States were required to submit their own National Recovery and Resilience Plans to the European Commission by 30 April 2020, which subsequently went through an evaluation and approval process.

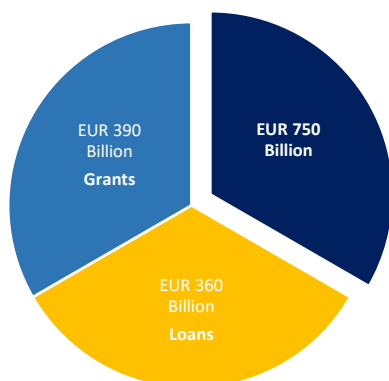
The European Commission will provide a total of EUR 672,5 billion under the Reconstruction and Resilience Mechanism to support investment and reform. Grants totaling EUR 390 billion will be provided to Member States under the mechanism and the remaining EUR 360 billion will be provided in the form of loans. The EUR 672,5 billion (in 2018 prices) in loans and grants will support the recovery plan for Europe through post-pandemic reforms and investments across the EU while enabling a digital and environmental transition in a cohesive society throughout Europe. To access the funds, Member States must submit their Recovery and Resilience Plan to the European Commission, which will check the alignment with EU priorities and the country's specific recommendations. The Member States must allocate a minimum of 37% to climate investments and reforms and a minimum of 20% to digital transition. The Next Generation EU recovery is also going to be essential for the EU to reach its target to cut emissions by 55%, first envisaged by the European Green Deal proposed by the commission back in December 2019 (European Commission, 2019). The European Green Deal is the response to environmental and socio-economic challenges, which aims at achieving a sustainable and carbon-neutral economy by 2050 (Hermoso et. al., 2022)

Figure 1: Environmental aspects of The NextGenerationEU



Source: European Commission (2021)

Figure 2: The NextGenerationEU



Source: European Council (2021)

Table 1: The Recovery and Resilience Facility Mechanism

Recovery and resilience Facility (RRF)	EUR 723.8 billion
- of which, loans	EUR 385.8 billion
- of which, grants	EUR 388.0 billion
ReactEU	EUR 50.6 billion
Horizon Europe	EUR 5.4 billion
InvestEU	EUR 6.1 billion
Rural Development	EUR 8.1 billion
Just Transition Funds (JFT)	EUR 10.9 billion
ResceEU	EUR 2 billion
TOTAL	EUR 806.9 billion

Source: European Commission (2021)

The EU long-term budget will continue to be financed through the well-known revenue sources of the EU budget: customs duties, contributions from the Member States based on value added tax (VAT) and contributions based on gross national income (GNI). In addition, as of 1 January 2021, a new national contribution based on non-recycled plastic packaging waste will be introduced as a source of revenue of the EU budget (European Commission, 2021). The European Commission has started committing the funds under the next Multiannual Financial Framework (the EU long-term budget) as of 1 January 2021.

4. The Recovery and Resilience plan of the Slovak Republic

The idea of a recovery plan arose in response to the pandemic-shattered economy. The recovery plan is a joint response of EU countries to the severe economic downturn due to the pandemic. Its main goal is to support reforms and investments that will enable Slovakia to start catching up with the EU average again.

The Recovery and Resilience plan of the Slovak Republic is part of the joint response of EU countries to the severe economic downturn due to the new coronavirus pandemic. The Slovak economy contracted by 5.2 % in 2020. We have also seen gross national product (GDP) declining by 4.8% and the unemployment rate rising to 6.7% as about 50,000 people lost their jobs. At the same time, Slovakia must address the long-term challenge of preventing stagnation in living standards as well as environment and employment (Kováčik and Imrovič, 2019). The combination of investments, reforms and effective public policies will enable the country to regain the standard of living of the EU average and achieve improvements in key areas affecting the quality of life in Slovakia. The systemic shortcomings of the Slovak economy are also a response to the immediate consequences of the crisis. By operating on all three pillars, the Recovery and Resilience Plan can make a significant contribution to restarting the rapid and sustainable growth of the economy and the quality of life in Slovakia.

The measures in the Slovakia recovery and resilience plan are based on three pillars:

- Innovative economy
- The modern state
- Healthy country (The Government Office of the Slovak republic, 2021).

On the basis of the three pillars, five key target areas have been defined to which financial support will be directed through the projects. The target areas for reform and investment take into account the key challenges of the economy and the most important societal challenges. They were selected on the basis of a comparison of results against the EU average, and common European priorities. The green economy will promote environmental sustainability, quality of life and contribute to the development of green innovation as one of the sources of economic growth. Education, science, research and innovation and health are among the areas where Slovakia is lagging behind the most, and the European Commission has repeatedly recommended stepping up reform efforts. Effective public administration and digitization are important factors influencing the business environment and quality of life.

As mentioned above, The Recovery and Resilience plan of the Slovak Republic focuses on five key target areas: the green economy (EUR 2,301 million); quality education (EUR 892 million); science, research and innovation (EUR 739 million); better health (EUR 1,533 million) and efficient public administration and digitalization (EUR 1,110 million). It is divided into 18 parts, the so-called components, which include reforms and investments totaling EUR 6,575 billion. It emphasizes sustainability, a healthy environment, inclusion in education, modern healthcare, improving the business environment as well as sound public finances.

The target areas of support:

1. Green economy (allocation EUR 2,301 million)

Support for green projects responds to the EU's goals of achieving carbon neutrality by 2050 and reducing greenhouse gases by 2030 by reducing emissions by 55%. For Slovakia, the most funds are allocated in this area and investments in the construction of new renewable energy capacities, investments in the renovation of buildings, sustainable transport, decarbonisation of industry and adaptation to climate change are supported.

2. Quality education (allocation EUR 892 million)

The pandemic period has highlighted the need for digital technologies in education. In response to the situation, the Recovery Plan will mainly support new digital education systems in order to support the modernization of education in Slovakia.

3. Science, research, innovation (allocation EUR 739 million)

Funding for research, development and innovation will support green and digital transformation aimed at research and innovation investments, such as smart mobility, smart city development, green technologies and more.

4. Better health (allocation EUR 1,533 million)

Supporting digitization for hospital management and streamlining medical processes is one of Slovakia's top priorities, especially in response to the pandemic period. Promoting digitization in medicine will increase the quality of care as well as the transparency and efficiency of process evaluation.

5. Efficient public administration and digitization (EUR 1,110 million)

The aim of supporting investments in digital technologies for Slovakia is mainly the modernization and improvement of justice services, the improvement of the business environment, the fight against corruption and others. At the same time, 5G connectivity as well as cyber security will be supported.

As can be seen from the above mentioned individual allocations of key target areas, the Slovak Republic has allocated the most funds to area no. 1 Green economy (EUR 2 301 million). As part of the recovery plan, up to 43% of the total allocation, i.e. EUR 2,73 billion, is earmarked for green issues, meeting the requirement of the European Commission of at least 37% of the total financial envelope for action to combat climate change. Green economy reforms and investments, which make up the bulk of The Recovery and Resilience plan of the Slovak Republic, respond to ambitious targets for achieving carbon neutrality in the European Union by 2050 and reducing greenhouse gases by 2030 by reducing emissions by 55% compared to 1990 (The Government Office of the Slovak republic, 2021). Each of the key target areas of the recovery plan consists of thematic components. These include reforms and investments, for which the so-called milestones and goals. In the Green economy target area, there are 5 key components in The Recovery and Resilience plan of the Slovak republic:

1. Renewable energy sources (RES) and energy infrastructure (allocation EUR 232 million)

Investments to support the construction of new renewable energy sources (RES) and the modernization of existing installations producing electricity from RES with a total volume of 220 MW of installed capacity will contribute to reducing the carbon intensity of energy and support the EU target of 32% of RES in final energy consumption by 2030. Digital investment in the electricity grid will support faster, more reliable and more cost-effective integration of renewables.

2. Renovation of buildings (allocation EUR 741 million)

Energy efficiency, air quality and adaptation to climate change will be enhanced by the construction of new energy-efficient public hospital and school buildings and the

renovation of existing public and private buildings, including 30,000 family homes, with an emphasis on improving thermal insulation, replacing inefficient heat and hot water sources and application of climate change adaptation measures. Support for intelligent building management systems will help reduce their energy intensity. The investments in the recovery plan should make a significant contribution to the goal of reducing energy consumption in buildings by 40% by 2050 and at the same time reducing emissions from buildings by 79% compared to 2020.

3. Sustainable transport (allocation EUR 801 million)

Reforms in strategic transport infrastructure planning and follow-up investments in green transport, in particular the refurbishment of more than 69 km of railways, the dispatching of more than 100 km of railways and the construction of 200 km of new cycle infrastructure, will create a cleaner, smarter, safer and more efficient transport sector. The measures in the recovery plan will increase the share of green modes of transport in the total division of transport work and also increase the volume of goods transported in green intermodal transport, thus significantly reducing CO₂ production in the transport sector, which is one of the fastest growing sectors. The construction of a skeletal network of urban and long-distance infrastructure for vehicles with alternative propulsion will also contribute to reducing transport emissions.

4. Decarbonisation of industry (allocation EUR 368 million)

One of the main goals of the Slovak Republic in transforming the economy into a low-carbon economy is to reduce greenhouse gas emissions from industrial production and industrial processes. Reduction of greenhouse gas emissions in industry by at least 2.6 mil. tons of eqCO₂ per year should be achieved mainly by introducing innovations and principles of the circular economy into industrial processes, increased use of best available techniques (BAT, "Best Available Technologies"), modernization of energy and material intensive operations, or transition to cleaner methods of energy production and products also through the use of greenhouse gas-free energy sources.

5. Adaptation to climate change (allocation EUR 159 million)

Adaptive reforms and investments will increase the country's long-term resilience of ecosystems in response to climate change, by expanding non-intervention areas of protected areas and national parks with the highest level of protection, renaturing watercourses and reducing the impact of natural disasters. The reform will define the maintenance of landscape structures, which will be crucial for the ecological stability of the country in the context of climate change and the protection of biodiversity. It will create a framework for more efficient management of watercourses, better conditions for achieving their favorable status, increase the country's water retention capacity and ensure flood protection of settlements and the landscape. Nature protection will be complemented by soft tourism development plans in two national parks, which will support ecological recreation and build quality infrastructure for diverse and modern national parks in Slovakia. Supporting natural ecosystems will ensure resilient forest ecosystems that contribute to greater biodiversity and carbon neutrality.

5. Conclusion

The European Union countries have recently been hit hard and unprecedented by the covid-19 pandemic in a number of areas. In response to the pandemic crisis the European Commission adopted The Recovery and Resilience Plan - The NextGenerationEU, which will help restart the economy and necessary reforms in the Member States countries. However, we expect more from the recovery plan than the post-crisis macroeconomic impetus. The key challenge will be

to implement sustainable reforms and to create the conditions for the full use of human and natural potential throughout life and across generations. The ultimate goal of the recovery plan is to improve the quality of life of EU citizens. The Slovak Republic is ready to use these funds for the renovation of buildings in which social services are provided for the elderly or individuals with disabilities, in order to improve the environment in which these clients live. We expect that digitization and overall modernization in the field of social services could help reduce the physically demanding care of immobile clients. The Slovak Republic has high hopes for the possibility of building new types of social services that are lacking in the country, but also for the construction of new research centers focused on health care and social services. It is therefore very important that these unique funds can be spent in a targeted and efficient way through quality projects that will help rebuild the economy and contribute to improvement of the social services provided. In the future, it is necessary to address this topic mainly in terms of the implementation of several interdepartmental contexts, because when examining the issue within only one field, there is a high risk that researchers will miss several important facts. Implementing The Recovery and Resilience Plan in practice in the context of environmental policy and environmental justice may be an appropriate subject for further research. At the same time, such research may be the key to the success of future EU strategic financial plans.

Acknowledgement

This paper was created within the project APVV Environmental justice in the context of social work. Project registration number APVV-20-0094.

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Organizations in Times of a Pandemic in EU Member States

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Abstract

The article outlines the consequences of Covid-19's impact on the development of shaping the way of functioning of organizations, particularly in EU Member States. Operating in the era of the Covid-19 pandemic has become our everyday life. It should be kept in mind that the pandemic took us all by surprise- both social organizations and business, so we have changed our habits both at work and in interpersonal relationships. The way how the organization functions also has changed: organizational structure, division of labour, organizational dependencies, relations or personnel policy. Which of them should not change? Mutual relations, the habit of working remotely, or the quality of work? This article will discuss the basic changes that have occurred in organizations during a pandemic, especially in the EU, along with their advantages and disadvantages. Some of the new behaviours may soon return to "normal", but not all. New habits will remain in organizations forever, as they bring benefits that we did not realize before. The article uses induction and reduction methods. Research results point out that organizations must adapt to changes resulting from functioning during a pandemic. This study is a contribution to further research on the issue.

Keywords: *functioning of organizations, pandemic, the organization functions in EU Member States*

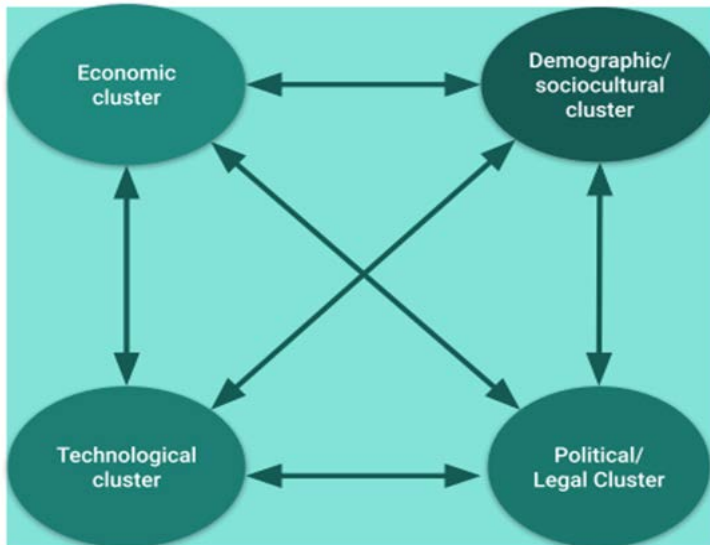
JEL Classification: M21, O39

1. Introduction

We all live in the shadow of the pandemic right now. The last two years have left their mark on economies and societies both individually and collectively. In order to survive, we had to introduce many changes in our behaviour and functioning, both in the personal and professional sphere. From the subject of the article, changes in companies and organizations are substantial. Organizations and enterprises were aware that changes in the environment are natural. There was a consciousness that an inherent feature of the modern economy, especially in EU states, are dynamic changes in many of its spheres. A company operating in a market economy must focus its attention on the changes taking place around it. The changeability of the environment and their intensity requires contemporary organizations to undertake a series of adaptation processes that result in introducing changes. These changes relate to the area of environment, technology and the area of management. However, regardless of the type and nature of changes, implementing them requires a rational and effective change management process. In order for the change management process to be effective, a management method should be selected that is appropriate for a given organization.

However, the current scope of the Covid-19 pandemic change came as a surprise to everyone. The typical view of relations among segments of the macro environment in strategic management books in the 1990s and the first decade of the 21st century have been shown in Figure 1. As you can see, the threat from a viral and other pandemic was not considered at the time.

Figure 1: Relations among Segments of the Macroenvironment



Source: own elaboration based on Porth S. J., 2003.

The company's activity is based on the principles of feedback. It means the reciprocity of the relationship between the subject and the environment. Decades of lack of problems caused by an impact of the pandemic on the economy resulted in missing this factor in strategic analyzes of the organization's environment. This state of affairs lasted until 2020. Currently, the impact of the Covid-19 pandemic is analyzed from many perspectives - such as: strategic, political, economic, social, sociological and psychological. There is no doubt that the subject of Covid-19 will dominate in economic sciences in the following years.

2. Covid-19 impact on Organizations Management

As Laurence J. Walsh and Zyta M. Ziora wrote in their article the Covid-19 pandemic occurred in 2020 and was preceded by a coronavirus disease that started in China in 2019 and then spread worldwide causing many infections and deaths. Severe acute respiratory syndrome coronavirus (SARS-CoV) was first detected in 2002 and was responsible for more than 800 deaths, with an overall mortality rate of approximately 10% in the general population and 50% in people aged 65 years and older (Ma et al. 2020). A decade later, Middle East respiratory syndrome coronavirus (MERS-CoV) was reported, with over 2000 cases and a 34% mortality rate. The typical age of infected individuals ranged from 49 to 57 years. In 2020, SARS-CoV-2 coronavirus was identified as responsible for COVID-19 disease, the latter rapidly affecting many people worldwide, especially those aged 40 to 60 years (Petrosillo, et al. 2020). The pandemic potential of SARS-CoV-2 appears to be the highest of these three coronaviruses (Laurence et al.2021).

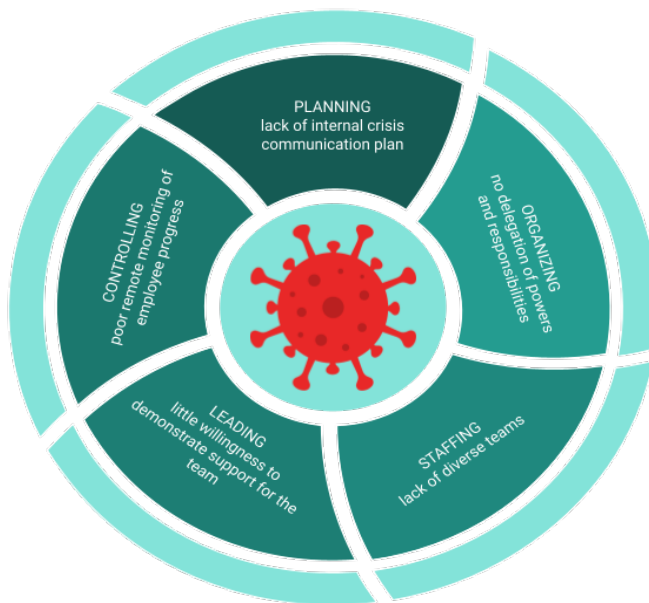
As discussed in the first paragraph, changes in the environment significantly affect the functioning of the organization. The breakthrough that started in December 2019, the

beginning of the coronavirus pandemic, has caused many changes in organizations, especially social and economic. The pandemic has introduced to organizations confusion and uncertainty that are difficult to manage, especially social matters- mainly about changes in the way work is performed, which affects the social behaviour of employees. However, this issue will be discussed later in this article. Before it is discussed, it is worth taking a look at how the functioning of the organization has changed, or simply speaking - how their management had to change. Pandemic forced the organizations to reconsider their practices, implement innovative techniques or acquire new capabilities that would allow them to operate in a new reality. Moreover, they had to do it without any studies, examples or other sources as it was a new situation. If the organizations wanted to avoid risk of contamination, they had to apply social distancing. Contrary to appearances, it was not such an easy task, because in some industries it was more difficult (such as hospitals, food production - especially meat or bread). (Boiral, et al, 2021). Let's consider two different types of organizations. First one is characterized by hierarchical structure, with centralized leadership, that greater interdependence among parts, its workforce is concentrated, hiring specialists and is driven by policy and procedures. Second one is almost the opposite: networked with distributed leadership, less interdependent, with dispersed workforce, hiring cross-trained generalists, and managed by flexible and simple rules. Which of them would manage pandemic better? The second one as it is already prepared for quick response for changes, avoiding unpredictable risks. Of course, such a dispersed structure and decentralization cannot be complicated in every organization, but it is this distribution of forces that allows them to react quickly to the changes taking place (Nitin, 2020).

Organizations colliding with Covid-19 must therefore focus on a few key aspects. The first is to focus on employee protection (see the next section), appoint people / teams to be focused on responding to pandemic changes, make sure there is adequate financial liquidity, stabilize the supply chain, but also make sure to care about customers. While it might seem that distracting employees from their daily activities is not a good idea (because they are also "victims of" pandemics"), the appointment of people who will respond to changes related to the pandemic gives their type an assurance that there is no too much dispersion of responsibility, which could lead to the omission of important aspects that would disrupt the functioning of the organization.

Another aspect - financial liquidity - is important for any organization. Organizations should be prepared for various scenarios that should lead to maintaining financial stability. It is also connected with stabilizing the supply chain, because stable supplies guarantee the uninterrupted functioning of the organization. It would seem that customer care is an obvious aspect for every organization. However, in the confusion of work reorganization and employee focus during a pandemic, organizations may miss a few elements that will result in a loss of customer trust, resulting in their loss. Such a loss can be very costly to an organization and lead to its collapse (Craven et al.,2020). It is now worth looking at how the coronavirus pandemic has affected five basic management functions.

Figure 2 shows basic problems that were revealed during the pandemic. The spread of the coronavirus pandemic has helped to notice that even in very well-functioning organizations, problems arise that organizations were often unaware of. As part of the basic management function of planning, it was noticed that organizations often did not have a crisis communication plan. The communication plans were rather standard and needed to be rebuilt quickly.

Figure 2: Management Function Problems Highlighted by Covid-19

Source: own work based on Diokpa et.al. 2021

For almost 100 years, management has been associated with the five basic functions outlined by management theorist Henri Fayol: planning, organizing, staffing, directing, and controlling (Melecký, 2020). Nowadays, in terms of organization, the basic problem turned out to be that work is often not delegated (which has not always changed in the course of the pandemic). In the field of staffing - the teams operating in organizations were not diversified, and it is the diverse teams that think more creatively, are more productive, are stronger and more efficiently implement new ideas into the organization. Quite surprisingly, it turned out that the problem was a lack of will to appreciate the team's work. In the time of a pandemic, such "appreciation" of workers has become very important. The last issue is controlling, which turned out to be difficult especially in the case of remote work. It turned out that there is no other way to control the controls than check-in performed by employees themselves. Other ways did not get elaborated (Diokpa et al., 2021).

The "consequence" of Covid-19 are related to mentioned problems and required especially (Kirby, 2020).

- reskilling- to adapt to new environment and situation,
- adjusting leadership and management competences,
- building a culture of transparency, trust and openness,
- putting a pressure on individual and social wellbeing,
- working in a more agile way.

As it is easy to see, all the aspects raised are closely related to human resources. It is therefore worth moving on now to discuss the changes that have occurred in the management of human resources.

3. Covid-19 impact on Human Resources in Organizations

Covid influenced a number of aspects related to the management of working conditions, such as, in particular, working time (schedule, working hours, recovery time) through wages, as well as physical conditions and mental requirements. Although the EU Working Time Directive regulates employees' working time, annual leave and breaks allowance (Harakaľová, 2020) during Covid-19 most organisations were forced to change their working mode to remote, while previously only selected organizations and industries could afford it. For the others, two paths are possible: a permit for stationary work in conditions of social distance or their dismissal from work. In the case of remote work, it is also a drastic change, as it has become necessary to provide employees with tools and, in a way, working conditions (Hamouche, 2021).

The coronavirus has shown that managers can adopt different management strategies. Azizi et al. in 2021, he conducted research and analysed over 1,100 publications on human management and Covid-19. Based on the analysis, they identified twelve employee management strategies during Covid-19. They are presented in Figure 3.

Figure 3: Human Resource Managers' Strategies for Covid-19 Management

Flexibility and employees' virtual life cycle	Ensuring the availability of adequate resources for employees' home office	Providing employees with training courses to gain new skills	Participation, development, and promotion of employees' motivation by establishing continuous communication using innovative methods
Use of innovative methods to support employees and maintain their health and welfare	Providing innovative fun activities for the employee	Strengthening internal efficiency and talent acquisition	Use of staff safety measures and focusing on work condition
Managers' commitment	Selection and participation of employees in decision-making	Strengthening cohesion and sharing experiences	Making changes based on organization assessment and dat

Source: own work based on Azizi et al., 2021

Management studies increasingly stress the importance of intangible factors in the context of creation of competitive advantage and development of an organization's dynamic capabilities (Pachura et al., 2018). During a pandemic, intelligent and effective human resource management becomes crucial. In times of pandemic, intelligent and effective human resource management takes on new meaning. Moreover, at the same time, at the same time it is very important to properly manage not only the finances of the organization, but also the talents of employees, where recruitment, training, performance management as well as planning of replacements are also important. Therefore, it is important to properly adjust the applied strategy to the organization in which we operate, hence the multitude of strategies. The same study identifies three basic challenges caused by the Covid-19 pandemic that influences those strategies: economic shock, changing human behaviour, and challenges at the organizational level (Azizi et al.2021).

Being a manager and managing an organization in the age of a pandemic is not easy. Harvard Business Review in October 2020 published a list of 18 tips on how to manage in the age of Covid-19 (Figure 4).

Figure 4: Tips for Managers During Pandemic



Source: own work based on Silverthorne, 2020

According to Silverthorne in the area of people and personal management the base is to review some key areas, such as shared purpose, resources, norms and understand members' constraints. The mentioned seven "c" attributes are: calm, confidence, communication, collaboration, community, compassion and...cash! (Silverthorne, 2020). As it can be noticed, understanding people's needs is the key to providing them with appropriate conditions to work. The time of the coronavirus has therefore become a time to get to know our employees more closely, how much we know about them and how empathetic we are. It is not only their work that determines whether our organization will stop pandemics, but also how much we are able to empathize with their situation and provide them with appropriate support, not only technical, but mental. As it turns out, organizations are able to function by distancing themselves or working from home, as long as they properly care for employees

4. Lessons Given by the Covid-19

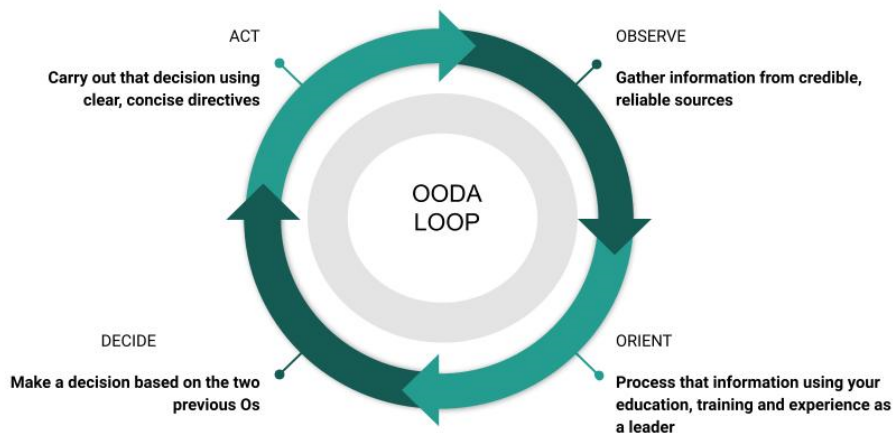
Drawing conclusions from the analysis of changes in organizations, it can be safely stated that the Covid-19 pandemic is a difficult time, but we can draw conclusions from it. It is a time of reflection and lessons for the future. So, what's the lesson of Covid-19? How to prepare for the future?

If we would like to go through the most important aspects of adjusting to the pandemic, first of all we should pay attention to how important it is that the information provided and the way of working is transparent, and reacting to it quickly. The very manner of providing answers should be systematized and consistent. Communication itself is often the key to success, not only when it comes to the spread of the virus, but also reacting to market changes or some kind of monitoring of employee morale. It is also important that employees do not lose their mutual ties, so that teams continue to function despite working from home.

The lesson we all received is the fact that despite the threat, we should not panic, but analyse the situation that has arisen. As a supplement, overcommunication is also not good. Too frequent disclosure of information, often unconfirmed, or bombardment of employees with plans or intentions that are not later implemented, may increase employees' sense of uncertainty and risk. Therefore, do not overreact and remain confident but flexible and celebrate wins (Vroonland, 2021).

Therefore, you should focus on a few simple but important aspects. First of all, stay well informed and be aware of what may happen that may affect our organization and try to prepare for it. When the need arises, strengthen your leadership. not to delegate when it is unnecessary. The OODA loop (Observe, Orient, Decide, Act) is a four-step approach to decision-making that focuses on filtering available information, putting it in context and quickly making the most appropriate decision while also understanding that changes can be made as more data becomes available (Tech Target 2021). We can use the OODA loop (Figure 5), the advantage of which is that it is a continuous, never-ending process. There are usually other methods, so we should choose the one that will be the most effective for us. A very important aspect is taking care of each team member - people should feel taken care of and comfortable, because only then will they work effectively (Silsbee, 2020).

Figure 5: OODA Loop



Source: Own design based on Silsbee, 2020

We can also find other lessons from the pandemic situation. It appears that blended processes of work are effective if you want to survive on the market. However, we have to check if the organization is agile enough and is able to adapt to changes. Very important is IT architecture and its characteristics, as it can be the only tool. If we want or even need innovative solutions we have to allow for employee involvement. It can be also necessary to develop new policies for the organization, that would include virtual communication (that is faster and can provide high quality). The rapid changes can make things possible by adjusting reality to individuals that are working from home. Still we have to be careful and keep an eye on staff working from home to keep company values. At this stage we should be prepared, that situation won't be better and we should have "plan B". If we delegate responsibility we still should maintain a highly visible leadership style (De Waal et al.2021).

5. Conclusion

Despite an awareness of how much successive elements of the environment interrelate, it was impossible to predict the scale of the changes brought about by the Covid-19 virus. During the pandemic, management was significantly remodelled. This was due to the reduction in human contact on the one hand and the introduction of blockades and various restrictions and growing uncertainty and health concerns on the other. The pandemic, which has now lasted more than 2 years, represents a difficult period for everyone, especially for organizations in EU states. Due to the sudden change in the socio-economic situation and the restrictions introduced, most of them have definitely felt the negative effects of the pandemic. Organizations have often lost sources of funding, suspended or even ceased their activities. Organizations also have to find their way in a new, unstable reality. That is why contingency planning is now so important.

The Covid-19 pandemic has changed organizations, employees and workers overnight. Moreover, the changes brought about by these depressing and disruptive events can be used to benefit the organization and its development. New ways of working, managing human resources, including controlling them, will stay with us forever, so they should be used as an opportunity rather than a threat.

The Covid-19 pandemic has also changed our organisations and also the employees in these organisations overnight. Hence, it becomes important to find an answer to the question: 'how to wisely face the new situation and build on the crisis to further the fate of the organisation'? Many activities cannot be transferred to the online sphere. Therefore, it becomes important to continuously build bonds between people. The pandemic period has dramatically intensified virtual interactions by increasing the search for virtual contacts. In QQ further research, the direction the authors will follow will be to seek answers - in which direction interpersonal relationships will evolve. The need for of close and predictable contact is invariably an important factor regulating an individual's interpersonal functioning (Bakiera, 2019).

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Agricultural Products Exports: the Extra-EU International Trade Issues

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Abstract

International trade has played a crucial role in mitigating the devastating economic impact of the COVID-19 pandemic and proved to be a central tool in enhancing resilience. The European Union is the largest trading bloc in the world. The EU exports a wide range of products from all the parts of the value chain which demonstrates the competitiveness of the EU agri-food sector. The data analysed in the research are the goods (SITC 0+1) exports amounts taken from the official Eurostat web page. The timeframe under analysis is nine years – from 2011 till 2019 included. The research itself and its results are interesting and useful for the public administration officials, companies' employees and office workers engaged in the international trade issues, representatives of the academic community, politicians and decision makers as well as beginners and experienced statisticians and data analytics.

Keywords: *agricultural products exports, correlation, the European Union, Ukraine, the United States of America*

JEL Classification: *C1, F14, F15, Q17*

1. Introduction

International trade is the exchange of goods and services between countries (Heakal, 2021). More precisely, international trade is an exchange involving a good or service conducted between at least two different countries (CFI, n.d.(b)). International trade is an indispensable component of the global economy (Statista, 2022). Being engaged into international trade, in other words, trading globally, gives consumers and countries the opportunity to be exposed to goods and services not available in their own countries, or more expensive domestically (Heakal, 2021). No country has developed successfully in modern times without opening its economy to international trade, investment, and the movement of people across borders (Staničková, 2018). Recent years have seen a resurgence in interest in the role of international openness and international trade in economic growth (Bernard & Jensen, 2001). Over the last two centuries trade has grown remarkably, completely transforming the global economy. Nowadays, about one fourth of total global production is exported (Ortiz-Ospina & Beltekian, 2018).

The international trade of agricultural products, especially the agri – exports, became a matter of economic and political influence. Due to those circumstances, the developing countries could improve their economic and political status as in most of the developing countries, the agricultural sector lies at the centre of their economies. It accounts for a large share of GDP, employs a large proportion of the labour force, represents a major source of foreign exchange

earnings, supplies the bulk of basic food required by the population and provides subsistence and other income for large rural populations. Thus, significant progress in promoting economic growth, reducing poverty and enhancing food security cannot be achieved in most of these countries without realising more fully the productive potential of the agricultural sector and its contribution to overall economic development (UNO, 2000).

Still, some argue that international trade can actually be bad for smaller nations, putting them at a greater disadvantage on the world stage (Heakal, 2021). Nevertheless, due to the WTO publication, agricultural trade remains in many countries an important part of overall economic activity and continues to play a major role in domestic agricultural production and employment. The trading system plays also a fundamentally important role in global food security, for example by ensuring that temporary or protracted food deficits arising from adverse climatic and other conditions (WTO, n.d.).

It could be talked a lot more about the importance of the agricultural products trade for the development of the world economy in general and every single state in particular, but the very essence of everything mentioned above is that the agricultural products trade is not just really important, it is vitally important for the survival of the whole humanity in general and every single homo sapiens in particular as we are people and we are created in such a way that we can't function and live without food consumption. It's a matter of common knowledge that the main source of food is agriculture. The importance of agricultural products trade was on the one hand proved and on the other hand tested by the COVID-19 pandemic as, trying to ensure the food security for their citizens, several countries have imposed export restrictions as remedial measures to assuage the economic repercussions of COVID-19 (Thiam, Brou & Varela, 2021). Everybody knows the biggest players of the global agricultural products trade markets. But, besides those big, there are those countries that are not that big in terms of their territories and don't seem to be that influential in terms of the global politics. But, still but, the amount and the list of the agricultural products they export appear to be so impactful that they are to be more and more prominent players on the geo-economic and therefore geopolitical global stage to be reckoned with. The research presented in the paper is therefore occupied with the attempt to assess whether such a small country as Ukraine and its agricultural products exports have any impact on the agricultural products trade of such giants as the EU and the USA, particularly the EU's agri-exports to the USA. The novelty of the research lies in the attempt of the author to assess the correlation of the agricultural exports of such a small country as Ukraine with the agricultural products exports of such a giant as the EU to another colossus - the USA. Usually, while conducting the research of the world trade flows, the major attention is paid to the biggest and therefore most powerful global market players. The purpose of the research, among others, was to show that even the smallest and therefore those seeming the least influential can impact this or that world trade sector. The research itself and its results are interesting and useful to be applied by the public administration officials, companies' employees and office workers engaged in the international trade issues to improve their understanding of the processes going on in the European and world agricultural products market, representatives of the academic community to further expand the research, politicians and decision makers to have a broader choice of options to make the best decision possible in any given situation, as well as beginners and experienced statisticians and data analytics to explore the research results and have a basis for the implementation of more sophisticated tools and methods to deepen the research to obtain more precise results.

2. Problem Formulation and Methodology

The international trade is conducted in the form of imports or exports. Exports are the goods and services that a country produces domestically, or within the borders of its own country,

and sells to buyers in a foreign country. A country's flow of exports can impact its economy and the entire global economy. Typically, a country has a competitive advantage on its exports. This means that it has the natural ability to produce certain goods and services in a high quality and quantity, often based on its climate and geographic region (Indeed, 2021). In other words, exports are goods and services that are produced domestically, but then sold to customers residing in other countries. Exports lead to an inflow of funds to the seller's country since export transactions involve selling domestic goods and services to foreign buyers (CFI, n.d.(a)).

Due to the drastic challenges of nowadays we all have to face and overcome, like the COVID-19 pandemic, climate change, instability of financial markets and the emergence and growing impact of the digital currencies, the issues connected with food security became even more vitally important, that is – the matter of survival. Everything stated above was the motivation to conduct the research presented in the paper, the purposes of which were to assess the agricultural products exports amount from Ukraine to the EU and the agricultural products exports amount from the EU to the USA general dynamics and how they differed comparing to the previous periods on the yearly basis, to compare the simple statistics of the two data sets under analysis and to analyse whether the agricultural products exports from the EU to the USA are correlated with the agricultural products exports from Ukraine to the EU and, if they are, how strong the correlation is.

The data under research are the agricultural products exports amount from Ukraine to the EU and the agricultural products exports amount from the EU to the USA taken from the Eurostat database. The agricultural products are meant to be the goods from the SITC (0+1) groups. SITC means Standard International Trade Classification. Group 0 comprises food and live animals while Group 1 comprises beverages and tobacco. The timeframe under analysis is nine years – from 2011 till 2019 included. The simple statistics calculated on the data sets under research include mean, standard deviation, sum as well as the minimum and maximum values. The presence/absence of the correlation between the data sets under analysis as well as its strength were stated having calculated the Pearson and the Spearman correlations between the data sets analysed. Pearson's correlation coefficient is the test statistics that measures the statistical relationship, or association, between two continuous variables. It gives information about the magnitude of the association, or correlation, as well as the direction of the relationship (Statistics Solutions, n.d.). The Spearman's rank-order correlation is the nonparametric version of the Pearson product-moment correlation. Spearman's correlation coefficient measures the strength and direction of association between two ranked variables (Laerd Statistics, n.d.).

3. Problem Solution

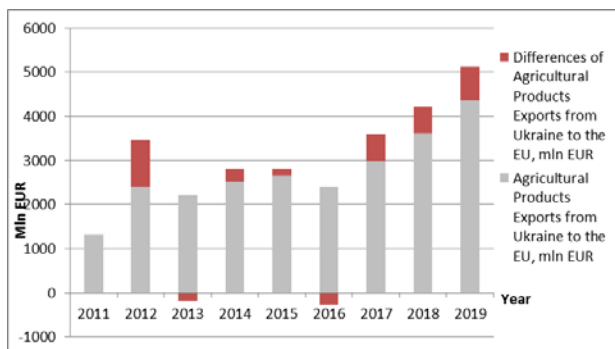
The European Union is the largest economy in the world and the world's largest trading block (CECE, n.d.). The EU is one of the most outward-oriented economies in the world. It is also the world's largest single market area. Free trade among its members was one of the EU's founding principles, and it is committed to opening up world trade as well (European Union, n.d.(b)). The European Community was founded on the belief that economic integration leads to peace and economic prosperity. Trade is therefore a fundamental part of the identity of the European Union (EU) today (European Union, n.d.(a)). The EU is the largest trading bloc and a wide-ranging network of free trade agreements (FTAs) underpins its position in world trade (European Commission, 2021). The free-trade bilateralism is not unique to the European Union. The two other giants of international trade, the United States and China, have been negotiating bilateral trade agreements for several years. But they still lag behind the Europeans

in this area. The conventional free trade network of the European Union is still more extensive than that of the United States... (Foundation Robert Schuman, 2020).

International trade has become one of the first sectors where Member States have given up their sovereignty (Petrová, 2020). The EU has a relatively open trade regime, which has provided a stimulus for developing relationships with a wide range of trading partners. Indeed, the EU is deeply integrated into global markets and this pattern may be expected to continue, as modern transport and communication developments provide a further stimulus for producers to exchange goods (and services) around the world. The EU policymakers see the promotion of international trade (and investment) with the rest of the world as a key driver of economic growth and job creation (Eurostat, 2021).

The European Union is one of the world's three largest exporters and importers at the same time (Doleželová, 2020). The EU is one of the world's biggest players in global trade: in 2019, it was the second largest exporter and importer of goods in the world, as extra-EU trade accounted for 15.9 % of global exports and 14.0 % of global imports. Since 2008 the value of goods exported outside the EU has risen at a faster pace than the value of goods imported into the EU (Eurostat, 2021). The EU exports a wide range of products from all parts of the value chain which demonstrates the competitiveness of the EU agri-food sector in a variety of product classes, ranging from commodities to highly processed food industry products (European Commission, 2021). The dynamics and the way the agricultural products exports amount from Ukraine to the EU developed and changed through the timeframe under analysis can be followed in Figure 1.

Figure 1: Agricultural Products Exports from Ukraine to the EU with their Differences, mln EUR



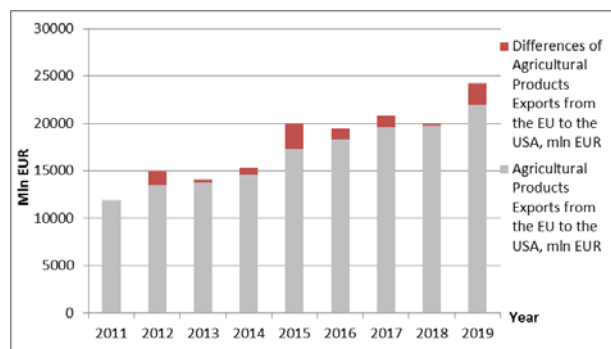
Source: author's own elaboration on the basis of the data from the (Eurostat, 2022)

As far as we can observe the data visualization presented in Figure 1, the agricultural products exports amount can't be called as such having one stable trend, having increased in 2012 with the following decrease in 2013. The trend then changed again showing another increase in the agro exports amount in 2014 followed by the similar tendency in 2015 as well. The said upward tendency didn't last too long being changed for the decrease of the said amount in 2016. Again, this downward tendency didn't last even for the following year or two, being changed for the upward one in 2017. The steady increase for the amount of the agricultural products exports from Ukraine to the EU continued from the year 2017 till the end of the timeframe under analysis. The biggest increase of the agricultural products export amount could be observed in 2012 and the smallest one – in 2015. The biggest decrease in the said amount was in the year 2016 and the smallest one – in 2013. Actually, there were only two years during the timeframe under analysis, in which the agricultural products exports decreased, and these are the years 2013 and 2016. The turbulences in the political life of Ukraine of 2013 could be the possible

explanation of the decrease mentioned above. It is hard to say unequivocally what the reason for the agro exports decrease was in 2016... Did it happen because the year 2016 was the first year of the Deep and Comprehensive Free Trade Area agreement implementation? Or, was it because of the turbulences in Ukraine – Russia gas issues? Or, perhaps, it happened because of the Ukrainian currency instability. More likely, the combination of all the factors mentioned above impacted the decrease of the agro exports amount from Ukraine to the EU decrease we observed in 2016. Despite everything stated in the previous sentences, the upward tendency of the agricultural products exports amount from Ukraine to the EU from 2017 till the end of the timeframe under analysis inspires optimism as for the following increase of the agricultural products trade development between Ukraine and the EU.

The EU is the world's largest trader of manufactured goods and services. The EU is the top trading partner for 80 countries. By comparison the US is the top trading partner for a little over 20 countries (CECE, n.d.). If we talk about the trade relations between the EU and the USA, then it should be stated, that compared to 2000, the proportion of trade with the United States has decreased significantly, whereas China's share of EU trade has nearly tripled from 5.5% to 16.1% (DEStatis, n.d.). The analysis of the agricultural products exports amount from the EU to the USA can be followed in Figure 2.

Figure 2: Agricultural Products Exports from the EU to the USA with their Differences, mln EUR



Source: author's own elaboration on the basis of the data from the (Eurostat, 2022)

Analysing the import and export flows separately, the two largest trading partners show differences: In 2020, China was the most important EU import trade partner (22%), followed by the United States (12%). On the other hand, the United States was the most common destination for goods exported from the EU (18%), with China ranked second (10%) (DEStatis, n.d.). Having cast a closer look at the data presented in Figure 2, it could be stated, that the first thing that catches one's eye is the overall upward tendency of the analysed data through the whole timeframe under research without any decreases at all. The biggest increase of the said amount could be observed in 2015 while the smallest increase was in 2018.

Having compared the simple statistics of the agro exports amount of Ukraine to the EU and of the EU to the USA, we see, that the mean of the EU – USA agro exports is approximately six times bigger than that of Ukraine – EU agro exports. The sum for the observations values of the EU – USA is also six time higher than that of Ukraine – EU agro exports amount. The minimum value of the EU – USA agro exports amount is approximately 9 times higher than that of Ukraine – EU ones. The maximum value of the EU – USA agro exports is five times higher than that of Ukraine – EU agro exports. So, the overall agro exports amount of the EU – USA is approximately six times as big as the one of Ukraine – EU during the timeframe under analysis. That's why it is even more interesting to research whether the agricultural

products exports from Ukraine to the EU correlates with the said exports of the EU to the USA, that is whether the first has any influence on the second, especially taking into account the difference either in the territory sizes and agricultural exports amounts of the countries. To fulfil the purpose of the paper, the Pearson correlation coefficients of the agricultural products exports from Ukraine to the EU with the agricultural products exports from the EU to the USA were calculated and presented in Table 1.

Table 1: Pearson Correlation Coefficients of the Agricultural Products Exports from Ukraine to the EU and from the EU to the USA

Pearson Correlation Coefficients, N = 9 Prob > r under H0: Rho=0		
	Agricultural Products Exports from the EU to the USA, mln EUR	Agricultural Products Exports from Ukraine to the EU, mln EUR
Agricultural Products Exports from the EU to the USA, mln EUR	1.00000	0.88942 0.0013
Agricultural Products Exports from Ukraine to the EU, mln EUR	0.88942 0.0013	1.00000

Source: author's own elaboration on the basis of the data from the (Eurostat, 2022)

Taking into account the Pearson correlation coefficient between the agricultural products exports from Ukraine to the EU and the agricultural products exports from the EU to the USA and the p -value presented in Table 1, we can reject the H0 hypothesis of the zero correlation between the said exports. There is always a temptation to confirm the opposite hypothesis after rejecting the H0 one, but, to be exact in the conclusions and just to the rules of the statistics, the rejection of the H0 hypothesis doesn't mean the automatical confirmation of the opposite hypothesis. So

After having conducted the normality testing on the data under research, none of them appeared to be normally distributed. That's why, in order to be perfectly sure of the presence/absence of the correlation between the exports under research and to double check, the Spearman correlation coefficients of the analysed data were calculated (Table 2).

As the Spearman correlation coefficient doesn't require the analysed data to display normal distribution, it seems to be more reliable with the non-normally distributed data. The calculated Spearman correlation coefficients of the data under research presented in Table 2, as well as their p -value, allow the author reject the H0 hypothesis about the zero correlation between the agricultural products exports from Ukraine to the EU and the agricultural products exports from the EU to the USA. As it was stated earlier, it doesn't automatically mean the confirmation of the alternative hypothesis, but the very fact of the H0 hypothesis of the zero correlation between the exports under research has a very significant meaning for the understanding of the present geopolitical and geo-economic situation globally and the one on the European continent in particular.

Table 2: Spearman Correlation Coefficients of the Agricultural Products Exports from Ukraine to the EU and from the EU to the USA

Pearson Correlation Coefficients, N = 9 Prob > r under H0: Rho=0		
	Agricultural Products Exports from the EU to the USA, mln EUR	Agricultural Products Exports from Ukraine to the EU, mln EUR
Agricultural Products Exports from the EU to the USA, mln EUR	1.00000	0.93333 0.0002
Agricultural Products Exports from Ukraine to the EU, mln EUR	0.93333 0.0002	1.00000

Source: author's own elaboration on the basis of the data from the (Eurostat, 2022)

4. Conclusion

Trade plays a key role in an increasingly interconnected and interdependent world, and it makes up a large part of the global economy (Center for Global Development, n.d.). International trade has played a crucial role in mitigating the devastating economic impact of the COVID-19 pandemic and proved to be a central tool in enhancing resilience (European Commission, 2021). With the number of multi-faceted crises on the rise, with an international governance system deteriorating, how is the EU performing in putting its acts together to respond to these challenging times? (Tomat, 2021).

The role of the EU in the international trade and investment order is important for the representation of the interests of the EU and its member states, but also for the maintenance of an open, rules-based international trade and investment order. For the EU and member states it is a means of gaining and retaining the EU access to major growth markets, something that is essential for the maintenance of the EU economic prosperity in the years and decades to come (Woolcock, 2019). The benefits of globalisation and international trade have nevertheless been questioned in recent years, including within the EU. The EU faces uncertain times due to major shifts in international trade, coming from both the West and the East. In response, it seeks to promote economic openness, standing up for its values and protecting its interests (European Union (n.d.)).

As many countries can name themselves as the trading partners of the EU, Ukraine is also among them, having rather intensive trade relations. During the 2020 the EU remained the key trade partner for Ukraine with a share of 40,7% in our foreign trade (40,1% in 2019) (Mission of Ukraine to the European Union, n.d.). The agricultural products exports amount from Ukraine to the EU doesn't have one stable trend with the decrease of the said amount in 2013 and 2016 experiencing increase in all the other years. The biggest increase of the agricultural products export amount could be observed in 2012 and the smallest one – in 2015. The biggest decrease in the said amount was in the year 2016 and the smallest one – in 2013. The upward tendency of the agricultural products exports amount from Ukraine to the EU from 2017 till the end of the timeframe under analysis inspires optimism as for the following increase of the agricultural products trade development between Ukraine and the EU. The agricultural products exports amount from the EU to the USA has the overall upward tendency through the whole timeframe under research without any decreases. The biggest increase of the said amount could be observed in 2015 while the smallest increase was in 2018. The result for the

comparison of the simple statistics of the data under research is the approximate six fold prevalence of the EU – USA over Ukraine - EU agro exports.

The Pearson correlation coefficients of the agricultural products exports from Ukraine to the EU with the agricultural products exports from the EU to the USA as well as the corresponding p -values allow the rejection of the H_0 hypothesis of the zero correlation between the said exports. The value of the Pearson correlation coefficient points to the correlation between the data sets under research being close to perfect. Because of the data sets under research being non-normally distributed and in order to double check the presence/absence of the correlation between the data sets analysed, the Spearman correlation coefficients were calculated. The calculated Spearman correlation coefficients of the data under research as well as their p -values, allow the author also reject the H_0 hypothesis about the zero correlation between the agricultural products exports from Ukraine to the EU and the agricultural products exports from the EU to the USA. The value of the said coefficient points to the correlation between the data sets under research being close to perfect. So, the research results point to the fact that even a small country can influence the trade relations of big global players and give us a possibility to look at the alignment of forces moving the world trade flows from a new perspective. The perspectives of the research expansion lie in its limitation, no matter how contradictory it could sound, that is one should keep in mind, that the presence of the correlation alone doesn't mean that the correlation is automatically about direct influence of one analysed subject on the functioning of the other one. To conduct a deeper research of whether one subject has a direct impact on the other and it does how strong the impact is, using more sophisticated tools and methods, is the main direction of the further research presented in the paper.

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Internal Dynamics of the EU Presidency Trios

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Abstract

The presidency trio was set up in 2007 as fixed groups of three member states which prepare a common 18-month agenda, with each member state taking over the presidency every six months. The paper builds on an article by van Gruisen (2019), whose empirical research on the effectiveness of the trio shows its positive impacts on decision-making within the Council of the EU. It demonstrates that a common agenda leads to a significant decrease in the amount of time needed to reach a first agreement on regulations, directives and decisions, and confirms that the requirement to pre-negotiate the agenda helps to moderate the effect of political conflict on the speed of decision-making. However, the current discussion on the presidency trio neglects to study the dynamics between the cooperating partners before and during the consecutive presidencies as well as the effects of the trio and of its composition on the individual member states' presidencies and their priorities. Based on the qualitative content analysis of data collected from semi-structured interviews and the official trio programmes and programmes of individual member states from the period 2016-2021, the article shows that the current formal setting of the trio seems to provide benefits mainly to inexperienced states and partly to small ones. Its overall value of improving cooperation between individual Council presidencies is rather low and may be efficiently replaced by informal cooperation between member states passing on good and bad practices.

Keywords: Council of the EU, member states, presidency trio, presidency programmes, priorities.

JEL Classification: F530, F550, F590

1. Introduction

Since the Treaty of Rome (1957), the Presidency of the Council of Ministers has existed for a six-month term held in turn by each member of the Council in alphabetical order (Raik, 2015). While this format has ensured opportunities for each member state to closely approach the European level, it has brought concerns about continuity in the decision-making processes. On one hand, presidency countries are expected to act as 'honest brokers', mediating between member states to reach agreement for the common good of the Union. On the other, there is a clear recognition that the presidency places a given member state in a position where privileged access to information and the ability to shape the Union's agenda creates the opportunity to pursue its national interest very effectively (Batory and Putter, 2011, p. 6). However, as Putter (2013) points out, the ability to promote issues that reflect a country's own interests can be very limited as a result of complex EU processes. The presidency has increasingly become a collective activity, not only because the trios have been working in close cooperation with three successive presidencies since 2007, but also because six months is a very short time to

push for new issues. In addition, countries need to respond to specific events, address crises or address outstanding challenges from previous presidencies.

The concern for continuity - a consistent identification and pursuit of priorities in the Council's legislative processes - started in the 1970s, when ideas of longer-term presidency were first raised (Mangenot, 2011). However, it was not until the Lisbon Treaty that the EU had a legally based mechanism to reinforce cooperation between Council presidencies. The Treaties refer to it as 'pre-established groups of three Member States for a period of 18 months' (European Parliament, 2009), more commonly known as 'the trio', even if this term is not used in the legal texts (Raik, 2015, p. 20).

There has been growing attention paid to the issue of trio presidency. On one hand, existing studies have provided insights into the modus operandi of the trio presidency through in-depth single case studies (Mazzucelli and Dragomaca, 2009; Udovič and Svetličič, 2012; Vieira and Lange 2012, Batory and Puetter, 2011; 2013). While some focus rather on leadership aspects (Mazzucelli, 2008; Mazzucelli and Dragomaca, 2009; Batory and Puetter, 2013), others examine co-ordination methods (Viera and Lange, 2012; Jensen and Nedergaard, 2014). In addition, some authors analyse the changed role of the rotating presidency after the Lisbon Treaty (Drieskens, 2011; Warntjen, 2013; Dinan, 2013). Recently, the main interest has been put on the question of the effectiveness of the trio presidency (Raik 2015; van Gruisen, 2019). Raik (2015, p. 21) analyses the effect of the formalised trio programme on the continuity in the decision-making process of the Council and argues that it has increased the continuity in the decision-making process in the post-Lisbon Council framework, provided there exists political will among the presidencies to cooperate. Van Gruisen (2019) develops the idea further and empirically studies the trio presidency with regard to the efficiency of Council decision-making. His analysis concludes that a common agenda leads to a significant decrease in the amount of time needed to reach a first agreement on regulations, directives and decisions.

The current discussion on the presidency trio, however, neglects to study the dynamics between the cooperating partners before and during the consecutive presidencies as well as the effects of the trio and of its composition on individual member states' presidencies and their priorities. Based on the data collected from semi-structured interviews and the official trio programmes and programmes of individual member states from the period 2016–2021, the article uses qualitative content analysis to study the value added of the trio presidencies for conduct of individual presidencies from the perspective of the member states, be it large or small / old or new ones.

2. Theoretical Framework

The trio presidency, established in 2007, was aimed at ensuring stronger cooperation between three individual presidencies and thereby secure more continuity in the work of the Council. The positive impact of the presidency is also strengthened if the trio cooperates with other actors such as the President of the Council or the High Representative of the Union for Foreign and Security Policy (Mazzucelli, 2008). This is confirmed by van Gruisen (2019), who analyses the dynamics of the legislative process and activities within the trio. Based on his empirical research, the trio presidency system increases efficiency in EU legislative decision-making.

The idea of trio presidency may be thus seen as a shared or collective leadership which ensures its functioning through coordination among its members. Cooperation among different actors should be studied as a process as well as an end-state. In this article, cooperation or co-ordination is perceived as a process that can be defined essentially as the act of managing

interdependencies between activities (Jensen and Nedergaard, 2014, p. 1038). The goal of co-ordination is to act coherently with the purpose of achieving some predetermined goal(s), and the process can be broken down into a number of analytical components. Jensen and Nedergaard (2014, p. 1038–1039) introduce four components which provide a theoretical overview of the trio cooperation. The first co-ordination component identifies the goals of the trio. Its main purpose, as van Gruisen (2019) or Raik (2015) suggest, is to achieve greater consistency in the work of the Council over time. This requires that the member states, in cooperation with the Commission, the High Representative and the Council Secretariat, identify a number of policy goals that the Council should try to achieve during their 18 months as chairs (Jensen and Nedergaard, 2014, p. 1038). Hence, the primary outcome of the cooperation is the trio programme, where all the priorities of all three presidencies need to be appropriately linked and combined into a single 18-month common agenda.

The second co-ordination component involves, according to Jensen and Nedergaard (2014, p. 1038), mapping goals to activities. In concrete terms, goal decomposition means setting networks, establishing contacts and organising meetings between the trio partners in order to carve out a common programme. Then as a third step, the trio members should allocate the responsibilities for drafting the trio programme or arranging common meetings between specific ministries and units within them. In this regard, the trio should not only present a common programme containing an overview of the EU's internal and external perspectives (strategic part), but also the dossiers it would like to concentrate upon during the 18-month period (operational part) (Culley et al., 2012). The last co-ordination component is handling mutual dependence. In concrete terms, this could be done by co-ordinating activities in the Council with the purpose of securing the successful adaptation of draft legislation (Jensen and Nedergaard, 2014, p. 1039).

The coordination mechanisms may be often tested based on the various actors who take part in the common activity, especially as the member states are dispersed into the trio groups. The programme is designed to reduce tendencies for presidencies to pursue short-term national interests. Nevertheless, states may have different goals and objectives based on multiple factors including geographical location, size, historical roots and political contexts (Culley et al., 2012).

All individual member states arrive at the meetings with different expectations and backgrounds, which may impact the decision on what presidency role they would prefer to play during the six-month term as well as their role in the trio presidency. The size, identities and previous experience of member states help to orient their appropriate interpretation of the role to be played in the presidency (Jensen and Nedergaard, 2014). This is particularly important for large states who possess the material resources to exercise structural leadership. The material resources translate into bargaining leverage, which allows large member states to impose their will in the negotiation of agreements that serve their interests (Young 1991, p. 288). Moreover, previous experience may empower those who were in former presidency positions and may thus benefit from the networks they established in the past.

Indeed, as Jensen and Nedergaard (2014) point out, the variation is linked to the environment in which the trio presidency operates, the individual trio members' attitudes toward European integration, their territorial structuring of the state, their size, the ideology of the government and personality of the involved actors. It creates certain dynamics among the members of the trio which may contribute to its functioning, but it may also weaken it if the coordination lacks substance. This was stressed in the case studies of individual trio presidencies. Mazzucelli and Dragomaca (2009) examined the challenges concerning mainly the lack of leadership between France, the Czech Republic and Sweden in 2008–2009. Batory and Puetter (2011) focused

more on post-Lisbon institutional setting of trio presidency while presenting the coordination of Spain, Belgium and Hungary. The study demonstrated that the trio performance is still not clearly defined. Both authors (Batory and Puetter, 2013) later investigated the way how the presidency adds to consistency in the EU policy making and concluded that the trio partners can strengthen their coordination through close networks between their administration bodies, whereas Vieira and Lange (2012) stressed that animosities between the main political representatives of France, the Czech Republic and Sweden negatively affected the cooperation of the trio in 2008–2009. Furthermore, Udovič and Svetličič (2012) examined the trio coordination of Germany, Slovenia and Portugal in detail. They stressed that the interactions between partners were crucial especially in the preparation phase of each presidency, but they also revealed that presidency behaviour was often determined by stakeholders' expectations.

3. Methodology

To further study the internal dynamics of the trio the article analyses four consecutive trio presidencies in the period 2016–2021. The research design is based on primary data collected from desktop research and interviews with officials from member states holding the presidency in the period 2016–2021. The data is contrasted with the current literature on trio presidency. Employing this kind of triangulation ensures a representative perspective. The research is carried out in three steps: (1) desktop research, (2) data collection in the form of semi-structured interviews and (3) subsequent categorisation of the common agendas and national priorities of individual trio partners. All data was coded in the NVivo program and analysed in an open-coding procedure, i.e. the coding was led by data (Gibbs, 2009, p. 61–62).

The desktop research examined in detail the trio programmes and documents published at the national level in individual member states holding the presidency. A systematic analysis of more than 15 official documents was carried out to identify common as well as individual strategic programme priorities of subsequent trio presidencies and individual presidencies.

Due to their nature, the primary data obtained from the desktop research did not provide a comprehensive picture of the issue. Formation of negotiating positions, frictions or attitudes of various trio partners is one aspect of information that is often unofficial. Therefore, the research was completed by the collection of primary data from semi-structured interviews. These were conducted with the representatives and officials from state departments in individual member states who participated in the preparation of the Presidency of the Council of the EU. A total of 17 interviews (see the List of interviewees) were conducted between August and December 2020. The questionnaire covered the following topics, e.g. (1) the functioning of the coordination among the actors involved in the preparation of the programme of the trio presidency, both at national and European level, (2) the main national priorities and negotiating positions of individual trio partners, (3) the identification of common areas by trio partners while preparing the trio's joint presidency programme, and (4) good and bad practices vis a vis the trio cooperation. When conducting the semi-structured interviews, the questions in the questionnaire were only a guide. The interviewer had considerable room to conduct the interviews according to the reactions of respondents. The semi-structured interviews were held mainly online, primarily through MS Teams, and lasted 30 - 60 minutes.

The research was based on qualitative content data analysis, where the information obtained from individual interviews complemented the information obtained from the desktop research. A more detailed categorisation of the data resulted in assigning labels to words or phrases that represented important (and recurring) themes in each response of the interviewees or in the text of each official document. An open coding, i.e. inductive coding, method was used in order to obtain a more complete, unbiased look at the themes throughout the data. Hence, the

codes and categories were further adjusted and included the political context of each presidency, the external conditions of the trio, the identified priority areas of individual trio partners and of the trio as a whole, the level of cooperation between the trio partners, their attitudes towards trio cooperation (linked to the trio programme, but also in other areas), the involvement of EU institutions, and bad and good practices. A hierarchical coding frame was implemented in order to support a larger code frame. After the creation of the categorisation scheme, the obtained data were interpreted, the data fragments were compared, sorted and interconnected in partial findings, thus identifying broader contexts.

4. Trio Presidencies in the Period 2016-2021

Based on the data collected from the semi-structured interviews, the official trio programmes and programmes of individual member states the article examines four consecutive trio presidencies including Netherlands-Slovakia-Malta (2016-2017), Estonia-Bulgaria-Austria (2017-2018), Romania-Finland-Croatia (2019-2020) and Germany-Slovenia-Portugal (2020-2021). It studies the internal dynamics of trio partners and the value added of the trio presidencies for conduct of individual presidencies from the perspective of the member states.

4.1 Netherlands-Slovakia-Malta (2016-2017)

The first trio presidency studied in the article contained two countries which held the presidency for the first time, and the Netherlands, which was an experienced country but had to deal with national elections. Moreover, the trio struggled with events beyond its control. The EU was deeply divided on migration, populism was on the rise across Europe and the UK electorate voted to leave the EU (Social Network, 2016). Beyond Europe's shores, the trio presidency coincided with the inauguration of the Trump Administration in Washington, with Trans-Atlantic relations set to deteriorate rapidly (King, 2016).

While all the countries in this trio were considered small on the EU scale, significant differences prevailed, especially with regard to their experience in European affairs. From the very beginning, voices stressed that the EU may end up relying on the Dutch to provide continuing support to the two succeeding presidencies (Times of Malta, 2014). At first, the trio partners received an overall positive evaluation, vis a vis their innovative approach to the common programme: it was shortened from a detailed hundred-page document to mere 20 pages outlining general priorities, which were easier to follow and designed not to become outdated (Council of the EU, 2016). However, the consistency of the priorities set by the trio was questioned, as national preferences and priorities often prevailed over common goals (Council of the EU, 2016; Cabinet d'Avocats, 2017; EU NL2016; SK EU2016). One such example was Slovakia's stance on migration and the resettlement of refugees (SK EU2016). Therefore, the Dutch government was eager to wrap up some of the important legislation on migration before handing over the Council chair to Slovakia (EU NL2016). Migration was also a sensitive issue for Malta (Hartwood et al., 2018).

The lack of consistency in priorities between the countries was also confirmed by the interviewees (9 and 10). The added value was mainly perceived in cooperation at the administrative level, especially in the preparation period. 'It is good to talk to them so you see you are not alone in it. We shared the experience and documents. We had an open relationship. Once the presidency starts you are very busy. So, although you meet them, you focus on your tasks' (interviewee 9). Interviewee 10 stressed that the key was to discuss the responsibilities inside the trio, especially for smaller countries whose capacity and often experience was rather limited in certain areas. According to interviewee 9, the distribution of tasks depended on the interest of each country. He also pointed out that the programme itself was not considered important, but the trio needed to tighten links with EU actors, especially with the European

Parliament, where the partners had a series of meetings with key MEPs to show them that they had a coordinated approach.

4.2 Estonia-Bulgaria-Austria (2017-2018)

Due to Brexit, the composition of the trio presidency of Estonia, Bulgaria and Austria was accidental. Initially it was the UK rather than Estonia, and the idea was to have one big country and two smaller and rather inexperienced countries. When Austria agreed to prepare the presidency, it had the same position as the Netherlands in the previous trio. It was deeply involved in the presidency of Estonia and it participated in many meetings before the presidency even started (interviewee 15).

Similarly to the previous trio, the countries stressed different agendas (General Secretariat of the Council, 2017; EU2017.EE; EU2018BG; EU2018.AT). Unsurprisingly, Estonia, which had engaged in an unprecedented embrace of technology to transform its economy and government, was focused on the Digital Single Market (EU2017.EE; Gotev, 2017). Bulgaria, on the other hand, stressed the unity and solidarity among the member states. The country focused on compromises in areas such as migration (EU2018BG; Gotev, 2016), unlike the Visegrad Four (Poland, Hungary, the Czech Republic and Slovakia), and agreed to take part in the relocation of migrants from Greece. As the poorest country in the EU, Bulgaria attached great importance to preserving EU cohesion policy (EU2018BG; National Statistical Institute 2017). Finally, Austrian representatives repeatedly used the key words ‘citizens’ and ‘security’ to describe their country’s presidency goals (EU2018.AT; Gotev, 2017). However, in this trio it seemed that while the priorities differed, their positions on the core matters, such as migration, were not as remote as in the case of the first trio (General Secretariat of the Council, 2017; Gotev, 2017). Nevertheless, some interviewees described the role of the trio as irrelevant and the programme negotiations as ‘pro forma meetings’ (e.g. interviewee 1). The others highlighted its positive impact (e.g. interviewees 4 and 15). According to interviewee 4, it was viewed as a possibility to complement each other and to contribute to the trio with their own ideas. ‘Everybody brought their priorities, not necessarily opposed to each other, but rather complementary. Everybody could bring in their own priorities as long as they did not go in completely opposite directions, and there were several negotiations rounds in the capitals and the countries reached agreement’ (interviewee 4).

While cooperation on the programme was rather smooth, the difficulties, according to interviewees 1, 4 and 15, lay in the negotiations with the European External Action Services (EEAS). “They (the EEAS) already had their programme fixed and they let us know that this was what Ms. Mogherini wanted, but the trio partners also had certain elements which they wanted or did not want to highlight. The negotiations were complicated, it was difficult to reach agreement and we did not expect these difficulties at the beginning, but they developed during the discussions” (interviewees 1 and 4).

4.3 Romania-Finland-Croatia (2019-2020)

The third trio consisted of Romania, Finland and Croatia. Their four priorities in the trio programme included a greater focus on common EU values: freedom, security and justice, a sustainable growth and forward-looking climate policies, as well as an economically strengthened EU in the global arena (General Secretariat of the Council, 2019; Kirali, 2020). Nevertheless, their performance as presiding countries was severely affected by continuous Brexit negotiations and European elections held in May 2019 (Statistische Bundesamt, 2020). As a consequence of the transition period in EU bodies after the elections, the Finnish presidency presented fewer legislative proposals than usual (EU2019.FI). Whilst Romania focused on cohesion as a common European value, bringing the East closer to the West,

Finland chose to emphasise the rule of law as the foundational element of European democracies, the Green Deal and the Negotiating Box with figures as part of the elaboration of the next MFF (Romania2019.eu; EU2019.FI; Kirali, 2020). Croatia took over the rotating presidency of the Council of the EU on January 2020 with the motto ‘A strong Europe in a world of challenges’ and indeed it had to face the challenge of the COVID-19 pandemic turning the programme into crisis management, and personal meetings into virtual ones (EU2020.HR; Kirali, 2020).

The trio met at the State Secretary level to launch the process. The actual draft of the programme was prepared by the General Secretariat of the Council (GSC) (with the EC and EEAS involved), on the basis of inputs by the trio members (General Secretariat of the Council, 2019). Drafting sessions were held mainly in Brussels between the Antici and Mertens groups, but in political matters political representatives from the capitals were also involved. As in the case of previous trios, the cooperation strengthened mainly before the actual presidencies took place and intensified at the administrative level (interviewee 8). Romania joined the discussions later, while the cooperation with Croatia was more intensive, as they were keener to meet and to learn the processes as newcomers. All three states shared mainly the best and worst practices (Interviewee 14). However, the trio lacked strong leadership, as Finnish involvement was less ambitious compared to Austria or the Netherlands (EU2019.FI). The leading role was taken by the GSC, which not only finalised the trio programme but also supported Croatia significantly when the COVID-19 pandemic changed the format of the meetings at the European level.

4.4 Germany-Slovenia-Portugal (2020-2021)

Contrary to the third trio, the fourth one, composed of Germany, Portugal and Slovenia, liaised closely together and continued where they left off in 2008. When preparations began for the successive EU presidencies there was a consensus that the EU’s relations with the UK and the European response to climate change should be at the top of the agenda during these 18 months (General Secretariat of the Council, 2020; EUchems, 2021). Numerous meetings in the trio format took place in Berlin, Lisbon and Ljubljana between representatives of German, Portuguese and Slovenian ministries to define the common agenda for Europe (Maček, 2021). However, with the COVID-19 pandemic, Europe’s economic and social recovery shifted to the top of the agenda (General Secretariat of the Council, 2020; EUmonitor, 2020). Interviewee 16 also stressed that the pandemic changed the dynamic of the cooperation: ‘From March 2020, it was necessary to adapt the trio and national programmes and to start renegotiating them.

In terms of size, geographical location in Europe and history, the three countries were very different. There were also question marks around the Slovenian political leaders, especially right-wing populist Prime Minister Janez Janša. The eighteen-month programme of Germany, Portugal and Slovenia was presented and adopted at a meeting of the General Affairs Council in June 2020, but this time the draft was put together by the trio partners themselves (Barigazzi and Bayer, 2021; Pató, 2021). The trio’s key tasks included addressing the impacts of the coronavirus pandemic, restoring the normal functioning of European societies and the recovery of economies. Measures were envisaged to foster sustainable and inclusive growth, and the taking into account of the green transition and digital transformation were close to all trio partners (General Secretariat of the Council, 2020; 2021Portugal.eu; SI2021.EU; EU2020.DE; Pató, 2021).

The nature of cooperation was also confirmed by the interviews (e.g. interviewee 2). ‘It went well, compromises were acceptable. To successfully complete the negotiation on the trio programme, it was suggested that only the issues which were needed should be discussed further, not the priorities which were wanted’ (Interviewee 2). According to interviewee 16,

Germany became leader in the negotiations and initiated cooperation with the political declaration on general priorities. The cooperation was mainly at the administrative and logistic level. For one year, the partners met regularly at various levels. Meetings were often held among directors of EU affairs in capitals, also foreign ministers and other ministers met on several occasions. They identified key points based on the 2019-2024 strategic agenda and discussed them at different levels. Approximately 100 meetings were held, some also with the GSC (interviewee 2).

Interviewee 17 also added that the GSC was surprised to receive the joint draft from the trio, usually individual drafts from trio partners were sent. It allowed the partners to skip agendas they were not interested in. 'The GSC recommended that the text should be neutral from the perspective of the 27 member states in order to be approved' (interviewee 17). Based on the draft, the GSC proposed the first version of the programme, which was not only a plan for the trio, but it also included the activities of the EEAS. Similar to the interviews with countries in previous trio presidencies, this was identified as one of the most challenging tasks because the agenda of the EEAS was already drafted (interviewee 17).

4.5 Analysis of the Trios and Discussion

While the article by van Gruisen (2019) stresses the positive impacts of the trio on decision-making within the Council of the EU, the analysis of the four consecutive trio presidencies in the period 2016–2021 shows certain limitations. The value added for the conduct of individual presidencies from the perspective of member states has remained low. The interviewees saw little potential in the cooperation among three member states, some of them even described it as a waste of time, especially when they referred to the common programme. The joint document is often too general and inflexible when it comes to unforeseen changes and events that occur during the presidency. These conclusions confirm findings of other authors (Udovič and Svetličič, 2012; Vieira and Lange 2012, Batory and Puetter, 2013; Grumbinaitė, 2018). Moreover, the analysis shows that the programme preparation may be further complicated due to the involvement of EU actors, namely the GSC and the EEAS, which has its own agenda. The argument that it responds to the lack of continuity as one Council presidency moves to another (suggested by van Gruisen, 2019 or Raik, 2015), seems unsatisfactory. The trio presidency may be considered as one of the factors that reduces the ability of the presiding countries to take new initiatives. Nevertheless, in the post-Lisbon era there are also other instruments. The overall agenda is set by the president of the European Council (European Council, 2019), in agreement with the government leaders, and by the strategic agenda of the European Commission (European Commission, 2019). All the priorities in the individual programmes of presiding member states need to be in line with the given framework. Hence, for some national representatives, the trio programme seems more an unnecessary exercise than a document with a real impact and purpose.

Criticism linked to the existence of the trio presidency has extended to other areas as well. As Vieira and Lange (2012) or Jensen and Nedergaard (2014) suggested the cooperation between the first and the last members of the trio is usually weaker due to the different timing of the presidencies of both countries. The interviews stressed the same, the countries preferred working closer with partners who directly precede or follow them. Moreover, new member states in particular emphasised that having experienced trio partners is appreciated but learning from other first-time presidencies outside the trio is more beneficial (Grumbinaitė, 2018). The interviews mentioned on several occasions that the countries conducted meetings, workshops, seminars or other forms of consultations with non-trio countries in order to acquire best practices (e.g. with regard to the pandemic situation).

Some authors as well as interviewees also pointed out that the diverse composition of the trios complicated cooperation or lesson-drawing from trio partners of different size or geopolitical background (Udovič and Svetličič, 2012; Batory and Puetter, 2013; Grumbinaitė, 2018, interviewee 2). The others, however, mentioned that various backgrounds of the countries enriched the diversity and the different priorities complemented well to the overall plan (e.g. interviewees 4, 15, 16, Jensen and Nedergaard 2014). These different views on cooperation and dynamics among trio partners depended on two main factors. First, the role of the leader was key for ensuring cooperation. This position was always assumed by an experienced and (or) larger country, be it the Netherlands, Austria, Finland or Germany. Not always, however, did the leader have these ambitions. Finland, for instance, headed for a low-cost presidency and its ambitions remained rather limited. Secondly, conflicting interests became an obstacle for closer cooperation among trio partners. The different stance on migration issues in the time of crisis management prevented the Netherlands from ensuring tighter support to the remaining trio partners and the trio group acted mainly at the individual level. Considering all these aspects, only the last trio, led by Germany, fulfilled expectations. This was mostly made possible because of the approach of Germany, which dominated the trio but remained constructive and willing to strengthen the cooperation among partners.

It was also mentioned that cooperation mainly took place before the presidencies, during the preparation phase, and more at the administrative and logistic level. Therefore, the trio presidency is seen in a rather positive light by diplomats in Brussels who are directly exposed to their counterparts and EU institutions. However, in the capitals, cooperation between trio partners is less active and often abandoned because of different administrative styles, procurement procedures, and the timing of presidency preparations (Grumbinaitė, 2018; mentioned by interviewees 15, 16 or Jensen and Nedergaard 2014). Also, small countries with lower administrative and expert capacities in certain areas particularly use the advantage to share the agenda with their trio partners (interviewee 4). This confirms the finding of Mazzucelli and Dragomaca (2009) who noticed the same phenomenon on the cooperation between the Czech Republic and Sweden in 2009.

5. Conclusion

The trio presidency was officially launched almost 15 years ago with the aim of providing smoother work of the Council. It was assumed that when the trio members engage in closer co-ordination with each other and with actors at the EU level, it would ensure more continuity in the running the Council's tasks. Nevertheless, the question related to the impact of the trio presidency on the way individual presidencies were conducted was rarely asked. Apart from Jensen and Nedergaard (2014), only individual case studies showed some of the limitations of the trio mechanisms (e.g. Mazzucelli and Dragomaca, 2009; Udovič and Svetličič, 2012; Vieira and Lange, 2012; Grumbinaitė, 2018). The study thus builds on existing research, but focuses on the period 2016-2021. It analyses the composition and internal dynamics within the trios and studies their effects, vis a vis the member states and their ability to conduct presidencies.

Overall, the desktop research and the interviews show that trio presidency does not live up to the expectations of improving cooperation between individual Council presidencies. It depends significantly on the dynamics between the trio partners and their willingness to cooperate. At the EU level, it may help to strengthen the agenda-setting capacity of EU institutions, namely the European Commission and the GSC, which are closely involved in the preparation of the common programme, but this capacity has also increased as a result of complex EU processes (including the guidelines given by the European Council and the strategic agenda prepared by the European Commission). The findings further reveal that the

trio adds little value to the conduct of individual presidencies from the perspective of member states. The current setting of the trio seems to provide benefits mainly to inexperienced states (whose number has decreased recently) and partly to small ones. Furthermore, these advantages could be easily replaced by various forms of informal cooperation (e.g. workshops, seminars or consultations) among the member states which often better suit the timing and actual needs of the countries preparing for the presidency and thus remain valuable in passing on good and bad practices.

There are several avenues for future research. For instance, the trio presidencies and behaviour of the member states in it may be further evaluated also using the quantitative analysis. The data such as the overall budget of individual presidencies, the level of personal representation used for presidency or the ability to pursue the agendas of individual member states may enable us to better understand the expectations and intentions of states in the trio and thus create a complex picture. The research may also focus more on the interactions between the trio partners and the EU institutions, especially assess the links with the EEAS and High Representative. These links were often identified as problematic and their further adjustment may smoothen the overall cooperation.

Acknowledgements

This paper was created using data from the project of the Technology Agency of the Czech Republic, Presidency of the Czech Republic in the Council of the EU in 2022. All the interviews were conducted by the team of researchers in this project, including the author of this paper.

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Annex: List of interviewees

1. Interviewee, Ministry of Foreign and European Affairs, Austria, 22.09.2020, online
2. Interviewee, Ministry of Foreign Affairs, Portugal, 13.10.2020, online
3. Interviewee, Ministry of Foreign Affairs, Slovakia, 16.10.2020, online
4. Interviewee, Ministry of Foreign and European Affairs, Austria, 16.10.2020, online
5. Interviewee, Ministry of Foreign Affairs, Slovakia, 22.10.2020, online
6. Interviewee, Ministry of Foreign Affairs, Slovakia, 23.10.2020, online
7. Interviewee, Ministry of Foreign Affairs, Malta, 16.10.2020, online
8. Interviewee, Office of the Government, Finland, 23.10.2020, online
9. Interviewee, Ministry of Foreign Affairs, Malta, 20.10.2020, online
10. Interviewee, Ministry of Foreign Affairs, Malta, 14.10.2020, online
11. Interviewee, Ministry of Foreign Affairs, Malta, 20.10.2020, online
12. Interviewee, Ministry of Foreign and European Affairs, Austria, 28.10.2020, online
13. Interviewee, Office of the Government, Finland, 3.11.2020, online
14. Interviewee, Office of the Government, Finland, 4.11.2020, online
15. Interviewee, Ministry of Foreign Affairs, Austria, 10.11.2020, online
16. Interviewee, Ministry of Foreign Affairs, Portugal, 16.11.2020, online
17. Interviewee, Ministry of Foreign Affairs, Portugal, 18.11.2020, online

Risks of Financial Services Consumers Related to Artificial Intelligence: Systematization and Management

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Abstract

The article is devoted to the issues of risk management of the negative impact of artificial intelligence (AI) on the rights and interests of financial services consumers. AI is one of the most interesting and promising innovations in the modern world. The use of AI may contribute to faster and cheaper transactions, increase the customization of goods and services, and develop new areas of human activity. At the same time, the proliferation of AI-based technologies carries additional risks. For example, an AI decision to enter into a contract with a consumer (credit, insurance, etc.) or to refuse to enter into such a contract may limit the consumer's access to certain financial services, and the consumer will have no grounds to appeal such a decision. The same applies to AI determination of prices of customized financial services, etc. The research aim is systematization of the risks of financial services consumers related to AI, and possible approaches to the management of these risks at the levels of individuals and society.

Keywords: artificial intelligence, financial services consumers, risk management, risks

JEL Classification: D14, D18, G20, G41, G53

1. Introduction

Artificial intelligence (AI) is one of the most interesting and promising innovations in the modern world. Despite the increased interest in AI by different stakeholders, there is no standard definition of what AI actually involves. Like human intelligence AI is difficult to define and measure. Many definitions refer to machines that behave like humans or are capable of actions that require intelligence (McCarthy, 2007). The oversimplification of the concept of intelligence that is needed in order to define, or even develop, AI is illustrated by the High Level Expert Group on Artificial Intelligence (HLEG) when focusing on rational AI and hence considering benchmark against an ideal performance (HLEG, 2019).

Despite the multiple facets of AI there are several commonalities that authors (Samoili, López Cobo, Gómez, De Prato, Martínez-Plumed, and Delipetrev, 2020) observe in the analysed definitions. These common aspects we may consider as the basic AI features:

1. Perception of the environment, including the understanding of the world complexity (HLEG, 2019; European AI Strategy, 2018; Artificial intelligence act, 2021).
2. Information processing: collecting and interpreting Big Data (HLEG, 2019; European AI Strategy, 2018).

3. Decision making (including adaptation, reaction to changes in the environment) with certain level of autonomy (HLEG, 2019; OECD, 2019; European AI Strategy, 2018).

4. Achievement of specific goals (HLEG 2019; OECD, 2019; European AI Strategy, 2018). This paper defines AI as the first EU-wide definition of AI like software (and possibly also hardware) systems designed by humans that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information, derived from this data and deciding the best action(s) to take to achieve the given goal (HLEG, 2019). As a scientific discipline, AI includes several approaches and techniques, such as machine learning (of which deep learning and reinforcement learning are specific examples), machine reasoning (which includes planning, scheduling, knowledge representation and reasoning, search, and optimization), and robotics (which includes control, perception, sensors and actuators, as well as the integration of all other techniques into cyber-physical systems) (Goodell, Kumar, Lim, Pattnaik, 2021).

AI is being rapidly adopted for a range financial service. It is important to begin considering the financial stability implications of such uses. Because uses of this technology in finance are in a rapidly evolving phase, and data on usage are largely unavailable, so developments in this area should be monitored closely.

1.1 Overview of Artificial Intelligence (AI) in Financial Services: Opportunities and Challenges

Forbes reports that already «70% of all financial services firms are using machine learning to predict cash flow events, fine-tune credit scores and detect fraud» (Forbes, 2020).

The use of AI can help speed up and reduce the cost of transactions, increase the customization of goods and services, and develop new areas of human activity.

Considering the use of AI in different sectors of the financial market, the following main areas can be distinguished:

- a. Lending (banks, microfinance organizations, credit bureaus) – credit scoring, which allows assessing the borrower reliability, and therefore, the conditions for concluding a loan agreement (amount, interest rate, term, collateral requirements, etc.) or refusal to conclusion of the contract; possibly also a decision on the restructuring of the loan and its conditions;
- b. Insurance – underwriting, during which the risks of a particular insurant are assessed and a decision is made on the conditions under which an insurance contract is concluded (insurance premium, deductible, other individual conditions), or on refusal to conclude a contract; analysis of the behavior of the insured during the contract period (for example, information from telematic devices about the driving style of a driver insured under hull insurance or compulsory auto liability insurance) with a subsequent increase or decrease in the tariff; analysis of the insured event circumstances and decision making about compensation payment or on the refusal to pay;
- c. Stock Market – trading robots for independent trading of clients, robo-advising, determination of portfolio strategies for mutual funds, trust asset management, investment life insurance;
- d. All sectors of Financial Market (Transaction and Payments Services, Lending, Insurance, Stock Market, etc.) – offering products and services, concluding contracts, providing advice, receiving complaints through robotic assistants,

e. All sectors of Financial Market (Transaction and Payments Services, Lending, Insurance, Stock Market, etc.) – fraud protection, by identifying a client when accessing financial services remotely and blocking suspicious transactions;

f. (in the future) Comprehensive Management of the Client's Wealth, including the income distribution for various financial and non-financial purposes, investment management, the purchase of credit, insurance, pension products, etc.

In all these areas, financial institutions benefit expected from AI are lower operating costs, faster insight from data, reduced manual tasks, improved decision-making, higher productivity, product quality/ customer experience, 24/7 accessibility (Milana, Ashta, 2021).

Financial services efficiency increasing could give consumers a number of benefits, such as lower fees and borrowing costs (if AI reduce the costs for various financial services), access to financial markets (robo-advice give access to wide range asset markets), different sources of funds available to small enterprises and consumers. Moreover, Big Data analytics allow financial companies to give their customers more «personalised» financial services. For example, AI might define the characteristics of each customer (investor and/or consumer) and allowing firms to design well-targeted products and services. At the same time, the use of consumers' data may entail issues of data privacy and information security. Nonetheless, since Big Data analytics could use customer' private information through public data, it's necessary to protect client's personal data, and provide the safe and efficient use of it for improving services quality (Velooso, Balch, Borrajo, Reddy, and Shah, 2021).

1.2 The Global AI Regulatory Landscape and EU Artificial Intelligence Act

Global momentum has gathered over the last 3 years for the development of principles for responsible and ethical AI. The OECD has adopted AI guidelines the G20 has human-centered AI principles, the EU has Ethics Guidelines for Trustworthy AI, and Singapore has Principles to Promote Fairness, Ethics, Accountability and Transparency (FEAT), and Personal Data Protection Commission (PDPC) framework for AI. The practical ramifications are illuminated by these guidelines with shared focus across four pillars: transparency, accountability, fairness and ethics. This enables financial services to evaluate AI and data-analytics-driven solutions and can provide a baseline to strengthen internal governance of AI applications and the use and management of data.

Efforts have also been made at the national level. In 2018, the French Autorité de contrôle prudentiel et de résolution (ACPR) established a taskforce bringing together professionals from the financial industry (business associations, banks, insurers, FinTechs) and public authorities to discuss current and potential uses of AI in the industry, the associated opportunities and risks, as well as the challenges faced by supervisors. The Russian Federation enacted a National Strategy for the development of AI in 2019, and a Concept for the development of regulation for AI technologies and robotics in 2020. In 2021, a Federal Law on Experimental Digital Innovation Regimes № 258-FZ came into force, empowering Bank of Russia to approve the launch of regulatory sandboxes, including for projects deploying AI solutions in finance (OECD, 2021).

In 2020, the European Commission issued a White Paper with policy and regulatory options for an AI ecosystem for excellence and trust. It gives some practical recommendations AI development and provides options for a future AI regulatory framework.

On 21 April 2021, the European Commission published a proposal for a regulation that aims to address the risks of AI and lay down harmonised rules on the use of AI across sectors of

activity, while also proposes the establishment of a European AI Board (Artificial intelligence act, 2021). While the proposal's overall scope is wide, the strongest requirements apply to the high-risk applications of AI, which includes assessment of creditworthiness. The obligations for such high-risk AI include requirements to use detailed and specific risk and quality management systems and subject the system to a conformity assessment; use high-quality data that is representative, free from errors and complete; keep records and logs and be transparent to users about the use and operation of the AI-driven applications.

The proposed enforcement measures foresee penalties of up to €30 million or 6% of global revenue (whichever is higher) for the most serious infringements related to the use of prohibited AI systems and the violation of the data governance provisions when using high-risk AI systems.

All other cases of non-compliance with the AI are subject to a penalty of up to €20 million or 4% of global revenue (whichever is higher). The mere supply of incorrect, incomplete or misleading information to competent authorities already carries a potential penalty payment of up to €10 million or 2% of global revenue.

Member state authorities will play a key role in the application and enforcement of the new AI regulatory regime. Newly designated national AI supervisory authorities will supervise the AI application, as well as carry out market surveillance activities. At the EU level, a new European Artificial Intelligence Board was established for support and guide the EC and national authorities in their related activities (Artificial intelligence act, 2021).

2. Management of Consumer Financial Services Risks Related to AI

Government offers special recommendations for data management in AI-based techniques such as data quality, adequacy of the dataset and safeguards that provide assurance about the robustness of the model. For example, most countries have established disclosure requirements regarding the use of AI techniques in the provision of financial services that may impact the customer well-being. Financial consumers need to be informed about the use of AI techniques, as well as potential interaction with an AI system instead of a human being, to be able to make conscious choices among competing financial products. Clear information around the AI system's capabilities and limitations should be included in such disclosure. Such requirements would help financial service providers to develop risk management system for minimization of such limitations influence.

To develop adequate management systems of consumer financial services risks related to AI at the level of financial service providers and consumers, it is important to highlight the main risk factors.

2.1 Factors of AI Risks in Finance

The spread of AI-based technologies also carries additional risks for both financial service providers and consumers. Risks can include anything that generates uncertainty related to an organization's (or customers) objectives or creates a deviation from the expected. This involves not only threats to the strength or viability of the organization (consumer), but also opportunities to be gained.

Systematization of numerous and different types of risks is the basis for creating an effective system for their further identification, analysis and description, in order to increase the effectiveness of risk management. Authors propose systematization of risks into peculiar groups by the nature of their occurrence and, accordingly, their possible management. Table 1

shows main AI risk areas and related risk events in financial services. The authors divided all analyzed AI risks in finance into Lending, Insurance, Stock Market, Client Wealth Management and All sectors of Financial Market ones. The findings are summarized primarily using the method of synthesis and scientific explanation.

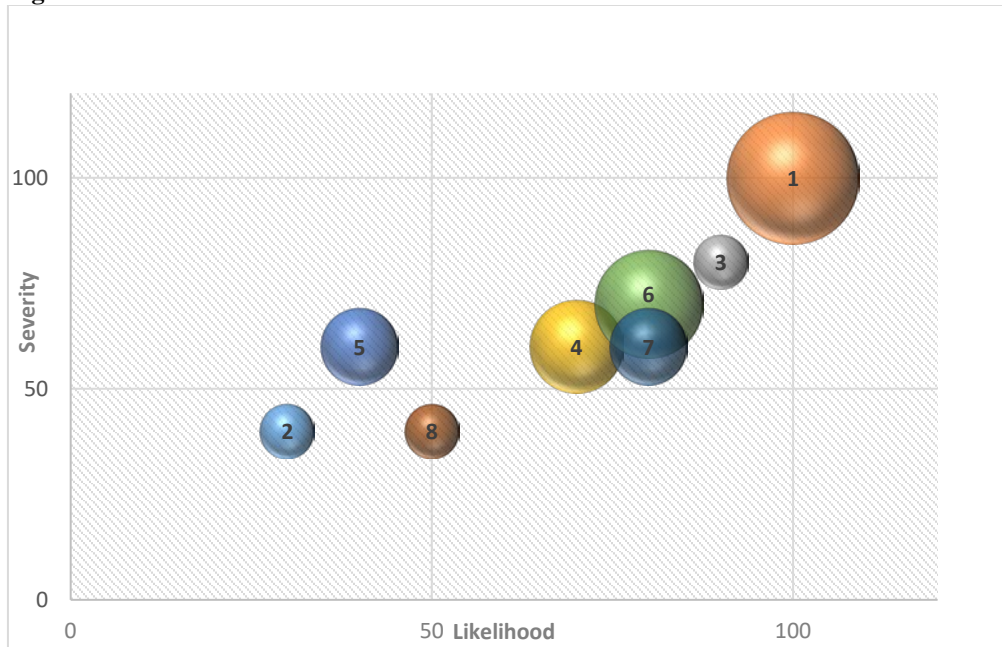
Table 1: AI Risks in Finance

Risk Area	Risk Events
Lending	<ul style="list-style-type: none"> • incorrect scoring, which leads to overestimation of the risks of the borrower, and, consequently, to unreasonably unfavourable conditions for concluding a credit contract (understated amount and / or overestimated interest rate and / or too short term and / or excessive requirements for collateral and etc.), unreasonable refusal to conclude a contract; unjustified refusal to restructure a credit (loan)
Insurance	<ul style="list-style-type: none"> • incorrect underwriting, which leads to an overestimation of the insured risks, and, consequently to unreasonably unfavorable conditions for concluding an insurance contract (overstated insurance premium, overstated deductible, other unfavorable individual conditions), or refusal to conclude an agreement; the risk of incorrect analysis of the policyholder's behavior during the period of the contract (for example, due to inaccurate information about the driver's driving style or their incorrect interpretation) with a subsequent unfair increase in the tariff; risk of unjustified refusal to pay insurance compensation
Stock Market	<ul style="list-style-type: none"> • unsuccessful trading and investment strategies leading to losses profits for clients; operational risks due to failures in the processing of customer orders by artificial intelligence; loss due to market manipulation by a «foreign» AI
Client Wealth Management	<ul style="list-style-type: none"> • non-optimal distribution of income, inefficient investment management, purchase of unsuitable credit, insurance, pension products
All sectors (Transactions and Payments Services, Lending, Insurance, Stock Market, etc.)	<ul style="list-style-type: none"> • offering unnecessary products and services, excessive communication time due to the robot not understanding the essence of the issues or the wishes of customers, making it difficult to file complaints through assistant robots • loss due to incorrect identification of another person (fraudster) as a client, risk of unjustified refusal to conduct a transaction due to erroneous identification of a client as another person; the risk of incorrectly determining the illegality of the client's actions, and subsequent blocking of client's transactions as suspicious • losing one's property (money, financial assets) as a result of a direct attack by fraudsters using AI on a client's accounts at a financial institution • losses (up to bankruptcy) of a financial institution providing financial services to a client due to malicious AI actions against this financial institution, including theft of money or other financial assets, an attack on the IT systems of a financial institution, etc.

Source: Own elaboration (2021)

The factors for the occurrence of these risks are presented in Figure 1, considering the likelihood of their occurrence and possible damage (severity).

Figure 1: Factors of AI Risks in Finance



1	Low-quality initial data
2	Incorrect interpretation of the results of the analysis by AI
3	AI is not properly tasked (accidentally)
4	AI is not properly tasked (intentionally)
5	Correction of objective results obtained due to social norms
6	Misrepresentation of AI decisions as a result of a cyber-fraud attack
7	Cyber fraudsters use their own AI
8	Collusion between different AIs (in the future).
<i>Size of bubble denotes the actual frequency and damage of occurrence of AI-risk factors</i>	

Source: Own elaboration (2021)

All of these risks are not unique to AI, but they have significant impact on the country’s economic development, the company’s financial stability and the welfare of financial consumers. According to the authors, the described AI risks have their main influence at the state and society, and, therefore, are referred to the macro-, micro- (at the financial organizations level) and individual (consumer) levels of influence.

For this reason, the authors propose to consider the process of managing identified risks at appropriate levels.

2.2 Consumer Self-protection of AI Risks in Finance

According to the authors, the use of AI can lead to such consequences for consumers of financial services as: reducing the affordability of products or services; unreasonable denial of service in the context of financial crime prevention; unlawful discrimination and unfair differential treatment; mismatch between products and customer needs.

The authors identify the following main consumer self-protection AI risks management methods:

At the pre-contract phase (selection of a financial service and its provider) – preventive measures (study of the financial services parameters and the conditions for their provision, including the use of AI technologies), diversification of financial services and their providers (service in several financial institutions), risk avoidance (financial and digital hygiene).

At the contractual phase (conclusion of a service agreement, purchase of a financial product) – compensation (insurance, «financial airbag» creation), localization (setting limits, financial and digital hygiene).

At the post-contractual phase (after the provision of services) – legal support and judicial protection of the financial services consumers rights.

2.3 Risk Management of Consumer Financial Services Related to AI: Provider's Contribution

Under the digital age financial services providers need to take into account ethical considerations into AI development to avoid reputation and financial risks. And they show that they responsibly introducing AI applications.

However, given the indicated high probability of risk events and the significant damage to the assets of both clients and the organization, financial service providers use a wide range of management methods for AI technologies risks. As a rule, risk management methods are built into the overall risk management system of financial institutions.

The authors believe that traditional risk management methods such as restriction, insurance, standardization, reserve funds, diversification, risk transfer, limiting can be used to manage risks associated with AI.

3. AI in Financial Services: Guidance for Policy Makers

While governments figure out the most effective ways to enact legislation around AI, researchers and experts agree that to let the AI landscape truly thrive, «soft law» should also be considered a viable complement to government regulations.

Gary Marchant (Marchant, 2021) describes «soft law» as «program that sets substantive expectations but is not directly enforceable by government». Main soft law examples are professional guidelines, private standards, codes of conduct, best practices, voluntary programs, principles, public-private partnerships and certification programs.

Marchant (Marchant, 2019) argues that a soft law approach would be particularly suitable for AI because the field is advancing much too fast for any traditional legislative system to keep up. In the year that it would take for a government body to pass new legislation, it's entirely possible that the financial landscape will have shifted.

The second reason why soft law is appropriate for AI is its diverse scope and rapidly changing situation. It does not make sense to have many different regulators, with clearly defined powers and procedures, but unable to effectively cover a phenomenon as complex as AI. It is far better to use soft law, developed with companies, civil society groups, academic experts and governments, balancing the promotion of innovation with appropriate ethical frameworks and principles in their interaction.

Soft law can be an important complement to «hard» law. The ongoing monitoring and validation of AI models, which are fundamental for their risk, should be further promoted by regulators, as the most effective way to improve model resilience and prevent and address model drifts.

Assessing AI applications for risks, including adherence to any relevant protocols regarding data privacy, conduct risks, and cybersecurity, is important at this stage. On the supervisory side, auditing of AI models may require skills and expertise that supervisory institutions may not currently have. According to the authors, government supervision can be successfully supplemented by specialized (in accordance with the risk area) supranational and national organizations. Such practice exists but is still fragmentary.

The European Securities and Markets Authority (ESMA) has issued guidance for investment companies. It includes additional security measures for investment companies that use robo-advisers for retail investors in the EU. ESMA controls security systems such companies in place to ensure that suitability assessment tools that perform tasks such as risk-profiling are fit for purpose and provide satisfactory results. Moreover, ESMA recommends that firms regularly test algorithms that underpin the suitability of the transactions they recommend. It also recommends that firms have policies in place for managing changes to the algorithms.

Similarly, the Basel Committee on Banking Supervision (BCBS) controls that the financial organization internal policies should be consistent with not only meets the goals of the users but is also consistent with the risk appetite and company' behavioural expectations. Financial companies should be able to demonstrate theoretical aspects of construction AI technologies and security system behavioural characteristics and key assumptions like as types and use of input data, numerical analysis routines and specified mathematical calculations. It is important to disclosure code writing language and protocols for replications AI-models. Finally, all financial organisations should establish checks and balances at each stage of the development process (Kuiper, van den Berg, van der Burgt, and Leijnen, 2022).

Several international standards-setters have considered risks associated with algorithmic trading, as it has become a pervasive feature of markets that may, among other things, amplify systemic risk. The International Organization of Securities Commissions (IOSCO) reported on the impact of new technologies including algorithmic trading on market surveillance, and made recommendations to consider, including for data collection and cross-border cooperation. The Senior Supervisors' Group (SSG), a forum for senior representatives of supervisory authorities from around the world, issued principles for supervisors to consider when assessing practices and key controls over algorithmic trading activities at banks.

Where financial institutions rely on third-party providers of AI and machine learning services for critical functions, and rules on outsourcing may not be in place or not be understood, these servicers and providers may not be subject to supervision and oversight. Similarly, if providers of such tools begin providing financial services to institutional or retail clients, this could entail financial activities taking place outside of the regulatory perimeter (Lee, 2020).

Thus, government regulation should continue to provide clear mechanisms for accountability for the AI systems development and their use control.

4. Conclusion

Nowadays the issues of risk management of the negative impact of AI on the rights and interests of financial services consumers have become highly important. Taking this into account the authors proposed systematization of the risks of financial services consumers

related to AI, and possible approaches to the management of these risks at the levels of individuals and society.

The authors are aware of the limitations of the proposed measures. In particular, the cost (financial and time) of reviewing AI decisions and explaining to clients and regulators how AI decisions were made is likely to be disproportionately high. Licensing or other prior forms of control will slow down innovation in financial services. Proving that an AI is «guilt» in decision making that caused loss to the client or violation of his rights can be difficult.

However, it is necessary to regulate AI through dialogue and compromise to develop public confidence in AI, which should ultimately improve the effectiveness of its use in all areas. The objective of this paper was not to analyse the effectiveness of management of risks of financial services related to AI, but to show importance of identified risks managing process at the macro-, micro- (at the financial organizations level) and individual (consumer) levels. In the future, research should focus on the process of managing identified risks at appropriate levels accordance AI risk area in finance.

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The Issue of Re-Emigration Regarding Slovak Healthcare Professionals from Abroad

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Abstract

In the world economy, it can be observed a shortage of health professionals, mainly caused by migration. Both developed and developing countries are struggling to cope with the challenges caused by the imbalance between the growing demand for health professionals and their limited numbers. The aim of this paper is to identify the economic loss and impacts caused by the migration of Slovak doctors and nurses in the context of determining the possibilities of their re-emigration and the effects resulting from it, especially during the global pandemic outbreak issue. The basic research method was a questionnaire survey conducted within the framework of the APVV project, from which questions related to return migration were analysed. To address the healthcare workers' re-emigration issue, it is necessary to build the investment capacity of healthcare systems in the country of origin, promote best practices and prevent the negative impacts of migration of healthcare workers, especially doctors and nurses, based on the implementation of support and incentive measures of return migration tools by the government. Low numbers of qualified healthcare professionals within the EU are inducing their outflow from Slovakia and other new EU Member States to the old ones.

Keywords: *Doctors, Nurses, European Labour Migration, EU and Slovak Healthcare Sector, Post Pandemic Outbreak Issue*

JEL Classification: *F22, I11, J62*

1. Introduction

The concept of migration has been with mankind since time immemorial. The arrival and departure of foreigners is a part of people's everyday life. In case of labour migrants, it is mainly about improving their financial situation, which their home country cannot provide sufficiently. Talking about the migration of health professionals such as nurses and doctors, this is a crucial phenomenon in current circumstances. These workers are considered a highly skilled workforce that is significantly lacking in Slovak labour market. The emigration of nurses and doctors is causing major problems in the economy, the health sector and in the quality of healthcare provision for patients. This fact raises several questions, such as: what impact the emigration of doctors and nurses is to have on healthcare sector in home country and EU member states especially during current post pandemic outbreak era; is the situation contributing to a deterioration in the health of population in a home country; is the situation resulting in a shortage of healthcare professionals; what the implications and consequences for the country's public policy and its society are, and so on. The novelty and innovative nature of the paper is to fill in the gap highlighting the benefits for the home country being offered by the re-emigrated healthcare professionals with their equipped new skills and expertise.

2. Theoretical Background

Migration can be defined from different perspectives, being generally defined as any change of residence within or between national borders, as the physical movement of a person or an entire group from one country to another, or from one political area to another (Vojtovič, 2013). The International Organization for Migration defines the term migration as the movement of persons or groups of persons across geographical and social space with a temporary or permanent change of residence. There are different types of migration. Internal migration when people move from one place to another within the country. External migration, people move to a new country or continent. Temporary migration includes migration, which is annual, seasonal or daily. For example, people may move to lower regions from mountains during harsh winter months. In addition, there are two basic types of migration such as emigration when a person leaves his or her own country and moves to another; the person who emigrates is known as an emigrant from his or her own country. Immigration when a person arrives in a new country after leaving his or her own country (IOM, 2022). The United Nations defines the term migrant as a person who, for whatever reasons, has changed his or her country of permanent or habitual residence and has moved from his or her home country to another country for a period of at least three months (Ivanová, Grmanová, 2021). As stated by Krajnkova and Vojtovic (2020) according to the length of stay, two groups of migrants are distinguished. A short-term migrant is a person who moves to a country other than his/her country of permanent (habitual) residence for a period of at least three months but less than one year. A long-term migrant is a person who moves to a country other than his/her country of permanent (habitual) residence for a period of at least one year; except where the person's move to another country is for a holiday, to visit friends or relatives, for business, for medical treatment or healthcare service, or for a religious pilgrimage.

When identifying and evaluating migration, two basic theoretical backgrounds need to be mentioned. According to Tupá (2016), neoclassical economics theory explains the movement of people on fundamental market principles in terms of demand, supply and equilibrium which population movements are related to. When there is an inequality in income levels in two locations, migrants move from the lower income location to the higher income location, thereby restoring the equilibrium state. According to this theory, just as labour flows from point A to point B, where it is scarce compared to point A, so capital flows from point B to point A, where it is scarce compared to point B. Thus, labour and capital create two opposing flows. Jašková and Haviernikova (2020) separate the macro-level labour markets from the micro-level motivations of individual migrants, who, according to this approach, make decisions that maximize their gains and minimize their losses. The prospect of higher income motivates them to migrate. At the same time, higher human capital, such as education, language skills and others, increase income opportunities and hence the potential for migration. Because the amount of human capital - and the cost-benefit ratio of migration - varies between residents of the same territory, the rate of migration also varies between individuals. Humphries et al. (2013) argue that in contrast, the new economics of labour migration (NELM) primarily considers the household and family, not the individual, as the basic unit of analysis. NELM ceases to think of the individual as a rational actor who considers only the share of gains and losses, and therefore migration is not determined solely by the difference in valuation or the amount of unemployment between two locations. The diversification of risk, in particular relative deprivation, which is a measure of scarcity in relation to the immediate surroundings, has to be highlighted. Thus, two persons A and B with the same material and human capital endowments may have very different migration behaviour, for example,

because person A is significantly richer relative to his/her surroundings and person B is significantly poorer in relation to his/her surroundings.

One of the most significant theoretical approaches to migration is the 'push' and 'pull' model, which examines negative and positive factors. According to Barger (2016), pull factors, i.e., factors that attract foreign workers to migrate, consist mainly of good economic situation, high labour price or labour demand. In recent years, the demographic factor (aging of domestic population) has been added to these factors. However, the development and increased availability of transport for people and information technology should not be forgotten. In order to attract foreign labour, governments should seek to attract in particular the labour force working abroad, since economic reasons are the most common reason for leaving the country. As stated by Gódnány et al. (2021), higher wages are among the biggest motivators for labour migrants. However, in terms of re-emigration, there may also be other factors that influence a migrant's decision on why to return to the home country. These are most often family ties. However, it should not be forgotten that even if a migrant returns to his/her home country, he/she cannot remain without economic security. Therefore, he or she must be employed to keep his or her standard of living. Of course, governments must also have a certain interest in returning the migrants from abroad. In current circumstances, there can be seen a shortage of healthcare workers - doctors, nurses, but also other healthcare workers who work abroad where foreign countries offer them higher wages and the opportunity to hold a higher living status (Hawthorne, 2001).

Tupá (2020) argues that re-emigration is based on the concept of return migration, defined as the movement of a migrant from a country of destination or transit back to the country of previous transit or origin, whether voluntary or forced. The return of migrants to their country of origin is referred to as a re-emigration; the equivalent is re-emigrant. Voluntary return refers to the independent or assisted return of a migrant based on his/her free will. Forced return refers to the involuntary removal of a migrant to a country of origin or transit as a result of an administrative or judicial order, but in which basic human rights and dignity must be respected. Returns based on the voluntary and informed decision of migrants are generally preferable to forced returns, being more humane, more discreet, less stressful, and generally less administratively demanding for those leaving the country, while the financial costs associated with them are significantly lower (Bilic, Krogmann, 2015).

3. Problem Formulation and Methodology

A questionnaire focused on emigrating Slovak healthcare professionals, with questions dealing with the reasons for their leaving to work abroad, is to be used to figure out what would motivate these doctors and nurses to come back to Slovakia and what are their requirements to take part in re-emigration process. Following the results found in the survey, an objective assessment of the state of Slovak healthcare sector would be presented. In addition, by means of the analytical comparison of available relevant literature and studies with the obtained results the issue of economic and return migration is to be discussed.

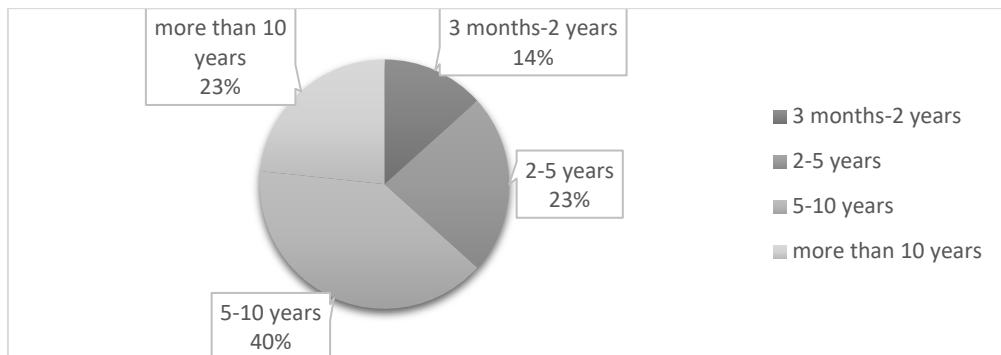
The goal of this paper is to identify the economic loss and impacts caused by the migration of Slovak doctors and nurses in the context of determining the possibilities of their re-emigration and the effects resulting from it, especially during the global pandemic outbreak issue. The basic research method was a questionnaire survey conducted within the framework of the APVV project output, from which questions related to return migration were analysed. In terms of the Slovak Research and Development Agency project dealing with the issue of impact on the migration of physicians and nurses to work abroad, within the pilot survey conducted during October and November 2021 based on cooperation with the Slovak Nurses

Association and the Medical Chamber, 50 nurses and doctors working abroad were anonymously contacted by means of electronic survio.com questionnaire survey based on specific selection, and 30 returned fully completed questionnaires were assessed. The results section evaluates the results of the data obtained from the questionnaire survey and the responses obtained from the respondents consisting of Slovak healthcare professionals, i.e., nurses and doctors working abroad. The questions of the questionnaire survey were directed to the area of finding out their reasons for emigrating abroad as well as their motivating factors for returning to Slovakia. The results of this pilot survey will be interpreted and analysed by means of graphs.

4. Problem Solution

Within the questionnaire survey analysing process, it was found out that up to 40% of respondents have been working abroad for 5-10 years, 23% of respondents have been working abroad for more than 10 years, and 23% have been working abroad for 2-5 years. Within two years 14% of respondents are working abroad. As shown in Figure 1, it can be concluded that Slovakia has been suffering from a shortage of medical staff for a long time. Talking about the time horizon of 5-10 years and also over 10 years, these are very long-time horizons, which cause that qualified healthcare workforce is leaving Slovak labour market, where there is a "kind of hole" being difficult to be filled in. Additionally, healthcare professionals working abroad contribute to the social system in the country where they emigrate.

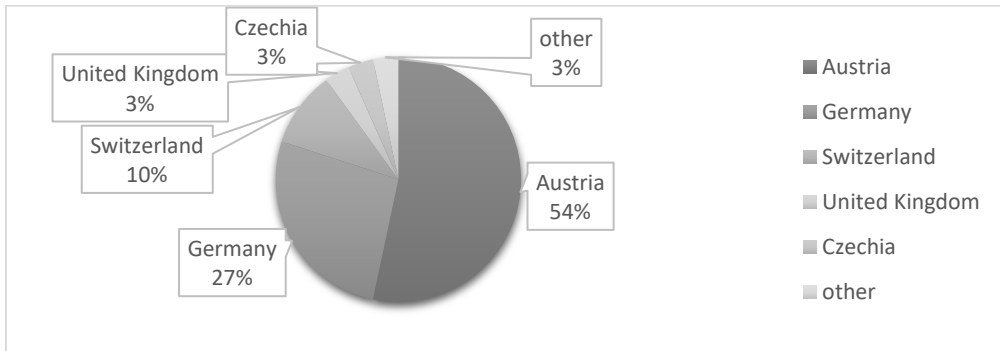
Figure 1: Duration of Work Abroad



Source: Own elaboration (2022)

Figure 2 focuses on the destination countries where healthcare professionals from Slovakia are heading to work. Up to 54% of respondents are working in Austria. It can be assumed that Austria is close enough for them and they can commute much more regularly to see family back home than for example from Germany with the share of 27%, Switzerland 10% or the UK 1%, where the situation regarding Brexit is very unpredictable. Austria also provides nurses and doctors with sufficient financial remuneration or other benefits.

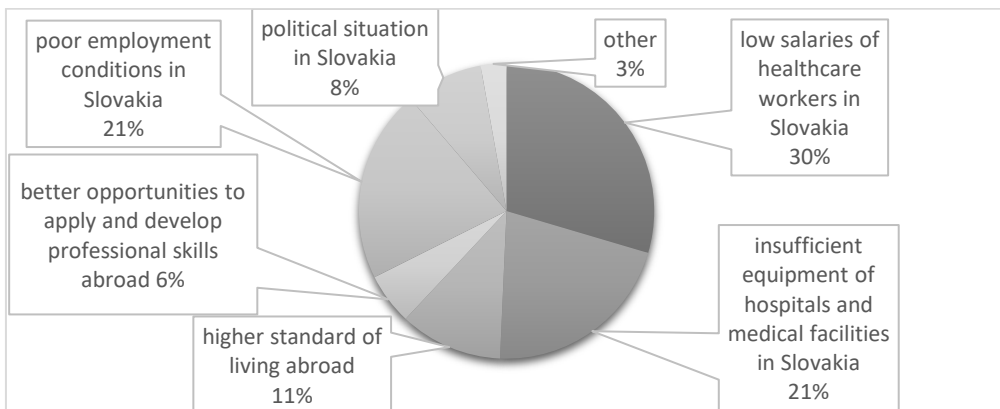
Figure 2: Country of Employment



Source: Own elaboration (2022)

For the problem illustrated in Figure 3, where respondents were given the option to select more than one answer, out of 30 responses, 21 respondents stated that low salaries in Slovakia were the reason for their departure. Also among the most frequent answers were poor employment conditions in Slovakia and inadequate equipment in hospitals and health facilities. People also leave Slovakia because of the higher standard of living they seek outside the country. Among other reasons, only two respondents gave their subjective reasons. To begin with, the minimum personnel standards have not been met. The respondent alludes to the disproportion of medical staff in caring for patients, nurses are in an insufficient number and patients are too many. Because of this, there is a lot of stress tension in the workplace, fatigue and strain on the nurses physically, and nurses have to take too much overtime shifts. Another respondent stated that 2008 - 2011 she had a fixed term contract. In 2011, the transformation of hospitals into incorporated companies started in Slovakia. Her contract was not renewed and as a single mother was forced to find a job abroad to support her child and herself.

Figure 3: Reasons for Going Abroad to Work

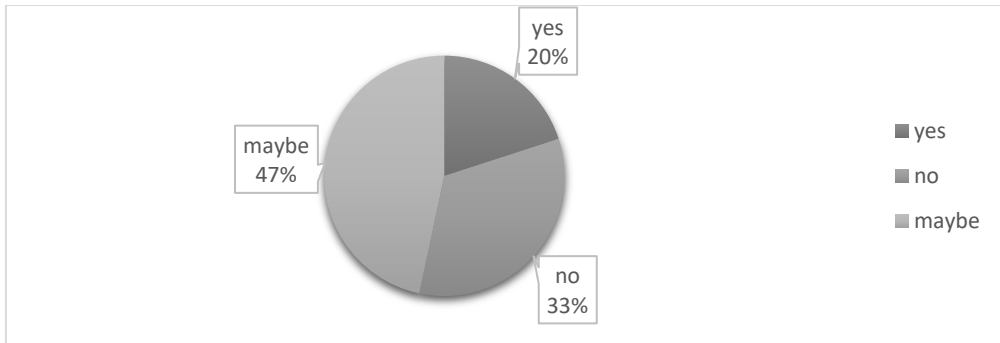


Source: Own elaboration (2022)

The question about the intention to return to Slovakia is largely uncertain for nurses and doctors abroad as illustrated in Figure 4. Up to 47% of respondents indicated the option "maybe"; 33% of them said that they do not want to return to Slovakia and only 20% of them said that they would like to return to work in their home country in the future. These figures

are basically unfavourable for Slovak labour market, as Slovakia has been suffering from a long-term shortage of nurses and doctors.

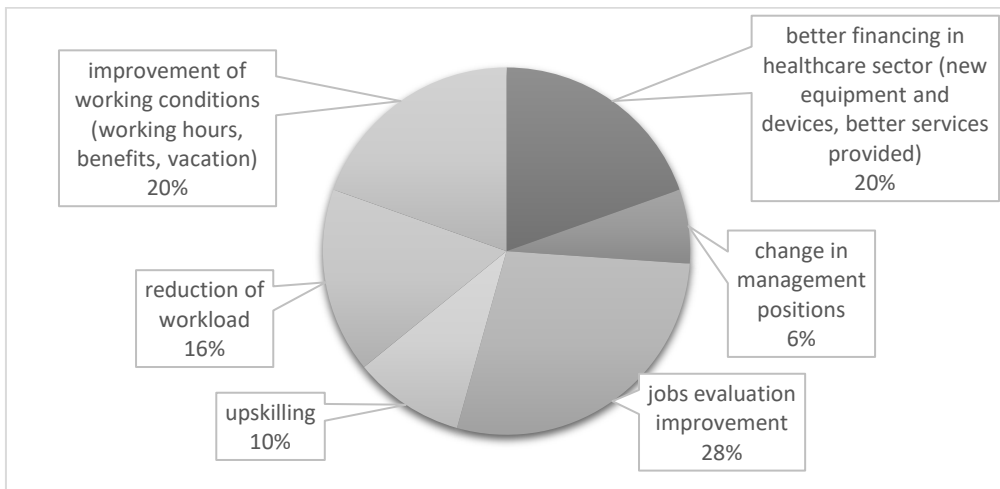
Figure 4: Plans to Return and Work in Slovakia in the Future



Source: Own elaboration (2022)

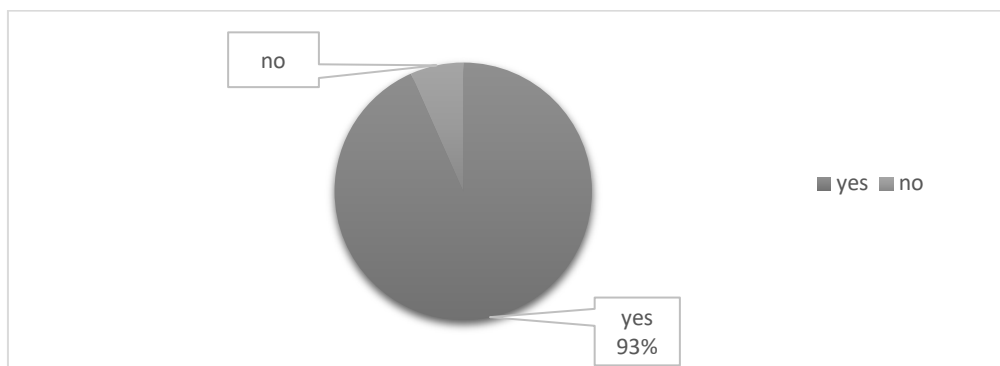
In terms of motivating factors for the return of medical staff to Slovakia (multiple choice), the most frequent was the issue of financial remuneration of nurses and doctors, i.e., up to 26 respondents, the second aspect was better funding of health sector and improved working conditions, and the third factor was the possibility of reducing the workload of nurses and doctors, which is documented in Figure 5.

Figure 5: Motivational Elements for Returning to Work in Slovakia



Source: Own elaboration (2022)

At last, within the questionnaire the last analysed issue was whether Slovak healthcare professionals would be willing to return to Slovakia if suitable conditions are created for them to work in healthcare sector, claiming that the output of 93% healthcare staff would be willing to come back as shown in Figure 6.

Figure 6: Assumption and Willingness to Re-emigrate

Source: Own elaboration (2022)

5. Discussion

The questionnaire developed for the pilot survey was answered by 30 respondents, namely nurses and doctors who cross borders to work abroad. Most of the respondents travel to work in Austria being geographically close to Slovak border and very attractive for labour migrants in terms of salary conditions and social system. Not only nurses, caregivers, laboratory technicians, doctors, but also workers from other sectors travel across borders to work in Austria. Low salaries appear to be the most common reason for nurses and doctors to find a job abroad. In Slovakia, the average gross monthly salary for nurses ranges from €802 to €1350, for doctors from €1039 to €3496 (Profesia, 2022). With these figures, it can be concluded that the work for Slovak nurses and doctors is significantly underrated. As they are highly skilled workers who have at least a first degree of higher education to be able to practice their profession, nurses are insufficiently financially motivated to stay working in Slovakia. Another significant problem in Slovakia is the inadequate equipment in public hospitals and healthcare facilities, speaking, for example, of inadequate technical equipment in patient rooms, shared toilets for patients, as well as unacceptable conditions in hospitals for the work performance of nurses, doctors and other healthcare professionals. Here it can be included issues such as poor employment conditions, like nurses working too many overtime hours due to the lack of nurses in various departments in terms of the patient care since nurses' performance depends on this aspect. The working environment is also important for optimum job performance and providing good work performance. Before nurses and doctors went for a work abroad, they had the opportunity to work in Slovak hospitals and based on their empirical experience, they decided to take a different path of practicing their profession. When asked about coming back to work in Slovakia, most of the respondents were hesitant. Many workers might be influenced, for example, by the fear of an income reduction in relation to the foreign salary or other benefits provided by the employer abroad. To improve the financial evaluation of nurses was the most frequent answer related to the question of what would most motivate nurses to return from abroad. Another option identified was to improve the employment conditions (relating to working hours, pay in emergency shifts, etc.). The same number of respondents also answered the option regarding better financing in the healthcare sector, highlighting the outdated technical equipment in hospitals, which could for example be supported by government with more funding for the purchase of new equipment.

Based on the previous results assessment, it can be concluded that the issue of emigration of healthcare professionals from Slovakia appears to be a very serious issue that has a long-term character. According to the Slovak Ministry of Labour and Social Affairs (2022), the forecast until 2025 predicts that the healthcare and social assistance sectors will experience acute labour shortages to the greatest extent. The additional need in this sector will be at 27% of the current workforce. In relative terms, this means that around one in four people working in healthcare sector will need to be supplemented by an additional person by 2025. This implies that there is no likelihood of improvement in healthcare sector even by 2025. Likely, this situation is to be reflected in intensifying social inequalities as well (Stanickova, 2018). Nemeč et al. (2021) argue that in current Slovak healthcare system there has long been an ongoing shortage issue of doctors, and especially nurses. With each passing year, the age of doctors and nurses is increasing, and the young workforce is leaving abroad. This can be observed in the example of graduates from medical and healthcare schools. Thus, young doctors and nurses, having completed their education in Slovakia, stay here to work only for a certain period of time after their studies are completed, and then they are about to leave; in the worst case, immediately after graduation, they apply for a work abroad in search of a better job opportunity and better salary.

Generally speaking, the migration of healthcare workers from low and middle-income countries to wealthy countries is a widespread and long-lasting phenomenon that harms healthcare systems in countries of origin, being one of the most significant human resources that make up a healthcare system. According to Szabo et al. (2020) especially doctors as highly skilled health professionals, are subject to many qualitative and quantitative regulatory measures to ensure the quality, equity, and sustainability of healthcare delivery. By and large, as a consequence of the free movement of healthcare workers, international migration of doctors and nurses has become a more or less explicit means of adapting human resources in healthcare. At the international level, a widening gap between the supply and demand for healthcare and a shortage of healthcare workers in world regions can be observed.

6. Conclusion

Based on the analysed and discussed findings it can be summarized that the shortage of healthcare professionals in Slovak hospitals and healthcare facilities is a noticeable issue within the European context, especially in current circumstances during the global pandemic outbreak issue. Doctors and nurses are overloaded, and this is equally reflected in the quality of healthcare provision. We have arrived at the conclusion that reasons the Slovak healthcare professionals are looking for work abroad especially in EU member states are mainly aspects such as the poor equipment in hospitals, dissatisfaction with healthcare policy in Slovakia, better opportunities for professional training abroad, corruption in Slovak health sector and low salaries in Slovakia. That is why Slovak government should adopt particular measures on return migration to bring back highly skilled labour being equipped by expertise from advanced EU member states, as human capital to be implemented in home country especially for the post-pandemic outbreak era needs to fix the emerging consequences. The focus areas should be for instance the improving and raising the country's standard of living and creating pull factors for returnees so that Slovakia becomes the kind of country from which people would not want to leave to work abroad. Further research will be devoted to exploring the issues such as the healthcare spending on the healthcare workforce composition; the demand on health care labour in Slovak Republic and EU countries; a statistical analysis to explain the reasons behind the trends presented on the Slovak healthcare system labour force.

Acknowledgements

This paper was supported by the Slovak Ministry of Education's grant agency - Slovak Research and Development Agency: „Personnel management processes set-up in hospitals and their impact on the migration of physicians and nurses to work abroad“. Project registration number: [Reg. No.: APVV-19-0579].

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The EU Imports from Sub-Saharan African Countries: How Have Been Changed Their Main Patterns since the Year 2000?

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Abstract

The EU countries are considered the most important trading partners for many countries gathered in the Organisation of African, Caribbean and Pacific States (further referred to as ACP). The Cotonou Agreement, introduced in 2000, was launched with the aim, inter alia, to help ACP countries to integrate into the world economy. The Agreement expired in 2021. One of the Agreement's three pillars was focused on ACP-EU trade cooperation. In general, intensified foreign trade is recognized as an engine stimulating inclusive and economic growth and development. Therefore, in relation to the Cotonou Agreement, the EU tried to sign the Economic Partnership Agreements with the ACP countries that should have opened free and reciprocal ACP-EU trade relations. However, it is obvious that Agreements are not seen ambiguously positive by the ACP countries. Paper investigates the most fundamental patterns of EU imports from sub-Saharan African countries (recognized among ACP) between years 2000 and 2020, when the main attention is given to the volumes and commodity structure of these imports. Standard methodology is applied to observe and analyze import flows. Data are taken from the statistical database of Eurostat.

Keywords: *Cotonou Agreement, EPAs, European Union, Trade, Trade Diversification, sub-Saharan Africa*

JEL Classification: *F02, F13, F14*

1. Introduction

The European Union is a traditional and important trading partner for many developing countries, mainly for those gathered in the Organisation of African, Caribbean and Pacific States (further referred to as ACP). Origins of the formalized cooperation between EU and ACP are dated back to the 1960s, and since the 1960s, mutual relations have been based on several conventions and agreements. The main emphasis has been laid on trade relations as well as development cooperation because in general, it is claimed that deeper integration of developing countries into the world economy can boost their inclusive and sustainable growth and development. Since 2000, trade relations have been based on the *Cotonou Agreement* that opened the gate for the *Economic Partnership Agreements* (further referred to as EPAs) that were expected to introduce a new trade mechanism for the EU and ACP countries.

In sub-Saharan Africa, the European Union recognizes 5 EPAs regions. The EU aims to open with them the reciprocal free trade areas, respecting differences in levels of development, that could be beneficial especially for countries with high export potential, which could access the EU market without any restrictions. Despite many declared positives, it seems that sub-Saharan African countries (further referred to as SSA countries) are not willing to ratify or

implement the EPAs. The main reason is that many SSA countries have already received benefits from the free access to the EU markets under some preferential trade arrangements of the EU, especially under the *Generalised System of Preferences* and particularly under the initiative *Everything But Arms*, introduced by the EU for the group of the least developed countries. However, EPAs introduce topics concerning sustainable development as well, inter alia, they emphasise the importance of economic diversification for stable and sustainable economic growth and development in SSA countries.

Paper focuses on trade flows from SSA countries to the EU, and the attention is given to the level of its diversification (resp. concentration). As the export diversification is considered a precondition for higher economic growth, developing countries should diversify their exports and boost thus their structural transformation (Hesse, 2008). The main aim of the paper is to investigate the most fundamental patterns of EU imports from sub-Saharan African countries between years 2000 and 2020, when the main attention is given to the volumes and commodity structures of these imports. Paper is structured as follows: (1) Current architecture of trade arrangements between SSA countries and the EU is described. (2) The most serious obstacles for the ratification and implementation of EPAs are introduced. (3) Applied methods are explained. (4) Results and findings are presented and commented.

2. Trade relations between SSA countries and the European Union

The economic theory generally considers trade as an engine for economic growth and development, in modern terminology for inclusive and sustainable development. Positive outcomes of trade on development are based on assumptions or arguments concerning specialization, productivity, and economies of scale (Stender et al., 2020; Persson and Wilhelmsson, 2013). The EU accepts these general assumptions and assumes that foreign trade and reforms of trade policies would promote development in developing countries (Bilal et al., 2020).

2.1 Current Architecture of the SSA-EU Trade Relations

Formalization and institutionalization of the trade relations between the European Union, its Members States and the members of Organisation of African, Caribbean and Pacific countries date back to the *Treaty of Roma* that established the European Economic Community (EEC). Part IV of the *Treaty of Roma* opened an avenue for cooperation with the Overseas Countries and Territories – essentially West and Central African countries. In 1963 and 1969 group of 18 African countries and six members of the EEC signed the first and second *Yaoundé Conventions* focused on financial, technical and trade cooperation. In 1973 the first enlargement of EEC brought new challenges in trade arrangements because of the United Kingdom's entrance to the EEC. Therefore, a new form of agreement, the *Lomé Convention I*, was signed in 1975. The Convention formalized relations between group of 46 developing countries and nine EEC countries. In the same year, the Organisation of African, Caribbean and Pacific States was established to represent the interests of its members. The *Lomé Convention I* was followed by next three Lomé Conventions. The period, during which the trade relations between the European Community, its member states and ACP countries were based on Lomé conventions, was finished with the revised *Lomé Convention IV* at the beginning of a new millennium.

Despite the main objectives of Lomé Conventions dealing with non-reciprocal trade preferences and aid measures, outcomes of the Conventions cannot be assessed ambiguously as positive. Pessimists argue with limited or even no contributions to development, and optimists argue with positives revealed particularly in exported-oriented industries in some ACP countries (Campling, 2015). However, the Lomé Conventions particularly failed to break

the long-standing asymmetry between EU and ACP as trading partners, with the failures occurring on the sides of both partners (Kotsopoulos and Mattheis 2018), because conventions reflected to much the post-independence and paternalistic relationships between EU and ACP countries (Price and Nunn, 2016). The mechanisms of trade cooperation did not even contribute significantly to the promotion of ACP economies, and thus they did not contribute to the required structural transformation connected with shift of ACP countries' exports from natural-resources-based commodities to the commodities with higher value added (Bilal et al., 2020).

As the non-reciprocal trade preferences established with the Lomé Conventions did not comply with the main principles of the World Trade Organizations (WTO), established in 1995, the new mechanism for the trade relations between EU and ACP countries was introduced with the *ACP-EU Partnership Agreement*, known as the *Cotonou Agreement*. The *Cotonou Agreement* was signed by the EU and its Member States on one side, and 78 ACP countries on the second side in 2000. Since 2000, the Agreement has represented the most comprehensive partnership between the European Union and developing countries. It has specified three main pillars of the cooperation – trade, development, and political dialogue (Forysiński and Emmanuel, 2020). The Agreement has brought some innovations for the ACP-EU trade relations, particularly the Agreement opened the reciprocal trade relations, which have been compatible with the WTO rules.

The *Cotonou Agreement* laid the basis for the *Economic Partnership Agreements* (EPAs), which main objectives must be seen in trade and development, similarly to previous agreements (Stender et al., 2020). EPAs have been proposed as agreements opening reciprocal but still asymmetric trade arrangement (European Commission, 2022; Price and Nunn, 2016), considering the existence of free trade areas between the EU and seven ACP regions as the final form of their mutual trade relations. The negotiations of EPAs started in 2002 and should have been in place by 2008 because the EU expected that the negotiations of EPAs would be concluded by 2008.

In sub-Saharan Africa, the EU recognizes five EPAs regions (see Table 1). However, EPAs are still not implemented in vast majority of the sub-Saharan African countries because of many reasons. So far, five *Economic Partnership Agreements* are being applied with 14 SSA countries (European Commission, 2022). Therefore, many SSA countries still export to the EU under the conditions defined with other trade arrangements introduced by the EU, or so-called interim EPAs are applied.

Table 1: Sub-Saharan African EPA Regions

West Africa (WA)	Benin, Burkina Faso, Cabo Verde, Gambia, Ghana, Guinea, Guinea Bissau, Ivory Coast, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo
Central Africa (CA)	Cameroon, Central African Republic, Congo, Gabon, Equatorial Guinea, Democratic Republic of Congo, Sao Tome and Principe, Chad
Eastern and Southern Africa (ESA)	Comoros, Djibouti, Eritrea, Ethiopia, Madagascar, Malawi, Mauritius, Seychelles, Sudan, Zambia, Zimbabwe
East African Community (EAC)	Kenya, Uganda, Tanzania, Burundi, Rwanda, South Sudan
Southern African Development Community (SADC)	Botswana, Lesotho, Mozambique, Namibia, South Africa, Eswatini, (Angola)

Note: Angola has an option to join the agreement in future.

Source: European Commission (2022)

The *Cotonou Agreement* was ratified for the period of 20 years, and thus it was to expire in February 2020, but its provision was extended until November 2021. In September 2018, the official negotiations of the post-Cotonou arrangement were launched. The EU expected that they would be officially closed in 2021. However, it seems that next generation of the ACP-EU trade relations will be based on several mechanisms rather than on one general agreement covering all ACP countries, including those in sub-Saharan Africa.

Although the EU took from the early beginnings of the *Cotonou Agreement* the position that there was no other alternative to EPAs (Bilal et al., 2020), nowadays EPAs represent the only one pillar of the architecture of EU trade relations with SSA countries. As only 14 SSA countries implement the EPAs, rest of SSA countries benefit from other preferential unilateral trade schemes that the EU arranged to grant the free or preferential market access to importers coming from SSA countries to the EU market (Forysiński and Emmauel, 2020). The most favourable conditions are offered to the group of least developed countries (LDCs), recognized by the United Nations Conference on Trade and Development. LDCs are granted the duty-free and quota-free access under the *Everything But Arms* (EBA) scheme. Scheme of EBA was introduced in 2001 as a part of the EU *Generalised System of Preferences* (GSP). Totally, 34 African countries benefit from the EU's GSP or initiative EBA (European Commission, 2022). The EU introduced the first GSP already in 1971.

Separately from SSA countries, belonging to the ACP group, the EU has developed its trade relations with North African countries. Trade relations between the EU and North Africa have based on association agreements designed as parts of the *Barcelona Process* and the *Euro-Mediterranean Partnership* (Bilal et al., 2020; Persson and Wilhelmsson, 2013).

2.2 Main Obstacles for the EPAs Implementation and New Negotiations of the Post-Cotonou Agreement in Sub-Saharan Africa

Despite many special and differential treatments, which are embodied in EPAs, EPAs are considered controversial by political representatives of some SSA countries (Fasan, 2018). Particularly the expectations of the full implementation of EPAs are rather low than high on the side of SSA countries, and expectations are accompanied with many fears. The main arguments against EPAs consider the effects of EPAs on employment and output, when the negative effects are highlighted particularly for the infant industrial sectors (Grumiller et al., 2018). Therefore, EPAs are seen as a threat for the industrialization strategy in Africa (Chimanikire, 2019). As Stender et al. (2020) explain, exports of the ACP countries in general are expected to increase only slightly, if at all, in longer terms under the conditions of EPAs, while the EU exports to ACP countries are expected to increase immediately. Stender et al. (2020) or Grumiller et al. (2018) argue as well that EPAs are expected to decrease the tariff revenues of ACP countries. The same arguments can be used in the case of SSA countries recognized among ACP. Ratification and implementation of EPAs are not considered as an actual objective for many SSA countries, particularly for LDCs using the EBA scheme and having already granted the free access to the EU market. These countries do not feel the need (Bilal et al., 2020) or necessity (Price and Nunn, 2016) to conclude the negotiations of EPAs. Therefore, the tensions are based on division of SSA countries into the groups of LDCs and non-LDCs as well (Bilal et al., 2020; Grumiller et al., 2018).

However, constrains for the progress in EPAs and post-Cotonou negotiations have arisen from the political changes in Africa as well. Since the introduction of the *Cotonou Agreement* in 2000, the African Union has become the most important regional as well as strong global player with its own aspirations in trade and trade relations between Africa and the rest of the world economy. In March 2018, the Executive Council of the African Union adopted the decision about the common position for the negotiations of a new cooperation agreement with

the EU (African Union, 2018). During the first negotiations of the post-Cotonou agreement, the ACP and African Union took quite different positions regarding the future framework of ACP-EU trade relations (Hurt, 2020; Forsysiński and Emmauel, 2020). The African Union argues with the incompatibility of the ACP-EU partnership with the Joint Africa-EU Strategy, a political agreement signed in 2007 (Medinilla and Bussuyt, 2019). The Strategy was designed as a broader strategic partnership between Africa, represented by the African Union, and the EU.

Incompatibility between territorial definitions of regions recognized by the EU for the negotiations and implementations of EPAs and the existing regional economic communities (further referred to as RECs) in sub-Saharan Africa creates another important political and economic constraint or obstacle for the ratification of EPAs. As for example, the members of Southern African Development Community (SADC) are split in four different EPAs regions (Krapohl and Van Huuth, 2020). Therefore, critics of EPAs argue that EPAs might undermine or disrupt regional trade dynamics (Bilal et al., 2020; Ramdoo and Bilal, 2016), or EPAs are considered to pose a challenge for the African intra- and inter-RECs trade as well (UNECA, 2010), or it is argued that EPAs contribute to greater fragmentation of existing regional economic blocs in sub-Saharan Africa (Marinov, 2014).

3. Problem Formulation and Methodology

Economic theory regards foreign trade as an engine for economic growth. Deeper integration into the global economy is a key way how to reduce poverty and reach sustained growth in developing countries, or a way how to protect their economies against the external shocks, or to cope successfully with such shocks (OECD/WTO, 2019). In general, the trade and investment policy agendas are considered a fundamental basis for economic diversification. Faster economic diversification is then essential for the reduction of macroeconomic volatility and effects of prices volatility, as well as for the solution of resource curse in developing countries (United Nations, 2021; Hove, 2018; Hodey and Senadza, 2015).

The European Union is recognized amongst the most traditional trading partners of SSA countries, and thus the importance their partnership on economic diversification in SSA countries is assumed (OECD/United Nations, 2011). The *Lomé Convention I* recognized explicitly the link between trade preferences, diversification of ACP economies and development (Persson and Wilhelmsson, 2013). The relationship between trade and diversification of ACP economies was mentioned 4 times in the text of *Lomé Convention I*, and even 14 times in *Lomé Convention IV* (OACPS, 2022a). The *Cotonou Agreement* speaks about its importance for the economic diversification in ACP countries as well (OACPS, 2022b). The EPAs are also designed to impact positively on the ability of SSA countries to increase their participation in the regional and global value chains, inter alia through the reallocations of labour force and capital between sectors (Woolfrey and Bilal, 2017). Although the positives of ACP-EU trade are not assessed ambiguously, it is obvious, that during the years, some SSA countries started to diversify their exports by shifting from primary commodities to manufactured goods as they have started to process the primary commodities before their exports from their raw form into semi-finished or even finished goods (Fonchamnyo and Akame, 2017).

The analysis, which results are presented below, examined the volumes and commodity structure of EU imports from SSA countries. The analysis covered the period starting with the introduction of the *Cotonou Agreement* (year 2000) and finished by the Agreement's final year (2020). The attention was given to imports of 48 sub-Saharan African countries, recognized among the ACP. Countries were divided into five proposed EPAs regions. To avoid the

distortion in the assessment of imports' volumes, the analysis was done for 28 EU Member States (EU-28), respecting the EU membership in 2019.

Dataset on imports was taken from Eurostat (2022), which reports data on imports to the EU member states for the period between January and December of each year. Data are reported in Euros. Dataset contained data on imports for 21 years structured according 10 main groups of items (respecting the SITC, 1-digit, rev. 3). Volumes of imports calculated for EU-28 were obtained as the sums of SSA countries' imports to the individual EU member states. Volumes of imports from a country i to the EU-28 in the year n (M_{in}) were calculated in absolute terms.

The commodity structure of EU imports from SSA was assessed with the use of *Herfindahl-Hirschman Index (HHI)*. As the relationship between the volume of imports and their commodity structure was considered as well, the *Pearson Correlation Coefficient (PCC)* was calculated, to show if any relationship between import diversification, resp. concentration considered as an opposite to diversification, measured with use of *HHI*, and the total volumes of imports (M) existed for sub-Saharan African countries. Formulas of *HHI* and *PCC* were defined as follows:

- Herfindahl-Hirschman Product Concentration Index (*HHI*) calculated for an importer i in a year n

$$HHI_{in} = \frac{\sum_{k=1}^{k=10} \left(\frac{m_k}{M}\right)^2 - \frac{1}{10}}{1 - \frac{1}{10}} \quad (1)$$

k – is a group of items (1...10)

m_k – means an import within a group k

M – means total imports of a country I to the EU-28

HHI is a measure that assesses the level of product concentration of imports from an importer i . Its values range from 0 to 1. A higher value of *HHI* indicated that imports of an importer i were concentrated in fewer groups of items.

- Pearson Correlation Coefficient (*PCC*) calculated for an importer i

$$PCC_i = \frac{\sum_{n=1}^N (x_n - \bar{x})(y_n - \bar{y})}{\sqrt{(\sum_{n=1}^N (x_n - \bar{x})^2)(\sum_{n=1}^N (y_n - \bar{y})^2)}} \quad (2)$$

N – means number of years (21); for $n = 1$ to 10

x_n – means M_i in the year n

\bar{x} – the mean value of M_i

y_n – means value of *HHI* of an importer i in a year n

\bar{y} – the mean value of *HHI* of an importer i

PCC is a measure that assesses the linear relationship/correlation between two sets of data. Its values range from -1 to 1 . Values close to 1 or -1 , indicated strong relationship between M_i and HHI_i across the period of 21 years, either positive or negative.

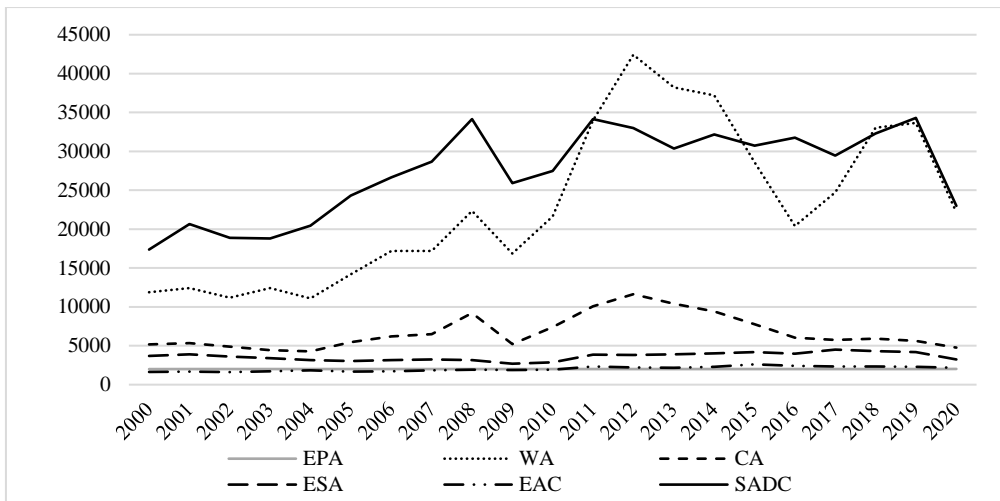
4. Problem Solution

The analysis, which results are presented below, investigated the fundamental patterns of the EU imports from SSA countries. The attention was paid to the volumes of these imports and their commodity structure, or product concentration measured with the use of *HHI*.

4.1 Total Volumes of Sub-Saharan Imports to the EU

Forty-eight SSA countries were divided into five regions covered by proposed EPAs to present the results of the analysis. SSA EPAs regions differed when the number of countries (see Table 1) as well as intensity of their trade relations with the European Union were considered (see Figure 1). The relatively high volumes of imports to the EU were identified particularly for two EPAs, these were West Africa (covering 16 SSA countries), and Southern African Development Community (with 6 SSA countries). Unlike West Africa and SADC, trade inflows from East African Community and Central Africa to the EU were relatively marginal as the trade potentials of countries gathered within these two EPAs regions were lower than the potential of big countries with strong economies belonging to WA and SADC.

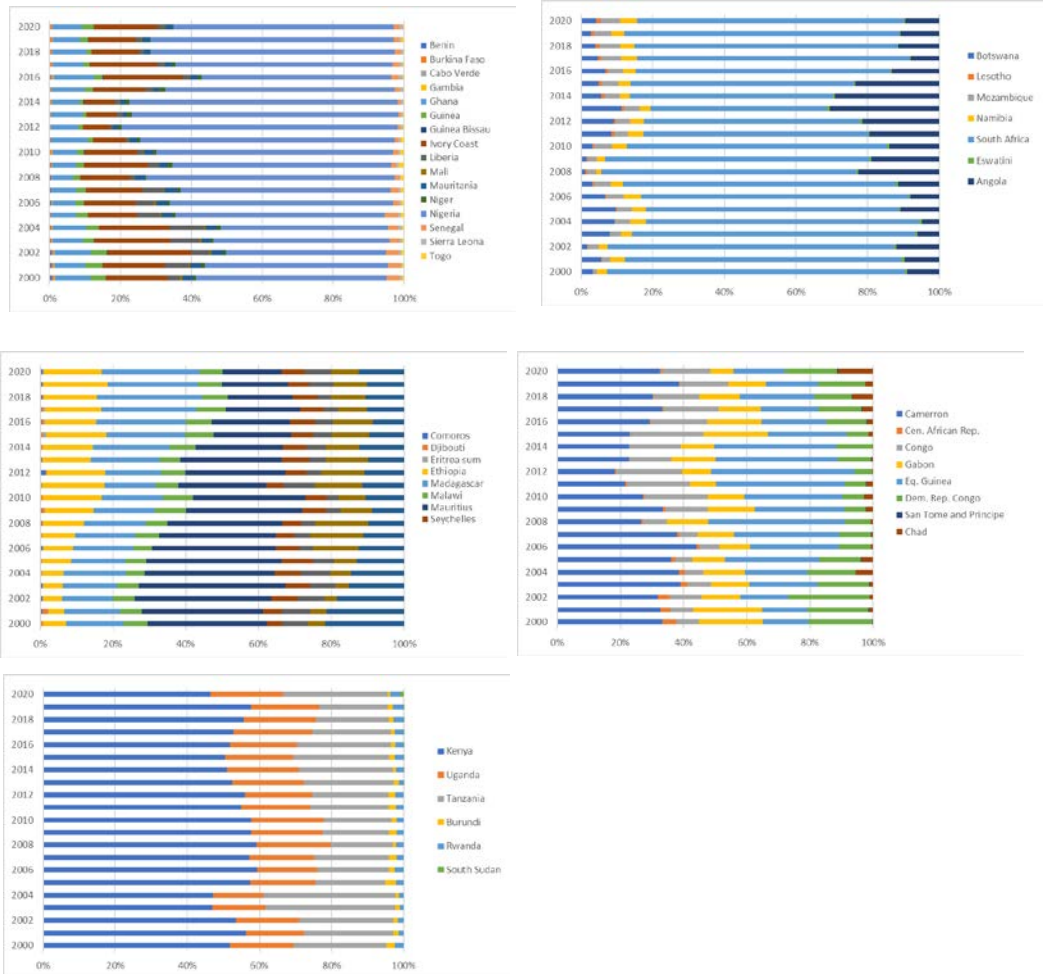
Figure 1: Total Volumes of Sub-Saharan African Imports to the European Union, 2000–2020 (in mil. Euros)



Source: Eurostat (2022), own elaboration

Shares of individual countries in total volumes of imports from EPAs regions differed. The volumes of West Africa's imports to the EU were significantly dependent on volumes of imports from Nigeria that generated on average 62,24% of all WA imports to the EU. The highest shares of Nigeria (accounted for more than 70 %) were reached particularly between years 2012 and 2014. As Nigeria belongs to traditional oil producing and exporting countries in Africa, these high shares in WA volumes of imports have to be assigned to high oil prices reached in those years. Similar dominant position belonged to South Africa in SADC. South Africa generated 71,39% of SADC imports to the EU. Strong position of one or two countries was visible in other EPA regions as well. These were Cameroon in CA; Madagascar and Mauritius in EAS and Kenya in EAC. Shares of individual SSA countries in total volumes of EU imports are presented in Figures 2.

Figure 2: Shares of Individual Countries on Imports of EPAs Regions



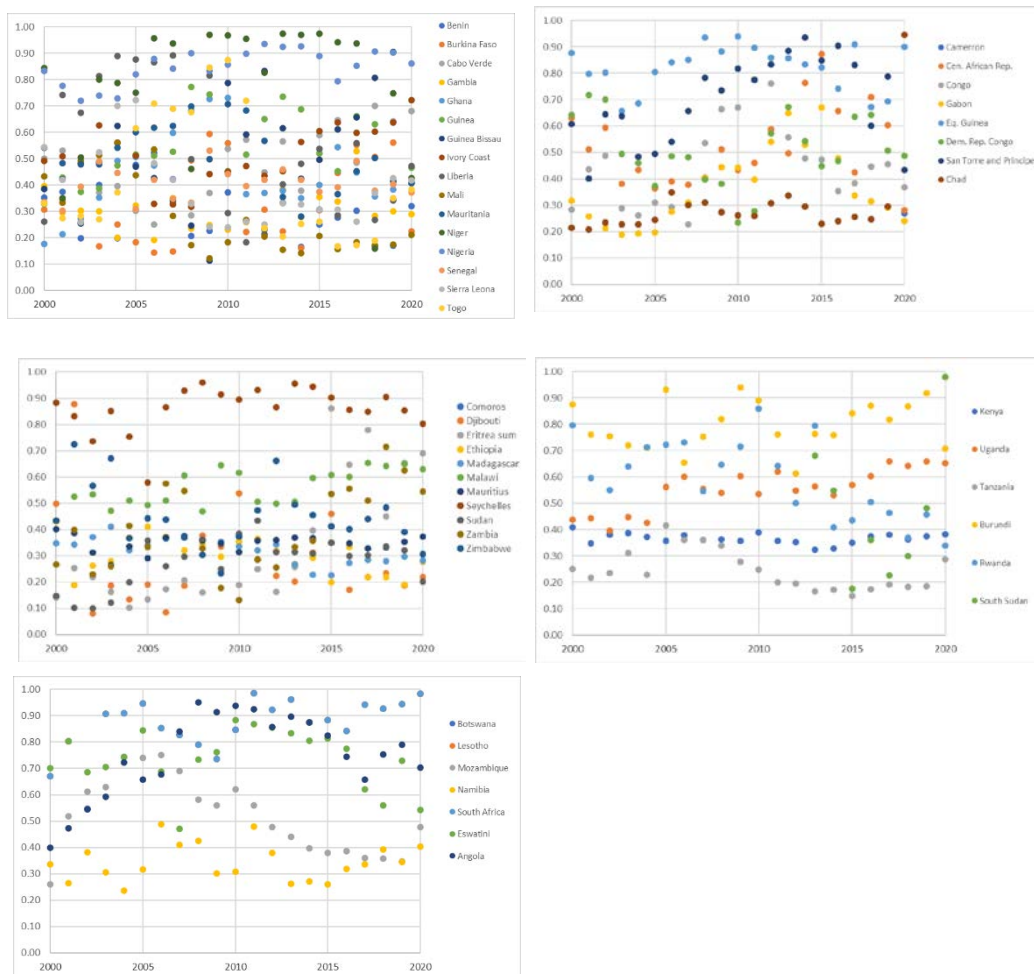
Source: Eurostat (2022), own data processing

4.2 Diversification of Sub-Saharan Imports to the EU

As it was explained above, economic diversification is in general considered a precondition for inclusive and sustainable patterns of economic growth and development in developing countries, especially in those countries dependent of production and thus export of a few primary commodities. Because of too narrow and insufficient production structure and global competitiveness forces, it is quite hard for these countries to diversify their exports despite existing mechanisms of ACP-EU trade relations. To show whether any progress in export diversification was made in SSA countries, the values of *HHI* were calculated. Its higher values signalled higher product concentration of SSA's imports to the EU-28.

Similarly to the total volumes of trade, levels of concentrations differed significantly across the sub-Saharan African countries. The highest values of *HHI* were found for Nigeria (WA), Equatorial Guinea (CA), Seychelles (ESA), Burundi and Rwanda (EAC); Botswana, Lesotho, South Africa, Eswatini (SADC). However, relatively high values were identified for the majority of SSA countries, which is visible from Figure 3.

Figure 3: Diversification of Sub-Saharan African Imports to the EU



Source: Eurostat (2022), own data processing

The *PCC* was calculated to show whether the increase or decrease in volumes of imports were accompanied with their concentration within ten recognized groups of items (respecting classification of SITC, 1-digit). Very strong and positive relationship was identified for many countries, especially those countries which reached quite high levels of product concentration and exporting commodities with volatile prices at global markets. Nigeria was a typical representative of these countries (with the highest value of *PCC* reaching the value of 0,87). Strong and negative relationship between imports' volumes and their concentration was identified only for some countries (especially Madagascar, Rwanda, Tanzania, Senegal). Values of *PCC* are presented in Appendix 1. Traffic light method was used to make the differences more visible.

5. Conclusion

The European Union is an important trading partner for many developing countries, particularly those gathered within the group of ACP countries, as the EU offers them various trade arrangements to export their merchandise goods to the EU market under the preferential

conditions. The most common mechanisms are the *Generalised Scheme of Preferences* and the initiative *Everything But Arms*. Since 2000, the EU has aimed to arrange reciprocal trade relations with the ACP countries within the framework of the *Economic Partnership Agreements*, which would lead to the opening of free trade areas between the EU and ACP countries. However, the process of Agreements' negotiations, ratifications and implementations has been slow and insufficient in some SSA countries. So far, only five EPAs are implanted with 14 sub-Saharan African countries, other 34 countries benefit from the GSP or EBA.

The EU has followed with the EPAs various objectives in the cooperation with ACP countries, priorities are assigned to trade and development. Special emphasis has been placed on promotion of economic diversification and structural transformation in partner countries which have too concentrated production structures and thus exports. Narrow production structure and thus low export diversification is in general considered to have negative effects on inclusive and sustainable economic growth and development. Despite declared positives of EPAs for SSA countries, assessments of EPAs' benefits are rather ambiguous, and EPAs are considered a constrain for industrialization in SSA, or a barrier for deepening of regional integration or intra-regional trade in SSA.

The analysis, which partial results were presented above, investigated the fundamental patterns of EU imports from sub-Saharan African countries. The special attention was given to the imports' commodity structure in terms of their product concentration. Results of the analysis confirmed that during the period covered with the *Cotonou Agreement* (2000–2020), no significant changes in imports' volumes and their levels concentration occurred. Similarly to Lashitew et al. (2021), Calderón et al. (2020) or Ross (2019), it was found that SSA resource-rich countries, particularly those having the oil reserves, tended to have more concentrated exports than the non-resource rich ones. However, the findings were limited with the applied approach to classification of imported items (analysis dealt with the SITC, 1-digit), used data set presenting trade flows between the EU and SSA in current values, and applied methods. Therefore, results and findings presented above had to be considered the initial step for the future and deeper analysis of the relationship between economic structure of SSA countries and their trade diversification from the perspective of their trade relations with the European Union.

Acknowledgements

This paper was created within the project *SGSSP2022/74*, solved at the Faculty of Economics, VSB-Technical University of Ostrava, Czech Republic.

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Appendix

Relationship Between Sub-Saharan African Imports Volumes and Their Levels of Concentration

Country	PCC	Country	PCC
Angola	0.73	Liberia	0.84
Benin	0.24	Madagascar	-0.73
Botswana	0.64	Malawi	0.60
Burkina Faso	0.69	Mali	0.76
Burundi	0.31	Mauritania	0.33
Cabo Verde	0.66	Mauritius	-0.22
Cameroon	0.85	Mozambique	-0.23
Cen. African Rep.	-0.06	Namibia	0.30
Comoros	0.52	Niger	0.60
Congo	0.77	Nigeria	0.87
Dem. Rep. Congo	0.73	Rwanda	-0.66
Djibouti	0.76	San Tome and Principe	-0.25
Eq. Guinea	0.43	Senegal	-0.47
Eritrea sum	0.63	Seychelles	-0.22
Eswatini	0.60	Sierra Leona	-0.34
Ethiopia	-0.42	South Africa	0.27
Gabon	0.81	South Sudan	0.78
Gambia	0.04	Sudan	-0.37
Ghana	-0.25	Tanzania	-0.57
Guinea	-0.34	Togo	0.65
Guinea Bissau	0.44	Chad	0.61
Ivory Coast	0.51	Uganda	0.76
Kenya	-0.38	Zambia	0.42
Lesotho	0.56	Zimbabwe	0.62

Source: Eurostat (2022), own data processing

The Relevance of Values for Consideration of Sustainable Management in the European Context

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Abstract

The conceptual study introduces the relevance of the ethical perspective of management. A particular focus is to understand the European value conditions relevant for sustainable management today. It initially starts from the historical development of modern time in Western and Eastern European countries relevant to the current challenges of the European Union. The paragraphs evaluate the philosophical approaches, social pillars and application of both in business and management schools in the context of European Union strategy. The author reveals the neglected philosophical conditions and social roots that negatively affect European companies and institutions. The last part of the study opens possible suggestions for sustainable thinking and practice. The study has a special meaning for management in post-communist countries influenced by Marxist teaching and its combinations with a market economy with the main consequences.

Keywords: values, ethics, philosophy, sociology, sustainability

JEL Classification: A12, A13, A14, A2

1. Introduction

In the current European debate, the topic of sustainable management has a primary role. The sustainability of the economy is related to the sustainability of social stability. In management circles and scientific studies we therefore talk about the special role of managers and leaders. Whenever we focus on management, we focus on specific personalities and human resources in general. Therefore, it is logical to talk about the complexity of values and ethical principles that managers use (Arthur, 1999).

Economic sustainability is linked to social and political stability. The value orientation of multinational corporations and small and medium-sized enterprises has long been supported by the strategic objectives of the European Union (EU). In this, the EU is pursuing a global effort that is supported primarily by the United Nations and the list of Sustainable Development Goals. In recent decades, however, environmental sustainability has naturally been added to the economic strategy, responding to climate change, natural resource limits and various environmental pollutions. However, in some CEE countries, the whole-euro strategy has been relativized (PL, HU, CZ, SK) Historical and value bases are still different among CEE countries and we will show how these differences influence the current development. We will therefore open the question of a common value base, which is necessary for a possible constructive conversation, cohesion and synergy of the European community.

2. Problem Formulation and Methodology

The conceptual study focuses on the key ethical factories that play a role in the EU's current stabilization efforts and its sustainability strategy. The background is the document of EU: Towards a sustainable Europe by 2030 (EU, 2019). According to the Eurobarometer report 2018 the 61% of Europeans see the European Union as a place of stability in a troubled world and the optimism about the future of the EU is growing (ibid, p. 7).

The study opens up the underlying philosophical and societal influences that are relevant for management ethics and sustainability management in European countries. The UN SDGs and the so-called Agenda 2030 (Norman, 2017) mainly motivate the European starting points.

The study compares the pan-European strategy specifically with the historical conditions of CEE and points to influences for the current discussion. As these are post-communist countries, it is also necessary to analyze the philosophical roots of Marxism of these countries, which became the intellectual starting point of the CEE countries for more than a century. The Marxist conception of society and man has naturally been reflected in the concrete forms of laws, politics, social and economic processes. However, after the first pains, the countries in question decided to gradually integrate the countries into the EU structures. Nevertheless, the comparison of the liberal foundations of the West with the Marxist and socialist experience of the CEE countries shows long-lasting differences, misunderstandings and influences on the pan-European development, which continues to this day (Lenger and Taaffe, 2014). Finally, we touch on the position of values in the Business Schools' Business Ethics and Sustainability course. The position of these normative perspectives is constantly threatened by the pragmatic economic emphases of the CEE countries.

Methodologically, the study begins by first formulating its historical roots, philosophical basis and sociological development.

The comparison offers a basis and a starting point for contemporary solutions to European problems. The study provides a basic framework of values and challenges to be addressed for business, administration or education in the field of sustainable management and business administration.

2.1 Historical Factors

The future of Europe is seen differently by different European countries. Historically, they have been influenced by the long-standing tensions between East and West. The older generation still remembers the stories of their grandparents about the monarchy, when the emperor with the help of the Roman Catholic Church determined central values. Other generations remember the developments after the First World War, when new European states were established after the fall of the monarchies following the Treaty of Versailles, and the subsequent developments changing the world into a new shape with new states presenting new challenges seeking a new level of international European cooperation. The end of the Cold War and its consequences are a special chapter (Kissinger, 2015).

The value base has undergone major changes. The universal Christian value base was replaced by Enlightenment rationalism, the rise of individualism, national self-determination and an interest in economic development. New laws and political aspirations of individual nations and states matched this. Anzenbacher (2002) pointed to a fundamental weakening of integrity also in the scientific orientation itself: there was a separation between philosophy as a vertical and universal scientific orientation - and the natural sciences including the social sciences and economics as a horizontal orientation. Anzenbacher thus illustrates the negative consequences

of the scientific fragmentation and even the consequent reduction of the scientific perspective, which also brings very serious consequences for the overall value orientation of management.

History has shown one-sided naturalistic and mechanistic models. They have proved dangerous for social stability and sustainability (Claeys, 2000). Sociologists have described in detail the negative social impacts that irresponsible and shortsighted management has had and is having (Geiselberg et al., 2017). Sociological analyses illustrate the alarming risks of the entire Western society (Beck, 1992). There have been divisions between nations, within nations, between V and Z and, in the era of Donald Trump, between the EU and the USA.

The division of Europe into West and East with the rise of Soviet power after 1945 divides our countries to this day (the work comes after the invasion of Ukraine in February 2022, when Russia dreams of former Soviet power again). To this day, CEE countries that have lived for decades under Moscow's influence are far more critical of the EU and the US (Globsec, 2019). Although the countries in question were given new opportunities after the fall of communism, freedom of business and culture, travel, study, science, they are still not stable today. In the spirit of Marxist emphasis, they understand the basis of society not in law and culture but in economics. The CEE countries have for years used European funds for various investments, but even after 30 years since the fall of communism, they have not ceased to be more critical of the EU than other countries in the West. The CEE countries even talk about the crisis of the EU without offering any proposals to consolidate European integration. Furthermore, studies show hesitant positions towards NATO, the West, Russia, China and democratic institutions. These facts must be taken into account.

While Western countries have remained more or less stable, the example of Brexit has found a special resonance in PL and HU, for example. There are also voices of concern in CZ and SR. We are talking about the group of Visegrad countries in the European Union. Not only the economic conditions are different (Kněžáčková, Sixta, 2018), but above all the political, philosophical and social background. Experts justify the crisis of the CEE countries by social inequality caused by post-privatization developments (Hardy, 2014). Sociological research in the Czech Republic, for example, has shown a fundamental underestimation of social values, the role of culture, the value of education and stable families (Prokop, 2020).

Just remember how important a role business played in the situation of the Russian invasion of Ukraine compared to the right and value of human life and the cultural stability of Europe. It is precisely because of economics that we have been waiting for specific anti-Russian sanctions from the EU or Germany and Switzerland. The anti-Russian protests have revived long-neglected differences and historical memories (especially of 1968 in the Czech Republic, or the 1950s in Hungary, and 1989 in Poland). A special situation is posited in Bulgaria (Balabanov and Lendzhova, 2018). Bulgarian authors also point to different historical backgrounds, different political underpinnings and significant economic differences. Naturally, these differences are also related to significantly different labour productivity, development of science, education, democratic institutions, etc. All this plays an important role in the search for common values.

An example of this was the different understanding of the migrant crisis (Prokop, 2020) which in some countries is influenced by their multicultural past (e.g. Turks in Bulgaria, Russian influence in the countries of the socialist camp, Hungarian influence in Slovakia, Slovakia's neighborhood with the Ukrainian border). The question is how the countries in question will deal with a possible refugee wave from Ukraine after the Russian aggression of 2022.

In Poland, we are seeing a specific push to control the judiciary and the media. Published studies address intercultural differences between Czechs and Poles (Lůžek, 2018).

Similar phenomena were observed in the daily press in the Czech Republic under former Prime Minister Andrej Babiš, who denounced MEPs (IROzhlas, 2022). Although there have also been demonstrations against vaccination in Western countries, the CEE countries show much more sensitive ties of the demonstrators to Russia. In the Czech Republic, the situation was made more difficult by the unclear position of President Milos Zeman himself and his entourage towards Russia, for example in the promotion of the Sputnik vaccine (E15, 2021).

Then we must not forget the dynamics we have seen in recent years in the unstable government in Italy, the separatist efforts in Spain, the protests in France and the intolerant groups in the East of Germany. All of this somehow affects our perception of the world, our civic education, our level of democratic discourse, our resistance to disinformation, and our conscious adherence to a system of the highest values and priorities.

A fundamental work on this topic is the summation of private values and public values. For our analysis of European values for sustainability management in companies and other institutions, a comparison of the two sets of values and an evaluation of the research confirming a number of common values. This result confirms the importance of common values for both groups: private and public. This means that general and public (universal) values that apply to private life also apply to business (Van der Wal, Huberts, van den Heuvel and Kolthoff 2006). For post-communist countries influenced by Marxism, this is a revolutionary perspective that needs to be reiterated in CEE countries and incorporated into the educational system of unsustainability management.

2.2 Philosophical Factors

The starting point of the paragraph on the importance of philosophy for sustainable strategy and value orientation in management is the logical principle that our human actions are based on our thinking. How we think is how we act. Even the managers are human beings, not any gods. Our philosophy determines our decision-making and activity. Therefore, the question is, what are our philosophical reasons for our actions? Do we have arguments against sustainability and the pursuit of universal values for particular areas of society? Moreover, do we have sufficient philosophical justification to support and develop a values-based management focus?

In the current professional discussion, we attempt to summarize the sustainable development goals defined by the UN into clear four dimensions of managerial responsibility. It is the area of sustainable ecology, the social dimension of incentives and administration, sustainability in the natural environment, and finally the responsibility for future generations. This concept is based on the philosophy of comprehensive values (Schüz, 2019).

The philosophical challenges of sustainability management in Europe relate to the recognition of several limits of contemporary modern emphases, which are rooted in Enlightenment rationalism, British empiricism and a pan-European romanticism that focuses primarily on the individual and the present. Therefore, new attempts are emerging to active use of philosophical language to articulate ethical foundations for the global economy (Feber and Petrucijová, 2016).

The difficulties of the task are due to many factors. Firstly, there are the cultural differences already mentioned. First is the absence of a universal ethical orientation that everyone agrees on and adheres to. This is an almost insoluble problem for the global economy. However, we see similar problems in the EU. Strong individualism and national competition are widespread in economic society. However, once European individualism has been accepted, it needs a solid deontological basis for effective cooperation. However, this has been exchanged in

Europe in the past centuries for pragmatic utilitarianism (Kučera, 2021a). Rather than universal values, superficial morality in tension with principled moral principles has become widespread in business, politics and administration. Thus, the separation of economics from the philosophical pursuit of a common purpose, goal, and strategy creates a gap between the declaration of sustainable goals and the practical implementation of that value strategy. Thus, the philosophical weakness and moral crisis of European countries hinders a comprehensive European effort (the common good) for the sustainability of the human foundations of society.

2.3 The Legal Framework of the Philosophy of Values

We draw on the current discussion on the philosophical implications of legal regulations (Andreisová and Kučera, 2017). The current legal framework of managerial responsibility is enshrined in the UK Corporate Governance Code (Cadbury Report, 1992) and the OECD Principles of Corporate Governance (G20 OECD, 2015). These documents have inspired other European codes and reflects US codes (Sarbanes-Oxley Act, 2002). E.g. in the Czech Civil Code the rule of "due care of a good manager" (§ 151 et seq. of the New Civil Code). All the last laws have serious philosophical consequences.

First, the legislation defining managerial responsibility assumes that the economy is a part of society. The current formulation of "managerial duty" assumes a deontological background of personal value orientation of managers in Europe. Both of these assumptions are dependent on the conscious acceptance and consent to such a background. In addition, since the long-term historical development of CEE has not supported this orientation, this task remains for executive education. Legal faculties and business schools need to redefine their educational objectives. We need to reconnect law and business with sustainable social values. Then, the task of schools is to rebuild the historic gap since the French Enlightenment between rationalism and responsibility for the natural environment. The final task is to deal with the negative impact of neoliberal economics, which has displaced universal values by emphasizing financial efficiency (Calhoun, 2015). If we fail to articulate these current philosophical, legal and pedagogical challenges, we will remain in personal and pan-European conflict of interest for a long time to come. Concentration on the momentary and everyday tasks crowds out concern for the future (Thomas, Lee and Wilson, 2014).

3. Problem Solution

A basic introduction to our topic shows how complex and complicated it is. We would love to find a simple and easy solution. However, values in society have been formed over centuries and are related to the historical development with its political environment, culture, and the philosophical factors of selected nations. It raises complex challenges for lifelong learning.

3.1 Philosophical Challenges

We know from managerial experience that European companies have largely replaced ethical issues with legal standards and codes of conduct. However, to fulfil the intentions of the above mentioned laws requires providing managers with sufficient intellectual equipment and intrinsic motivation. Codes of ethics are certainly good, but managers and employees of companies and other institutions need a solid interpretation and understanding of ethical formulas. All participants in the organization need to know why they should follow the given laws in their daily practice as their own value orientation. After all, every manager needs a clear value meaning of his/her life and work. Managers need a clear justification for his managerial strategy and decision-making process. High expectations of law must be based on

a high social and personal call to daily responsible and sustainable practice. The relevance of values for consideration of sustainable management in the European Context is related to the degree of emphasis on Business ethics in management (Kaler, 2000).

Ethical or philosophical thinking serves for value orientation and should gain a new place in sustainable management education. Moral or philosophical thought serves for value orientation and should earn a unique place in sustainable management education. While economics and sociology focus on empirical research, for value orientation they are only orientation, descriptive, not normative. Philosophical argumentation of values uses non-empirical methods. Philosophy grounded in values can tell us why contemporary reality is only a challenge, certainly not a solution or a model.

Similarly, the philosophical perspective of values is not based on human feelings and emotions. Especially in marketing, management relies on this a lot and uses the emotional background of customers heavily. For example, marketing even manipulates emotions (Kučera, 2018). Momentary feelings are important, but to project the future, vision, strategy, mission, we need values that also evaluate feelings and emotions with a critical measure of universality and sustainability.

3.2 Pedagogical Challenges

Economics and management are certainly social sciences, although they work with mathematical and statistical tools. By the nature of economics, management is a kind of art of dealing with current challenges and preparing for possible crises in the near or distant future. According the Eurobarometer report 2017 "the majority of European respondents think that life of today's children will be more difficult than life of those from their own generation (EU, 2019, p. 11). Studies are also looking at the green energy factor, human rights, food waste, expectations related to the circular economy, organic agriculture, clean energy, health protection, etc. Naturally, these factories are linked to the need for quality education and investment in science and research.

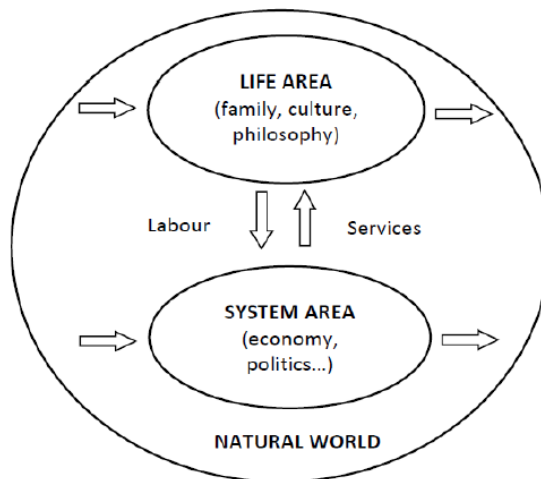
In the area of social stability, the 2017 KPMG Survey of Corporate Responsibility expects 80% of the world's leading companies to include CSR in their strategy (EU, 2019, p. 26). The challenge for schools is to explore purposefully the emphases of the business with all stakeholders. In recent years, the academic discussion has addressed the uncertainties that stem from different EU and US perspectives (Antal, 2018).

The concerns at the time were about the unpredictability of the US administration under Donald Trump. Today, however, the situation is different both in the US and in Europe, thanks to threats from Russia and China. Special challenges for the business school concern the further development of the CEE countries. The historically strong Marxist roots still have a visible trace (Kučera, 2021b). The challenge for the business school remains to overcome the reversed order of Marxist philosophy to the right. Many economists today are no longer even aware of how Marx in his seminal work (*Capital*) defined the structure of society on the basis of economics, not culture or law (Marx, 1992). Sustainability management, however, cannot build on the Economy and production relations as the "Base" (orig. by Marx: "Grundlage") that influences the "Superstructure" (orig. by Marx: "Überbau"). The fundamental interpretation of his work means that culture, legal environment or private life is derived from the "Base", or from economics and financial efficiency. Thus, in this model we do not find the necessary values for sustainability management.

A completely different concept than Marx was introduced for pedagogical work in business schools by Friedrich Hanssmann, who used an anthropological and social perspective of

management. Instead of "Base" and "Superstructure" he presented two areas that are interconnected and represent one complex value system for sustainability. (Hanssmann, 2010). This means that business education will have to develop an expanded management understanding that does not focus on narrow and short-term financial efficiency, but incorporates equally social and environmental elements of economics into its curricula, which also take into account the perspective of time - i.e. the future - i.e. sustainability based on the necessary universal values.

Figure 1: Complexity of Business and Society.



Source: Own adaptation.

The presented value pillars of sustainability management are essential for European countries. They must be a model for European schools in this respect. The results of teaching sustainability management that are based on comprehensive values can be demonstrated in schools that are clearly registered with their actions and results in the UN PRME. The different geographical units form the different chapters of the global organisation. In Eastern Europe, progress in this direction is slower and is recorded in far fewer universities and business schools. Nevertheless, even in these countries we can see many positive signals in the application of values through comprehensive value orientation, monitoring of SDGs, compliance with PRME or the development of so-called compliance programmes in companies. The published example can be documented from both the Czech Republic (Kučera, 2021b) and the Slovak Republic. Slovakia has been the subject of a study on how companies follow the European Integration and Reporting Requirements of Companies (Lovciová, Pakšiová, 2018). However, there remain some cultural, economic and value differences between CEE and Western economies that need to be overcome and unified (Topalli and Ivanaj, 2016). Minzberg as a balance between the area of private - public - and plural also presented the importance of a total value perspective for management (Minzberg, 2015).

The latest development is the search for universal values in the process of digital transformation. Applying a value focus in IT is not easy. Technology alone is not capable of creating any values and philosophical quest (Weber, 2020). All of these factories form a European value framework, for which sustainability management is responsible.

4. Conclusion

The concept study confirmed the importance of values for sustainable management considerations in the European context. It summarised a pan-European perspective on values and other conditions that are relevant for sustainable management today. The historical development confirmed important developmental lessons from Eastern and Western European countries, which are influenced by different assumptions and themes. Philosophical approaches, social pillars and the application of both in business and management schools in the context of the European Union strategy are a major challenge. The author reveals neglected philosophical conditions and social implications that negatively affect the sustainability of European businesses and institutions. The last part of the study opened up possible suggestions for sustainable thinking and management education. The study is of particular relevance for management in post-communist countries influenced by Marxist teachings and its combination with market economy with major implications. However, the relevance of European values for sustainable management is negatively affected by the military conflict in Ukraine at the time of the study, which will mark the next steps of development in all mentioned areas of sustainability in Europe in the long term. The future orientation of the research should primarily analyse the historical and current causes of the military crisis in Ukraine with the complex consequences on the next development of policy, society and culture in the frame of Europe.

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Strategic Autonomy - A Return to the Roots? Si Vis Pacem, Para Bellum. If You Want Peace, Prepare for War.

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Abstract

After half a century of liberalization trends, in contrast to the onset of economic globalization intensifying the outsourcing of all less lucrative activities to less developed regions, the EU is turning back to ensure the production of strategic commodities. Intended strategic autonomy in the sense of strengthening resilience to external influences should lead to a reduction in import dependence, to an increase in the EU's negotiating position in international relations - overall to an increase in the EU's strategic potential as an international actor. Ensuring macroeconomic and social stability within the EU is clearly a key motive. Strategic autonomy extends from the originally military dimension to technological, production, trade, but also diplomatic. In that case, however, it is necessary to define the content of strategic autonomy - what areas of integration it covers. The resulting strategic autonomy must be based on the specific institutional setting of the individual actors, then there is a clear limitation of their strategic culture.

Keywords: EU, key sectors, resistance, strategic autonomy, strategic culture

JEL Classification: F52, F62, O14, O24

1. Introduction

The world, the world economy has interacted with increasing intensity since the mid-19th century. This is caused and exacerbated by technological shifts, the acceleration of the development of the world's core performance, to which Europe unquestionably belongs. The EU, as a slice of Europe, is the leader of the integration process leading to the creation of the internal market, not only removing national borders for the so-called four freedoms, but in real progressing homogenization of markets. Basic economic laws such as profit maximization while minimizing costs, realization of revenues from the scale of up to half a billion-consumer market, support of science and research - all leading to growing competitiveness of European companies have also been accompanied by so-called optimization of production and its costs. The result was a strong outsourcing of less lucrative production with a lower share of added value. It has been somewhat forgotten that even these commodities can be crucial to ensuring stability.

What used to be the standard before, a certain degree of self-sufficiency, after WWII. it began to be perceived not only as an inefficiency but also as an obstacle to the peaceful ordering of international relations. After all, the idea of European integration promoted by Robert Schuman was based on economic solidarity and the interconnection of economies so that another war would not be possible (Schuman, 1950). Therefore, integration first at "technical"

levels such as the ECSC, later at other levels of economic cooperation. The onset of economic globalization has shifted this principled approach to the global level.

The SAARC-COVID-19 pandemic highlighted the weakness or vulnerability of the EU in ensuring basic needs such as medical supplies. Given the growing tensions in international relations in the context of the change in the strategic policy of China and Russia towards their trading partners, the European approach to strategic security of supply, including energy resources, needs to be reconsidered. The assertiveness of Russia and China in international relations is constantly growing, these are revisionist entities striving for destabilization and a fundamental change in the current economic, political and, of course, security order (Ondriaš, 2020, p. 672). The problem with the EU is its high heterogeneity, where individual Member States have different historical experiences, and this then leads to fragmentation of views (Navrátil, 2018, p. 1069; Kučerová 2010, p. 18), although the EU should sound with one voice externally (Art. 30, SEA). Strategic behaviour in relation to threats, including the use of force for political purposes, needs to be reconsidered (Gray, 1999), which is especially true in today's European Union. Lessons learned not only from a pandemic should lead to greater EU resilience, hence strategic autonomy.

2. Theoretical Framing of Strategic Autonomy

Security, protection, resilience, strategies – these are concepts with which realistic approaches to the study of international relations work in the first place. Realism assumes the confrontational nature of all actors leading to conflicts (Ludvík, 2017, p. 77). By contrast, liberalism presupposes competition with one another, but framed cooperation, since the gains can thus be not only higher, but more stable (Kant, 1795; Angell, 1910). Any disputes can most effectively be resolved through negotiation (Barsša-Cišař, 2008, p. 191; Moravcsik, 1997, p. 515).

I think that the analysed EU problem of excessive - and often unnecessary - import dependency can better explain the international political economy (IPE), which focuses dominantly on the problem „persistent clash between the increasing interdependence of the international economy and the desire of individual states to maintain their economic independence and political autonomy “(Gilpin, 2001, p. 80). IPE's key themes include inter alia state-market tensions, interdependence, as well as the perceived state responsibility for the state of the market environment. It begs the question of how the state and its political management can influence the creation and distribution of wealth (Strange, 1998: 19), which also involves covering strategic needs. Economic ties between the various actors always have profound implications for the economic autonomy and political independence, and political independence of national societies, because of utilising history or path dependence as an explanatory variable (Gilpin, 2001, pp. 82, 106).

Then we must also take into account the phenomenon of strategic culture as an analytical tool for examining international politics, even if it was originally associated with military decision-making. And we go back, in part, to the realistic tradition of the concept of international relations. The strategic culture is derived from the political culture, i.e., the, individual approach of each state to the debate on strategic issues and reflects conditioned emotional responses and patterns of habitual behaviour (Snyder, 1977, pp. 8-9). Strategic culture is directly determined by history or interacting (Gray, 1981, p. 22), policymakers deciding on strategic outlooks are influenced by their cultural environment (Pospíšil, 2012, p. 1).

The concept of European political economy, what spread broad framework ranging from European integration theory, through comparative politics and policy-making approaches can

be used for the purposes of the development and functioning of the European Union (Talani, 2014, p. 7). The political economy of European integration is trying to specify the input-output analysis, it means cost-benefit comparison (Kučerová, 2018, p. 1072), which is similar in the external environment too.

Another theoretical background for dealing with strategic autonomy may be the concept of geoeconomics, i.e., using economic instruments to protect national or Community interests of a strategic dimension (Blackwill-Harris, 2021, p. 36); eventually we can define geoeconomics as using economic instruments to advance geopolitical goals (Petsinger, 2020). After the fall of the Iron Curtain, geopolitics seemed to be replaced by geo-economics, as economic interests became the focus of international relations and slightly, unfortunately only for a time, relegated political and security challenges to the background (Luttwak, 1990). Unfortunately, developments in the post-2000 world in the context of many military or terrorist attacks have shown how deeply wrong we have been, and returned to the geopolitical dimension of international politics. However, geoeconomics has not lost its relevance either - for many actors in the international system, geoeconomics provides very effective, often coercive, foreign policy tools (Blackwill-Harris, 2021, p. 15), but we already know these, for example, from the two oil shocks of the 1970s, when support for so-called oil weapons was given by Islamic OPEC members in the name of Islamic affinity. And there has been a reduction in oil production, a sharp reduction in oil supply on world markets. Geoeconomics is part of geopolitics as states try to set policy rules to maximize economic gains (Luttwak, 1990).

But the geoeconomics also works with other "offensive weapons" and thus is state-sponsored research and development of new technologies to ensure developmental and manufacturing superiority in the most modern industries (Luttwak, 1999), but is generally defined by the liberalisation of trade, capital flows and is linked to globalisation.

It is a geoeconomical paradox: the size of the state is not as crucial as human ability in the effort to create wealth or strengthen the economy (Gasimli, 2015, p. 24) - geo-economic tools may consist of available resources, but they can also be linked to an actor's ability to increase his capabilities and thus competitiveness: this is a paradox where the size of the economy, the territory, is not decisive as opposed to human capabilities. Respect for "laws of geoeconomic gravity" such as higher levels of financial self-sufficiency and the existence of an advanced, diversified transport infrastructure are now essential to ensure effective state sovereignty (Firzli, 2017). And this is, after all, the subject of strategic autonomy, so we can detect points of contact with geoeconomics.

3. EU Strategic Autonomy to Address its Own Inadequacy, Vulnerability

Developments up to now in the world, even more so in Europe, have led to increasing interdependence across the sectoral spectrum of economies, thus increasing the import dependence of individual states. The idealistic notion that everything will evolve in the same direction and that, in fact, all the big players in international trade have analogous interests and objectives has proved to be odd. The sobering up of excessive optimism and the liberal conception of the international order led to a discussion about the concept of strategic autonomy.

The European Union must be a sovereign player in international relations, because "geopolitics teaches us that the time has come for European sovereignty, for Europe to take its destiny into its own hands" (Juncker, 2018). Europe's geopolitical capacity for action must be strengthened, because today the word ceases to apply. Yes, the European Union must remain thru to multilateralism, to tolerance, but it must also be able to promote its interests. European

sovereignty in terms of strategic autonomy is intended to convey the necessary ambitions of the Union to be able to act without over-reliance on external actors, which refers, inter alia, to the objective of greater resilience. A new trade strategy for the Union has been presented, including part of shaping global rules for fair and sustainable globalization, while strengthening the EU's ability to promote its interests and enforce its rights. Part of the new business approach is "the concept of Open Strategic Autonomy (OSA), what reflects the EU's desire to chart its own course on the global stage, shaping the world around us through leadership and engagement while preserving our interests and values" (EC, February 2021). Therefore, assertiveness, which is not common in the EU.

There is a need to enhance and operationalise the EU's strategic autonomy and "identify concrete political initiatives and projects that can help enhance the EU's capacity to act and have an impact globally" (FAC, 2020). On the other hand, it is necessary to separate strategic autonomy from autarchy; autonomy reduces dependence, autarchy leads to isolation. It is necessary for the EU to avoid dangerous dependencies and, in turn, to ensure that the Union is able to face the things that are damaging it. "Let us talk about autonomy as lack of dependency" (Borell, 2020).

Reflections on the focus of strategic autonomy depend on changes in international relations, on the development of the business cycle, but also, of course, on the political cycle, as politics and the policy-making process are personified. Nevertheless, there is a clear consensus on the need to strengthen security at the strategic supply levels of the EU internal market.

These shifts in the approach of top Union policymakers correspond to the rediscovered concept of geopolitics, which is to accentuate economic instruments to achieve strategic objectives relating to the necessary degree of independence. And the acceptance of their views is confirmed by others. "The European Union should become an autonomous entity on the world stage. It should absolutely develop the capabilities to defend its self and its interest if required" as the modern world, whether we like it or not, is still a battleground of competing ideas" (Papaiaç, 2021).

It has already been said that to achieve strategic autonomy, each body of the international community will take a different approach, as it is influenced by history and is a product of its institutional environment, which shapes its strategic culture. Each subject is influenced by the culture in which it develops (Melecký, 2020, p. 619). For today's Europe, the main historical memento is the development of the first half of the 20th century with two world wars. Therefore, the format of strategic autonomy will not be based on a forceful, confrontational conception of international relations, but instead on a cooperative model, maximally competitive (Ludvík, 2017, p. 75).

3.1 Defining Strategic Autonomy in the Concept of the EU and its Potential Areas

The concept of EU autonomy originally covered the security, primarily military, dimension of integration, in the context of strengthening Europe's responsibility in defence policy. However, the initially military character of the perception of strategic autonomy has spread to the technological plane of industry, digitisation, robotisation, although originally the aim of the strengthening Europe's defence industry as intended (EC Conclusions, 2013, p. 8). The interconnection of companies' individual interests with the strategic objectives of the state, to which the overlap of strategic autonomy into the technological sphere corresponds to key themes of international political economy.

It has become an important element of the EU Global Foreign and Security Policy Strategy adopted in June 2016, in a broader context: The EU needs to review existing sectoral strategies

and develop new thematic or geographical strategies in line with the political priorities of this global strategy so that the European defence industry becomes innovative, competitive and sustainable, which is essential for Europe's strategic autonomy (GSEU, 2016, pp. 9, 45). What I consider important is the fact that the concept of autonomy in terms of independence has, from the very beginning, transcended the military-security dimension in the concept of the EU without reducing it, since it must be a fundamental objective for the EU to promote peace both within its borders and beyond. This indicates a geopolitical approach clearly linked to geoeconomics interests.

Extending the concept to other EU policies is a necessary systemic step. Trade policy is clearly where increasing EU autonomy should come first. In any case, it must not be protectionism; on the contrary, it is desirable to maintain or develop trade and investment multilateralism and openness. However, the other side of the same coin must be a clear tightening of the instrument of collective defence against economic pressure. "Open Strategic Autonomy is a compass for EU trade policy at a time of economic transformation and geopolitical instability." (EC, February 2021, p. 15).

Related to this is the strengthening of blocking mechanisms against potential retaliatory sanctions against the EU, the so-called anti-coercive trading instrument, which should help the EU to counter the intermingling of political and economic influence by some economic rivals (EC, February 2021). So is this about defence against economic intimidation. "International economic relations are never purely economic; they always have profound implications for the economic autonomy and political independence of national societies - this one of the dominant motifs of contemporary writings on IPE" (Gilpin, 2001, pp. 81-82).

Another sectoral goal for achieving strategic autonomy must be information technology, for multiple reasons. It is primarily related to the objective of digitising the Union economy as a whole, i.e., national economies, the need for which has been demonstrated by the current pandemic crisis. In the context of requirements for increasing the competitiveness of European industry and building a knowledge-based economy, an accent on the development and protection of the IT sector is a logical requirement. An advanced IT field can better protect industrial secrets. Then, of course, there is the interdependence of IT with EU defence policy, i.e., military-security autonomy and the protection of critical defence infrastructure (COM (2010): points 2. 12-2.14; EC Conclusions, 2013, p. 9). Last but not least are the tools to combat disinformation that can threaten the security of the Union in any way and unfortunately, we have been proven to be the target of hostile interference and manipulation of information on multiple occasions by authoritarian and hostile regimes such as Russia or China (EP, 2022). Accessories digitisation as a strategic objective of current development is an area of caution, protection from external influences, as it relates to cyber security and resilience - see issues of electronic identity, problems with the construction of 5G networks and exclusion of certain foreign bidders due to possible security breaches in Europe, etc. The Digital Agenda is quite broad and extends across a wider range of European policies and was already part of the 2010 Europe 2020 Strategy (COM (2010) 245). Achieving strategic autonomy in digitisation is a necessary geostrategic, geopolitical requirement.

Overall, we could frame the requirements of strategic autonomy in IT with technological security or sovereignty, i.e., not being dependent on other regions of the world (Digital Europe Programme, 2021). However, technological sovereignty is not meant to represent insularity, rather it should be considered in terms of technological autonomy. The technological field is closely linked not only to digitisation, but to industrial and investment policy in general, or to the promotion of science and research, innovation. Related to this is the longstanding struggle

in the area of intellectual property protection. I think that once again these demands can be explained through international political economy.

Energy is an industry where security has long been addressed. Quite frankly, The European Union cannot be completely autonomous in securing energy supplies as it is import-dependent at 58.2% in oil and gas consumption with a large diversification of import dependence within the Union of individual Member States. The import dependency rate for oil and gas is absolutely crucial - 94.6% and 83.2% respectively (Eurostat, 2021). But what can be addressed in terms of energy security is, in addition to diversifying the types of energy sources, diversification of suppliers, as essential stocks of mineral raw materials are located in risk areas - Russia, The Middle East, etc., which in itself reduces European energy security. "The security of the economic, social, political region is the result of geostrategic and geoeconomic moves along the energy board, where the interests of players from different positions - EU countries as net imports and energy export nations to Europe - clash." (Kučerová, 2008, p. 80).

This means that, in addition to the geoeconomic framework, actors act in the intentions of the international political economy in the case of energy security.

Another area of European integration that should achieve autonomy is the monetary agenda. The European Union would need not only stability but, above all, international currency markets' confidence in the euro, which is the second most widely used transactional and reserve currency, but its credibility has been marked by the protracted Eurozone crisis and subsequent interventions, as a confirmation of overall autonomy.

In addition to the monetary sphere, the EU is attempting to gain partial autonomy in the fiscal sphere in connection with the introduction of new taxes, namely the ETS - Emissions Trading System, then the carbon border tax (carbon offset for imports of goods from third countries), a tax of large TNCs intended to replace the digital tax originally intended (Next generation of own resources, 2021).

In contrast, the ability to act autonomously, the ability to assert one's own interests - all of these have been demonstrated long-term and fairly successfully by the EU in the field of competition protection. Not only a strict competition policy within the EU internal market, but also abroad on the basis of the principle of extraterritoriality, especially in the context of the activities of multinational corporations that may negatively affect competition within the EU (Kučerová, 2010, p. 235). And given the weight of the EU internal market, its scale and intensity, the TNC accepts this (more or less). Carefully built autonomy over decades in the protection of competition could become a springboard for the Union and a model for gaining geopolitical actionability and sovereignty. The protection of competition is implemented by the Union entirely with the intentions of an international political economy.

3.2 Strategic Autonomy in Response to a Pandemic Crisis

The SAARS-COVID-19 pandemic is an extraordinary turning point in the development of the world economy, but of international relations in general. First of all, never in history have states responded so fundamentally, with such restrictive measures announced, that they have led in many cases to lockdown economies, on a global scale. We must deliberate about pandemics as synergistic crises, because the result has been a sharp economic downturn, social problems - all in addition to the health crisis. The pandemic crisis has demonstrated the European vulnerability of supply chains which, in the spirit of cost optimization, have not been involved in the production of simple commodities. And, of course, these include common medical supplies such as veils or disinfectants.

Increasing autonomy in the health sector concerns not only the easier availability of medicines and other commodities, both physical and price, but also the expansion of production capacities within and under the control of the EU. As well as the development of health or pharmaceutical research in the EU.

The EU's strategic autonomy in the field of health protection must be underpinned by an adequate institutional background. Already during the first year of the pandemic, the Commission has prepared a proposal to address cross-border health threats, as past practice has proven to be unsatisfactory (COM/2020/727 final). At the same time, the European Medicines Agency (EMA) of 1995 has been strengthened and indeed restructured so that it can respond more flexibly to the need to ensure the development and subsequent supply of the necessary medicines (COM/2020/725 final). Its main competence is the approval and registration of new drugs.

A systemic step was the establishment of the Health Union in 2021 as a platform for more effective coordination of the health policies of the Union countries, as they are strongly individual-oriented. But the permeability of the internal market calls for a higher degree of cooperation (EC, 2021). The pandemic crisis has highlighted the limits of national solutions to health threats and necessitated the creation of a stronger transnational apparatus. Within the EU, Community public health bodies are expected to be strengthened to make the contours of the European Health Union real.

Given that the pandemic crisis has deepened the differentiation of the membership base, as each state has taken individual approaches to dealing with the pandemic, the macroeconomic or social impacts have manifested themselves differently (Kučerová, 2021: 20). The pandemic has only accelerated the Union's public health trend towards strengthening disease prevention and tackling from the Community level.

While the focus of the problem was in the health field, the concept of strategic autonomy was reflected in other areas, where in response to insufficient coverage by strategic commodities, many European companies brought back their production to Europe, as economic efficiency must not take precedence over security in strategic areas! Although another trend has to be taken into account, namely China's growing economic power as the world's main supplier of most commodities, which has made production in China more expensive due to rising production costs. But rethinking strategic aspects dominates economic analysis.

4. Conclusion

Post-war Europe (after WWII) designed its further development on the basis of mutual cooperation, on gradual integration first in more technical areas, later in other fields of economic development, so that the interconnectedness of economies would avoid further possible wars. Along with the growing homogenization of the economic environment, the idea that this format of peaceful cooperation was a kind of final model of international economic relations grew stronger. Economic globalization has strengthened economic ties worldwide. Economic efficiency has become the main mantra, with the outsourcing of less profitable productions amplified. Yes, comparing costs and revenues in the broader context of the overall international competitiveness of European economies has led to the introduction of simple productions of lower value-added goods outside Europe. On the contrary, European firms have focused on technologically demanding production with a higher share of added value, and therefore higher profits. And there was a supply shortage in the world...and therefore a higher vulnerability of the European Union, both in economic and security terms.

Although the concept of strategic autonomy in the EU is largely the effect of the combined pandemic crisis, the Union has been working towards it for a long time. It is about strengthening the Union's ability to advance its interests and enforce its rights (EC, 2021). A milestone in the Union's behaviour has been the Russian aggression in Ukraine, leading to a real war. The Union's confidence as a geopolitical player seemed to be growing, but Russia's imperial policy also requires geostrategic EU decision-making. The demands to eliminate any dependence on Russia have finally been recognized.

Both the perception and realisation of strategic autonomy resonate with the focus of both international political economy and the concept of geoeconomics. Nevertheless, achieving autonomy in various areas is determined by a strategic culture, which in this case is associated with so-called European values represented primarily by cooperation, solidarity, but not confrontation. But - Russia's invasion of Ukraine can fundamentally change Europe's strategic culture in favour of greater assertiveness.

The deteriorating environment of international relations since the beginning of the new millennium places higher demands not only on gaining a foothold in global competition, but on defending national interests in general. Strategic autonomy should help. However, as a result of the war in Ukraine and the ostracism of Russia, further research is likely to move towards transforming strategic autonomy into a trend of self-sufficiency in key fields as a geostrategic choice. The idea of economic independence, of strengthening self-sufficiency in strategic commodities, will probably be considered by other actors in the world economy other than just the European Union. I fear that the more than 70-year process of liberalising international trade will not continue, but, on the contrary, in the name of protecting national interests, a shift towards strategic autonomy will be evident. Are we witnessing the end of globalization?

Acknowledgements

This work was supported by the Cooperation Program, research area European Union, Political Science (POLS) at the Faculty of Social Sciences, Charles University Prague.

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European Integration and Real Convergence in V4 Group: Transformation Towards Green Economy

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Abstract

The Visegrád Group (V4) countries have made considerable progress in the economic transition and integration into the European Union. This paper focuses on the process of European Integration and the real convergence among V4 and EU countries: Czechia, Hungary, Poland, and Slovakia. This research paper aims to present the real convergence among these countries and compare it with other EU member states. The real convergence can be the measure of the European Integration and changes towards the Green Economy (GE) because it represents the purchasing power and ensures sustainable transition stability. We have analysed GDP and calculated the sigma-convergence in the period 1995-2021 both in EU27 and V4 countries. Although the V4 countries are economies of different sizes and levels of living standard, there is a gradual real convergence that represents the European integration.

Keywords: central European countries, σ -convergence, Visegrad Group

JEL Classification: E31, F43, O11, O52

1. Introduction

This article examines the sigma-convergence (δ -convergence) among EU countries and its specific group of four Central European countries called the Visegrad Group (V4). The 27 European Union member countries' economies are different in terms of size and economic performance (Stavarek and Tomanova, 2014). Economic convergence is therefore also examined with a focus on the new EU member states (Stoica, Roman and Diaconasu, 2019, Visković, Burnać and Ramljak, 2020), or on candidate and potential EU candidate countries (Siljak and Nagy, 2019). There are multiple criteria for assessing the economic development of countries or regions, representing the degree of economic development and ability to change their economic model to the Green Economy (Sulich and Soloducho-Pelc, 2022). Economic convergence is the process of differences reduction in the economic level and efficiency of individual countries (Dvoroková, 2016). The opposite is a divergence when there is an increase of differences in the economic level and economic efficiency. These two terms can describe the economic development similarity (Majerova and Fejjie, 2020) and capacity for sustainable transition stability (Drastichová, 2014). The focus is not only on whether the differences are increasing or decreasing, it is also important to examine how quickly these changes occur.

These findings are elements of economic comparisons and allow to formulate theoretical implications (Kulhánek, 2012; Kulhánek and Dvoroková, 2020). Transformation towards Green Economy (GE) conditions analysis is the future possible direction of the performed in this paper research altogether with its limitations.

This research paper aims to present the δ -convergence among the V4 group countries and to compare it with other EU countries groups. The different performance of the compared economies was assessed by the usage of Gross Domestic Product (GDP) per capita levels converted into Purchasing Power Standard (PPS). The data of each EU country's GDP per capita were converted into PPS and compared in the period 2005-2021 to calculate the δ -convergence indicator (DG ECFIN, [online] 2022). In terms of the economic performance expressed by this indicator, EU countries still show significant differences. It is because GDP per capita values vary between most and least developed economies (Kulhánek, 2012). The results presented in this article can interest researchers, scholars, and economic policymakers.

This article consists of four sections. The first part is already presented introduction, where the aim of the paper with the theoretical framework of research are presented. The following part explains how real convergence is combined with the European integration and transformation toward the Green Economy. The third part is the empirical part aimed at comparison of individual countries, where calculations results are presented. In the last part, the results were summarized and discussed together with the conclusions.

2. Problem Formulation and Methodology

There are a few problems defined in this research. First is the scientific problem to present the convergence among V4 countries and compare it with other EU member states. This convergence proxy of economic development can be discussed as the basis for the Green Economy (GE) investments. The problem-related method is based on the choice of research method and data reliability to measure the European Integration and changes towards the GE as the hypothesis for the research.

There are multiple econometric techniques for modeling economic convergence as the measure of European Integration (Rapacki and Prochniak, 2019). It is also the starting point of international comparison and an integral part of macroeconomic analyses (Dvoroková, 2016). Economic convergence can be defined in two concepts: nominal and real convergence (Kulhánek, 2012). Despite the growing attention towards nominal convergence, real convergence is the research subject of this article. In many publications related to real convergence, there is a predominant emphasis on cohesion or integration in the EU.

The synchronization of the economic cycle and approaching the same level of GDP per capita and comparative price level of the given country to levels that correspond to the long-term steady-state are expressed as convergence. The GDP is a measure of economic activity and is also used as a proxy for the development of a country's material living standards. It refers to the value of the total output of goods and services produced by an economy, less intermediate consumption, plus net taxes on products and imports. The GDP per capita is calculated as the ratio of GDP to the average population in a specific year. In this research, the figures are expressed in purchasing power standards (PPS), which represents a common currency that eliminates the differences in price levels between countries to allow meaningful volume comparisons of GDP. In this paper convergence of GDP per capita levels in EU member states are assessed according to δ -convergence.

Sigma (σ) convergence assumes that all researched countries coverage to the same level of economic performance (Kulhánek, 2012). The σ -convergence occurs when the dispersion of GDP per capita diminishes over an examined time range. Therefore, it is defined as a reduction of the variance of the logarithm of real GDP per capita among countries over time. The variance is represented by the Coefficient of Variation (CV), calculated as in Formula 1:

$$CV = \frac{SD}{\bar{x}} \quad (1)$$

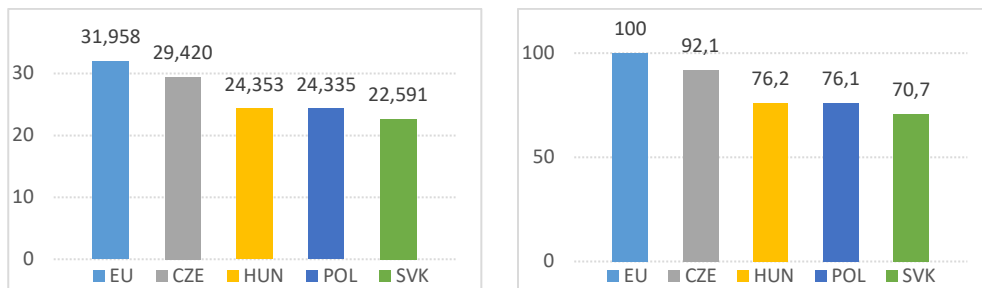
where: SD – Standard Deviation; \bar{x} – mean value of the data set.

Then GDP per capita in PPS values are also offered as an index calculated concerning the European Union average set to equal 100. If the index of a country is higher than 100, this country's level of GDP per capita is higher than the EU average and vice versa. Please note that this index is intended for cross-country comparisons in a long time range rather than for temporal comparisons. In this research, we examine secondary data for the years 2005-2021 from AMECO (Annual Macro-economic European Commission) database (DG ECFIN, [online] 2022). This time series offers then a measure of the convergence of economic activity between the EU member states. The AMECO database includes various insights and data exploration in the scope of the EU, the Euro Area, the EU member states, candidate countries, and also OCED countries and secures both reliability and comparability. Assuming the usual definition of sigma convergence the expected is faster economic growth in countries with lower initial DGP per capita levels, and a decrease of the CV of GDP per capita among researched countries over time.

3. Problem Solution

The overview of the EU by the δ -convergence concept comes from the neoclassical theory of economic growth. According to this, all countries converge to the same level of economic performance measured by the chosen variable describing the forwardness (Dvoroková, 2016). The δ -convergence is used for testing the hypothesis of GDP per capita PPS as a measure of the European Integration and changes towards the Green Economy. To solve such a problem first we compared GDP per capita in 1000 PPS and as indexed values, where the EU average is 100. The comparison of the economic performance of the EU member countries with the V4 member countries reveals differences (Figure 1).

Figure 1: The GDP Per Capita in 2021 (Left in 1000 PPS, Right Indexed: EU=100)



Source: Author's elaboration based on (DG ECFIN, [online] 2022)

The highest value of the GDP per capita (2021) in 1000 PPS among the V4 countries has Czechia and is not far away from the EU-27 value (Figure 1). Czechia is then seen as an economic leader of the V4 group where economic progress is most visible (Rapacki and Prochniak, 2019). The size of GDP per capita in Poland and Hungary in 2021 was comparable

(76% of the EU average), the lowest levels of GDP per capita among the V4 countries in 2021 were reported by Slovakia. The population of the V4 countries also differs and its values influence the GDP per capita calculations. Table 1 shows the population both across the EU and in the V4 countries. The percentage share of the population of the V4 countries in the population of the EU is also stated. The share for the whole V4 decreased slightly during the period 1995-2021 from 15.1% to 14.3% of the total EU population. When only the V4 countries' population is analysed, Poland occupies a significant place in 2021 its population was 59.6%. The V4 countries according to the decreasing percentage population are Czechia (6.7%), Hungary (15.2%), and Slovakia (8.5%) respectively.

Table 1: Population in the EU and V4 Countries (1000 Persons and EU-Share in %)

	1995	2004	2021
EU	425 294	432 851	448 489
V4	64 298	63 876	64 215
Share in EU (%)			
V4	15,1	14,8	14,3
CZE	2,4	2,4	2,4
HUN	2,4	2,3	2,2
POL	9,0	8,8	8,5
SVK	1,3	1,2	1,2

Source: Author's elaboration based on (DG ECFIN, [online] 2022)

Table 2 shows the GDP of the V4 countries and the EU as a whole in both billions of euros and billions of PPS. The share of the V4 countries in the GDP of the European Union increased in the analyzed period 1995-2021. In the case of GDP in billions of euros, it rose from 3.2% to 7.3%. The share of the V4 countries in the EU GDP in terms of PPS is higher and increased from 7.7% to 11.2%. A significant share of the GDP in PPS values among the V4 countries (not listed in Table 2) in 2021 takes Poland (58.0%) followed by Czechia (19.6%), Hungary (14.7%), and Slovakia (7.7%).

Table 2: GDP (Bn Euro, Bn PPS_EU27_2020, Share of the Country in EU, %)

Bn Euro	1995	2004	2021	Bn PPS	1995	2004	2021
EU	6339,5	9171,4	14332,9	EU	6339,5	9171,4	14332,9
V4	205,6	421,3	1 046,4	V4	486,9	792,1	1607,8
Share in EU (%)				Share in EU (%)			
V4	3,2%	4,6%	7,3%	V4	7,7%	8,6%	11,2%
CZE	0,7%	1,1%	1,7%	CZE	1,9%	1,9%	2,2%
HUN	0,6%	0,9%	1,1%	HUN	1,3%	1,5%	1,7%
POL	1,7%	2,2%	3,9%	POL	3,9%	4,5%	6,5%
SVK	0,2%	0,4%	0,7%	SVK	0,6%	0,7%	0,9%

Source: Author's elaboration based on (DG ECFIN, [online] 2022)

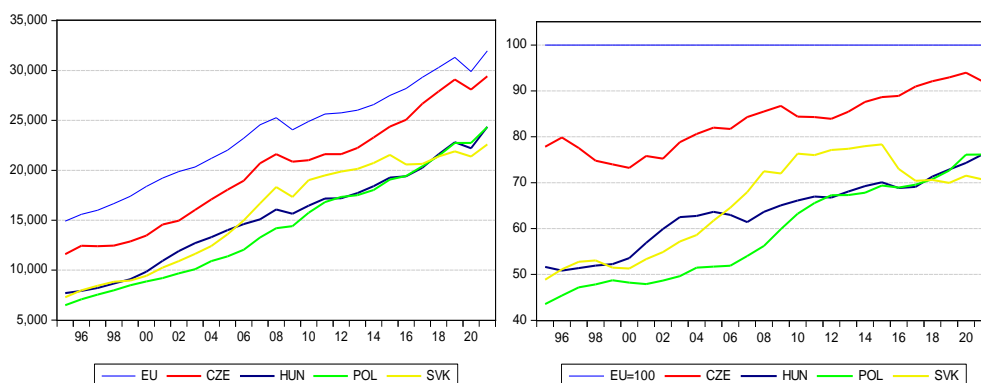
The initial analysis of a static situation in 2021 (Figure 1) does not capture the changes over time. Table 3 shows the average annual GDP growth rates in the EU and the V4 countries, both for the period 1995-2021 and for the period 2004-2021. In this comparison, Poland shows the most dynamic economic growth in both periods (3.86% and 3.67%). In contrast, the European Union's GDP grew at an average annual rate of only 1.53% and in the period 2004-2021 at a rate of 1.12%.

Table 3: Average Annual Rate of GDP Growth (%)

Area / Country	1995-2021	2004-2021
EU	1,53	1,12
CZE	2,30	2,24
HUN	2,49	1,91
POL	3,86	3,67
SVK	3,48	3,20

Source: Own calculations based on (DG ECFIN, [online] 2022)

Figure 2 shows the development of GDP per capita in the EU and the analyzed V4 countries for the entire period 1995-2021. The left panel shows the development in 1000 PPS, the right panel shows the development as an index in which the EU average is equal to 100. It is clear from Figure 2 that the differences between the EU average and the V4 countries have narrowed over the period. GDP per capita in the EU in 1995 was 1.3-2.3 times higher than in the individual V4 countries, in 2004 was 1.2-1.9 times higher, and in 2021 GDP per capita in the EU was only 1.1-1.4 times higher. As already mentioned, the highest GDP per capita growth in the period under review was recorded in Poland, where GDP per capita increased to 3.74 times. Until 2008, GDP per capita also developed very dynamically in Slovakia. However, after the 2009 crisis, this high growth rate did not recover and GDP per capita increased to 3.1 times in Slovakia over the whole period (similar to Hungary, where it increased 3.1 times). GDP per capita in the Czech Republic, which was the highest among the V4 countries throughout the period, increased only 2.5 times between 1995 and 2021.

Figure 2: The GDP Per Capita Development (Left in 1000 PPS, Right Indexed: EU=100)

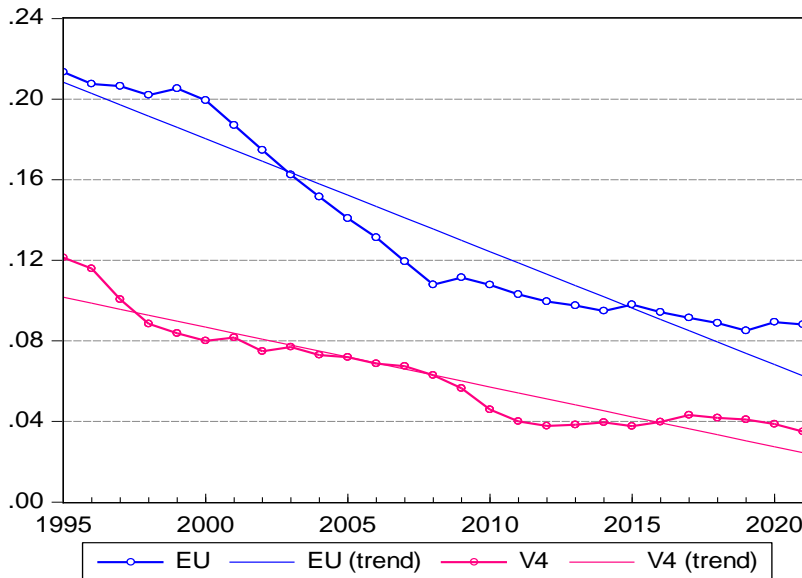
Source: Author's elaboration based on (DG ECFIN, [online] 2022)

Further problem solution and its analysis required calculation of Coefficient Variation (CV) based on the mean values and standard deviation (Formula 1). To calculate δ -convergence among EU countries EU groups and V4 countries, the GDP per capita time series were first logarithmized. Standard deviations mean, and coefficients of variation were then calculated. Subsequently, the obtained values of the coefficients of variation were regressed, because economic convergence can be considered as a concrete implementation of the stochastic process (Dvoroková, 2016). The δ -convergence is defined as a reduction of the variance of real GDP per capita logarithm in time. The sigma convergence can be denoted as the catching changes effects among analysed in this article economies (Dvoroková, 2016).

The equations were estimated for time series of coefficients of variation for the years 1995-2021. The least-squares statistics regression method results are presented in Table 4. The

dependent variables are respectively: CV_EU27 without Luxembourg (CV_EU27-LUX) and CV_V4 for Visegrad Group countries only. The variables regression results are presented below rows in table 4 among Constant and Trend line coefficients for both analysed variables. To verify the δ -convergence hypothesis, we estimated the trend line of the CV of GDP per capita. Trend line estimations are given in Table 4. They are also used to show the evolution of δ -convergence in Figure 3.

Figure 3: The δ -convergence in UE and V4 Countries, with Least Squares Regression



Source: Author’s elaboration based on (DG ECFIN [online] 2022)

Table 4: Regression Results for CV in Groups EU27-LUX and V4

	Coefficient	Std. Error	t-Statistic	Prob.	R ²
					Adj. R ²
CV_EU27-LUX					
Const.	0.208370	0.005481	38.01588	0.000	0.906
Trend line	-0.005606	0.000362	-15.49961	0.000	0.902
CV_V4					
Const.	0.101639	0.003342	30.41324	0.000	0.879
Trend line	-0.002966	0.000221	-13.45207	0.000	0.874

Source: Author’s elaboration based on (DG ECFIN, [online] 2022)

As shown in Table 4, the R-Squared (R²) proves that the regression is well fitted to the data. Both R² and adjusted R² are similar and prove the correctness of the performed calculations. The probability indicator is close to 0 and this means that results are statistically significant. Estimated coefficients were used to fit the regression line in Figure 3. The negative value of the trend line coefficient result was expected because the δ -convergence measured by the CV of GDP per capita is a negative parameter of the trend line slope (Kulhánek, 2012).

The least-square regression method with CV is presented in Figure 3. The entire EU converges very quickly and CV decreases very dynamically especially from 2000 to 2007. In this

comparison, the V4 countries are not so dynamic. The stagnation of convergence is visible after the financial crisis in 2008-2009. The EU countries before its extension were not considered in Figure 3 because they indicate divergence (CV ratio increased during years and further convergence would not be detectable).

The V4 countries have much higher convergence within the group (0.04) than all EU countries (0.09) in that consequence the acceleration possibility for EU is lower than V4 which proves CV levels capacity in future years if the trend will be kept (Kulhánek and Dvoroková, 2020). The trend line for EU countries is decreasing from the respectively higher values than trend line for V4 countries. The V4 countries represent more similarities than differences. This is visible in the CV values among V4 countries. The visible in Figure 3 decrease in the δ -convergence was expected (Kulhánek, 2012). The EU member states and V4 group countries are not synchronized.

In this research we have decided to not research the β -convergence as previous research (Kulhánek, 2012; Rapacki and Prochniak, 2019) showed different results for countries that were EU member states before the 2004 enlargement and for countries that joined the EU in 2004 and beyond. However, Vojinovič, Achyrya and Próchniak (2009) analyzed sigma (reducing dispersion of income levels between economies) and beta convergence (absolute and conditional) GDP per capita between the ten Central and Eastern European countries in the period up to 2006. Their results confirmed both types of convergence. Kulhánek and Dvoroková (2020) also achieved similar results. In the EU there are also various economies, and some countries' GDP per capita values are outliers. The proper choice of the countries set can be based on the rejection of the data outliers (i.e. Luxembourg). The limitation of this research was the assumed set of variables based on the available AMECO data. We understand that CV is not always the best proxy of the occurring changes in the δ -convergence study chosen variable and methodology.

4. Conclusion

The European Community defined economic and social cohesion as one of the main operational priorities of the European Union's transition towards a Green Economy. Therefore, the integration is to be achieved mainly through the promotion of growth-enhancing conditions and the reduction of disparities between the levels of EU countries' development. The δ -convergence has become a major aspect in assessing the effectiveness of the first European Cohesion Policy and since 2021 the European Green Deal. These programs aim at more than purely economic convergence, the reduction of regional disparities in the level of development and eco-investments has been measured at the convergence of country-level of GDP per capita relative to the EU average (Drastichová, 2014).

Based on the performed analysis we can state that the V4 countries converge towards each other. Although the V4 countries are economies of different sizes and performances, there is a gradual convergence during the analysed years and similarity of the obtained results by other authors (Rapacki and Prochniak, 2019; Stavarek and Tomanova, 2014). Their convergence rate measured in δ -convergence is lower in the EU as a whole than in V4 countries which joined EU in 2004. This is probably caused by the higher initial level of GDP per capita in PPS in the EU countries. The speed of convergence and difference in GDP per capita as compared within the V4 group imply that convergence to the EU average will be a long-term process. The first view of this process was observed in 2012 publications (Kulhánek, 2012).

Despite the method adopted in this article being dedicated to the δ -convergence, it can be concluded that some divergence tendencies. However, these are smaller, once the outlying

observations (Luxembourg) have been excluded from the analysis. The used in this research method of excluding outstanding data, give the stability for calculations and assures comparability. Among researched V4 countries Czechia is an economic leader. In this context, Czechia's economic development not only promises a better convergency towards the EU average economic development but also is in the best position among V4 countries to start changes towards the Green Economy. This is a privileged position for Czechia to invest in renewable energy sources, green labour market, and electromobility infrastructure. There are promising future research avenues, which can be an area of the other convergency methodologies studies. One of them is the comparison of nominal and real convergence among all European countries. The second possible direction of research is the comparison of results among different countries groups within the EU based on their localization and involvement in the GE concept.

Acknowledgements

The paper was is financed by the National Science Centre in Poland under the programme “Business Ecosystem of the Environmental Goods and Services Sector in Poland” implemented in 2020–2022 project number 2019/33/N/HS4/02957 total funding amount 120 900,00 PLN.

The project is financed by the Ministry of Science and Higher Education in Poland under the pro-gramme “Regional Initiative of Excellence” 2019–2022 project number 015/RID/2018/19 total funding amount 10 721 040,00 PLN.

The paper is processed using targeted support for specific university research SP2022/38 “Econometric modelling of macro-financial development determinants”.

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Financial Booster for Digital Transformation – a Tool for Convergence in the EU?

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Abstract

NextGenerationEU as a financial tool brings the reflection of economic and non-economic priorities for the EU Member States in the current decade. The digital transformation of economies is one of the key pillars in the upcoming design of the EU economies. Although the EU Member States differ in how they go digital, the requirement of at least 20% of Recovery and Resilience Plan funding for the digital transformation has been defined by the European Commission in the same way for all national economies. In our paper, we argue that this approach can bring some limited effects when being analysed from the convergence perspective. Firstly, the traditional convergence theoretical and methodological frameworks are applied to depict the tendencies before RRP effects. Secondly, we compare current level of the digital transformation development of European economies with the Recovery and Resilience financial plans of the Member States. We conclude by the identification of upcoming risks concerning the capacity of the new financial booster to decline the inequalities in digital transformation processes between the EU Member States.

Keywords: convergence, digital transformation, European Union, NextGenerationEU, Recovery and Resilience Plans

JEL Classification: E61, F15, H54, O33

1. Introduction

The European answer to negative consequences of COVID-19 pandemic – NextGenerationEU (NGEU) – has the ambition to emerge stronger from the pandemic by transforming the economies and societies in the EU. The common European vision is based on transformation towards green solutions, digital transformation, healthcare and health systems transformation, entrepreneurship empowering, and equality empowering. The choice of these sectors with strategic potential is a central idea of the largest financial instrument in the package - the Recovery and Resilience Facility (RRF). The expected fiscal expansion is unprecedented at the European level and the RRF represents about 5.5% of EU gross national income (RRF provides grants amounting to at most €312.5 billion at 2018 prices and loans amounting to at most €360 billion at 2018 prices). The RRF allows the Commission to raise funds to help Member States implement reforms and investments that are in line with the EU's priorities. The digital transition is among the two top strategic priorities of the EU. Each plan of a

Member State should allocate at least 20% of the total allocation to digital measures (to compare, each plan should allocate at least 37% of the plan's total allocation to climate action). The common objective is to achieve the desired level of strategic autonomy in tech and to develop new rules and technologies to reduce the European lag in digital innovation.

The aim of our paper is twofold: (1) to identify the current convergence status in the digital transformation of the EU Member States and (2) to identify the possible consequences of RRP as a financial booster with a potential to activate the faster and more equal digital transition across Europe. Thus, we try to identify of upcoming benefits and possible risks of the RRP to decline the inequalities in the digital transformation between the EU Member States.

2. Problem Formulation and Methodology

The evidence of various aspects of digital transformation is largely covered in the existing literature. The effects of digital transformation on citizens' well-being as well as on economic growth are underlined by authors (Micic, 2017; Anvari and Norouzi, 2016; Hanna, 2016; Wang and Liu, 2015). The systematic literature reviews in these field are proposed by Reis et al. (2018) and Kraus et al. (2021).

In the context of the European Union, European Commission launched different initiatives to support the development of digital economy and the Single Digital Market (European Commission, 2021). For instance, in 2015, the European Commission launched the Digital Economy and Society Index (DESI) for the EU Member Countries, as a tool to measure the progress toward a digital economy and society as well as the digital divide across the EU on an annual basis. A special strand of literature (for example Milošević and Dobrota, 2018) is proposing alternative measurement approaches to capture the digital performance of the EU countries.

Vyshnevskiy et al. (2020) conclude that the level of the economy digitalization at the present stage of development of technologies in the EU countries does not have a decisive effect on the rate of their economic growth. Szeles and Simionescu (2020) explain by the existence of effective and non-effective measures. They present a common set of "effective" policy measures that stimulates the development of the EU regional digital economy. Małkowska, Urbanies and Kosala (2021) demonstrate the impact of technological transformation on the economy and society in EU countries grouped according to a similar level of development, such as countries with high, medium, and low performance. The authors indicate the cohesion in technological development achieved by each country group and recognise the digitalisation gap between EU Member States.

To our knowledge, the papers focusing on convergence aspects of digital economy in the EU are missing. Our paper focuses on the capacity of RRP to catalyse the convergence process of the digital transformation of the EU Member States. Firstly, we apply traditional convergence theoretical and methodological framework (sigma convergence methods of standard deviation and coefficient of variation) to assess the current state of digital convergence within the EU. We apply the European Commission's data of Digital Economic and Society Index (DESI index <https://digital-strategy.ec.europa.eu/en/policies/desi>) to measure the EU countries' progress in digital transformation since 2016. The components of DESI index allow capturing the following dimensions of digital transition: (1) connectivity, (2) human capital, (3) e-government, (4) e-commerce and digital technologies for business and (5) digital intensity.

Secondly, we link the different aspects of the digital transformation of European economies with the RRP allocation of the Member States. The national plans present data in very different structures, so the cross-country comparison is challenging. In our analyses, we apply

secondary data from the Bruegel dataset (<https://www.bruegel.org/publications/datasets/european-union-countries-recovery-and-resilience-plans/>). We combined these data about specific RRF allocation to digital measures (inspired by flagships areas defined by European Commission) summarized in five categories with the corresponding digital development measures from the DESI metrics, as presented in table 1.

Table 1: Measures of DESI Index Dimensions versus Bruegel Dataset Categories

DESI Index Dimension	Bruegel Dataset Category
Connectivity (Fixed broadband take-up, Fixed broadband coverage, Mobile broadband, Broadband price index)	Connectivity
Human Capital (Internet Users Skills, Advanced Skills and Development)	Digital skills and digital inclusion (Reskill and Upskill)
E-Government (E-government users, Pre-filled Forms, Digital public services for citizens, Digital public services for businesses)	Digital public sector (Modernise)
E-Commerce and Digital Technologies for Business (SMEs selling online, e-Commerce turnover, Selling online cross-border, Electronic Information Sharing, Social media, Big Data, Cloud, Artificial Intelligence, ICT for environmental sustainability, e-Invoices)	Investment in digital capacities and deployment of advanced technologies (Scale-Up)
Digital Intensity (SMEs with at least a basic level of digital intensity)	Digital-related investment in research and development (other digital)

Source: Own elaboration (2022)

The cross-country comparisons and correlation analysis allow suggesting whether the RRF could contribute to a faster convergence on the part of digitally less developed EU countries and eventually, to identify possible risks in this field. Thus, our findings try to contribute to the ongoing discussion about possible effects of NextGeneration Europe initiative (Bańkowski et al., 2021).

3. Problem Solution

To meet the first partial of our paper, we apply the traditional approach to convergence measurement in the field of five crucial digital transition areas. Although the levels of performance of Member States in these areas differ and signal the heterogeneity at the European level, we analyse whether the tendency towards more homogeneous results can be observed between 2016 and 2021. The 5-year time period can be considered to be relatively short, however this was the maximum period available. In this part of analysis, we use Eurostat data (dimensions of DESI index) for 27 EU Member States.

Table 2: Connectivity

	Average	Standard deviation	Coefficient of variation
2016	4,12	1,87	45,42
2017	4,74	2,06	43,54
2018	5,47	2,27	41,44
2019	5,98	2,25	37,65
2020	6,85	2,65	38,61
2021	7,65	2,65	34,62

Source: Own elaboration (2022)

The table 2 summarizes the development of average value and sigma converge measures of EU Member States connectivity scoreboards. We can observe a general tendency towards the increasing average indicating the general improvement of internet connectivity on EU territory. The decline of dispersion measured by the coefficient of variation indicates the general tendency towards convergence of the capacity of EU Members to propose internet connectivity on their territories.

Table 3: Human Capital

	Average	Standard deviation	Coefficient of variation
2016	25,87	6,29	24,33
2018	27,13	6,40	23,58
2020	27,31	6,42	23,51

Source: Own elaboration (2022)

Behind the technologies, the digital skills of population are crucial for a smooth and efficient digitalisation process in the EU. The table 3 summarizes the development of main characteristics in this field. The measurement of EU population digital skills is realised via surveys which occur biannually. For this reason, only the data for 2016, 2018 and 2020 are available and presented. A general tendency towards the increasing average indicating the general improvement of population digital skills in the EU can be observed. The decline of coefficient of variation is observed, indicating the tendency towards slow convergence of the digital skills across the EU Members before 2020. The data for 2020 are based on survey from 2019 so we do not possess the data after the beginning of the COVID-19 pandemic yet. However, we assume that the process of digital skills convergence was dramatically catalysed by pandemic answers (remote working, online teaching etc.).

Table 4: E-Government and Digital Technologies for Business

	Average	Standard deviation	Coefficient of variation
2016	47,48	13,81	29,08
2017	51,03	14,31	28,05
2018	55,37	15,00	27,09
2019	58,93	15,35	26,04
2020	63,34	15,84	25,01
2021	68,52	16,36	23,87

Source: Own elaboration (2022)

Table 4 covers the evolution of digitization of public sector services measures. Not surprisingly, the average level is increasing considerably in the analysed period. The positive tendency towards a dynamic convergence process can be also observed while relying on the development of the coefficient of variation. It seems that the e-government activities contribute to the digital transformation of EU Member States to the large extent.

Table 5: E-commerce

	Average	Standard deviation	Coefficient of variation
2016	10,15	4,63	45,58
2017	10,68	4,50	42,16
2018	11,02	4,36	39,54
2019	11,34	4,56	40,18
2020	12,18	5,18	42,56
2021	13,00	5,23	40,21

Source: Own elaboration (2022)

In Table 5, the data covering the business sector digitalisation measures are presented. The average value is increasing, but its dynamic seems to be relatively lower comparing to public sector indicator (table 4). As in case of human capital outputs (table 3), we perceive the pandemic situation as being an important milestone. Surprisingly, general tendency towards convergence reflecting in gradual decline of coefficient of variation between 2016 and 2019 seem to be negatively affected in 2020, indicating divergent reactions of companies across Europe to the new pandemic challenge. The signals of consolidation after the pandemic shocks are also visible by declining the dispersion in the following year (2021).

Table 6: Digital Intensity

	Average	Standard deviation	Coefficient of variation
2016	4,33	2,28	52,59
2017	5,06	2,46	48,56
2018	5,65	2,60	46,02
2019	6,21	2,74	44,09
2020	6,66	2,85	42,75
2021	7,13	2,96	41,55

Source: Own elaboration (2022)

In Table 6, the data reflecting digital intensity development across the EU are presented. The positive tendencies towards EU-average increase and dispersion value decline can be observed again. But we need to underline that the value of the coefficient of variation exceeding 50% is too high and could have a limited capacity in interpretations.

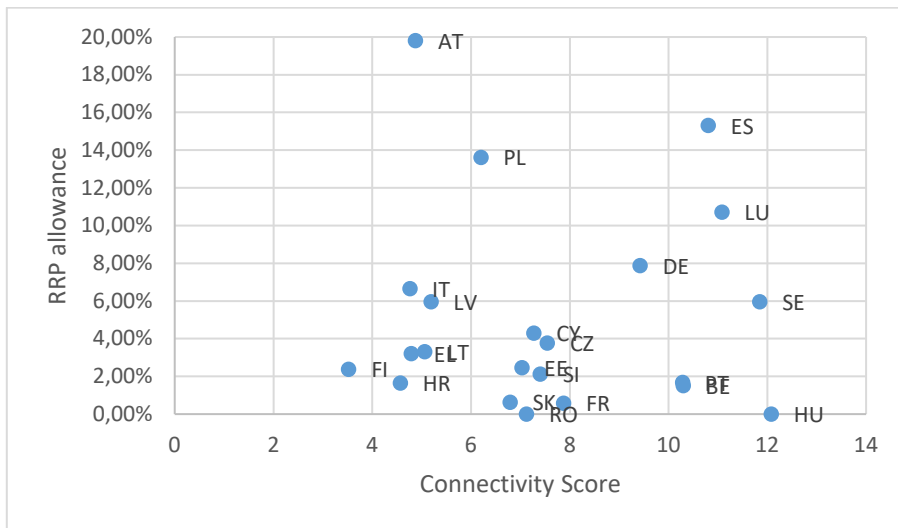
The second partial aim of our analysis is to identify the possible consequences of RRP as a financial booster with the potential to activate faster and even more equal digital transition across Europe. For evaluating this capacity, we apply the cross-country comparisons and correlation analysis combining the country-specific digital area indicators from 2021 with the corresponding national percentage of RRP allocation (2021). We assume the following: if the least developed countries plan to invest for a specific digital area to the larger extent, the probability of increased convergence is higher. If the best-performing countries continue to allocate a substantial part of the RRP to their strong areas, the probability of increased convergence is declining and the goals of digital equality within the EU could be affected.

Only the countries that have submitted their RRP occur in Bruegel dataset. Thus, 22 EU Member States are presented. The countries which do not occur are the following ones: Bulgaria, Denmark, Ireland, Malta, and Netherlands. For the RRP allowance, we are not using the data about total RRP values (in billion euros) but the percentage of total RRF amount (in %)

As can be seen in figure 1, Austria plans to invest almost 20% of its RRP to connectivity while finding itself in the group of the countries with the lowest connectivity level. On the other hand, Hungary is not planning to invest in this area at all and its current level of development is the highest one in the EU. But the general view is not proposing a clear disproportionate approach at the European level. Spain, Luxembourg, and Germany plan to invest an important portion of their RRP to connectivity, while their current levels are already among the highest in Europe.

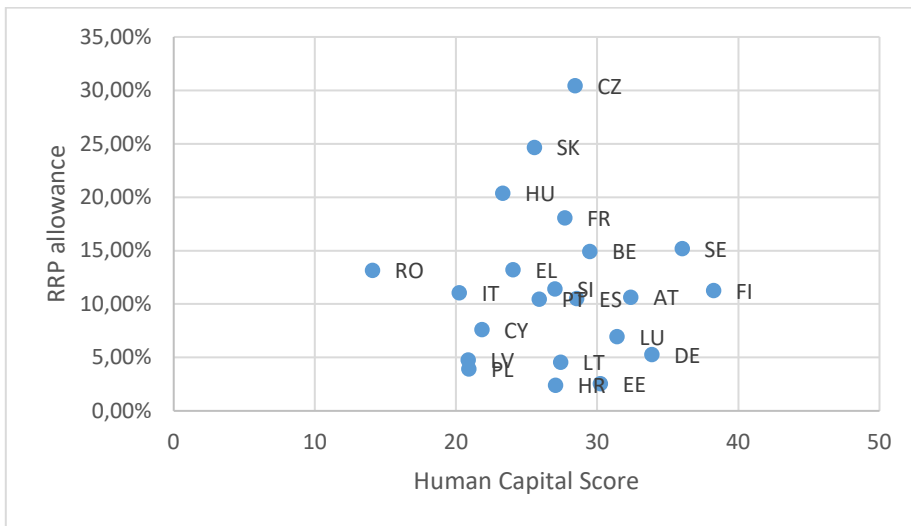
In figure 2, the data concerning human capital are presented and they do not indicate any correlation between analysed indicators. The countries planning to invest the most to digital re-skilling and up-skilling strategies (Czechia, Slovakia, Hungary) are at the comparable development level than countries planning to invest the least portion of their RRP to this area (Croatia, Lithuania, Estonia). The current leaders in this field (Finland, Sweden) are planning to invest a substantial part of their RRP to digital skills increase.

Figure 1: Connectivity Score and RRP Allowance (in %)



Source: Own elaboration (2022)

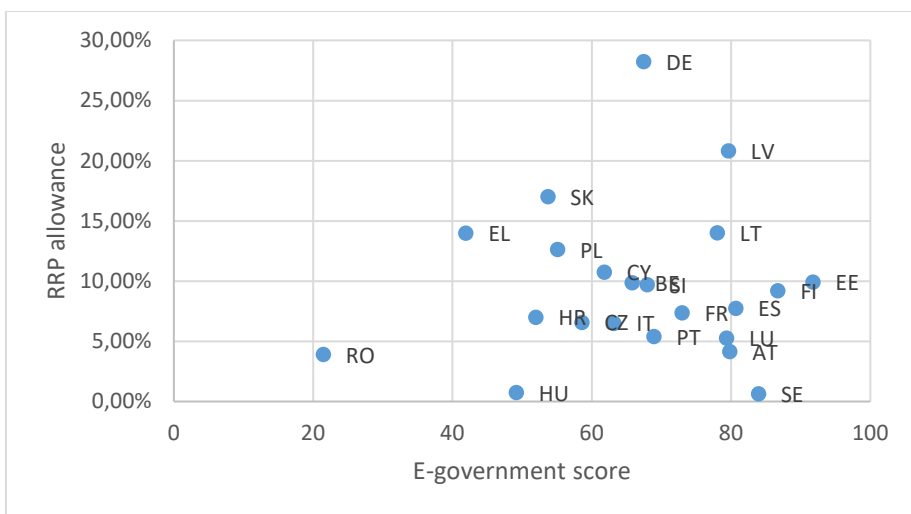
Figure 2: Human Capital Score and RRP Allowance (in %)



Source: Own elaboration (2022)

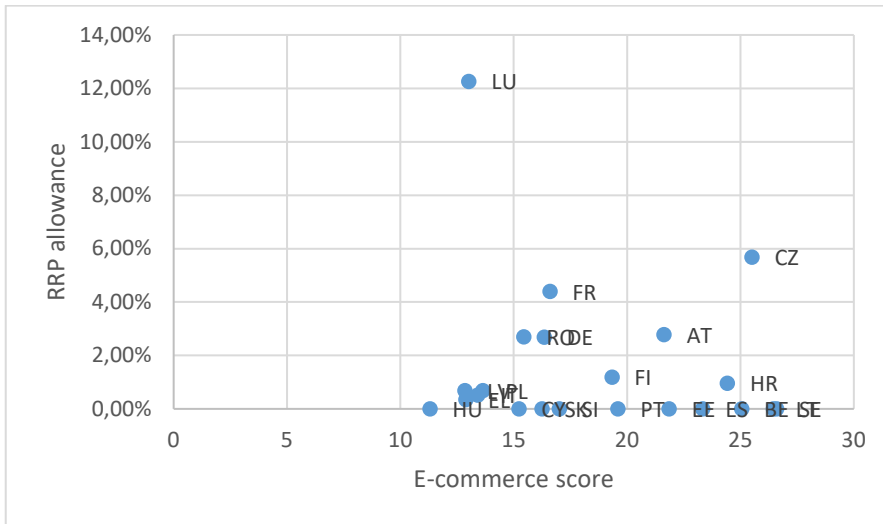
The data concerning e-government (Figure 3) indicate Estonia, Finland and Spain as being the best-performing European countries in this area. However, all three of them are planning to continue to invest in their e-government development approximately 10 % of the total RRP amount. Germany plans to invest the highest proportion of the RRP (28,23 %) among the EU Member States. On the other hand, Hungary and Romania are not planning to invest any important part of their RRP to e-government measures even though these countries have not yet achieved a necessary level in this area.

Figure 3: E-government Score and RRP Allowance (in %)



Source: Own elaboration (2022)

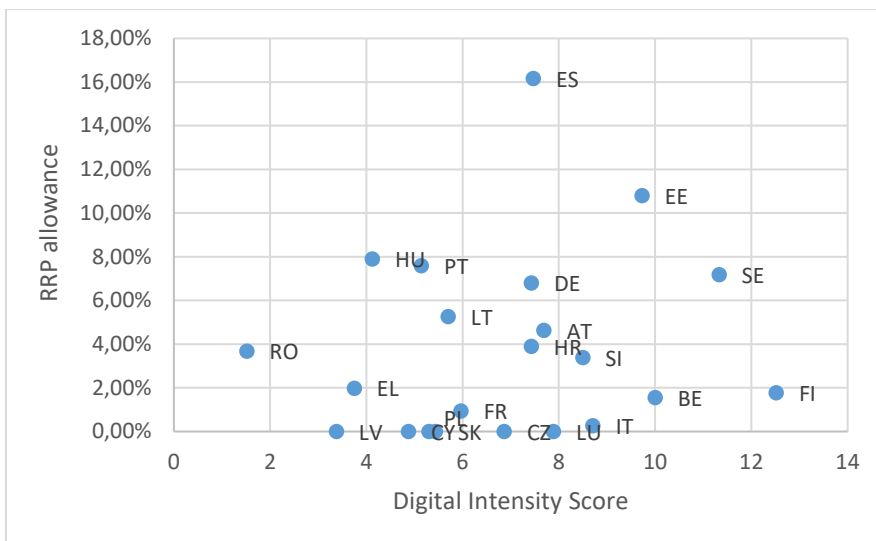
Figure 4: E-commerce Score and RRP Allowance (in %)



Source: Own elaboration (2022)

The data concerning e-commerce area (Figure 4) show that an important part of EU countries is not planning to use RRP to increase their e-commerce, e-business and scale-up (Data cloud capacities and sustainable processors) actions. Czech Republic, being one of the most developed countries in this field, is planning to allocate 6% of its RRP to this area. Not surprisingly, Luxembourg as a country with a relatively low development in this area, is trying to mitigate this gap by investing 12% of its RRP in development of data cloud capacities and sustainable processors.

Figure 5: Digital Intensity Score and RRP Allowance (in %)



Source: Own elaboration (2022)

The data concerning digital intensity are also analysed (Figure 5). Again, an important part of EU countries is not planning to use RRP to these actions. Spain and Estonia are the countries planning to allocate the most important portions of their RRP to this area. But differences among the best-performed countries (Finland, Sweden, Belgium) and the least-performed ones (Romania, Greece, Hungary) are negligible from the point of view of their respective RRP portions dedicated to this digital area.

4. Conclusion

The aim of our paper was twofold: (1) to identify the current convergence status in the digital transformation of the EU Member States and (2) to identify the possible consequences of RRP as a financial booster with a potential to activate the faster and more equal digital transition across Europe. The results of our analysis are rather promising when identifying a decreasing dispersion between 2016 and 2021 in all analysed aspects of digital transition via sigma convergence measures. These findings seem to reflect a tendency towards digital equalizing processes in the EU. However, this spontaneous progress can be largely affected by Recovery and Resilience Plan as a NextGenerationEU financial tool bringing special emphasize to digital transformation measures. The requirement of at least 20% of RRP funding for the digital transformation has been defined by the European Commission in the same way for all national economies (a mode of one size fits all strategy). However, our findings resulting from the identification of the links between current level of the digital transformation development of European economies with the Recovery and Resilience financial plans of the Member States do not indicate any potential for clear convergence persistence. The risks concerning the capacity of the new financial booster to decline the inequalities in digital transformation processes between the EU Member States are evident since the mix of strategies were applied by Member States. In all analysed areas, the best digitally developed countries decided to enhance their strengths while the digitally worse performing countries were not applying the necessary catching-up strategies. Although, the positive consequences of the first approach are evident (Alm et al., 2016), the digital convergence process manifested in the period before 2022 could be largely affected by the identified risks.

However, our findings are not taking into account any possible spill-over effects from one country to another one, which could partially mitigate the risk of increased heterogeneity in the digital transition of the EU Member States. Moreover, our findings are limited by our interest in digital transition only which can be the reason for their not compliance with the results of other authors focusing on the overall effects of RRP on GDP (Bańkowski et al., 2021; Pfeiffer, Varga, Veld, 2021; Darvas at al., 2022). The further research relying of new data (DESI 2022) will be needed to capture the upcoming trends in digital transformation convergence across Europe. Moreover, the regional approach to convergence analysis could bring new insights, but an extension of the existing data, e.g. regional dimensions of the Digital Economic and Society Index, and appropriate methodology is thus crucial.

Acknowledgements

This paper was financially supported by the Research Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic grant VEGA No. 1/0668/20 “Digital Inequality and Digital Exclusion as a Challenge for Human Resources Management” and grant KEGA No. 040UMB-4/2021 “Diversification of Content and Didactic Forms for Teaching Economic Subjects in the Slovak Language and in World Languages” at the Faculty of Economics, Matej Bel University in Slovakia.

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The European Union's New Engagement with Asia. Connectivity, Indo-Pacific and the Global Gateway

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Abstract

Recent geopolitical changes as well as post-pandemic recovery have led the EU to call for a more engaged role in the world. Increasing Chinese global influence, combined with Beijing's tense relations with Washington, led some democratic countries to call for the creation of an Indo-Pacific concept that constructs a megaregion based on rules. In order to safeguard future objectives in Indo-Pacific, European nations such as France, Germany, Italy, the Netherlands, and the United Kingdom called for national Indo-Pacific approaches. At the EU's level, the ambitious Indo-Pacific strategy is being complemented by the Global Gateway based on Asia-Europe connectivity strategy. In this paper, the EU-Asia Connectivity, Indo-Pacific and the Global Gateway strategies are examined in light of an EU's new engagement with Asia. Paper's qualitative approach builds on the content analysis of EU's national and external policies. The strategies address niches in infrastructure projects and seek for strong EU's Indo-Pacific partnership roles in order to secure future European interests in Asia.

Keywords: Asia, European Union, connectivity, Global Gateway, Indo-Pacific

JEL Classification: F50, F52, F60

1. Introduction

Asia has become the centre of global economics and geopolitics. With a growing interest in Asia, the term Indo-Pacific has been used in Europe. As the world's economic and political centre of gravity is moving to Asia, the developments mostly set out alongside the Indian and Pacific Oceans and the Asian lands bordering them. In the Indo-Pacific, the European Union (EU) is among top investors and donors due to its almost €90 billion in annual investments, which is roughly equivalent to the total foreign direct investment (FDI) in Europe itself (Okano-Heijmans 2021). Integration and geopolitics are variables that constructs regionalism, or the product of regional creation. In this regard the Indo-Pacific is a geographical, political and strategic construct (Heiduk, Wacker 2020), implemented (again) since about a decade ago.

Asia comprises 40% of the world's population and accounts for roughly 35% of EU exports (€18 billion) and 45% of EU imports (€74 billion). Ties between Asia and the EU will likely deepen in the coming years (European Commission 2021a). The EU has deep economic and trade relations with China, Association of Southeast Asian Nations (ASEAN), Asia-Pacific Economic Cooperation (APEC), India, South Korea and Japan, with whom Europe has established a strategic partnership (Laš 2020). The pandemic period of 2020 and 2021 led to economic and production crises, where there were distracted value and production chains leading to the questioning of the current the model of global economic integration (Shrestha et al. 2020, Barbero et al. 2021). The recovery in the post-pandemic period is therefore

expected to be based on factors such as new-technology, structural reform and re-integration (Song and Zhou 2020).

Looking at regionalisms over Eurasian landmass, the EU as integration project covers Western and Central Europe. The less prominent Eurasian European Union stretches across most of the Eurasian post-Soviet space. In Southeast Asia the ASEAN binds together ten nations in the most diverse world region. There are some efforts for integration in South Asia but small efforts in Northeast Asia or in the Middle East. In this reality of regionalisms across Eurasia, geo-economic projects superimpose and connect different groups of regions, perhaps of the largest ones is the China's Belt and Road Initiative (BRI) known as the 'New Silk Road' (Laš, Poledníková 2018). This is where a new European strategy, the Global Gateway (GG) aims to score and fulfil its objectives for connectivity.

Not only is globalisation a process of integrating external components into economic, political, social, and cultural spheres, but it also describes the formation of global markets and transnational structures. Despite the fact that globalisation has become connoted with aggressive capitalism and the homogenization of cultures, the term "connectivity" is less associated with these negative traits, instead, it supports positive outcomes (Becker et al. 2021). And connectivity has become a high-level political and diplomatic objective of the EU in its latest policies towards Asia. This relevance morphed into EU's strategic approach to active engagement in Asia following by essential tracks: security and economics. The first track follows American, Australian and Japanese Indo-Pacific strategies, and complements them with EU's original roles in mitigating securitization, creating peaceful and rules-based regional order. The second track promotes EU's soft power in clean, environmental and human-centric approach in infrastructure projects, yet challenges the BRI.

This paper gives an overview of the three key strategies that shows EU's new engagement with Asia: The EU-Asia Connectivity Strategy, the EU's Strategy for Cooperation in Indo-Pacific and the Global Gateway. The primary aim is to assess the general functions of the strategic approaches that signalize a great importance of Asia for the EU. The EU likes to prevent being a late-comer in fast-changing Asian economic and security environment, as it is not a region in the Indo-Pacific. A desktop content analysis of the approaches and strategies is culminated with an assessment drafting implications and perspectives on the EU's new engagement with Asia. The sources stem on European Commission reports, governmental sources on Indo-Pacific and academic articles. The article is organized into separate chapters devoted to the three new EU strategies described in the context of the EU's external policies towards Asia, followed by the implications and perspectives that lead to the conclusion.

2. The EU-Asia Connectivity Strategy

In 2018 the EU presented the priorities of external policies towards Asia. Following the EU's contribution for the 12th Asia-Europe Meeting (ASEM), the EU-Asia Connectivity Strategy has been adopted. Its emphasis is placed on sustainability, comprehensiveness and rules-based connectivity. The strategy sets a goal for building the Trans-European Network for Transport towards Asia, where aviation, land and sea transport will be developed on the basis of agreements under a sustainable framework. Digital and energy connectivity will be bridged with high capacity network linkages and energy connectivity platforms. Socio-cultural connectivity will be ensured by social mobilities and formats such as cooperation between sister cities. International partnerships for sustainable connectivity were called for Asian countries such as Afghanistan, India, Indonesia, Iran, Pakistan or Central Asian countries (European Commission 2021c, p. 1-6).

Becker and co-authors (2021) analysed the connectivity and sustainability in relation to Europe-Asia politics following the ASEM results. Their analysis describes 30 connectivity indexes in physical, political, institutional, people-to-people, environmental, social/financial and economic domains. The 88 sustainability indexes are related in a large extent to 11 out of 17 Sustainable Development Goals (SDGs). The countries that are more connected have way better living conditions, more inclusive societies, greater levels of education, less corruption perceptions, greater freedom of the press, and more international nongovernmental organizations (Becker et al. 2021). Their results show that with the exception of Singapore, Asian countries are less connected than European countries. Thus, European connectivity strategy to Asia is a key area that gives also Asian countries reasons for EU's new roles.

Another aspect is regional and international cooperation. The EU intends to strengthen regional connectivity cooperation approaches for Asia where a particular attention is given to Southeast Asia in context of the Master Plan on ASEAN Connectivity 2025 (Association of Southeast Asian Nations 2016). International cooperation in this strategy focuses on categories such as ocean governance, international agreements and standards against climate change and environmental degradation and economic-related standards to secure the interoperability of networks. A special category is international partnerships in finances where the role of international financial institutions and multilateral development banks are crucial. The EU's economic diplomacy in Asia will be invigorated for small and medium enterprises (SMEs) and matching European with Asian businesses (European Commission 2021c, p. 7-12).

Early 2022 brought a pledge by France, Germany and Italy on formation of a Team Europe Initiative (TEI) for EU-ASEAN connectivity (from physical to social), the EU-ASEAN Green TEI with ASEAN Catalytic Green Finance Facility, the Green-Blue Alliance for Pacific and East Timor, but also mobility programmes for individuals in Asia via the Erasmus+ and Marie Skłodowska-Curie Actions (European Commission 2022). This underlines ASEAN's importance in EU's external policies, while ASEAN is a very central regionalism to Indo-Pacific. ASEAN's multilateralism has been a source of inspiration in bridging differences and getting the leaders of opposite worldviews to one table. Besides the EU and ASEAN are currently the two most successful models of functional regionalisms in the world.

3. From European Indo-Pacific Approaches to the EU's Strategy

The term 'Indo-Pacific' has been deployed in the world and in Europe in the past decade. It is a political term in nature, therefore it is not value-neutral (Heiduk, Wacker 2020). Although it differs in scope and understanding across countries, it has become a cornerstone for the EU's new engagement with Asia as it follows national interests of the major EU member states.

Germany introduced policy guidelines for the Indo-Pacific region based on the following interests: peace and security, diversifying and deepening relations, finding freedom of choice regarding security and economics, free shipping routes, open markets and free trade, connectivity, ecology and fact-based discourse. Berlin set the principles in this regard based on European action, multilateralism, a rules-based order, United Nations Development Goals, human rights, inclusivity, and a partnership among equals (Federal Government 2021).

France is among the first of the EU countries to have introduced a national Indo-Pacific strategy (Ministry of Europe and Foreign Affairs, France 2021). Paris sees the Indo-Pacific region as a place where polarizing tensions and significant global issues meet. French strategy speaks of a changing geopolitical balance of power, relative to the structuring axis of the global economy within the Indo-Pacific. It stresses that global issues need to be addressed by means of sustainable development. France as a 'trans-continental' country with overseas territories,

identifies itself with the region and may have highest European interests at stake. Attention is paid to a military and security presence, the economic footprint, research and education, geo-economics, and French engagement in both Oceans and with ASEAN. French objectives are related to security and defence, economy, connectivity, innovation, multilateralism, the rule of law, addressing climate change, biodiversity, and the sustainable management of oceans.

Italy has also shown interest in entering Indo-Pacific politics by joining a trilateral Indo-Pacific talks with India and Japan in 2021. New Delhi encouraged Rome to support India-centric EU strategy for cooperation in Indo-Pacific (Government of India 2021). As the EU and G7 member state, Italy is expected to be gradually more active. Although Rome doesn't have a strategy in place at this point, there are many strategic reasons for Italy to actively engage in constructing Indo-Pacific, from trade-related to maritime-security reasons (counter-piracy).

The Netherlands presented the Dutch Indo-Pacific Guidelines, released in November 2020, recognizing the rise of China with security implications for the world and the Indo-Pacific region, based on a *realpolitik* perspective. The Dutch guidelines lean on EU external policies stressing cooperation with Indo-Pacific nations, sustainable trade and economies, multilateralism and the international legal order, sustainable connectivity and development goals, security and stability, work with democratic countries, trade and economies, to name some (Government of the Netherlands, 2021).

The EU's Indo-Pacific strategy followed in mid-2021. Its goal is to make the EU more engaged in the Indo-Pacific by strengthening cooperation with inter-governmental organizations and regional cooperation formats such as ASEAN, ASEM and Pacific Island Forum (PIF). Another goal is the formulation of the international political agenda on global issues, economy and security, research, connectivity and high-level quality (Ministry of Europe and Foreign Affairs, France 2021, p. 70). The EU is determined to build relations and a rules-based international order, address global challenges, and adjust sustainable recovery. The document presents the EU's rationale, principles, approaches, and means for pursuing this vision. The strategy mentions that global emissions have grown in the Indo-Pacific from 37% to 57% since the new millennium and will account for over 70% of the growth in the global energy demand (European Commission 2021b, p. 2).

The EU strategy refers to the geopolitical dynamics, intense competition, military build-up, exposed democratic principles and human rights, and the need for cooperation. The EU considers ASEAN a key partner and acknowledges ASEAN's centrality in the Indo-Pacific. The seven areas for realising the EU's Indo-Pacific strategy include: sustainable and inclusive prosperity, green transition, ocean governance, digital governance and partnerships, connectivity, security, defence, and human security (EC 2021b, 5). The EU's actions include value chains, standards, regulations, trade negotiations, partnerships and cooperation agreements, green alliances, fisheries management, digital partnerships, naval deployment, maritime security, healthcare systems and pandemic preparedness (EC 2021b, p. 17).

4. The EU' Global Gateway towards Implemented Connectivity

The next variable to the EU's new engagement with Asia is the EU's Global Gateway (European Commission, 2021c). It aims to implement European expertise and capital with the private sector and partners abroad, to follow the EU's strategic interests. It is a challenge to the China's BRI, aimed more at developing high-quality infrastructure, in accordance with principles such as democratic values and standards, transparency, good governance, equal partnerships, green and clean strategies, with a focus on economic security and investments (European Commission, 2021c, p. 3-4).

The GG aims to be a catalysing platform in co-developing transport, energy and health infrastructure with a funding over €300 billion between 2021 and 2027 stimulated via the Team Europe approach, institutions and development banks (e.g. European Bank for Reconstruction and Development, European Investment Bank) and private investments. The GG is based on results of the EU-Asia Connectivity Strategy and partnerships in Asia.

In line with the United Nation's 2030 Agenda and the Paris Agreement, the GG encourages sustainable development in its partner countries. The company uses a responsible approach when it comes to infrastructure projects so debt is not unsustainable (European Commission 2021d). GG will be funding infrastructure project based on principles such as high standards, good governance, equal partnership, transparency, democratic values, green solutions, security-focus, catalysing private sector investment from EU member states.

The GG aims to provide local people with sustainable solutions, public procurement practice to attract investors, supporting women, climate-neutral strategy for transition to circular global economy based on European Green Deal, supporting health and education, talent-pooling, and promoting the EU model of society. A multimodal system with sustained, smart, resilient, inclusive, and safe transport infrastructure will be promoted, encompassing all modes of transport, including rail, road, ports, airports, as well as logistics, and border crossing points (European Commission 2021d).

The early criticism of the Global Gateway lies in clear delimitation from China's BRI, although there are cases where Chinese expertise and local sensibility brought positive results (Kliem 2021). The GG so far clearly challenges this New Silk Road that only few years ago was welcomed by some European countries. As a reaction the G7 countries presented the Build Back Better World (B3W) to which the GG is seen as complementary. Criticism also questions whether the private funding will join in the European partnerships effectively (Kliem 2021).

5. Implications and Perspectives

This paper was devoted to the EU's new engagement with Asia by demonstrating objectives, areas of cooperation, national interests, some key-urgent issues and opportunities in Asia by presenting inter-connection of three recent strategic approaches in the EU: the EU-Asia Connectivity Strategy, the EU's Strategy for Cooperation in the Indo-Pacific and the Global Gateway Strategy. The main aim here was the assessment of strategic approaches that signalize Asia's importance for the EU in a new dynamic Indo-Pacific security and economic environment. Although such assessment, which comes too early to see results, has limits, the implications of the current EU's external policies draw perspectives for the new EU's roles.

Firstly, connectivity and sustainability are two variables that influence development of regions and countries. By interconnecting institutions, peoples and businesses, there is a higher degree of inter-regional integration, which brings more stability and security. This is particularly needed in Asia that is fragmented into different political regimes and economies of various degree of development. With the continuing trade war between United States and China, the economic decoupling in the pandemic period brought negative effects on the EU's economic growth and production. Connecting the EU more with new dynamic Asian economies such as India, Indonesia, Malaysia or Vietnam will mitigate negative externalities and contribute to integration and reconstruction of the world economy, while lessen EU's dependence on China.

Secondly, the Indo-Pacific has become a central focus of like-minded, mostly democratic countries that hope for a rules-based order that will not be detrimental to emerging Asian powers with autocratic regimes, such as China. The Indo-Pacific has been a buzzword used in international politics from Japan to Australia and from the United States to India and Europe.

Since countries such as Australia, United States and Japan start using the concept in their foreign policies, the region has brought ever more attention also in India, ASEAN and major Western European countries such as France, Germany, Netherlands, but also United Kingdom that has 'brexited' the EU in 2020. As competition over networking and future partnerships is rising, the EU has finally decided to incorporate the Indo-Pacific into its official external policy, at odds with criticism from China. This way the EU with its great soft power further popularizes Indo-Pacific concept, though it differs from other countries' Indo-Pacific concepts.

Thirdly, China with its national ambitious BRI project elevated the infrastructural agenda on global level but symbolically outmatched other traditional actors such as Japan and South Korea. Although the EU is major donor in development, it tends not to be as visible as for instance China's BRI. The Global Gateway is a comparable infrastructural project that highlights the European soft power in its unique approach based on transparency, democracy and environmental-friendly instruments. Not only hard but also digital infrastructure will come under these values, which may be attractive to countries that enjoy a degree of freedom and democracy. The success of digital regulatory policies in Europe is due to priority on privacy and fairness over economic clout, thereby empowering companies in Europe to demand democratic standards for digital technology (Okano-Heijmans 2021).

Fourthly, combining connectivity with infrastructural projects under the GG within a defined geographical region of Indo-Pacific gives the EU consistency in its new engagement with Asia, bridging security, green transition, sustainability, economic integration, support for democracy and development with EU's priorities and strategic interests in the world. This consistency will help the EU to reposition and not loose pace to dynamic competition in Asia.

Fifthly, the EU seeks for its more unique role in the world and Asia may be the destination for new EU's roles contributing to stability and peace. Its higher engagement is demanded by like-minded democratic countries, like Japan, Australia, the United States, Taiwan, India. The position to which the EU formulates itself is likely to be more complementary to other nations' Indo-Pacific strategies, which should differentiate the EU from other actors and become more visible among Asian partners.

6. Conclusion

As the pandemic period is likely to come to an end, the EU is facing new challenges near its eastern border. The military intervention of Russian Federation in Ukraine turns world's attention to security. This domain reminds the primary factor behind successful regional integration. Some voices speak of the clash of civilization models that will be inevitable in a new multi-polar world with China, Russia, EU and the United States on the geopolitical and geo-economic chessboard. In this game, Eurasia will be the primary region of happening. As the centre of global economy and security moves towards Indo-Pacific, the EU will spend efforts to keep pace with the developments and show the power of cooperation.

The EU's new engagement with Asia is certainly a necessary first step. But the Indo-Pacific as a regional concept, in line with current international discourses, deserves more attention also from the European public and academia. One problem lies in its fragmented understanding and limits of prioritization in national foreign priorities. For example, some Central European EU Member States are landlocked countries with no maritime history with Asia. Such a topic is therefore likely to have less priority in their foreign policy than in France or the Netherlands. In addition, the current conflict in East Europe may adversely affect EU's Indo-Pacific and Global Gateway approaches. These two problems remain for future research.

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Society in the Centre of the European Union Innovation Policy Discourse

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Abstract

Societal challenges, such as climate change, population ageing, food security, biodiversity loss, cancer, and migration, are the global priorities of the 21st century. There is a broad consensus over the vital role of innovation in coping with these challenges. Thus, various theoretical bases dealing with the role of innovation and innovation policy in achieving societal goals have been created in the scientific literature. The aim of the paper is to present the selected approaches for the orientation of innovation policy towards societal goals and provide examples of their practical application on the European Union (supranational) level. The paper is based on a literature review, as well as empirical studies. It provides an overview of the approaches, describes common features and relationships, and offers empirical evidence of case studies.

Keywords: European Union, innovation policy, responsible research and innovation, societal challenges

JEL Classification: O31, O35, Q01

1. Introduction

In academia and practice, increasing attention is being paid to the orientation of innovation processes towards societal goals. This change in innovation policy objectives is referred to as a new generation of innovation policies, challenge-oriented innovation policies (Hassink et al., 2021), mission-oriented innovation policies (Mazzucato, 2018), or innovation policy 3.0 (Schot and Steinmueller, 2016). Addressing societal challenges requires new governance tools and mechanisms to support the direction of research, development, and innovation (RDI) (e.g., Boon and Edler, 2018).

Complex challenges, such as climate change, population ageing, pollution, biodiversity loss, and food security, demand a combination of technological, social, and organisational innovation, very often in the form of systemic change (Kuhlmann, Rip, 2018). They are perceived as ‘wicked’ problems in the sense of their complexity, interconnectedness, and uncertainty. The theory of wicked problems introduced in the 1970s states, inter alia, that there is no right or wrong solution, but a solution that proves to be worse or better (Rittel, Weber, 1973). Furthermore, the correctness of a solution cannot be measured objectively, as different stakeholders have their own values, interests, and beliefs. Head (2018) notes that Rittel and Weber were the first to challenge the traditional assumption that scientific methods alone can solve complex societal problems.

Current debates are about coordinating supranational, national, and subnational (regional and local) policies to address societal problems effectively. Both supranational and subnational

level has become particularly important in recent years. However, according to Bours et al. (2021), academics and practitioners are focused rather on multilevel governance arrangements, including smart specialisation strategies. The authors, thus, propose a so-called small wins approach based on the accumulation of small-scale changes to enable systemic change more easily. Due to the paper's focus on the supranational level, it will not pursue this approach further in the following sections.

To date, various policy approaches have been proposed in the literature. The aim of the paper is to present the selected approaches for the orientation of innovation policy towards societal goals and provide examples of their practical application on the European Union level. To achieve this, the paper uses a literature review and case study approach. The structure of the paper is as follows: Chapter 2 offers an overview of the approaches, Chapter 3 comprises the empirical evidence, and Chapter 4 provides a conclusion and suggestions.

2. Approaches for the Orientation towards Societal Goals

The following chapter addresses the four selected approaches. It briefly reviews the main characteristics and examines common features, differences, and relationships. The approaches are compared according to four criteria: (a) pathway of innovation, (b) main role of public sector, (c) level of civil society engagement, and (d) directionality. Selected approaches and identified case studies are listed in Table 1.

Table 1: Selected Approaches and Identified Case Studies

Approach	Example
Mission-oriented innovation policy	EU Missions
Responsible research and innovation	Horizon 2020 Programme
Social innovation	EU Programme for Employment and Social Innovation
Multi-level perspective	The Circular Economy Action Plan

Source: own elaboration

2.1 Mission-Oriented Innovation Policy

One of the most discussed notions in this field of research is a mission-oriented approach (MOA). The principal advocate of this approach is M. Mazzucato, who highlights the role of the public sector in shaping and creating markets (see, e.g., Mazzucato, 2018; Mazzucato, 2019; Mazzucato, 2021). MOA stems from six critical attributes of the Apollo programme (the mission to land a man on the Moon), namely vision with a strong sense of purpose, risk-taking and innovation, organisation dynamism, collaboration and spill-overs across multiple sectors, long-term horizons and outcome-based budgeting, and a dynamic partnership between the public and private sectors (Mazzucato, 2021).

Mission-oriented innovation policy can be in this regard described as “a *directional policy that starts from the perspective of a societal problem and focuses on the formulation and implementation of a goal-oriented strategy...* (MIPO, 2020: 2)”. The role of the policy is to strengthen the connections between actors and sectors to direct their efforts and resources towards concrete goals. Hekkert et al. (2020) propose a so-called framework ‘mission-oriented innovation system’ (MIS) based on cooperation and interaction of actors and institutions that contribute to the development and diffusion of innovation. It differs from the other innovation system approaches (e.g., national, regional, sectoral, and technology) in terms of defining the system's boundaries, interactions, and outcomes. First, the boundaries are drawn according to

the location of actors, such as government, academia, industry, NGOs, and civil society. Second, research activities are primarily demand-driven. Third, addressing societal challenges involves changes in technology, as well as in values and attitudes.

2.2 Responsible Research and Innovation

The Responsible Research and Innovation (RRI) approach has emerged at the European Union level, having first appeared in the 2000s in connection with the rapid development of new areas of science, such as nanotechnology and ICT. The main reason behind this interest was the time lag between the emergence of innovation, understanding its (negative) societal impacts, and subsequent governance (von Schomberg, 2011; Owen, Goldberg, 2010).

An early definition of RRI was suggested by von Schomberg (2011: 9), who describes it as “*a transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view to the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products*”. Stilgoe, Owen and Macnaghten (2013) introduce four dimensions of RRI: anticipation, reflexivity, inclusion, and responsiveness.

‘Anticipation’ means the ability to identify unintended consequences of RDI early. ‘Reflexivity’ is seen as the capacity to mirror one’s activities, commitments, and assumptions, be aware of the limits of one’s own knowledge, and look at problems from different perspectives (Stilgoe, Owen, Macnaghten, 2013: 1571). The term ‘inclusion’ is meant to capture the need to involve all relevant stakeholders, including citizens, in RDI processes. The last dimension (responsiveness) encompasses the ability to shape the direction of RDI activities based on the changing requirements and conditions. Numerous scholars and practitioners consider this framework the starting point of RRI (Jakobsen, Fløysand, Overton, 2019). Stahl (2013) suggests viewing RRI as a space made up of actors, norms, and activities. He understands the concept as meta-responsibility, which shapes, develops, and coordinates relevant actors, activities, and responsibilities in order to ensure the desired RDI results.

2.3 Social Innovation

The importance of social innovation (SI) has been growing in the light of the need to address sustainable solutions. Here SI is considered as one of the approaches; as mentioned above, behavioural change is crucial in order to effectively tackle societal challenges. A wide range of definitions can be found in the scientific literature (e.g., Amanatidou et al., 2018; Oeij et al., 2019). Howaldt and Kopp (2012: 47) see SI as a new combination or new configuration of social practices (e.g., relationships) with the aim to answer society’s needs and solve societal problems better than current procedures do. A created value is typically shared among the whole stakeholders (Phills et al., 2008). Similarly, according to Cuntz et al. (2020), the main criterion for identifying SI is the way in which the benefits of innovation are shared between innovators and society. They argue that the main difference is not between technological and social innovation, but between social and business innovation. Edwards-Schachter and Wallace (2017) find agreement on the basic characteristics of social innovation, specifically: ‘process’ involving strong participation of ‘civil society or the third sector’, production of ‘social change’ through ‘changes in social practices’, concentration on addressing ‘unmet social needs and complex problems’, and creation of ‘social values’ (Edwards-Schachter, Wallace, 2017: 22).

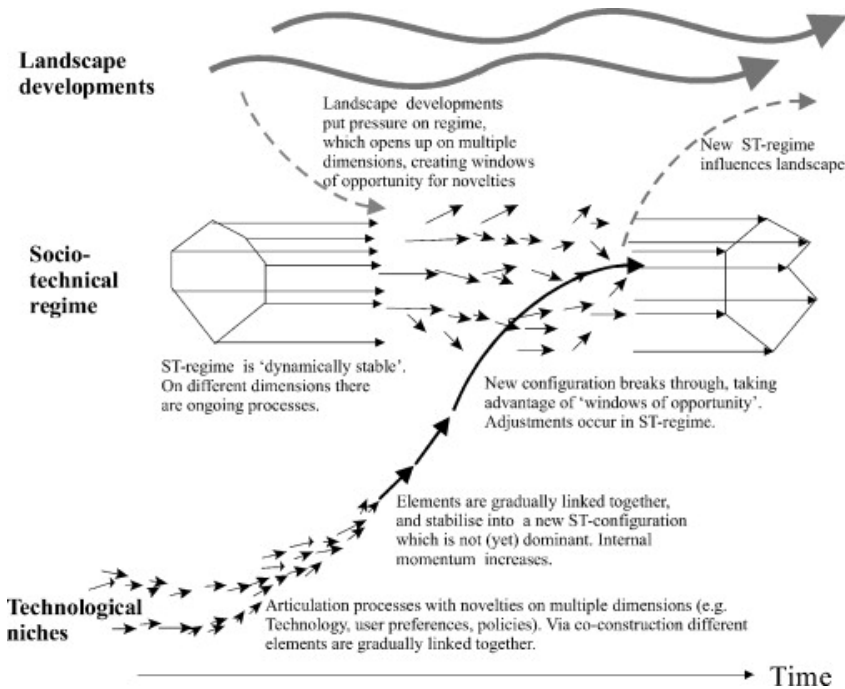
Marques et al. (2018) develop a typology for the classification of different types of SI. They distinguish between structural SI, targeted versions of SI, and instrumental SI. Structural SI

refers to wide social transformation (e.g., radical change in governance). On the other hand, targeted versions of SI are limited in scale and scope. According to the transformative potential, they can be divided into two sub-groups: radical (activities reshaping existing institutional arrangements, e. g., addressing inequalities of a specific social group in a particular place) and complementary (e.g., the concept of co-design). Instrumental SI describes the tendency of policymakers and researchers to rebrand existing activities and initiatives, whereas goals and outputs remain the same (e.g., debates on community development).

2.4 Multi-Level Perspective

Sustainability transitions are defined by Markard et al. (2020) as fundamental changes in socio-technical systems such as energy, transport, food, and healthcare. An important framework for socio-technical transitions to sustainability is F. W. Geels’s Multi-Level Perspective (MLP) (2002). Here, socio-technical systems of innovation are divided into three levels: macro, meso, and micro (Geels, 2004). Macro level (landscapes) involves features of the exogenous environment (e.g., material environments, shared cultural beliefs). Landscapes cannot be directly influenced by actors and organisations. Meso level (socio-technical regimes) can be defined as “sets of rules, which are linked together (Geels, 2004: 903)”. Four main types of regimes are distinguished: socio-cultural, policy, science, and technological. The existing regime is stable in different ways (e.g., institutionally, economically) and provides a direction for incremental innovation. Finally, micro level (technological niches), where learning processes, networking of actors and experimentation take place, serves as a source for radical innovations. Activities in niches are often oriented toward the current challenges of regimes.

Figure 1: Graphical Representation of Multi-Level Perspective



Source: Geels (2004)

The key principle underlying the approach is that transitions may be achieved when dynamics at these three levels link up and strengthen each other (Geels, 2004: 903). The relationship between these three levels is shown in Fig. 1. Geels describes the dynamics as follows: developments on the landscape level can put pressure on regimes (on the other hand, new regimes may also influence wider landscape developments). If a discrepancy on the regime level occurs (i.e., incapability to meet new needs), this generates an opportunity for niches.

2.5 Comparison of Approaches

This subchapter focuses on a comparison of selected approaches. They are compared according to four criteria: (a) pathway of innovation, (b) main role of public sector, (c) level of civil society engagement, and (d) directionality. The results are summarised in Table 2.

Table 2: Comparison of the Selected Approaches

	MOIP	RRI	SI	MLP
Pathway of innovation	Innovation activities are primarily driven by formulated societal challenges. Bottom-up experimentation is encouraged.	Embedding the principles into all phases of RDI processes. Changing practices and cultures of RDI and policy.	Initiatives stem from society's needs and usually have a bottom-up pattern.	Radical innovation is at the heart of transformations. Radical novelties emerge from market niches, which respond to mismatches in regimes.
Main role of public sector	Creating and shaping markets through investment.	Mobilising private sector.	Abolishing obstacles for carrying SI.	Protecting niches (e.g., RDI subsidies)/stimulating the creation of radical innovation.
Level of civil society engagement	Civil society participates in the formulation of societal challenges.	One of the principles is civil society engagement. Participation of citizens and stakeholders is vital.	Civil society is a beneficiary and/or a source of SI.	'Pure' theory neglects the role of civil society. However, civil society is a part of all three levels and, thus, can affect them.
Directionality	Directionality is a starting point. Effort and resources are oriented towards concrete societal goals.	Principles guide the direction of search activities.	SI can be a means to support directionality.	Directionality in the form of relative stability of landscape and regimes.

Source: own elaboration based on the reviewed literature

From the table above, it can be inferred that all the examined approaches are complementary. No major discrepancy was found. They, although, differ in their emphasis on civil society engagement – from SI and RRI, which are strongly society-oriented, to MLP, which focuses rather on state and business. In the case of directionality, they should ideally enhance each other. SI may serve to foster directionality, whereas MLP provides a framework (e.g., in case of transition to sustainable industry), and RRI acts as a ubiquitous responsibility.

3. Practical Application of Approaches

This chapter presents the empirical findings of the study. To provide examples of the practical application of the approaches on the European Union (supranational) level, four case studies are selected: EU Missions, Horizon 2020 Programme, EU Programme for Employment and Social Innovation, and the Circular Economy Action Plan.

3.1 Mission-Oriented Innovation – EU Missions

New programming period (2021–2027) is marked by the urgency to come up with a solution to complex societal problems of today. Horizon Europe Programme thus defines five mission areas targeting the most important challenges: (1) adaptation to climate change, (2) cancer, (3) protecting ocean and waters, (4) climate neutral and smart cities, and (5) healthy soils.

EU Missions involve a set of coordinated measures, such as public investments, RDI projects, and legislative measures. They are designated to engage public authorities, businesses, and civil society organisations. The six defining characteristics of EU Missions are (European Commission, 2021a):

- boldness, inspiring manner and relevancy to society,
- missions clearly framed: targeted, measurable, and time-bound,
- impact-driven but realistic goals,
- mobilisation of resources on EU, national, and local levels,
- linking activities across different disciplines and different types of RDI,
- bringing citizens closer to understanding the value of investments in research and innovation.

The concrete aims of the Climate Neutral and Smart Cities Mission are to deliver 100 climate-neutral and smart cities by 2030 and ensure that these cities act as experimentation and innovation hubs to enable all European cities to follow the example by 2050. Recently, the European Commission has launched the first two 2022 calls for proposals, with an overall indicative budget of EUR 159 million. Actions will cover sustainable mobility, sustainable energy, or urban planning for climate-neutral cities (European Commission, 2022).

3.2 Responsible Research and Innovation – Horizon 2020 Programme

As a discourse, RRI was introduced by the European Commission at the beginning of the 2010s (Owen, Pansera, 2019). The approach has been used to strengthen the cooperation of RDI actors, promote anticipation and assessment of the consequences of RDI, and orient RDI activities towards societal needs, values, and expectations (European Commission, 2021b).

Between 2014 and 2020, translating society into RDI was a priority of the specific objective ‘Science with and for Society’ (SwafS) of Horizon 2020 Programme. The main areas of focus

were: (1) public engagement, (2) open access, (3) gender, (4) ethics, and (5) science education. Projects supported under SwafS seek to put RRI into practice in Europe. The total allocation was EUR 462 million, with over 45 projects funded (European Commission, 2020a). Moreover, RRI developed into cross-cutting issue promoted throughout the Horizon 2020 Programme.

An example of a particular project is Territorial Responsible Research and Innovation Through the involvement of local R&I Actors (TeRRItoria), which takes place between February 2019 and January 2022, with a total budget of near EUR 2 million. The overall aim is to experiment with adopting a RRI approach in European regional and territorial RDI systems. Consequently, five transformation experiments have been undertaken in five selected European territories (Central Macedonia – Greece, Emilia-Romagna – Italy, Trøndelag – Norway, Region of North-East Romania, and the Municipality of Gabrovo – Bulgaria) (Cordis, 2021).

3.3 Social Innovation – EU Programme for Employment and Social Innovation

The Employment and Social Innovation programme (EaSI) is a financing instrument to strengthen employment and skills, help improve social protection and inclusion, combat poverty, and foster safe and fair working conditions. For the programming period 2021-2027, EaSI is a part of the European Social Fund Plus (ESF +). The budget is set at EUR 120,5 million for 2022 (European Commission, 2021c).

An example of a particular project is EURES Scheldemond, the development of a network organisation that stimulates labour and market mobility between the Netherlands (Provinces of Zeeland and Noord Brabant) and Belgium (Antwerp, East Flanders, and West Flanders). The purpose of EURES is to provide information and advisory services to jobseekers and employers, create opportunities for (under)graduate students with technical education, and improve transparency on the cross-border labour market. The EU contribution accounted for over EUR 1,3 million for 2020-2021 (European Commission, 2020b).

3.4 Multi-Level Perspective – the Circular Economy Action Plan

At the EU level, the transition to a circular economy is perceived both as a solution and an opportunity. The recently adopted Circular Economy Action Plan (CEAP) is one of the main components of the European Green Deal, a main new strategy for sustainable growth (European Commission, 2020c).

Initiatives under the action plan for 2022 include setting waste reduction targets for specific streams and other measures on waste prevention, launch of an EU-wide harmonised model for separate collection of waste and labelling to facilitate separate collection, review of the rules on proper treatment of waste oils, and launch of an industry-led industrial symbiosis reporting and certification system (European Commission, 2020c). In addition to shaping a policy network, CEAP continuously directs financing towards more sustainable production and consumption. In terminology of MLP, the transition to the circular economy is made possible by shaping regime change and supporting niches.

4. Conclusion

Complex societal problems, such as dramatic impacts of climate change, rising inequalities, and population ageing, make the design and implementation of an effective policy framework crucial at all territorial levels. The paper, thus, deals with four selected approaches for the

orientation of innovation policy towards addressing societal challenges, specifically mission-oriented innovation policy, responsible research and innovation, social innovation, and multi-level perspective. An important conclusion from the comparison is the complementarity of the approaches as they act together to strengthen the directionality required for achieving societal goals.

Similar synergy can be observed from the case studies, which demonstrate that environmental, economic, and social challenges are currently one of the main priorities of EU activities, and this trend is expected to be even strengthened in the future. To increase the effectiveness of policies, it is desirable to develop a general framework for integrating various aspects of such approaches towards solving societal problems. However, at the same time, individual instruments and measures should be able to be adapted to specific circumstances.

Acknowledgements

The paper was supported by Operational Programme Research, Development and Education within the project Internal Grant Agency of Masaryk University (reg. no. CZ.02.2.69/0.0/0.0/19_073/0016943).

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Importance and Possibilities of Teaching European Topics in the Civic Education of Pupils in Secondary Education

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Abstract

The present contribution will highlight the importance of educating the themes of the European Union and European integration in civic education at secondary level of education. The authors prepare digital didactic aids for the subject Civics for the needs of secondary education in distance form, in which they also plan to present topics from the European Union. The authors thus respond to the current urgent need for digital didactic aids for online education in the context of the global Covid-19 pandemic, but also to the need to continuously modernize regional education resulting from the development of the latest information and communication technologies in society as part of the digital age.

Keywords: *European Union, European integration, civic education, Covid-19, secondary education*

JEL Classification: *F50, F68, Z11*

1. Introduction

Despite active education on citizenship and democratic values in the Slovak Republic, hate speech in society has been increasing in recent years, while at the same time increasing views that challenge the Holocaust or even present admiration for totalitarian regimes and their representatives. (Lincényi, 2019)

In the Slovak Republic, civics is a compulsory independent teaching subject, which focuses on elements of citizenship education according to the national curriculum (ISCED 1, 2 and 3) at the primary level as well as at secondary level. (European Commission, 2012, p. 19)

Teaching of civics in Slovak schools takes place in accordance with the concept of education reform after 2008, which aims to activate pupils in lessons, introduce innovative methods into teaching, teaching and education for practical life. The teaching of civics is shaped by a number of generally binding legal standards at the ministry of education. The basic norm is act No. 245/2008 Coll. (Act on Education and Training and on Amendments to Certain Acts – School Act), which defines several principles on which education and education in the Slovak Republic is based. (Kredátus, 2013, p. 6)

Another standard or binding regulation that regulates the teaching of civics doctrine is the State Educational Programme - Educational Area Human and Society for the 2nd level of primary school with the Slovak language of instruction, and of course, the framework curriculum for grammar schools with teaching Innovation of methodological letters for teachers of civics from

the point of view of the need to prevent manifestations of extremism and education for democratic citizenship in Slovak languages, which have been in force since 2011. In accordance with the fulfilment of the tasks arising from the Concept of Counter-Extremism 2015- 2019, the State Pedagogical Institute also published an 11-page booklet on the theme on the prevention of extremism and radicalism. (Ibid, 2013, p. 6)

In general, the distance form of education can be characterized as interactive data exchange based on web and advanced technological tools and devices between students and pedagogical employees who are distant from each other. The use of distance learning technologies is also a planned teaching process in which teachers and students meet in different ways in a remote learning environment. (Caliskana, Suzekb, Ozcanb 2017) Since the beginning of the Covid-19 pandemic, the distance form of education within global social processes has acquired its own specific expression. The adaptation and adaptation of the educational process requires new practical solutions during a pandemic. According to Serbian authors Suzana V. Marković Krstić, Lela R. Milošević Radulović, we identify three basic challenges for distance learning during the Covid-19 pandemic. Firstly: technical requirements that can be overcome by purchasing better technical equipment, provided that this is financially possible. Secondly: the impossibility of “direct transfer” from physical to virtual classroom due to lack of contact with other students and teachers, which is very complex and difficult to overcome. Thirdly: involving students themselves, as well as their teachers, in finding the best possible method for obtaining and understanding teaching material in a digital (online) environment. (Marković Krstić, Milošević Radulović 2021) Given that the launch of the global lockdown was unexpected, education authorities did not have time to respond and provide teachers and students with the necessary tools and resources to implement distance learning. Therefore, many educators were forced to start teaching practically without appropriate training and without some of these basic tools. In a similar way, students and their parents had to change their way of understanding and experiencing education overnight. (García-Sampedro, Peña-Suárez Rodríguez-Olay 2021) In addition, we can say that Covid-19 is changing society in different areas, which often create social and economic inequalities. It is therefore important to recall in this regard that, according to many research, the temporary cancellation of attendance classes has caused an increase in negative effects on the mental health of students and their parents. (Nodeh 2021) On the other hand, the distance form of education was able to offer emergency solutions during the Covid-19 pandemic, which started the search for innovative solutions within the framework of overall education (García Aretio 2021).

2. Problem Formulation and Methodology

The main research objective: to analyse the current state of civic education teaching in the education system in the Slovak Republic with regard to the importance of educating European topics and European integration issues.

Secondary research objective: was to look for opportunities for teaching European topics in the framework of civic education of pupils in secondary education in the Slovak Republic.

The research was carried out with a qualitative approach. The methodology used a combination of research methods: logical methods and discursive analysis for data collection and analysis and interpretation analysis for data evaluation.

In the case of further planning and research design, we have prioritised the concept of research issues rather than the establishment of research hypotheses, given the qualitative approach. We identified two research questions (RQ):

RQ1: What is the current situation of teaching of civic education in the system of education in the Slovak Republic?

RQ2: What are the possibilities for innovation of teaching civic education in the Slovak Republic, taking into account the importance of educating European topics and the issues of European integration?

3. Research context

In the Slovak Republic, several researches focused on the issue of civic literacy have been carried out in recent years. Marcel Lincényi participated in two researches that analysed pupil literacy on the issue of European citizenship or European identity.

In the fourth quarter of 2017, the team of authors (Hubálek, Lincényi, Staněk, 2018) carried out a comparative analysis of the opinion orientations of pupils and their teachers to European citizenship and European identity in the Czech Republic and the Slovak Republic on the overall research file of 1973 respondents. The research sample was representative with regard to gender, age, county, education. Among other things, research has shown that Slovak pupils and their teachers are satisfied that the Slovak Republic has become a member of the European Union, are now aware of European citizenship, are proud of it and support the strengthening of the European Union's powers for the future. Research has also shown that there is no clear view among respondents as to whether the Slovak Republic's performance in the European Union is good or bad for the citizens themselves. In this it should be noted that Slovaks have long been among the countries for which the highest satisfaction with membership of the European Union was recorded. And although confidence in the European institutions has been slowly declining in recent years, they are still among those countries where there is average confidence.

A slightly more sceptical view of the European Union was brought about by research by a survey of 1398 respondents in the fourth quarter of 2016, following the European migration crisis, which has been going on since 2014. Among other things, an analysis of the public opinion of the citizens of the Slovak Republic showed that the Slovaks approached perceive the negative activities of the European Union, while no longer trusting the European institutions. Migration, terrorism or bureaucracy are seen as the biggest problems in the European Union by the citizens being demanded. European leaders should therefore learn the lessons of the respondents addressed, who are not satisfied with how the European Union has dealt with migration (Lincényi, 2017).

In addition, the results of analyses of Eurobarometer opinion polls commissioned by the European Commission's Public Opinion Analysis section since 1973 also offer an interesting view of European literacy (Bočáková, Lincényi, 2014).

4. The importance of educating EU themes and European integration

The European dimension in education is still a relatively new topic in our pedagogy, although the initial lack of study materials for European studies in pedagogy has been overcome in part. The European dimension of education and education is still up to date, not only in the old Member States of the European Union, but also in the new or future Member States. (Lincényi, 2019)

According to Staněk (2007, p. 80), the European dimension in school education has no ambition to be a new subject of instruction. Their intention is to provide the professional pedagogical public with sufficient incentives to initiate changes in the formal and hidden

curriculum, thus ensuring the broadening of pupil horizons and improving the whole system of education. „With the advent of new social trends and changes at local and global level, the role of education is also evolving, which must meet the needs of today's students. Education for democratic citizenship and education on human rights are the foundation and connecting of peace and dialogue in the European and the world of tomorrow. The issue of conflict management, respect for diversity, intercultural awareness and understanding of citizens' rights and obligations are fundamental themes of school facilities.“ (Brett, P. et. al., 2012, p. 75)

According to Lincényi (Bočáková, Lincényi, 2014), the Council of the European Union and the European Commission can contribute to increasing citizens' credibility with the European Union by addressing topics that affect EU citizens as a matter of priority. We are of the opinion that representatives of the Slovak Republic play a very important role in the European institutions, including members of the European Parliament, who should explain to the citizens of the Slovak Republic the positives of EU membership. Last but not least, mention should be made of the role of mass media, which could increase information on European policy.

5. Problem solution

European themes for teaching in the framework of civic education of pupils in secondary education were proposed by Associate Professor Pavol Hrivík (2020) within the framework of the Draft Methodological Letters for Teachers of Civic Education in secondary schools in the Slovak Republic, prepared by a team of authors of the Department of Political Science Alexander Dubček University of Trenčín. Below we offer a developed concept of the thematic unit as well as the methodology of the thematic unit.

5.1 Conception of the thematic unit

The thematic unit “Citizen and the European Union” provides basic information on the institutional system of the European Union. It describes the main institutions (European Council, Council of Ministers, European Commission, European Parliament, Court of Justice of the European Union, European Central Bank) which ensure the fundamental functioning of the Union as a whole. It also deals with the issue of democracy and human rights referred to in the Charter of Fundamental Rights of the European Union, which, through the Treaty of Lisbon, becomes part of the EU's primary legal system, by referring the Treaty on European Union in the Lisbon version and the Treaty establishing the European Community to the Charter as a document of the same legal force. Thus, with the ratification of the Treaty of Lisbon, the Charter became legally binding with direct effect. The public defender of rights in the EU (European Ombudsman), whose job it is also to protect democracy and human rights, has also not escaped attention. Within the EU labour market, attention is focused on the free movement of persons, which forms one of the fundamental pillars, without which the proper functioning of the common market would not be possible. The thematic unit also deals with the chronology of the adoption of the common European currency, the euro, on the territory of the Slovak Republic, which joined the European Union on 1. May 2004.

Content of the thematic unit

The theme Institutions in the EU describes the basic information and functioning of the various selected institutions of the Union (European Council, Council of Ministers, European Commission, European Parliament, Court of Justice of the European Union, European Central Bank). The second theme democracy and human rights refers to the system of protection of human rights in the EU, as well as the individual principles ensuring the democratic character

of the Union. The third theme labour market in the EU describes one of the four fundamental economic freedoms of the EU internal market freedom of movement, which plays the most important role within the labour market. The last final topic of the euro in the Slovak Republic captures the gradual direction of the Slovak Republic to monetary union.

Importance of the thematic unit

Thanks to the thematic unit “Citizen and the European Union”, secondary school pupils will gain basic knowledge of the Union's institutional system. In addition, they will acquire knowledge of democracy and human rights on the territory of the European Union, as well as new information related to the EU labour market. They will also know the main milestones of the Slovak Republic's direction to monetary union. Through this thematic whole, pupils are able to better analyse and understand the functioning of the European Union as a whole.

5.2 Methodology of thematic unit

Aims: It is assumed that secondary school pupils after graduating from this thematic unit will be better oriented in social, political and legal facts, forming the framework of everyday life, and will be aware of the rights and obligations of the citizen of the Slovak Republic as well as the citizen of the European Union.

Bases: Thematic unit citizens and the European Union evaluate, together with municipal, parliamentary, presidential elections, elections to higher territorial units, also the importance of elections to the European Parliament and their impact on the daily life of the citizen of the Slovak Republic. In addition to the analysis of human rights and fundamental freedoms in the Constitution of the Slovak Republic, fundamental human rights and freedoms deriving from the Charter of Fundamental Rights of the European Union are also analysed.

Connection with other thematic units: Thematic unit citizen and the European Union is very related to other thematic units: “Human and society”, “Citizen and The Slovak Republic”, “Citizen and the State”, “Citizen and Law”.

Aids: Civic education teachers can use a number of teaching aids, such as the EU Charter of Fundamental Rights of the European Union, a data projector with accessories, individual editions of several periodicals dealing with the Union's institutional system.

6. Discussion

Within the the first research question: we asked about the current situation of civic education teaching in the education system in the Slovak Republic. In answering this stated question, it can be stated that the teaching of civic education in the secondary education system in the Slovak Republic is at a sufficient level in terms of scope, but there are still limits in the content of teaching itself, which is not sufficient and up-to-date with regard to the importance of the education of European topics and the issue of European integration for society.

Within the second research question: the authors examined what are the possibilities of innovation of teaching civic education in the Slovak Republic, taking into account the importance of the education of European themes and the issues of European integration.

Already in 2020, the authors created the concept and content of modern electronic methodological letters of civics, which by their content focus reflect the requirements and needs of society and practice so that natural patriotism can be built more effectively, to strengthen human rights education and to improve overall education and education for democratic citizenship in schools and in society. It is necessary to continue the implementation of the above-mentioned updated methodological letters of civics, which the authors try to do

through the research project of the Cultural and Educational Grant Agency of the Slovak Republic entitled "Creation of digital didactic aids to the subject Civic Education for the needs of secondary education in distance form". The project responds to the current urgent need for digital didactic aids for online education in the context of the Covid-19 global pandemic, but also to the need for continuous modernisation of regional education resulting from the development of the latest information and communication technologies in society. The main aim of the submitted project is the creation of original and motivationally attractive digital didactic aids to the subject "Civic Education" for the education of pupils in secondary education in the Slovak Republic from the current need to modernize education according to the requirements of practice. The project has several outputs and benefits in social, economic and economic practice. New digital didactic aids will have multifunctional use, as they will enable online teaching of civic education in the event of unexpected events in society, will help in more effective distance learning for absent pupils in teaching or in pupils with specific problems, and will also be usable in classical full-time teaching. The digitisation of teaching aids has the potential to increase pupils' interest in the perception of patriotism and national pride in the context of Europeanism, multiculturalism and prevention of extremism, but we can also motivate teachers themselves to teach this subject. Last but not least, this activity can be a good example of practice for the digitisation of didactic aids in other subjects in regional education.

7. Conclusion

The analysis of the current state of civic education teaching in the education system in the Slovak Republic, taking into account the importance of the education of European topics and the issues of European integration, revealed the following backgrounds and conclusions:

It is necessary to continue activities aimed at updating the content of civic education teaching in the secondary education system in the Slovak Republic, taking into account the importance of educating European topics and the issues of European integration for society.

One of the opportunities for innovation of civic education teaching in the Slovak Republic could be digital didactic aids, which will make civic education in schools more attractive and make topics more effective to pupils.

Given the scope of this contribution, this contribution does not claim a comprehensive view of the analysis of civic education teaching in the Slovak Republic in terms of the importance of European topics. The authors intend to address this research topic in the future.

The authors believe that a positive identity with membership of the European Union could also be enhanced by increased education for citizenship, including European literacy, and should be coordinated by the European Union through an effective marketing and media campaign.

Acknowledgements

Carried out within the framework of the project of the Cultural and Educational Grant Agency of the Slovak Republic: "*Tvorba digitálnych didaktických pomôcok k predmetu Občianska náuka pre potreby sekundárneho vzdelávania v dištančnej forme*", Project registration number: 009TnUAD-4/2021

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Logistical Performance of the Czech Republic Compared to Other European Countries

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Abstract

The article deals with the issue of logistical performance of European countries according to the value of logistical performance indices (LPIs) issued by the World Bank on the basis of its investigations. The article also includes a paper on the importance and methodology of determining the index of logistical performance of countries. The key attention of the author is also paid to the assessment of the Czech Republic compared to the best and worst rated countries in Europe, with the Visegrad Group countries and also with countries comparable in terms of population. The results found indicate the Czech Republic's leading position in the ranking of the Visegrad Four countries and a very good position among European countries comparable in terms of population, such as Sweden, Portugal and Greece. Overall, the assessment of the Czech Republic within the Countries of Europe can be evaluated positively, the Czech Republic ranked 22nd in the last LPI rating published in 2018.

Keywords: benchmarking, European countries, logistics performance, logistics performance index, World Bank

JEL Classification: F21, L26, O52, R41

1. Introduction

Logistics services represent the level of logistics services with regard to their costs. Typical indicators of logistics performance are delivery times, reliability of deliveries, completeness of deliveries and logistics productivity. *This leads to consider the logistics performance as one of the key factors of international trade. (Medina, Selva, Menendez, 2014, p. 77)*

We divide the methods of measuring logistics performance into internal and external. Internal monitoring of logistics performance takes place directly in the companies that are evaluated. External measurement of logistical performance can be performed by research and consulting agencies or other independent entities, such as the World Bank.

The Logistics Performance Index (LPI), created by the World Bank, is a benchmark tool used to determine the threats and opportunities faced by countries in their logistics performances and to improve their performance. Countries aim to increase their LPI scores and rank higher on the LPI list while developing their strategies. (Senir, 2021, p. 193).

Logistics performance research has been carried out by the World Bank since 2007, and regularly every 2 years since 2010 (Lukoszová, 2020). It measures the performance of the supply chains that are the backbone of international trade. (Puertas, Marti, Garcia, 2014) Since the first implementation of LPI logistics performance research, it is clear that good government policy contributes to the development of efficient supply chains, but also that many developing

countries are still lagging behind. LPIs and their components help countries understand the challenges they face with their trading partners so that their national logistics can be strong. Through LPIs, the government, entrepreneurs and society as a whole can better identify the competitive advantage created by good logistics and understand the relative importance of different interventions. (The World Bank, 2014) As supply chains become more and more global, the quality of logistics services can show the extent to which individual countries are able to participate in world trade. Havierníková and Mynarzová (2018) emphasize the so-called networking approach to internationalization, which is based on the fact that penetration of foreign markets depends not only on competitive advantages but also on the creation and involvement of the company in strategic alliances and networks.

2. Problem Formulation and Methodology

The article deals with the issue of logistical performance of European countries according to the value of logistical performance indices (LPIs) issued by the World Bank on the basis of its investigations. The key attention of the author is also paid to the assessment of the Czech Republic compared to the best and worst rated countries in Europe, with the Visegrad Group countries and also with countries comparable in terms of population.

The empirical model is based on the theory of gravity model extended to include the six subcomponents of the Logistics Performance Index (LPI). (Górecka, Skender, Zaninović, 2022, p. 1)

The LPI Index assesses the logistical performance of countries on the basis of the following six criteria:

1. **Customs** – efficiency of customs clearance processes, border crossing control.
2. **Infrastructure** – transport-related transport infrastructure and its quality.
3. **International Shipments** – it is about the ease of achieving competitive prices and the availability of transport services.
4. **Logistics competence** – expertise and quality of logistics services.
5. **Tracking and tracing** – ability to track shipments.
6. **Timeliness** – meeting delivery deadlines; the frequency at which consignments arrive at the consignee within a specified or expected time. (Kladiva, 2014), (Lukoszová, 2020)

The Logistics Performance Index (LPI) is determined on the basis of a worldwide survey of multinational organizers of orders related to the transport, storage and distribution of goods, so-called forwarders and major express carriers. The principles of creating the LPI index were created using the methodology of Finnish professor Lauri Ojalema from the School of Economics in Turku. The LPI itself was determined on the basis of surveys conducted by the World Bank and was attended by approximately 6,000 logistics managers. (Kladiva, 2014), (Lukoszová, 2020)

The LPI is calculated using the weighted arithmetic average of the six criteria mentioned above, which are scored on a scale of 1 to 5 based on respondents' ratings, with 5 being the maximum rating. (Lukoszová, 2020)

In 2018, the survey compared 160 countries. (World Bank, 2018)

Logistics performance can be assessed from two perspectives: international and national. The international perspective provides a qualitative assessment by foreign logistics professionals within the above six criteria. The National Logistics Performance Index provides both

qualitative and quantitative assessments of the country by domestic logistics professionals who, unlike foreign evaluators, have more information on the logistics environment, key logistics processes and other performance and time data. (Kladiva, 2014)

In the future, the World Bank and logistics experts expect further objectification of the LPI calculation. *As one of the solutions, it is proposed to calculate LPI of an individual monitored country on a semi-annual basis with a variable set of respondents. Further, the methodology for calculating the index should meet the requirements of completeness, reliability, relevance, and sufficiency of information on the development of digital technologies individual monitored countries. This will allow in the form of a generalized indicator to compare the logistics indicators occurring in each study region. (Janno, Mochalina, Ivankova, Labanova, Lationina, Safulina, Uukkivi, 2021, p. 153)*

The comparison of the logistical performance of the Czech Republic with other European countries is performed by means of a comparative analysis of information from the World Bank, specifically the published LPI indices for 2018.

3. Problem Solution

European countries dominated the logistics performance index (LPI) for 2018. Eight of the ten best-rated countries in the world are located in Europe. The first place in 2018 was occupied by Germany with a value of 4.20, followed by Sweden (4.05), Belgium (4.04) and Austria (4.03). The fifth best-rated country in Europe is the Netherlands (4.02), which ranked sixth overall. Of the forty-four European countries evaluated, twelve ranked among the top twenty. A total of twenty-two European countries are in the top forty and thirty-eight in the first half of the ladder.

Germany achieved the best rating in the categories of customs, infrastructure and quality of logistics services. In the category of international transport and adherence to time schedules, Belgium took first place. In the field of monitoring, Finland came in first, finishing tenth overall.

3.1 Comparison of the Czech Republic with the Best and Worst Rated Countries

Overall, the Czech Republic ranked 22nd with an LPI of 3.68 (see Table 1). It was evaluated best in the criterion of international transport (3.75), where it placed tenth. In terms of adherence to time dispositions, she received the second-best rating (4.13) and took sixteenth place. In other criteria, it was placed in 30th place (Customs - 3.29, 30th, Infrastructure - 3.46, 26th, Quality of logistics services - 3.72, 20th, Monitoring - 3.70, 24th).

Table 1: Comparison of the Czech Republic with the Five Best and Worst Rated Countries in Europe

		Germany	Sweden	Belgium	Austria	Netherlands	Czech Republic	Albania	Armenia	Belorussia	Moldavia	Georgia
LPI	Rank	1	2	3	4	6	22	88	92	103	116	119
	Score	4.20	4.05	4.04	4.03	4.02	3.68	2.66	2.61	2.57	2.46	2.44
Customs	Rank	1	2	14	12	5	30	114	81	112	124	95
	Score	4.09	4.05	3.66	3.71	3.92	3.29	2.35	2.57	2.35	2.25	2.42
Infrastructure	Rank	1	3	14	5	4	26	110	86	92	141	102
	Score	4.37	4.24	3.98	4.18	4.21	3.46	2.29	2.48	2.44	2.02	2.38
International shipments	Rank	4	2	1	3	11	10	69	95	134	90	124
	Score	3.86	3.92	3.99	3.88	3.68	3.75	2.82	2.65	2.31	2.69	2.38
Logistics competence	Rank	1	10	2	6	5	20	92	97	85	122	132
	Score	4.31	3.98	4.13	4.08	4.09	3.72	2.56	2.50	2.64	2.30	2.26
Tracking & tracing	Rank	2	17	9	7	11	24	95	113	109	142	139
	Score	4.24	3.88	4.05	4.09	4.02	3.70	2.67	2.51	2.54	2.21	2.26
Timeliness	Rank	3	7	1	12	11	16	73	111	78	82	105
	Score	4.39	4.28	4.41	4.25	4.25	4.13	3.20	2.90	3.18	3.17	2.95

Source: |Own processing

The worst rated countries in Europe are Albania, Armenia, Belarus, Moldova and Georgia, which ranked one hundred and nineteenth. Despite the fact that Georgia was the worst rated by the overall LPI index, the only criterion where it was the worst of the whole of Europe is the quality of logistics services, where it finished one hundred and thirty-second (2.26). Moldova occupied the last European positions in the criteria of customs (2.25), infrastructure (2.02) and tracking of consignments (2.21). Belarus had the worst-rated international traffic in Europe (2.31). Although Armenia had the worst adherence to timeliness of the five worst European countries in 2018 (2.90 and 111th place), Lithuania (2.88) finished even worse in this criterion, at one hundred and thirteenth place.

3.2 Comparison of Visegrad Countries

The Visegrad Group (Four, V4) is a regional grouping of four Central European countries: the Czech Republic, Hungary, Poland and Slovakia. Following the accession of these countries to the European Union, the V4 Group focused on promoting cooperation and stability in the wider Central European region. (Ministerstvo vnitra České republiky, 2019)

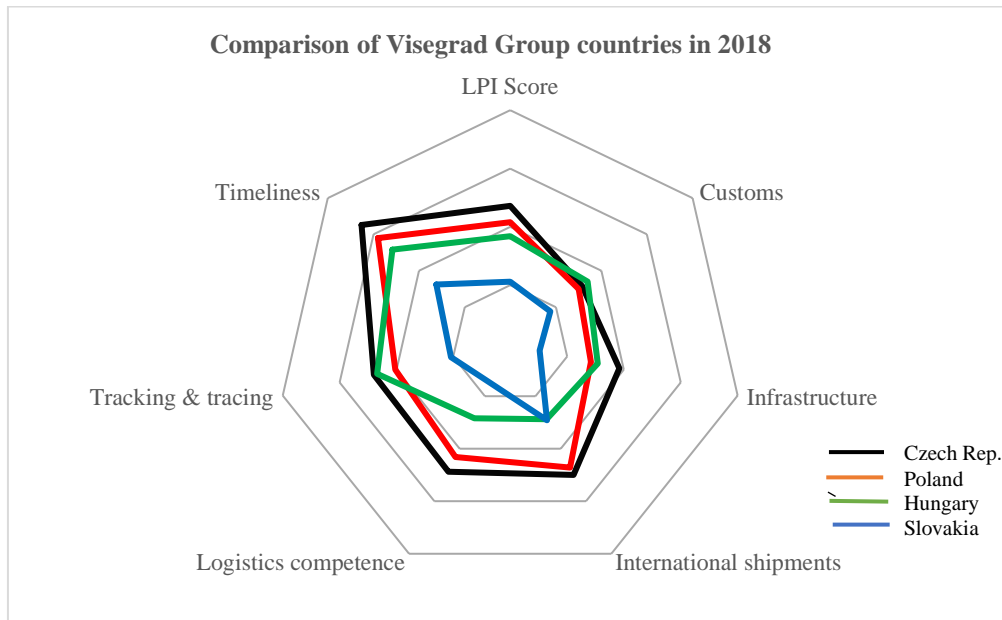
Table 2: LPI indices of the Visegrad Group Countries

	Czech Republic	Poland	Hungary	Slovakia
LPI Score	3.68	3.54	3.42	3.03
LPI Rank	22	28	31	53
Customs	3.29	3.25	3.35	2.94
Infrastructure	3.46	3.21	3.27	2.76
International shipments	3.75	3.68	3.22	3.23
Logistics competence	3.72	3.58	3.21	2.88
Tracking & tracing	3.70	3.51	3.67	3.02
Timeliness	4.13	3.95	3.79	3.31

Source: Own processing

Looking at the V4 group in Table 2 (see Figure 1), it is clear that the Czech Republic has the best position, both in the overall LPI ranking and in the individual criteria, with the exception of the tariff assessment, in which Hungary is the only country with a higher rating. One of the reasons for the leading position in comparison with other V4 countries may be the large number of German companies operating in the Czech Republic, so there is an effort to streamline logistics processes, corresponding to the leader (i.e. Germany). Another important factor is also the strategic location of the Czech Republic in the middle of Europe.

Figure 1: Comparison of Visegrad Group countries in 2018



Source: Own processing

3.3 Comparison of the Czech Republic with countries with a similar population

As of 31 December 2020, the Czech Republic had a total population of 10,701,777 (ČSÚ, 2,021). Portugal had a population of 10,276,617 in 2019, and Greece has a population of 10,718,565 (Elstat, 2020). Due to migration, Sweden reached a population of 10,327,589 in the same year (Sweden, 2020). In terms of population, these are completely comparable, ten million European countries.

Table 3: LPI index of countries with a population similar to the Czech Republic

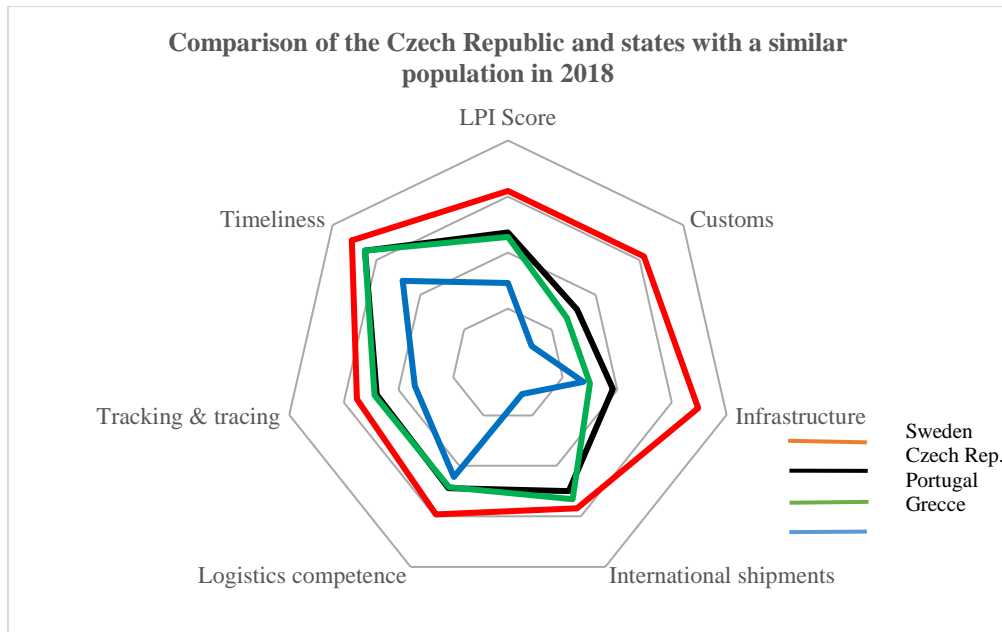
	Sweden	Czech Republic	Portugal	Greece
LPI Score	4.05	3.68	3.64	3.23
LPI Rank	2.00	22.00	23.00	42.00
Customs	4.05	3.29	3.17	2.77
Infrastructure	4.24	3.46	3.25	3.19
International shipments	3.92	3.75	3.83	2.79
Logistics competence	3.98	3.72	3.71	3.61
Tracking & tracing	3.88	3.70	3.72	3.35
Timeliness	4.28	4.13	4.13	3.70

Source: Own processing

From Table 3 (and Figure 2) shows the distances between Sweden (4.05), Greece (3.23), the Czech Republic (3.68) and Portugal (3.64).

The difference in location is mainly due to the amount of gross domestic product. According to the World Bank, GDP per capita is linked to logistics costs. (World Bank, 2011) In 2018, Sweden had a GDP per capita of \$ 52,718. The Czech Republic was at \$ 37,426, Portugal at \$ 32,023 and Greece at \$ 29,111. Surveys have also shown that investment in logistics infrastructure has a positive effect on GDP growth. (World Bank Group, 2020)

Figure 2: Comparison of the Czech Republic and states with a similar population in 2018



Source: Own processing

4. Conclusion

European countries have a very strong position in the LPI rankings and can be expected to increase their LPI even further.

In 2018, Germany was the best-rated country in the world in terms of logistical performance. It also holds the first place in the ranking of the aggregate LPI index, where the values for the last four periods are considered, with more weight in more recent information. (The World Bank, Group, 2018)

In 2018, the Czech Republic ranked 22nd and was the best-rated country within the Visegrad Group. In the ranking of aggregate LPI, it ranked twenty-sixth. Also, in comparison with countries with a similar population, the Czechia is in a very good position when the LPI value is surpassed by developed countries such as Portugal and Greece. In the future, a slow improvement in the level of the LPI index of the Czech Republic can be expected. The situation is likely to depend in particular on the logistics knowledge of logistics customers and investments in logistics infrastructure, such as the Trans-European Transport Network Ten-T (European Commission, 2020), the main corridors of which are due to be completed in 2030 (secondary by 2050). In this period, therefore, an increase in the value of the logistics performance index of the European countries concerned can be expected.

The above-mentioned information provided in this article come from secondary sources, such as the World Bank's reports for the period 2007-2018. Based on the published indices, it is possible not only to evaluate the perspective of selected countries in terms of investment, business and trade, but also to predict the future development of logistics performance of European countries, the European Union and countries located on other continents. The LPI logistics performance index can thus be considered an important indicator of a country's economic level.

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Did EU need reorganization EU and building new United States of Europe? With a view of Spinelli and Monet in the context of federalism and democracy

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Abstract

The plan to build a "United States of Europe" should be based on democratic principles. Otherwise, it will never be attractive to countries, regions and citizens. Until the fundamental principles of democracy are established in the EU, any discussion on the further integration of the Member States is essentially meaningless. If we look at the institutional development of the EC / EU, it is not clear that this development would follow entirely based on Monnet's thinking, but his steps of gradualness were closer to the actual development of the EU than Spinelli's constitutionalism. In my opinion, the plan to build a new "United States of Europe" should be based on democratic and solidarity principles, and less regulation. I am convinced that this will happen sometime in the future, but the current situation does not speak in favour of rapid EU federalization.

Keywords: EU, Federalism, Integration, Monet, Spinelli

JEL Classification: B520, N4, P4

1. Introduction

The process of European integration can continue successfully in this century, provided that the original integration and cultural values, foundations, and characteristics that created the solid ideological basis for starting post-war integration must be respected. The undemocratic government elite, the bearers of the ideology of political correctness and multiculturalism, cannot be the decisive actors in shaping this process (as we see it today). The big role will have to remain in the hands of the Member States, their citizens, and some legitimate European structures, without the external influence who do not represent anyone and work only for their benefit. Integration is likely to take on a new configuration form, but it must not lose its original meaning, mission, basic human rights, and civic features.

Instead of managing public affairs, in some EU countries, we have a government that is gradually eating away at the democratic structure of each country. But fortunately, there are still people who dare to think and are brave enough to stand out, such as the EP and, to some extent, the EC. There are still independent courts that protect the principle democratic of separation of powers, their independent media check the functioning of the government, there are oversight institutions that still resist political pressure, and above all, there is a strong civil society that loudly protests against the abuse of power.

2. Brief Overview of the History of Reflection on the Integration of European Nations

For example, between 1462 and 1464, King George Poděbrady and Antonio Marini issued a document entitled: "CONGREGATION CONCORDIE". This document describes how the international community of European countries should be organized. A proposal was also made to establish the League of Christian Princes (League of Christian Princes or Conflict Management Project). The point was that the arbitral tribunal of European countries would punish those responsible for violating peace and international law. The aim was to take joint action against Turkish incursions into Europe.

Of course, we know from history that associations of Greek city-states already existed in ancient Greece and that the main purpose of the merger was to find a common defense against barbarians as well as to promote trade. Another example is the Roman Empire, which created a system of the asymmetric federation, where Rome was the central federal authority, and other weaker units were attached as federal partners (Elazar 1995, p.20).

In the Middle Ages, self-governing cities in present-day Italy and Germany, as well as the Swiss cantons, merged into free confederations for defense and more favorable conditions for trade. The Swiss Confederation was founded in 1291 and existed with several interruptions until 1798. It was then re-established in 1815 and lasted until 1847.

I give some longer examples of thinking about the future integration of Europe in the history of some authors, namely:

- Pierre DUBOIS (Petrus de Bosco) (1250 - 1320) • Fr. lawyer adviser to King Philip IV. He developed the concept of "DE RECUPERATION TERRAE SANCTAE (1306)" to create a European organization - the integration of sovereign Christian states (RES PUBLICA CHRISTIANA), which should not undermine the sovereignty of individual countries, but may impose military sanctions against traitors (TREUGA DEI). She envisioned the establishment of an arbitral tribunal (the forerunner of today's international judiciary)
- DANTE Alighieri (1265-1321) spoke of a kind of union of states, "DE MONARCHIA 1310 (1312-1313?)", And the establishment of European institutions to prevent further wars in Europe
- Maximilien de Béthune (1560 - 1641) - French duke with Sully, who advocated a "grand plan" - reorganizing Europe and establishing a council of participating Christian states to oversee the internal and external security of then-Europe - this idea failed.
- The Catholic League was an association of Catholic states a few years before the outbreak of the Thirty Years' War. Its opponent was the Protestant League, founded after the execution of the Emperor in Donauwörth in 1608. In response, the Bavarian Duke Maximilian I founded the Catholic League in 1609. In addition to the Thirty Years' War, the association had participated for the first time a few years earlier in the distribution of Jiliska's War Heritage (War of the Jülich Succession, P. Wilson: 2019) between 1609, 1610, and 1614.
- Johannes Althusius (1557-1638) is considered to be the first author to try to define the European - federal tradition that already existed in his work *Politica Methodice Digesta*. In his work, he emphasizes the importance of dialogue as a cornerstone of policy. He also mentions the importance of an organic approach, where all participants are equal and where only state power needs to be controlled (Dosenrode 2007, p.11).

- Immanuel Kant has developed the ideological roots of European unification - integration and is one of the most important personalities of the modern era. In 1795, he presented the treatise "On Eternal Peace", which defines the basic principles on which a possible European federal system must be based.
- For example, the Independent Confederation, a united Dutch province, was formed in the late 16th century as a result of a revolt against Spanish rule. This association existed until 1795. It was practically a very free union with a weak central power (Elazar 1995, p.21).
- Napoleon BONAPARTE - dreamed of a European Federation of Nations,
- Winston Churchill - Former Prime Minister of the United Kingdom, IX/1946 - Speech at the University of Zurich: The establishment of the United States of Europe must be based on the establishment of a partnership between France and Germany. Then the first practical step: the establishment of the Council of Europe.

In the past, the United States has made a major step in the history of federalism. In 1781, the independent North American states merged into a confederation with weak central power. However, the first confederation constitution of 1781, concluded between 13 states, did not work (Balík 2005: 184-188). As a result, the Philadelphia Convention was convened in 1786, which then took place in 1787. Here the member states of the confederation had to decide on the fundamental question of whether to move to a stronger confederation or create a state with central power. The result of the convention was a compromise of both proposals, where the government system is based on the division of sovereignty. Here, individual Member States retain competencies in those areas which have not been transferred to the Union. Thus, there was a transformation into a new federal constitution that established the modern U.S. and federalism in the modern sense (Elazar 1988, pp. 23-32). The creators of the American Constitution were based on the works of important philosophers (Locke, Hobbes, Rousseau), but in the high functioning U.S. presidential system, the principles of the French eventually prevailed philosopher Charles Louis Montesquieu (1689–1775).

3. The Meaning of the World Federalism-Federation. What Does it Mean?

What is federalism? The word itself comes from the Latin terms "foedus", i.e. treaty or convention, and "fidere", i.e. to believe or trust (Fiala 2007: 31). The term federalism is sometimes replaced in the literature by the term federation. Both refer to a kind of union of states and citizens with a relatively high autonomy of constituent units. While federalism is a form of government or mode of division of power between central and local autonomous institutions enshrined in a written constitution and generally emphasizes the importance of decentralized power and direct communication between government and citizens, federation can be defined more as an institutional arrangement in the form of a sovereign state. (Fiala 2007, p. 71-72).

The histories of Europe and federalism today are written from a variety of thematic perspectives, for example (Stromberg, R, 1994, Rietbergen, P. 1998), etc. Let's look at some examples from the past:

French Parliament, 1851 Victor Hugo: "... The French nation carved out of indestructible granite and on the very middle of the old monarchist continent, laid the first foundation of a large-scale building of the future, which will one day be called the United States of Europe!" »le vrai moyen de la définir, c'est de la bâtir «... "UNITED STATES OF EUROPE" is still a topical issue (De Rougemont, Denis, 1961, p.7)

Victor Hugo (1802-1885), already in 1849, in a speech addressed to the Peace Congress, which he chaired, announced his inevitable future European Union: nations, the real arbitration of a

grand sovereign senate for Europe, a parliament for England, a legislature for Germany or a legislature for France! His vision of a united European foreign policy was also enthusiastic. The day will come when we will see these two huge groups, the United States of America, the United States of Europe, facing each other, shaking hands, exchanging products, trade, industry, art, genius, cleansing the planet, populating deserts, improve creation before the eyes of the God and unite to achieve the well-being of all, these two infinite forces, brotherhood among men and the power of God! "(De Rougemont, 1961, p. 255). Viktor Hugo summed up the minutes of a heated debate in the French parliament when he first publicly used the term "United States of Europe" in a speech on amending the Constitution in 1851.

French historian Jean-Baptiste Duroselle says: When I am told that Europe is the source of law, I think of arbitrariness, that it is a land of human dignity, I think of racism, that it is a land of reason, I think of the dreams of romantics. I find justice in Pennsylvania, human dignity, reason everywhere in the universe if it is true, as Descartes says, that common sense is the most equitably divided thing in the world (J. Duroselle 1989, p.57).

When Napoleon returned from the Elbe in 1815 to "haunt" Europe for another hundred days, then Benjamin Constant write down his vision of Europe: "Our goal is to organize a large federal European system, which we chose because in line with the spirit of the century and contributes to the progress of civilization. To realize it and give it all the necessary breadth and stability, we have envisaged the establishment of several internal institutions specifically designed to protect the freedom of citizens" (De Rougemont, 1961, p.197).

Napoleon's Europe would be a rich and happy (and forced) "family" of European countries with a single legal system, a European court, a single currency, a single measurement system, a European academy of science and awards to promote science "(den Boer, 1997, p.68). Everywhere he wanted to enforce the same principles, the same system. A European code, a European court that corrects injustices everywhere, just as our court corrects the mistakes of our rulers. The same money on different coins, the same units of measurement, the same laws, and so on. Europe, he said, would soon become one nation and everyone would find themselves in a common homeland wherever they traveled. I would demand that rivers be navigable for all, a maritime community, that large standing armies be limited to a single Sovereign Guard from now on, etc. " more in the sign of efficiency than equality.

Federalism can be understood in philosophical and political terms, both theoretical and practical. In the philosophical sense, it is a more or less utopian concept of some important world thinkers, in the political sense, it is a form of political organization or division of power in the country. In political theory, federalism is a movement that deals with the relationship between autonomous 12 units within a federal unit or a characteristic theory of European integration; in practice, it is understood as a process of centralization or decentralization (Kratochvíl 2008, p.50).

In general, federalism can be divided into two main streams, American federalism, and European federalism. In this work, I will focus on European federalism. Within European federalism, we can identify several movements and concepts, but there are two important basic concepts, in my opinion, namely two authors and thinkers: Altiero Spinelli and Jean Monet.

Or Spinelli and Monet may not have been inspired by the Counts of Kalergi? The motto "Understand and stop hating" is the life credo of Count Heinrich Coudehov - Kalergih and was one of the most educated and important personalities of the Austrian aristocracy and spoke 18 world languages.

Richard Coudenhove-Kalergi was a politician of Austrian-Japanese descent with Czechoslovak citizenship. In 1922 he presented the program for the unification of Europe, and

a year later his book "Pan-Europe" was published in Vienna. It was impossible that European races should be crossed with Asians and other people to create a more ethnic crowd of people without special characteristics which would be easily controlled?

In 1926, at the first congress of the Pan-European union in Vienna, attended by 2.000 Europeans from 24 countries, Kalergi declared that Europe must have a common anthem, currency, army, military, trade, market. For example, Konrad Adenauer, Charles de Gaulle, Winston Churchill, Albert Einstein, and Franz Josef Strauss were members of the Pan-European Movement. Adherents of the European integration process, as Kalergi said, can be found in various political structures across the spectrum of European political parties and movements. His work is generally understood as one of the pillars of European integration. The question I am asked about the United States of Europe is: Weren't Spinelli and Monet inspired by the works of Count Kalergi? This is a question for historians-researchers.

World War II was the second period in the development of European federalism. Federalist concepts and strategies have emerged that contain various proposals for the creation of a new Europe. In 1941, the so-called "Ventote Manifesto" became an important document for European federalists (Kratochvíl 2008, p.54). The authors of this document were Altiero Spinelli and Ernesto Rossi. Both strongly opposed the state and argued that the expansion of nation-states was the reason for the emergence of totalitarian states whose desire for hegemony led to the outbreak of world wars (Spinelli-Rossi 1944, pp.19-20).

3.1 What a Role Spinelli and Monet Played in Proposing the Creation of a United and Free Europe

The first among the thinkers is Jean Monnet, who was a representative of gradual steps, an advocate of a gradual and moderate movement. Monnet advocates the idea that the federation should be based on the constitution of the new Member States and that integration as such should be slow, without major pressures and time constraints, with political integration being the imaginary goal of these gradual changes (Burgess 2007, pp.77 -78). The second author is Altiero Spinelli, whose concept is called constitutionalism or also constitutionalism, where Spinelli imagines federalization as a sudden constitutional change. Thus, unlike Monnet, it is more in a radical direction and predicts that the constitutional justification of the federation will take place before the very beginning of the integration process (Rosamond, 2000).

Why did Spinelli want a united Europe?

- Because the Peace Versailles peace system was imperfect and biased.
- League "League of Nations" collapsed (an unfortunate division of Hungary after the First World War)
- That peace in Europe can be ensured through the project of its unification!
- A pan-European Europe is economically needed by all the peoples of Europe.
- The standard of living of European citizens can be improved by creating a single economic space, without borders, ie. The basis of the customs union and the common market.
- Economic cooperation must be politically supported!

There were some unresolved issues for which we did not get a responsible solution, namely:

- The state, politicians, as well as lobbyists and centralist companies, convince us that the economy and all our lives are solved by central norms, central resources and oligarchs,
- Central and Eastern Europe has become an economic colony of Western Europe with cheap labor and expensive energy, where cheap labor earns three times less than

Germans or French, and prevailing corruption and barbaric takeovers of the economy, agriculture ... etc.,

- The path to normal life is self-sufficiency (food production, raw materials, ... etc.) with what is not supported at the local level, and the unresolved issue of accepting migrants.

If we talk about building a federal Europe, it is certainly interesting to mention the theory of neo-federalism. This concept emerged in the 80s and its main representative is John Pinder. Pinder argued that federalist theory should not be based solely on the goal of forming a federation, but should also include a process of federalization in which there has been a significant shift in sovereignty. For him, the steps that led to the development of European institutions that will gradually take over the functions of the Member States were very important (Pinder 1985-1986, p.51).

Spinelli and Rossi proposed the new creation of a united and free Europe, drawing on the idea of building a new institutional system. It would unite all citizens and at the same time give them freedom and a sense of social solidarity. On this basis, they called for the new creation of a European federation that would create European citizenship and limit the sovereignty of states. In this federation, citizens would have the option of controlling the federal government, and at the same time, it would be subject to federal laws (Spinelli - Rossi 1944, pp. 35-47).

The moderate federalist Jean Monnet did not believe in action - the functioning of intergovernmental cooperation and therefore advocated the idea of creating supranational institutions for European integration. Monnet also supported the creation of the Schuman Declaration in 1950, the Treaty on the European Integration of Coal and Steel - 1951, which proposed the establishment of the ESUO (Laurson 2011, pp. 9-10). The ESUO became the first step towards the federalization of Europe by organizing - cooperation between France and Germany basis on coal and steel. Due to the emergence of functional economic ties between nation-states, this cooperation led to a reduction in their sovereignty and the gradual formation of a federation, thanks to the strengthening of the transnational nature of cooperation (Burgess 1996, pp. 2-3).

Altiero Spinelli faced Monnet. Unlike Monnet, he advocated radical, abrupt change, that is, the one-off finalization of a European federation based on the Constitution (Kratochvíl 2008, p.56). For Spinelli, strong institutional ties were the basis. He argued that progress could not be made without a transition in the EC from intergovernmental to supranational rule. On this basis, he advocated a draft EU Treaty aimed at strengthening the federal elements of the European Community (Burgess 1996, p. 4). The treaty proposed a revision not only of the EC but also of the European Parliament, the Council of Ministers and the European Council. An important change was the introduction of the co-decision procedure, which was intended to strengthen the EP's position towards the European Council. The aim of this amendment was not only to strengthen the decision-making process in the EC but also to strengthen relations between the individual institutions. On the other hand, the Treaty would maintain the dominant position of the EU Member States in the fields of foreign policy, security and defense. Although its Treaty not ratified, but it can be influenced the further debate on the future of the EC, and some of its content can be incorporated into the EU Treaty (Burgess 1996, p.5-6). *

It is similar to the goal of integration, which represents a new European federation for both Monnet and Spinelli. The fundamental difference is the establishment of federal institutions and the establishment of a European federation in Spinelli's concept are understood as a necessary condition for the construction of Europe, that is, as a starting point. For Monnet, however, a united Europe is certainly not just the beginning, but the result of the whole process of European integration (Burgess 2007, pp.69-84). According to Spinelli, federalism is a

unique constitutional change in the context of European integration, so its author advocates the immediate transfer of political power to the European level. For Monnetti, however, federalism means a long, slow, gradual process of cumulative integration, at the end of which a potential federation will be officially recognized as the culmination of the existing economic and political reality (Burgess 2007, p.80).

We are very far on the path to EU integration or reorganization in the sense of a new federation of the United States of Europe. We have the euro and the common market, the Schengen area, but we do not have federal instruments - one government, one army, one common currency of all EU countries, one common foreign policy for incoming emigrants. Until these instruments are added to the existing integration of the future reorganization, which must be carried out politically, the whole EU project will be incomplete. We are failing in energy policy and thus in establishing the Energy Union. We have the Green Deal, Fit for 55, adopted in the EU, but the rest of the world is more or less ignoring it. I fear that European countries will no longer be competitive in foreign markets, also because of a meaningless energy policy at the EU level (high prices for electricity, gas and emissions). This raises the question: Do we need to reorganize the structure and governance of the EU in terms of a new federal United States of Europe? Give yourself an answer.

Problem: some countries are moving at a rapid pace to master skilled intelligence in a way that could bring about revolutionary geopolitical change in the next decade. Therefore, in my opinion, a reaction in the EU regarding reorganization is needed for key strategic decisions to be taken at the level of the new federal organized EU. I say this from a review of the past institutional development of the EC into a new EU organization. It is not clear that this development followed the method entirely - the gradual steps advocated by Monnet, but its gradualness and meaning were closer to real development than Spinelli's constitutionalism.

EU Federalization, yes or no? In Germany, Green, Liberals of the FDP and SPD In the year 2021 promote environmental issues and strive for a federal European Union. What would that mean? In my opinion, it leads to greater centralization and powers for the EU executive. A majority vote at the European Council could be introduced, thus suppressing the right of national veto.

* The opinion of Altiero Spinelli and Ernesto Rossi, Integrated Europe as a tool for the gradual construction of a single, socialist European state, is expressed in a document still considered by European federalists as a new socialist "manifesto" and also called the "VENTOTENE MANIFESTO DI VENTOTENE", from 1941 and became one of the fundamental documents of the EU. In 1943, the European Federal Government's (MOVIMENTO FEDERALISTA EUROPEO) program was established. Spinelli:" The European revolution must be socialist!"and states that there is only one need for lasting The reorganization of Europe calls on the Federation of European States to unite the European Union to prevent war. The theoretical model was developed by EB Haas (Haas, Unification of Europe, 1958) the final abolition of sovereign nation-states. The first thing to be resolved, without which all progress is a lie, is the final abolition of the division of Europe into nation-states, sovereign states.

I do not think that there is an atmosphere now to promote the intensive integration of European states, because that can lead to the strengthening of anti-European and anti-Brussels passions. If Germany were to embark on utopian projects that would halt economic growth, increase inflation and focus on the environmental agenda, I think it would worsen the impact of the relationship, not only with the Czech Republic but also with other Central and Eastern European countries. I assume that relations between Germany and the countries of Central and Eastern Europe would deteriorate. Unfortunately, German Foreign Minister Annalena Baerbock makes no secret of her efforts to create the United States of Europe. The problem: a

majority instead of the current unanimous vote at the European Council could be introduced and the right of national veto could be suppressed. Implementing this idea may not be easy, as all the Member States of the Union would have to agree.

4. Conclusion

At least until the 1990s, European integration followed the thinking of Monnet, who advocated gradual steps towards European integration, where the basic European treaties would normally be confirmed by good practice, first tested, gradually implemented and then formally adopted. In the 1990s, the treaties were adopted so quickly that the consequences of previous treaties could not be taken into account, let alone realized. Thus, it may seem to us that the process of integration has developed since Spinelli's methods since the 1990s. However, this was not the case because the condition for convening the Constituent Assembly and adopting the Constitution was not met. Apart from the attempt to adopt a constitutional document after almost half a century of functioning of European structures and their gradual development, it cannot be understood as a manifestation of Spinelli's radical federalism.

If we want to reorganize the EU, you would have to combine three documents:

The EU Treaty, the Treaty on the Functioning of the EU and the List of Fundamental Rights should be in the text of one basic Treaty. A new constitutional procedure and a new proposal for an EU constitution should be adopted. Today we have coronavirus, economic and environmental problems, migration problems in the current age, inflation, energy problems (gas and electricity), etc. it is unrealistic to implement legislative change at the level of all EU countries today! The consent of all EU countries is needed. Problem?

In my opinion, the plan to build a new "United States of Europe" should be based on democratic and solidarity principles. Otherwise, it will never be attractive to countries, regions, citizens, and anyone else, as long as the fundamental principles of democracy and solidarity are not established in the EU, any debate and thinking in this direction will be, in my view, meaningless. Integration would probably take on a new configurational form, but it must not lose its original meaning and mission, and that is fundamental human rights, civic characteristics and solidarity.

I am convinced that this will happen sometime in the future, but the current situation does not speak in favor of rapid EU federalization.

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Potential, Benefits, and Barriers of Flexible Working Arrangements

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Abstract

Sustainable business is becoming a cornerstone of the strategy and development of companies in the European Union. A responsible view of business reflects not only innovative strategies, supply-demand chains, the environment, but is also increasingly reflected in labor policy, or HR and diversity. Searching for optimal working conditions and forms for all groups of employees is the result of it. The aim of the article is to identify the benefits and barriers of flexible working arrangements in accordance with sustainable entrepreneurship and the European Union strategy. It turns out that working arrangements, namely shorter working hours, flexible working hours, and shared jobs can be an effective tool to employ people with specific needs. It brings positive elements of flexibility, an increase in qualified employees, but also alludes to prejudices being deep-rooted by generations.

Keywords: EU, European integration, flexible working arrangements, labor policy, job sharing, people with specific needs

JEL Classification: K31, M51, J22

1. Introduction

If we perceive the issue of sustainable business in the context of interconnected economic, social, and environmental levels, then within the economic and social level, the employment policy of employers in the business sphere must not be neglected. Within it, special attention should be paid to employees with special needs to create appropriate job opportunities for them. The specific needs of these employees usually require specific working conditions and, within them, especially flexible working time arrangements, that means some forms of flexible employment.

The standard form of employment is still the dominant type, but more and more new forms of employment are emerging in European labour markets (Eurofound, 2020). There are several flexible forms of work, the choice of which depends on various criteria, whether on the industry, sector, employer's capabilities, but above all the type and scope of work, the degree of disability of the employee. Among the flexible forms of work that are emerging in the European labour market are: casual work, collaborative employment, employee sharing, portfolio work, interm management, platform work, ICT based mobile work, job sharing, voucher-based work (Eurofound, 2021). It should be noted that flexible forms of work are not only targeted at people with special needs but are also used as an alternative to permanent employment.

Employees with special needs are generally considered to be people with disabilities, carers, the elderly, the long-term sick, but from another point of view, women or, for example, adolescents can also be mentioned. In our article, we will focus primarily on employees - carers and employees over 50 years of age. In the group of employees over the age of 50, it is necessary to consider not only the 50 years of retirement age, but also the so-called active seniors, who are already entitled to a pension, still want to work, and enter the labour market (Flexible labour market and flexible working environment, 2019). Carers are then parents of young children (mothers and fathers) and people who take care of another dependent person in the family, especially a person with a disability or senior. It is necessary to draw attention to the increasingly current need for care for the elderly in the family (Horton, 2015), as this care is in fact much more demanding. However, it is also a question of reconciling caring responsibilities with employment, ie the issue of work-life balance, which needs to be paid no less attention (see for example the study Marx, Reimann, Diwald, 2021). It turns out that issues of sustainable entrepreneurship and work-life balance are very closely linked within the employment and social policy of employers.

The aim of the paper is to identify the main principles of the Czech legislation of selected flexible forms of employment and problematic aspects of the application of the regulation in practice with a comparison of trends in the Czech Republic and the EU. Both the potential and the barriers to their application in practice depend on the legal regulation of flexible forms of employment. The authors are of the opinion that, above all, easy-to-apply legislation could motivate employers to increase the use of flexible forms of work and thus overcome the Czech conservative labour market in this area.

2. Problem Formulation and Methodology

Various flexible forms of employment are emerging in the European labour market: casual work, collaborative employment, employee sharing, portfolio work, interm management, platform work, ICT based mobile work, job sharing, voucher-based work (Eurofound, 2021). Digitization, societal change, sustainability and, finally, the changes caused by the Covid-19 pandemic are flourishing new forms of employment (Kotíková et al., 2020). Individual European countries differ in terms of the possibilities and scope of using flexible forms of employment and working hours (Mandl, 2020). In 2020, employers stated that they used six new employment forms on average, while in 2013-2014 they reported using only three new forms (Eurofound, 2020).

Methodologically, the authors chose secondary analysis of information sources (data from the Czech Statistical Office, Eurostat, and published case studies), as well as analysis of legal texts and case law.

Legislation in the Czech Republic so far officially allows for the negotiation of shorter, changed, or flexible working hours, part-time or full-time work from home, teleworking, out of work agreements (Agreements to perform work or Agreements to complete a job) and working time accounts, job sharing (shared workplace). Flexible forms of employment in the Czech Republic are regulated in the Labour Code (*Act No. 262/2006 Coll., Labour Code*). The most recent of these, the adjustment of the shared job, was added to the law with effect from 1 January 2021. In the context of the EU, especially Directive 2019/1158 EU (*Directive (EU) 2019/1158 of the European Parliament and of the Council of 20 June 2019 on Work-Life Balance for Parents and Carers and Repealing Council Directive 2010/18/EU*, 2019), which must be met by 2 August 2022 (in more detail Martiníková, 2020). With another, Directive 2019/1152 EU (*Directive (EU) 2019/1152 of the European Parliament and of the Council of 20 June 2019 on Transparent and Predictable Working Conditions in the European Union*,

2019) national legislation must be harmonized by 1.8.2022. Directive 2019/1152 EU aims to address the risks associated with insufficient protection of workers. Above all, it aims to improve information on working conditions and improve the working conditions of all workers, especially those in non-standard forms of employment, while maintaining the adaptability of the labour market (in more detail Georgiou, 2022). The purpose is to introduce the right to flexible working arrangements, including the use of telework, for certain protected groups of employees. Related to this is the need to improve compliance with working conditions standards and increase transparency in the labour market.

All of this is in line with the European Union's strategy to increase the employment of population groups with specific needs and to improve the efficiency of the labour market; these European labour market processes are closely linked, leading to a reduction in unemployment and long-term exclusion of people from the labour market and from society. (Eurofound, 2021) This is why the European Pillar of Social Rights also sets out 20 key principles and rights that it considers desirable for fair and well-functioning labour markets and social protection systems. Subsequently, the European Pillar of Social Rights Action Plan translates these principles into practice or into concrete measures for the benefit of citizens. It also proposes headline targets for the EU to achieve by 2030. (European Commission 2021).

In practice, new forms of employment are used alone or in combination (Kyzlinková et al., 2019). The use of combinations of some forms of work according to the Labour Code allows, others are on the verge of the black economy. In this case, both tax and social aspects need to be addressed.

Selected flexible forms of work

According to the name, **flexible working hours** is already a typical form of flexible form of employment. By introducing this form, employers can operatively respond to various conditions that affect their activities, such as operational, economic, climate technology, etc. The main benefit for employees is seen by Hloušková et al. (2022) in the possibility of partly organizing their working hours according to their needs. Flexible working hours combine the periods of the basic and optional working hours, the beginning and end of which are determined by the employer. The employee is obliged to work the basic working hours according to the set working hours schedule, the length of which is determined by the employer, while the law does not stipulate any restrictions in this regard. Optional sections of basic working hours are determined by the employee himself and thus he actively participates in determining his working hours. With flexible working hours, the average weekly working time must be filled in the compensation period determined by the employer, with the law setting it at a maximum of 26 consecutive weeks or 52 weeks in agreement with the unions (Act No. 262/2006 Coll., Labour Code). Flexible working hours can be used in combination with other flexible forms of work.

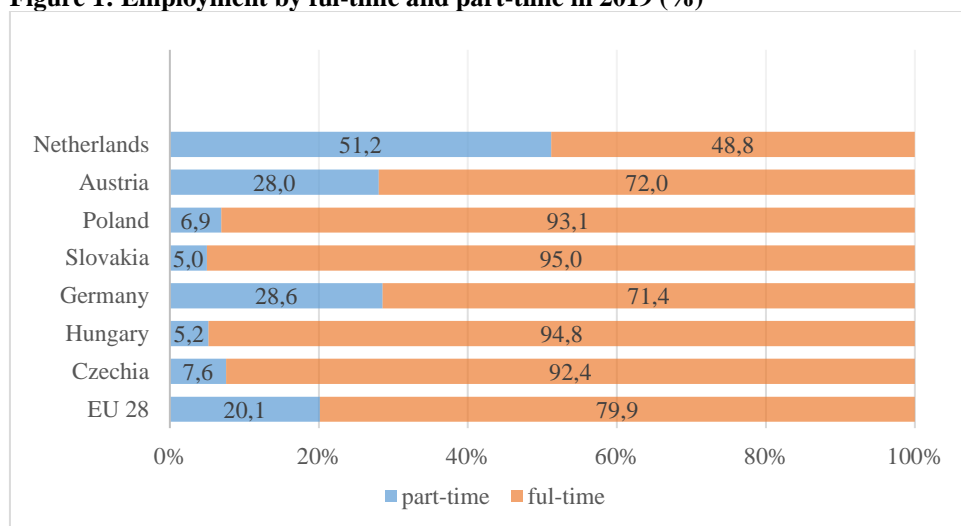
The possibilities for introducing flexible working hours are different. Retail shows more variability of hours per day than manufacturing, which includes more shift work and night work (Eurofound, 2020). States show different working time flexibility. In the framework of research Eurostat (2020), in 2019 in the EU, more than half of employers mentioned on the working time of employees (61,8 %), around 18.8% of employees can decide working time but under given restrictions and conditions (eg choose the beginning and end), on average up to 20 %, employees can fully organize their working time.

In principle, **part-time work** can only be agreed based on a mutual agreement between the employer and the employee. An exception is the right of employees with special needs, namely employees caring for a child under the age of 15 or caring for a person dependent on the care

of another person, to ask the employer for shorter working hours or other appropriate working time arrangements (Hloušková et al., 2022). The employer is obliged to comply with the request unless there are serious operational reasons. In practice, a clear definition of the term causes serious operational reasons. The legislation provides no guidance in this regard. Šimáčková et al. (2020) state that a clear definition is crucial for the position of carers or another dependent, as otherwise this institution is easily abused. The employer can use it very purposefully and justify the non-compliance with the request for adjustment of working hours. In practice, however, it remains to follow the case law of the Supreme Court, which in its decisions gives some guidance on how to assess serious operational reasons, what can be considered such reasons and what cannot. Serious operational reasons can be understood as a situation where complying with the employee's request would mean increased financial costs of the employer, i.e. typically a situation where he would have to hire a new employee (*Decision of the Constitutional Court of the Czech Republic 21 Cdo 612/2006*, 2006). It follows from the decision Cdo 1821/2013 (*Decision of the Constitutional Court of the Czech Republic 21 Cdo 1821/2013*, 2014) that the employer is the one who has to prove specifically what problems the representation of the employee by his other employees would cause him and what all would have to be reorganized. It is not possible to state systemic-organizational or personnel reasons in general. According to decision 21 Cdo 1561/2003 (*Decision of the Constitutional Court of the Czech Republic 21 Cdo 1561/2003*, 2003), it is always necessary to monitor the impact of complying with the application on the proper operation of the employer at the time of the application, taking into account the nature of the operation, the employer's organizational and technical conditions, the number of employees and their substitutability, and remuneration for work performed.

In the Czech Republic, most people work full time (Figure 1). It increased the number of part-time workers, their share increased to 7.6% of all workers. Compared to the European countries, this is still a small share.

Figure 1: Employment by full-time and part-time in 2019 (%)



Source: (EUROSTAT, 2022); Own elaboration (2022)

According to data for 2019, the share of shorter working hours in total employment in the entire EU was 20.1%, for the Czech Republic it was only 7.6%. According to the European Statistical Office (2022), most people worked part-time in the Netherlands (51.2% of the

population), followed by people in Germany (28.6%), Austria (28%) and Norway (26.8%). When comparing the shares with our neighbouring countries, these are comparable data, in Slovakia it was only 5% and in Poland 6.9%, Hungary states 5.2% of part-time workers. By contrast, Germany and Austria are among the countries in which shorter working hours are used much more frequently. (Figure 1). Holý (2018) states that the increase in shorter hours in the Czech Republic is concentrated in two age groups, people over the age of 65 and the age group 25 to 29. The increase in these two age groups was practically identical to the overall increase in the number of part-time workers. Which corresponds to the theory outlined above.

A **shared workplace** (job sharing) opens the door to flexibility, it is basically a regular rotation of two or more employees in one workplace. The adjustment of the shared job was introduced into the Czech Labour Code relatively recently, with effect from 1 January 2021. The aim of the legislation was therefore to allow flexible combination of shorter working hours of employees, and it is obvious that this form of employment seems very suitable for employees with specific needs. The principles of a shared job can be summarized by concluding an agreement between the employer and at least two part-time employees. There is no limit to the maximum number. The employees work in the same workplace and agree among themselves on how to schedule their working hours. Based on a common working time schedule, each of them must, on average, complete their working time no later than a four-week compensation period. The total weekly working time of all employees in a shared workplace must not exceed the specified weekly working time (usually 40 hours/week). Šudoma and Vodičková (2021) state that for a smooth functioning of a shared workplace, it is a condition to have good working relationships in the workplace. According to them, the liability of shared employees for damage caused by the employer is not resolved either. Employees can participate in one task and finding the culprit can be problematic. The combination of this institute with other working time arrangements for employees with special needs is also unresolved by the legislator. This is pointed out by Škubal and Vejsada (2020), that these employees have a legal right to request not only shorter working hours, but also other suitable working time arrangements, such as work only in the morning. However, this can be difficult to implement in practice and limits the possibility of using a shared job with these employees.

Kotíková et al. (2020) points out that there is no specific legal framework for the regulation of shared employment in Europe and that states use part-time regulations. According to a survey by the Continuing Education Fund (2017), 20% of organizations offer shared jobs in EU countries, compared to around 7% in the Czech Republic. According to research, there is a marked increase in administrative positions, and it is increasingly used by parents with young children. (Flexible labour market and flexible working environment, 2019).

3. Problem Solution

Flexible working hours are quite often used in practice and represent a very suitable way of employment for employees with special needs. It is often perceived as an advantage mainly for employees who can organize their working hours to a large extent. In this way, the employer can effectively organize working hours with respect to their specific conditions. The advantage is also the saving of wages in obstacles at work, which are included in working hours only when they interfere with basic working hours.

Shorter working hours occur in two cases. The first case is a mutual agreement between the employer and the employee. And employers and often employees in this case are not very shared yet. Only 7.6% of employees worked part-time in the Czech Republic in 2019. With this share, we rank among the countries with the lowest prevalence of part-time work within the European Union, however, comparable to neighbouring countries (see Figure 1). The

increase in the Czech Republic occurs in people older than 65 years and the age group 25 to 29 years, so it is used in groups with special needs.

The second case of shorter working hours is shorter working hours at the request of employees with special needs. In this case, the authors perceive as a problematic aspect the definition of serious operational reasons of the employer, for which the application may be rejected. With clear settings, shorter working hours would be more represented and would facilitate the application of shorter working hours. In particular, Šimáčková et al. (2020) proposes clarifying the concept of serious operational reasons, either by specifying the features of this institute or by setting out the conditions that justify employers to reject an application. The inspection body (State Labour Inspection Office) should be obliged to keep statistics on the use of shorter working hours by employers, including serious operational reasons defined by the employer. At the same time, it would be appropriate to monitor the gender perspective. In the absence of clear legislation, the Ministry of Labour and Social Affairs should develop a methodology for assessing serious operational reasons that would facilitate practice in this area. However, the legislator should enshrine this issue in the law, while respecting existing case law, which emphasizes the careful consideration of requests by carers when assessing whether operational reasons jeopardize or impede proper operation. This would certainly help to make greater use of this flexible form of employment for carers. The use of shorter working hours is also suitable for employees over the age of 50, who often welcome the possibility of shorter working hours, either due to possible health restrictions or wanting to enjoy more non-working time according to their ideas, although they still want to remain somewhat active. These experienced employees benefit employers, even if they do not work full time, and therefore creating such job opportunities is also in their interest (Miežienė, Krutulienė, Gruževskis 2021). For parents with young children, this opportunity means continuing their professional and career careers, keeping in touch with their team and, of course, reconciling work and family. According to the authors, in the case of a group of parents caring for children, it is appropriate to resolve the issue of the possibility of moving from a shared job to a full job. This issue will also contribute to more widespread use.

There is no specific legal framework in Europe for the regulation of the shared job, states use part-time regulations. (Kotfková et al., 2020). Also in the Czech Republic, the shared job was used in practice in certain modifications since the law did not prohibit this form of employment. Of course, the new legislation on job sharing was expected to legalize this form of employment. The aim of the legislation was therefore to allow flexible combination of shorter working hours for employees. Critical considerations towards the legislation relate mainly to certain problems with practical application by employers when its purpose was to motivate employers to use this flexible form of employment. Škubal and Vejsada (2020) state that the sum of employees in one shared job must not exceed one week's working hours, ie one full-time job. However, this prevents the employer from using a shared job to provide work that requires a larger scope per week than the usual 40-hour weekly working hours (reception, gatekeepers, security, etc.). It is also disadvantageous to modify the termination of the shared job agreement by notice from the employee. He may give notice at any time with fifteen days' notice. The deadline is too short for the employer to provide compensation and if he fails, the shared jobs regime will end. The advantage for employers is that they do not have to prepare a shift schedule, but the employees agree on it themselves (Šudoma and Vodičková, 2021). In the case of a shared job, it is recommended to determine the potential of the employment relationship in terms of career growth at the outset. It will bring better workplace relationships to both employees and employers.

Due to this, the legislation on the shared job is so far perceived with some embarrassment, as it did not fully meet the expectations of employers. Therefore, the state is trying to support

employers who will use the shared job. This is in the form of support from the Flexible Employment Program (FLEXI), including financial contributions for employers. The project supports flexible forms of employment in the form of generational tandem, induction allowance or shared jobs, if the employer hires clients of the Labour Office involved in the project (Šudoma and Vodičková, 2021; Labour Office of the Czech Republic, 2021). However, now, after a relatively short period of effectiveness of the legislation, categorical conclusions cannot yet be drawn about the need to change the legislation. However, even in recent times, employees have realized how advantageous it is to plan working hours according to their needs or their family situation, especially for a group of people with special needs. For carers, this means considerable help in reconciling their domestic responsibilities with the carer.

For the described flexible forms of work, the same elements can be traced, both for employees and for employers. The main benefit of flexible working hours for employees is the reconciliation of work and personal life. (Miežienė, Krutulienė, Gruževskis 2021) Employees are more motivated to work (especially if they are satisfied with reconciling work and family life), the employer acquires a motivated, loyal employee with higher productivity, there is a reduction in absenteeism. For employers, the introduction of flexible forms of work can mean a competitive position in the market, it can help retain a capable (indispensable or otherwise valued) employee. Or, conversely, attract new talent from carers who could not work without this opportunity or gain the potential of seniors who can pass on their experience to younger colleagues. In the future, it brings savings to employers, for example when training. However, the disadvantages may be the initial changes in the implementation of flexible forms of work into the functioning of the organization, adaptation of the work department, determination of responsibilities and other aspects according to the scope of work. An undeniable advantage is the diversified work team, the natural transfer of experience and skills, the gender-balanced environment and a certain degree of flexibility. In terms of the use of flexible forms of work, the size of the employer also plays a big role; large companies can meet the needs of employees much better. The type of industry or sector of the employer's activity also has an effect.

Among the barriers to the development of flexible working hours, let us summarize the insufficient or low social protection of workers employed in these forms, the tax burden of some forms. Fear of different treatment of full-time and part-time employees can be a barrier. And, as we have already mentioned, lower pay, coupled with limited career progression (Stovell, Besamusca, 2022). Also, conservative thinking on the part of both employees and employers, and the associated low awareness. Therefore, the concept in the form of subsidies, tax reliefs or the legislative changes is welcome.

4. Conclusion

For sustainable entrepreneurship within the employment policy of employers, it is necessary to emphasize the need to create job opportunities for employees with special needs, to allow flexible forms of employment, which are still very little used in practice. To increase employers' interest in introducing flexible forms of employment and creating suitable job opportunities for employees with special needs, it is essential that legislation meets the needs of practice, that it motivates employers and is easily applicable in practice. The importance of flexible forms of employment and more favourable organisation of working time has also increased as a result of the European Union's employment policy. In its strategic documents, the European Union encourages Member States to increase deregulation and flexibility in the labour market, in line with the European Pillar of Social Rights Action Plan (European Commission 2021).

Insufficient use of flexible forms of work is due to both reluctance / conservatism on the part of employers and employees. Neither Czech nor European labour law legislation hinders flexibility in adjusting working hours and work organization. However, employers complain about the increased administrative burden, economic and tax disadvantages associated with the introduction of flexible working arrangements (Kyzlinková et al., 2019). For employers, they can initially mean additional costs for the implementation of flexible forms of work into the functioning of the organization, adaptation of the labour department, increasing administrative complexity in determining responsibilities and other aspects according to the scope of work. In the long run, however, they will bring cost savings and a competitive advantage.

Employees then limit economic reasons. Especially with shorter hours, it is lower earnings, job insecurity, fewer opportunities for career growth, fears that full-time employees will be given priority in their careers, and in the future, there is a fear of lower pension entitlements. However, these negative aspects can be prevented by the correct setting of the workplace and its barriers.

Flexible jobs in the form of shorter working hours, flexible working hours or shared jobs are particularly suitable for selected groups of employees, ie carers and employees over 50 years of age. Because it is this group of employees who will appreciate the opportunity to reconcile family life with work. Of course, it should be noted that other variants of flexible work, including distance or hybrid, can be beneficial for these people and offers an elaboration of this topic in further professional work.

Acknowledgements

This research was financially supported within the VŠB–Technical University SGS grant project No. SP2022/71 (Analysis of fraud in cross-border transactions and their impact on the identification of risks in business activities).

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SWIFT as a Tool Not Only for European Integration

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Abstract

The paper discusses the importance of The Society for Worldwide Interbank Financial Telecommunication (hereinafter "SWIFT") not only for European integration. It partially maps its historical development with emphasis on the importance for mutual communication between financial institutions. At the same time, however, it can be a very suitable means of obtaining a range of information as evidence for criminal proceedings in clarifying financial crime offenses. In their research, the authors deal with various approaches to the processing of data obtained from the SWIFT system, which will be submitted to law enforcement authorities. These documents can then be linked to other information, which in turn will help clarify possible financial crime, especially in cross-border, or foreign overlap. The authors' study is based on the hypothesis that "SWIFT information can contribute to the clarification / detection of financial crime".

Keywords: European integration, financial investigation, SWIFT

JEL Classification: G23, K14, O31

1. Introduction

In particular, the implementation of non-cash payment is based on the transfer of data and information relating to payment transactions between banks, both in national and international standards. These are data subject to banking secrets that must be secured against leakage and abuse. Due to the large number of transactions conducted (which in larger banks and other payment service providers, several thousand items are also achieved daily) and the sensitive content of the information transmitted must meet the high requirements for the number of transferred messages, speed (in a few minutes) and mainly transmission security. In addition, it must enable the widest possible interconnection of banks and other financial institutions practically worldwide (Schlossberger, 2012, p. 235).

In the past, payment data between payment service providers and other financial institutions, mainly internationally, used telex, but the international telecommunications network SWIFT is currently being prepared.

Under the abbreviation SWIFT (The Society for Worldwide Interbank Financial Telecommunication) is the company for worldwide interbank financial telecommunications that operates international, computer-controlled telecommunications network. This network combines the subscriber bank and other financial institutions and allows them to quickly, reliable and mainly secure data relating to payment and other financial transactions and other related information.

In 1973, 239 banks from 15 countries got together to solve a common problem: how to communicate about cross-border payments. On Thursday, May 3 of the same year, SWIFT

was founded as a cooperative society under Belgian law. (Scott, Zachariadis, 2014, p. 16) SWIFT went live with its messaging services in 1977, replacing the Telex technology that was then in widespread use, and rapidly became the reliable, trusted global partner for institutions all around the world. The main components of the original services included a messaging platform, a computer system to validate and route messages, and a set of message standards. The standards were developed to allow for a common understanding of the data across linguistic and systems boundaries and to permit the seamless, automated transmission, receipt and processing of communications exchanged between users (SWIFT [online], 2022).

The biggest advantage of this network is its wide international range. At the end of 2010, it joined more than 9,700 banks and financial institutions from 210 countries (Schlossberger, 2012), in 2020 it was already 11,588 users from the financial institutions. (SWIFT, 2020) Another advantage is its high adaptability to bank needs and their payment systems. Currently (2022) are SWIFT reports through which data are transmitted, adapted to both cashless paying services carried out by open payment accounts (Nostro and Loro accounts) and clearing Zacharias's systems working on how netting clearing And Brutto Real-time clearing (RTGS). It is the ability of rapid adaptation to new conditions to use the Swift International Telecommunication Network and for the needs of payment systems operating in particular within the European Monetary Union standards. The standards were developed to allow for a common understanding of the data across linguistic and systems boundaries and to permit the seamless, automated transmission, receipt and processing of communications exchanged between users. (SWIFT [online], 2022) This fact is underlined by the fact that the SWIFT system was chosen within the European Union as the basic format for the transfer of payment data, which makes full use of the SEPA project (Single Euro Payments Area), which may be the knowledge stated by the authors in the established hypothesis.

2. Formulation and Methodology Problem

Due to the key role that SWIFT plays during data transfer concerning financial transactions of various character (as we will see below), the authors are of the opinion that the information with which the system handles the form of mediation from the sender to the recipient reports, especially financial institutions, may be a means to detect criminal activity. Therefore, the authors aimed to demonstrate the validity of the working hypothesis that "Swift Information CAN Contribute to the Clarification / Detection of Financial Crime".

For the methods of their examination, especially the literary research of the issue in terms of the importance of SWIFT in society, further efforts to scientific description of phenomena and processes regarding the substance of SWIFT, secondary data analysis, as well as explanation and deduction methods have been chosen.

It is appropriate to emphasize that the scientific approach can be considered a purposeful process of controlled, systematic and methodology for identified knowledge, which is aimed at a particularly specific direction, which aims to qualify the cognitive of a particular phenomenon or process and which is subject to the possibility of verification of acquired knowledge. (Roubal, Petrová, Zich, 2014, p. 37) The authors are of the opinion that the submitted contribution is evidenced that they managed to fulfil the attributes of scientific exploration.

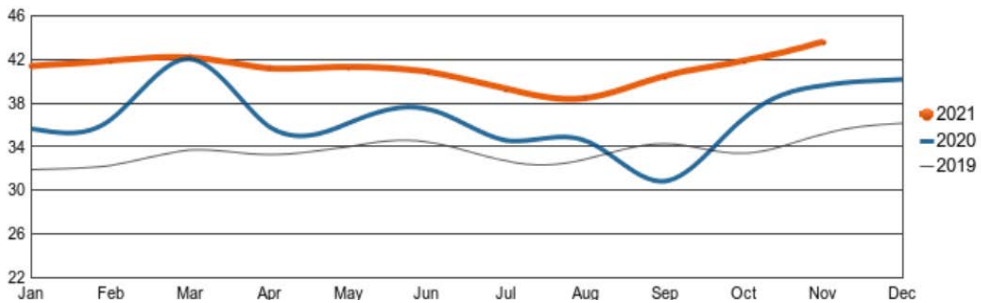
3. Status of Current Knowledge

In this section, the authors deal with the current recognition of Swift incl. his reflection in professional or scientific literature. As already conducted, the SWIFT system was launched in

1977 and since then became an irreplaceable transfer system between the participants - members of the system, which are financial institutions, in particular banks. In assessing the importance of the telecommunications system, it should be taken into account the fact that the decisive criterion for evaluating the importance of the system is the number of transmitted reports and not their volume. It is important for system users that it is able to accept and therefore transmit a message from one financial institution to another, and it does not matter whether it is a negligible financial transfer (e.g., a book fee) or a really high amount (e.g., a fee payment for the purchase of a share in the company).

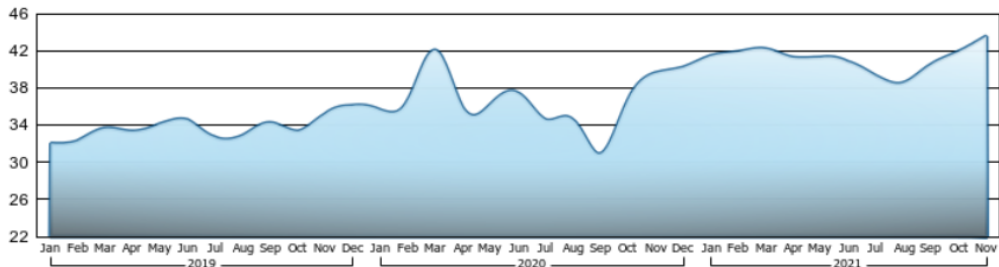
Figures 1 and 2 show a comparison of the daily number of operations in millions (y-axis) during 2019 to 2021. From both graphs it is clear that the number of messages transmitted by the system increased compared to the previous period, according to specific source data the difference is about 11.7% compared the same period of the previous year. (SWIFT, 2022)

Figure 1: FIN traffic per day – all Markets



Source: SWIFT, 2022. <https://www.swift.com/about-us/discover-swift/fin-traffic-figures>

Figure 2: FIN traffic per day – all Markets - different view



Source: SWIFT, 2022. <https://www.swift.com/about-us/discover-swift/fin-traffic-figures>

The authors try to prove the importance of the SWIFT telecommunication system with the above-mentioned facts. This significance can be further documented by some scientific research publications of international significance. We can mention, for example, the publications of the authors Farrell and Newman (Farrell, Newman, 2018), who in their contribution deal with, among other things, the importance of the SWIFT system from a global perspective of data security and the possibility of their misuse in globalization.

They give examples where SWIFT may have played a key role in some negative facts, such as the attacks of the USA on September 11, 2001, etc. They also deal with the history of the SWIFT system, but they draw from the books of the authors mentioned above. (Scott, Zachariadis, 2014). Goldwater not only emphasizes the importance of SWIFT as a telecommunications system, but sees a crucial role in its necessity for the transfer of financial

assets between banks, be it cash or securities. All this is processed by a specialized process (Goldwater, 2019, p. 358). The paper itself addresses the importance of the SWIFT system and its temporary irreplaceability, especially in cross-border cooperation, although there is currently significant technological progress. Finally, he wonders whether such an important system should be governed by private law or public international law. (Goldwater, 2019. 381). Other authors who are interested in the SWIFT telecommunications system in their scientific knowledge include Mr. Kwok, who studied the importance of moving the SWIFT standard to ISO 20022. This is exemplified by the Covid-19 pandemic and compliance with the STP ratio (Straight Through Processing), where there is only minimal human intervention in the processing of data files during the preparation of data for transmission to the SWIFT system and its subsequent automatic processing. Adapting to ISO 20022 would, according to him, help to meet an even greater degree of data processing automation and thus an even better STP criterion. (Kwok, 2021, p. 239).

Authors' note: ISO 20022 is an ISO standard for electronic data interchange between financial institutions. It describes a metadata repository containing descriptions of messages and business processes, and a maintenance process for the repository content. The standard covers financial information transferred between financial institutions that includes payment transactions, securities trading and settlement information, credit and debit card transactions and other financial information.

The closest to the content of the authors' contribution is an article by the Dutch author Westermeier, who discussed the possibilities and consequences of providing client data by large banking corporations as a requirement by regulators. It states, inter alia, that access to transaction data and control of payment infrastructures have political implications and even geopolitical implications. She points to SWIFT as an example of the largest global infrastructure, because it creates the payment networks that work on it and through it, by providing secure connections between banks through messaging. SWIFT processes about 80% of global payment traffic (Dörry et al., 2018). Although it presents itself as a neutral platform for international payments, SWIFT also plays a role in ensuring security and in the geopolitics of sanctions. Through SWIFT, for example, the US can monitor all cross-border bank transfers and thus enforce sanctions by "punishing" foreign entities, for example by threatening to cut them off from the foundations of the global banking system - the US dollar. According to some authors, the US government also has access to most of the established data on loans and other liabilities through Visa and the Mastercard payment service (Westermeier, 2020, p. 2052).

All the above opinions and information can only prove the importance of the SWIFT system both on a global scale and also in the national one, especially in countries with the EUR currency. The SWIFT system is not a national telecommunications element in the Czech Republic, but it nevertheless plays an important role in the transmission of foreign and especially cross-border transfers. SWIFT and its integrative role are underlined by the fact that the entire SEPA project (Single Euro Payments Area) is based on the use of this infrastructure and its formats (Schlossberger, 2012, p. 257).

4. SWIFT and the Czech Republic

The Czech Republic has been using the swift network for more than forty years. The Czechoslovak Commercial Bank became the first bank in Eastern Europe to become a member of SWIFT in February 1981. It sent the first message to the swift network on May 16, 1983 (Schlossberger, 2012, p. 242).

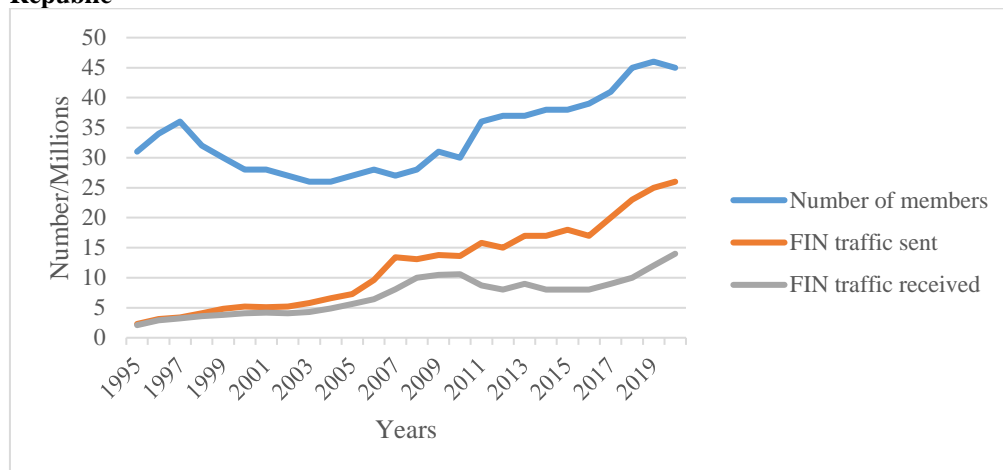
Živnostenská banka was the second in the Czechoslovakia to join the system in 1989, and then in 1991 the State Bank of Czechoslovakia, Komerční banka, Investiční banka and the largest Slovak financial institution - Všeobecná úverová banka. The following year, the swift community expanded by another 10 entities (including six branches of foreign banks), while at the same time there was a significant increase in the number of swift messages sent from Czechoslovakia compared to the previous year (by 69%). At present, (available data are from 2020) in the Czech Republic, the largest banks reach a volume of approximately 12 - 15 thousand messages transmitted per day, i.e., sent and received and may even exceed this number at peak times. Today, the Czech Republic ranks 41st, respectively, in the number of transmitted messages in the competition of about 210 countries the 46th place in the world in sent (FIN traffic sent), respectively. FIN traffic received (SWIFT, 2020, p 7).

Table 1 shows the number of SWIFT users in the Czech Republic between 1995 and 2020, together with the number of messages received and sent. The following Figure 3 then graphically shows the same.

Table 1: Number of Members, FIN Traffic Sent, FIN Traffic Received in the Czech Republic

Year	Number of members	FIN traffic sent (Millions)	FIN traffic received (Millions)
1995	31	2,3	2,1
1996	34	3,1	2,9
1997	36	3,4	3,2
1998	32	4,1	3,6
1999	30	4,8	3,8
2000	28	5,2	4,1
2001	28	5,1	4,2
2002	27	5,2	4,1
2003	26	5,8	4,3
2004	26	6,6	4,9
2005	27	7,3	5,6
2006	28	9,6	6,4
2007	27	13,4	8,1
2008	28	13,1	10,0
2009	31	13,8	10,5
2010	30	13,6	10,6
2011	36	15,8	8,7
2012	37	15	8
2013	37	17	9
2014	38	17	8
2015	38	18	8
2016	39	17	8
2017	41	20	9
2018	45	23	10
2019	46	25	12
2020	45	26	14

Source: Schlossberger, Soldánová (2007, p. 292), SWIFT (2020); Own elaboration (2022)

Figure 3: Number of Members, FIN Traffic Sent, FIN Traffic Received in the Czech Republic

Source: Schlossberger, Soldánová (2007, p. 292), SWIFT (2020); Own elaboration (2022)

According to current CNB data (Czech National Bank [online], 2022), as of 1 February 2022, SWIFT's membership in the Czech Republic consists of a total of 44 financial institutions, mainly banks.

It is clear from the above framework data that the SWIFT telecommunications system is a very important infrastructure that is used globally. As already mentioned, the SEPA project chose the infrastructure represented by the SWIFT system as the format for the transmission of data messages on cross-border transactions in EUR (see egg Eurlex [online], 2021).

5. Framework Structure of SWIFT Messages

As SWIFT works with its own standards (SWIFT [online], 2022), their knowledge can be used to investigate criminal market crime. In order to correctly interpret all the reports that law enforcement authorities can obtain, it is necessary to know their structure and composition.

An internationally valid standardized system for classifying swift messages distinguishes messages according to their purpose and function into individual categories, groups and types. Each swift message is identified by the letters MT (Message Type) in three numeric characters:

$$M T x y z$$

where x = message category

y = message group

z = message type.

The message category indicates the purpose or subject of the business to which it relates. Swift messages are divided into eleven categories:

- Category 0 System Messages;
- Category 1 Customer Transfers, Checks;
- Category 2 Financial Institution Transfers;
- Category 3 Foreign Exchange, Money Markets and Derivatives;

- Category 4 Collections and Cash Letters;
- Category 5 Securities transactions;
- Category 6 Precious Metals and Syndications;
- Category 7 Documentary Credits, Guarantees;
- Category 8 Travelers Checks;
- Category 9 Cash Management, Customer Status;
- Category x Common Group Messages.

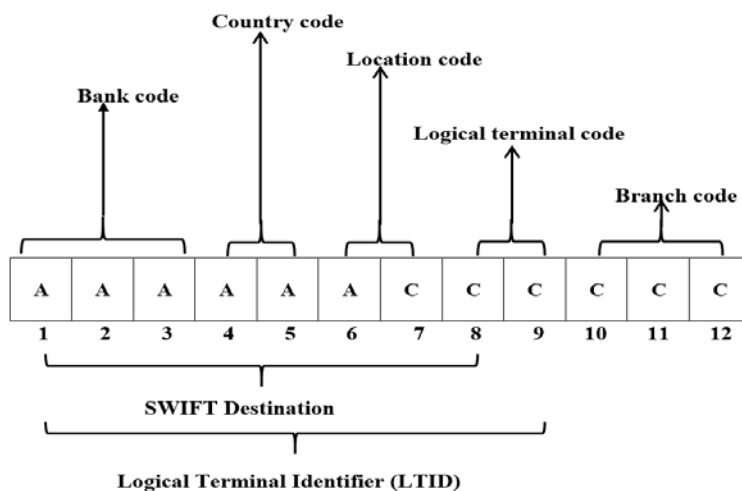
A message group describes a message function within a certain category, while a message type describes already specific details of a certain function.

The content of each swift message is organized into five blocks, of which only the first is mandatory for all messages, the others are optional and depend on the type of message and its use. The message therefore consists of a header (first three blocks), the message text itself (fourth block) and a so-called trailer (fifth block) (Scott, Zachariadis, 2014, p. 63).

- The header contains the identification of the sending bank or financial institution, the input serial number of the swift message, the type of message, its priority and the identification of the recipient of the swift message.
- The text block of a swift message consists of fixed or variable length fields that have standardized formats and their use is either mandatory or optional. Approximately 95 text fields are defined for the text part of swift messages, which are grouped into nine groups (see table). The same fields are used for different categories of swift messages, but the exact meaning of the field can only be created in relation to a certain category of messages, or even to a different type of message.
- The trailer contains technical information (e.g., possibility of duplicate message sending, message delay, authentication code, etc.).

The essential element of the SWIFT standard is the so-called swift address - BIC - Business Identifier Code. The BIC is used to identify the sender's and recipient's bank or other financial institution in the swift message header and also to identify the swift banks, e.g., the correspondent bank of the sending bank, in the message text boxes (Schlossberger, 2012, p. 213).

Figure 4: SWIFT Code Elements



Source: Scott, Zachariadis, (2014, p. 67); Own elaboration (2022)

Cross-border transfers within the countries of the European Economic Area must then use another standardized data, which is the account number of all parties involved in the form of IBAN - International Bank Account Number. (Eurelex, 2021, p. 22; Eurlex, 2014, p. 23). The composition of the IBAN is as follows:

CC KK XXXX YYYY YYYY... YYYY,

where

CC - country code, it always consists of 2 written characters according to ISO 3166-1.

KK - control code, always consists of 2 numeric characters and is used for program control of the account number. Protects clients from incorrect account number entry, e.g., due to typos.

XXXX - four-digit payment code.

YYYY - client account identifier, which can be up to 26 characters.

The IBAN number can have a maximum of 34 characters. E.g., It has characters 24 for the Czech Republic because the client account identifier can have a maximum of 16 characters within the home account number (called. BBAN - Basic Bank Account Number). (Czech National Bank [Online], 2011)

It should be noted that in 1999 the Swift's Board of Directors approved the adoption of XML (Extensible Markup Language) as a technological format for creating new message standards. This decision coincided with SWIFT plans to go to its SWIFTNET network based on IP base. The introduction of XML format was considered a better choice compared to the process of recasting existing syntax FIN. This format is adapted to ISO 20022 and brings a number of benefits, such as the possibility of sending large amounts of payments in one file, is a prerequisite for the so-called End to End process in which the data from the payer to the recipient are in the same format and Last but not least, it allows to transfer additional text information (Scott, Zachariadis, 2014, P, 70; Schlossberger, 2012, p. 216).

6. Financial Investigation and SWIFT

The financial investigation is the obligatory obligations of criminal proceedings and in the event that someone has acquired or tried to acquire property benefit or caused damage (property damage). (Šugár, 2015, p. 15) The most important stage of criminal proceedings is the main appearance. However, in terms of financial investigation, it is very important preparatory proceedings that can be divided into two basic stages, which are screening and investigation. (Laws for people [online], 1961) The financial investigation itself can then be divided into a period in which it is started and implemented. These are financial reporting, financial screening and financial investigations. (Šugár, 2015a, p. 20) Financial intelligence is a summary of methods used in stage before the start of criminal proceedings. This is, for example, about the application of explanation, acquisition of records or acquiring information from different evidence, etc. (Šugár, 2015a, p. 21) It is a stage in which it is the verification of equity benefit knowledge, which comes from crime found before the start of steps in criminal proceedings pursuant to §§ 78 - 79f of the Criminal Procedure. (Laws for people, [Online], 1961)

Since we are talking about the financial investigation under the criminal proceedings, the above-mentioned stage must be fulfilled by the above-mentioned stages under specified periods. And just a very appropriate basis for financial investigations can be the data that includes a SWIFT telecommunications system. As mentioned above, each Swift report has its structure of the relevant category of reports in the distribution into basic blocks. Of these, they

can then read the essential information they demonstrate, where, how, where and to whom funds sent and what amount. A clear reconstruction of the transaction can be performed. According to V. EU directive on the obligations in the fight against legalization of crime revenues and terrorist financing, Art. 40 (EurLex, 2015, p. 101) it is a person compulsory (e.g., Bank) to keep all information about the trade five years from the moment of termination of the business relationship with the client, in our case a suspected person within the financial investigation. Therefore, at the time of five years from the transaction you can obtain the necessary information from the appropriate SWIFT message.

Within the message header, not only the payment date, but also the beneficiary's financial institution, not only within the European Economic Area, but around the world can be found. If the Payment participated in the so-called correspondent financial institution, most often the Bank is presented in this place. It is important to emphasize that every SWIFT report is allocated by the financial institution, an unmistakable identification number that accompanies the payment until its target processing. It is one of the three basic reconciliation characters next to the so-called valuta processing (which is the date of payment processing) and the amount of cash transfer. In particular, the criminal proceedings will be interested in the financial investigation information on the transfer itself. Part of the fourth block then you can find out the amount of conversion, client names - sender or payer reports, its account number (within EEA countries, the IBAN account number is given above for payments in EUR, eventually in other currencies of EU countries), eventually his address incl. account numbers. It is therefore all basic information that is sufficient for criminal proceedings to obtain the necessary evidence for the initiation of criminal prosecution. (Šugár, 2015, p. 19) And whereas Swift is a transnational telecommunications system, the above-mentioned standards are internationally used and therefore the whole financial investigation is essentially simplified for law enforcement authorities, as the ability to obtain the required data in the structure is identical for all authorities. The SWIFT system can assist in the acceleration of the financial investigation, especially in the investigation phase. An important condition, however, remains that law enforcement authorities must be very well oriented in the structure and content of Swift and prove them to interpret them correctly. And this is one of the project's partial goals on which the authors participate.

7. Conclusion

The research conducted and carried out by the authors of this contribution, has a wider context before it can be specified in the place. However, the authors managed to clarify how a SWIFT role telecommunications system plays a significant role, not only within European integration. SWIFT standards have been accepted for all cross-border transfers and SEPA payments that are processed only in euro area countries, but also for countries outside this group applied for cross-border payments denominated in EUR currency. Standards in the form of Finn messages are used worldwide between the members of the system, which is more than 11,500. The system standards contain a sufficient number of information to be kept within the financial institutions for five years after the end of the business relationship with the client. The authors are of the opinion that this is a long time that the criminal proceedings can be used in the implementation of their financial investigation.

The authors are of the opinion that the objective of the contribution was fulfilled by the hypothesis that was set as "Swift Information Can Contribute to the Clarification / Detection of Financial Crime" was demonstrated.

Further research will focus on the description and characteristics of individual fields of SWIFT messages in major categories such as categories 1, 2, 3 and 5 in order to develop a methodology

for law enforcement authorities to increase the effectiveness of the fight against financial crime. This is also the mission of the research project of which the authors are members.

Acknowledgements

The research for this article has been supported within the grant project of the Ministry of the Interior of the Czech Republic with the name „Electronic evidence in criminal proceedings“. Project registration number VJ01010084.

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Effects of Subsidies on an Economy

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Abstract

Subsidies are extensively applied by governments to encourage the use of certain goods by consumers. Through a subsidy policy, determined goods are sold cheaper than their actual prices and the government collects the difference. Subsidies can be allocated to various economic issues. In classical sense, the main objectives of subsidy applications are based on price policy and anti-inflationary policy which are effective. Moreover, in the modern sense, it used for the purpose of general equilibrium, in other words, to equalize trade balance such as lowering prices and controlling inflation. However, considering long term applications, subsidies can lead to significant negative effects on international trade such as price discrimination, increase in taxes, leading to inefficiency of local industries and increase in borrowing. Before applying a subsidy on an industry, all outcomes should be predicted and analyzed to avoid subsidy incentive to be a barrier in international trade and affect local economy.

Key words: *subsidy, international trade, price discrimination, trade balance, export subsidy*

JEL Classification: *F10, F13, F18, F20*

1. Introduction

Subsidy is extensively applied by governments, and it is a type of non-trade barrier. In other words, subsidies are state expenditures which are applied with the purpose of supporting production of goods and services. If a state aids its market economy within accepted competition conditions and that state does not benefit from this assistance, it cannot be considered as a subsidy. Subsidy provision by governments seeks some benefits in return. Subsidies encourage industries and increase their revenue and they are in favor of subsidizing countries. However, there might be some side effects of subsidies on local economy and international trade. In the long run, for instance, they might affect international trade if companies export subsidized products, and it might lead to unfair competition in the global market. Moreover, it might affect the local economic situation in subsidizing country as well. This research is analyzing subsidy and defines its effects both on international and local level and it states a clear vision of importance of subsidies in the international trade and provide information about their effects based on cases and examples which must be considered before subsidy provision.

2. Positive Effects

Lowering prices and controlling inflation

Subsidization is one of the main tools to keep prices under control. In case of inflation, through subsidy implementation, governments can decrease prices or prevent inflation of certain industries or products. In the short run, this is effective way to prevent inflation, however, in the long-term, subsidization might be very costly and not reasonable way to control the prices.

Preventing the long-term decline of industries

When some industries cannot perform well but have potential to recover, governments implement subsidy programs on those industries to prevent their decline. This approach has been extensively used in many countries because the support of potential industries is always in favor of governments and local economy. Moreover, there are some industries governments provide subsidies aimed to prevent short-term decline of them. Agriculture sector is an example of above two approaches. Depending on the season or year which is not the best for agricultural products because of weather or any other reason, subsidies can be implemented on those specific products to prevent the decline of them. On the other hand, there might be some specific agricultural products which are subsidized aiming to protect its decline and benefit in the long-term (Anderson, 2006).

Subsidization can enable domestic firms that work less effectively to compete against foreign producers. It allows domestic manufacturers to sell their goods below their actual costs. If a government wants the development of certain indigenous industries, they subsidize to ensure their development and trade expansion of those industries.

A greater supply of goods

Often subsidies aim to decrease the sales prices of goods. Such favorable prices are achieved through cost reduction, in other words, through support of government. The decrease in the sales price is also reflected on the amount of supply, as obviously a decrease in the price will lead to increase in the demand. Therefore, subsidized companies or industries will be required to supply larger quantity (Foreign Trade Journal, 2003). Moreover, even the price is not decreased after subsidization, since the companies or the overall industry can reduce the cost, they can invest on other fields of their business which is more likely to increase the supply. Such an incentive is in favor of both the industry and the government because lacking products in the domestic market will be filled with local products, alternatively, in case of excess supply, it can be exported.

Foreign currency flow

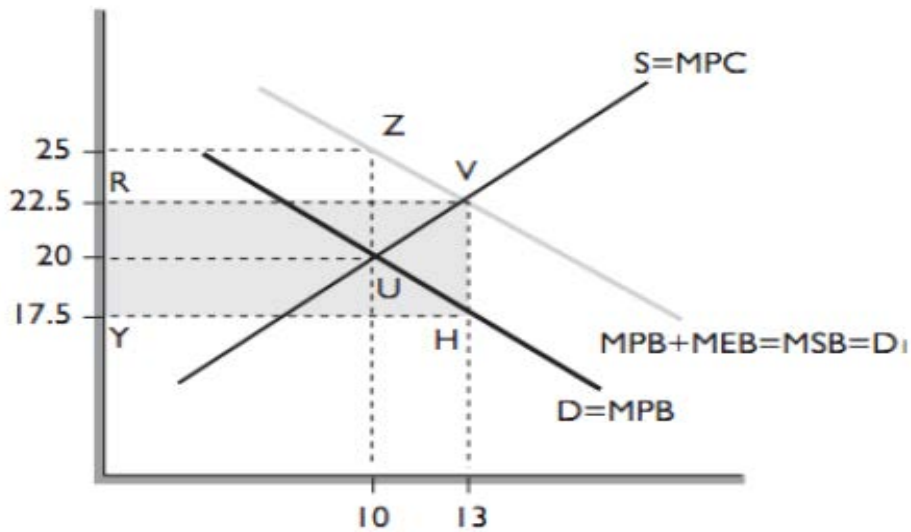
Companies can benefit in terms of offering their global customers favorable price if they receive export subsidies, low interest loans or tax relief or any other assistance. In case of subsidization applied on export performance, net exports will increase and in return, the inflow of foreign exchange into country will increase. One of the main reasons that governments use export subsidies is to open paths for local companies into global markets. As an example, we can indicate China whose manufacturers can sell products at very low prices by being provided interest free loans mainly.

Providing positive externality

Subsidies can generate positive externalities through implementation to internalize marginal external benefit of production or consumption activity. Such an incentive decreases payments made by producer or consumer. Subsidies can also be considered as a negative tax as

regulatory tax. Below case explains how to utilize subsidies in the process of internalization and how to use it to provide economic efficiency with the example of the vaccination which is related to creating positive externalities. Figure 1 below shows how a subsidy affects the level of output balance. In the absence of subsidy, the price of a vaccination at the equilibrium point in the competition market is 20 USD, and the annual amount is 10 million. Assume that, at this point of consumption, marginal social benefit exceeds the marginal social cost. The subsidy applied to reduce this difference is the payment made by the state to the buyer or the seller of the vaccine. The state wants more people to be vaccinated and in this case the price should be decreased (CFI, 2015).

Figure 1: Subsidy effect on output balance



Source: Economies of Subsidies, World Trade Report 2005

In this example, the subsidy provision reduces the price which a consumer pays. In such an application, the amount of subsidy is equal to the marginal external cost of goods or services. In the example, in the assumption that the marginal external benefit of each person is 5 USD, the state will subsidize each person who is vaccinated by 5 USD. This means an increase of 5 USD in the marginal private benefit of everyone who has vaccinated. In this case, the demand curve will move from $D = MPB$ to $D_1 = MPB + MEB$. Market balance shifts from point U to point V due to an increase in demand for the goods. At point V, the market price of the vaccine will be USD 22.5, so this new price can cover the increased marginal benefit of the product. However, the price reflected to the consumer becomes USD 17.5 because of subsidy provision. As a result of price decrease for consumers, quantity demanded will be increased to 13 million per year. So, the effective output level is achieved. The state pays 65 million USD each year since there are 13 million people assuming subsidy per person 5 USD. The amount of subsidy provided per year is RVHY field in the graph. Since subsidies are paid from tax revenues, the state of goods and services to be subsidized should be determined very carefully by the state, because the logic of this activity example does not justify all subsidies.

3. Negative Effects

Inflation

The inflation in subsidizing country is one of the main negative effects of subsidies. Subsidy is a tool to control inflation, however, at the same time it might cause inflation. The laborers, for instance, of export subsidized industry are likely to demand higher wages. The increase in the wages of an industry will affect the other industries, too. As a result, it will cause the collective national wage rates increase. Since it is an export subsidy case, the main quantity of products will be exported, and the remaining will be sold in the country. Because the companies will try to reflect cost of labor increase in their prices, in the long term, such wage increase will lead to inflation essentially. This increase spread implications have been mentioned by WTO and they called for a ban on export subsidies especially on agricultural sector.

Price discrimination

The other negative effect of subsidies is price discrimination. Subsidies might disrupt the identity between buyer prices and vendor prices in markets. In a commodity market where subsidy is applied, the market price of goods is often below the factor price of the commodity. The price of subsidized product is also called artificial market price (Rani John, 2013). If the applied unit subsidy amount is added to the market price of the good, the natural or factor price, in other word, real market price is reached. It is a fact that one of the main aims of the subsidy implementation in the market is to encourage consumption and use of those products and reduce the prices of them. As a result of this practice, public spending has increased spontaneously. While the provision of subsidies to any consumer good constitutes an income for manufacturer, at the same time it might affect competitors in foreign market.

Affecting consumer behavior

Through subsidy provision, two main goals of governments are minimizing expenditures and maximizing welfare. The resulting effect of such goals is increasing sales quantity. In the long run, subsidy provision can be costly for governments. Thus, some governments which have budget constraint, subsidize with the length of five years which is most common period. As a result, the efficiency of the firms after subsidy program finishes are more likely to decline.

Subsidy programs encourage more consumers to buy products or the same numbers of consumers to purchase more of those products. In fact, such impact is directly related to consumers' behavior. Furthermore, in case a government has budget constraints and subsidies are provided temporarily, subsidization might have mixed effects on consumers' behavior. The mixed effects make consumers' purchasing behavior more complex than usual and pose greater challenges for firms serving these consumers (Zhou and Yuen, 2020).

The case of subsidy provision to remanufacturing industries is directly related to consumers' behavior. One of the main objectives of such subsidy programs is to encourage more consumers to purchase remanufactured products. Consumers are unwilling to make purchases when they are uncertain about the quality of products. However, the number of consumers buying such products is reversely proportional to the uncertainty level meaning that if more people consuming those products, uncertainty of consumers can be eliminated. Such relation is based on the network externality theory. Network externality states that consumers' behavior is affected by the behavior of others, and consumers' utility increases with the number of other consumers consuming the product (Huang, Gokpinar, and Tang, 2018).

Inefficiency

The capital subsidies granted to the business sector by several governments, as well as the EU, may have a positive impact on the economic growth. However, subsidization is not always unproblematic, as it can give the opportunity for politicians and bureaucrats to maximize political objectives rather than economic efficiency. Nonetheless, it is not clear whether subsidization of investments is a good or bad thing looking at it in a long term.

It is known that subsidization of businesses can increase employment, as well as capital investments, but can it affect the productivity? Productivity is one of the most important aspects of long-term growth of an industry and therefore economy. For instance, subsidies can help with the technological development of the subsidized firms, which results in better utilization and more efficient productivity. Although governments argue that these subsidies are growth enhancing, as in some cases it can happen that resources are allocated inefficiently.

In despite of these former facts, there are also reasons why capital subsidy provision can have negative effects on productivity. One example is, as mentioned before, the allocative inefficiencies, in the sense that a firm which is granted by this subsidy may over-invest in capital. Furthermore, subsidization can also give rise to technical inefficiencies, meaning that if the firm takes this capital subsidy as a higher profit, then it can result in a lack of effort among stake holders, particularly managers and the workers. If a business has significantly high profit it tends to be less efficient, saying that the motivation of workers may be affected in a negative way and the management may also not seek for cost-improving methods. Assuming that these supported firms are saved from bankruptcy by the government, then they are not forced to improve their performance and productivity or re-organize their activities in the same degree as non-supported firms do, which are facing possible bankruptcy. Similarly, subsidized industries might be inspired to be more interested in subsidy-seeking actions (such as lobbying) rather than other profit or productivity improving activities. Targeting certain businesses with these capital subsidies can be seen as a kind of “protection” and can also lead to the decrease in competition between companies, which in return may make the firms less effective.

Some other negative impacts of subsidies are listed below:

- Distortion of economic activity: subsidy provision leads to supply and demand to change both domestically and globally;
- Distortion of market: subsidies distort market;
- Increase in taxes: subsidy is provided from collection of taxes;
- Increase in borrowing: governments might borrow more in order to subsidize their inefficient industries;
- Unfair competition: competitors are affected by subsidy implementations in global market; Encouraging inefficiency: subsidy artificially protects inefficient firms;
- Financial cost: subsidies can become expensive in the long run

The indirect effects of “green” subsidies

While there are mainly positive effects of government R&D subsidies on technology improvements, still there can be some concerns about how a government R&D subsidy policy should be formulated and deployed in an economy. The reason for that is that R&D subsidies can have direct, indirect and net effect on firms, and the policy of R&D subsidization can be described as “width” or “depth” policy. “Width” means many small subsidies, and “depth” refers to a few, but larger subsidies. Besides, the government should also take into

consideration the firm’s specifics when determining the recipients and amount of the R&D subsidy.

There are direct and indirect effects of R&D subsidies. The direct effect is positive, and companies and government can benefit the results. Analysis and statistics are indicator of that direct effects of R&D subsidies bring benefits. 43,230 European firms concluded that public subsidies positively affect efficiency and innovation (Greco et al., 2017). On the other hand, there is indirect effect of R&D subsidization which is negative. Since R&D subsidies are provided by government, companies are reluctant to invest private capital in R&D.

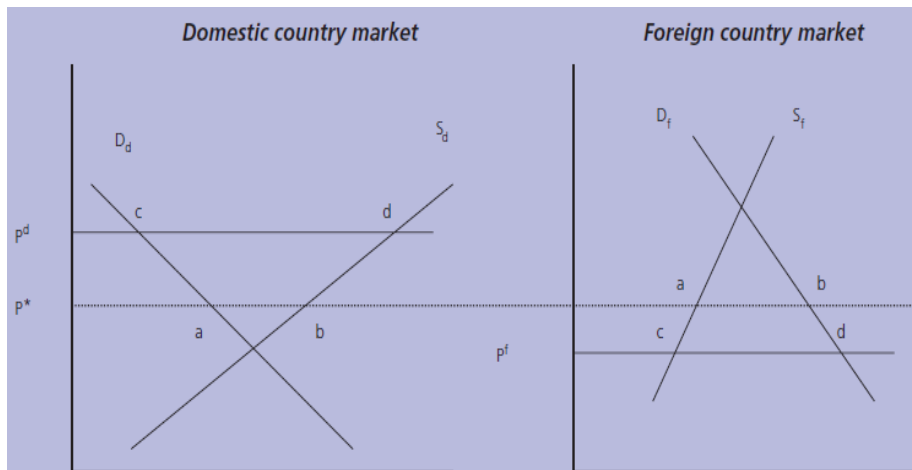
The other point to assess in R&D subsidies is related to the amount of subsidy and which companies receive more. Direct effect result positively as the more amount of subsidy is received, the more a company invests in R&D. This effect is proportional, and benefits are visible in the long-run. However, on the other side, after subsidization, some companies are likely to cut their own private capital on R&D and invest those amounts on their other business-related activities.

The other indirect effect is related to fairness notion. A government should balance the efficiency in a fair way. If a government pursue “depth” policy in subsidization, only limited companies receive capital with higher amounts which is unfair, however, direct impacts are more likely to be stronger and positive. In contrast, when “width” policy is followed, many small companies receive subsidies, however, in small amounts. This approach is assessed as fair method; however, the negative indirect effect of such program is more than positive result, thus, considered as inefficient way. Because, since the number of companies are subsidized is more, many of them might cut their private R&D capital and it is hard to monitor for the government. Therefore, even implementing “green” subsidies, a government should take into consideration several aspects and assess them carefully before implementation.

The effects of export subsidies

Subsidies usually are intended to provide favorable prices. However, domestic prices might rise when there is an export subsidy applied. If more output is exported because of an export subsidy, then international market prices will fall. Domestic prices, however, might rise because if subsidized industry exports main portion of its production, then less quantity of output available in the market will lead to increase in the prices (Mehtiyev, 2021).

Figure 2: Export Subsidy in a Large Country Case



Source: World Trade Report, 2006

In figure 1, before subsidy implementation, P^* is the initial world price and distance ab is the initial level of exports. After subsidy provision on an industry or domestic producers, the export level will be increased. It is necessary to mention about the government's aim on export subsidy provision because depending on that, the quantity to export is decided. If government, for instance, applies an export subsidy which they return some money based on the amount the company export, in this case, obviously the large quantity of produced goods will be exported. So, it might lead to lack of those products in the local market. Essentially, such a policy can result in price increase in domestic market. As illustrated in the figure, the price of the product will switch to P_d in domestic market. On the other hand, an increase in the supply in international market will lead to decrease of market prices which will be P_f in foreign market. In this case, the export level of the subsidizing country will be cd distance.

In this example, subsidy has a direct negative impact on welfare of domestic consumers since they will pay higher price for a product which is going to be sold cheaper in international market. Because production level and export level increases, domestic producers are the main gainers. The other benefit is collected by international consumers of subsidized products because they will pay lower prices for that product. On the other hand, similar product producers in the foreign market will be affected negatively. If the situation goes further and gets worse, uncompetitive producers in foreign market might go bankruptcy. Subsidizing government will be another benefiting side on this case as they will gather more foreign currency and economy and export level of the country expand. Foreign country in which subsidized products are sold is better off in this situation because positive effect to consumers offsets the loss to producers. As we can see the example, subsidy for the purpose of improving an industry might affect many participants of similar product which are traders, consumers, and some others.

4. Conclusion

Subsidies differ from other policy interventions in terms of their effects on international trade. Moreover, some of their possible effects are hidden. The main purpose of subsidy applications is to improve an industry; however, it might affect competitors' welfare. Considering it, we can conclude that an efficient subsidy should provide social benefit and should correct market failures without affecting other industries or competitors. If subsidies are applied on infant industries mainly, the affection of it on international trade can significantly be decreased. Subsidy, for instance, applied aiming to decrease cost of production without affecting average market price and without restricting trade activities. Subsidy is effective if under any circumstances it does not affect international or local economy. Supportive policy or incentives which are non-trade related can be implemented without leading to unfair competition in global market. So, before any protective or supportive subsidy implementation, it should be analyzed, and possible outcomes must be taken into consideration. If intervention is only supporting an industry or a company, but not affecting competitors domestically and globally, only in this case that supportive policy or intervention should be applied.

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The EU Economic, Social and Territorial Disparities: Current Level of Cohesion Before and After the COVID-19 Era

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Abstract

The COVID-19 pandemic was a major shock deeply impacting people, enterprises, public authorities, municipalities and regions. In many regards the pandemic has accelerated fragmentation between societal groups and between places. Many of the pandemic impacts highlight the risks of increasing inequalities. The worst and most direct impacts have been avoided by swift policy actions. In this context the European Union Cohesion Policy played a role. The introduction of new measures to counteract the socio-economic effects of the pandemic were extremely important. Although Cohesion Policy has proven that it can respond very quickly, it may face challenges in the years to come. This is partly due to increasing inequalities in Europe, but also to medium-term legacies of the new simplification and flexibility measures, as well as increasing competition with other EU funding instruments created in response to the pandemic. The paper provides an overview of how regional disparities have evolved and examines recent trends in economic cohesion in regions across the EU. Modes of regional support and policy intervention are crucial to boosting resilience. Therefore, the paper describes the impacts of the COVID-19 on Cohesion Policy.

Keywords: Cohesion, convergence, COVID-19, disparity, divergence, region, resilience

JEL Classification: E32, F62, O52, P41, R11

1. Introduction

The COVID-19 pandemic that hit the entire world at the beginning of 2020 has been affecting people and places in both economic and social terms. Lockdowns and other containment measures to limit the spread of the virus have slowed down entire sectors of activity and turned the health crisis into an economic recession. One aspect we learnt immediately from the crisis is that both the outbreak and the socio-economic consequences of the crisis are very uneven within countries. Some places have suffered more from the health costs of the pandemic than others. At the same time, some places have suffered more than others from lockdowns and the widespread scaling back of tourism and economic activities more generally.

The COVID-19 pandemic has caused the deepest recession in Europe for a century. While the pandemic is a threat to the health of all European people, it has had an uneven impact across economic sectors, regions and countries. The longer the pandemic lasts and the stronger the economic impact, the higher the risk that it will lead to structural, longer-term differences. The European Union (EU) has been taking measures to address the asymmetric impact of the pandemic and to emerge from this crisis without an increase in inequality.

The economic impact of the COVID-19 differs from region to region, depending on their sectoral specialisation, and may exacerbate regional disparities. The paper provides an overview of how regional disparities have evolved and examines recent trends in economic cohesion in regions across the EU, as reflected in GDP per head and in the underlying developments in productivity and employment. Modes of regional support and policy intervention, especially in the form of Cohesion Policy, are crucial to helping adjustment and boosting productivity to ensure long-term sustainability and income convergence. For this reason, the paper describes the impacts of the COVID-19 on Cohesion Policy.

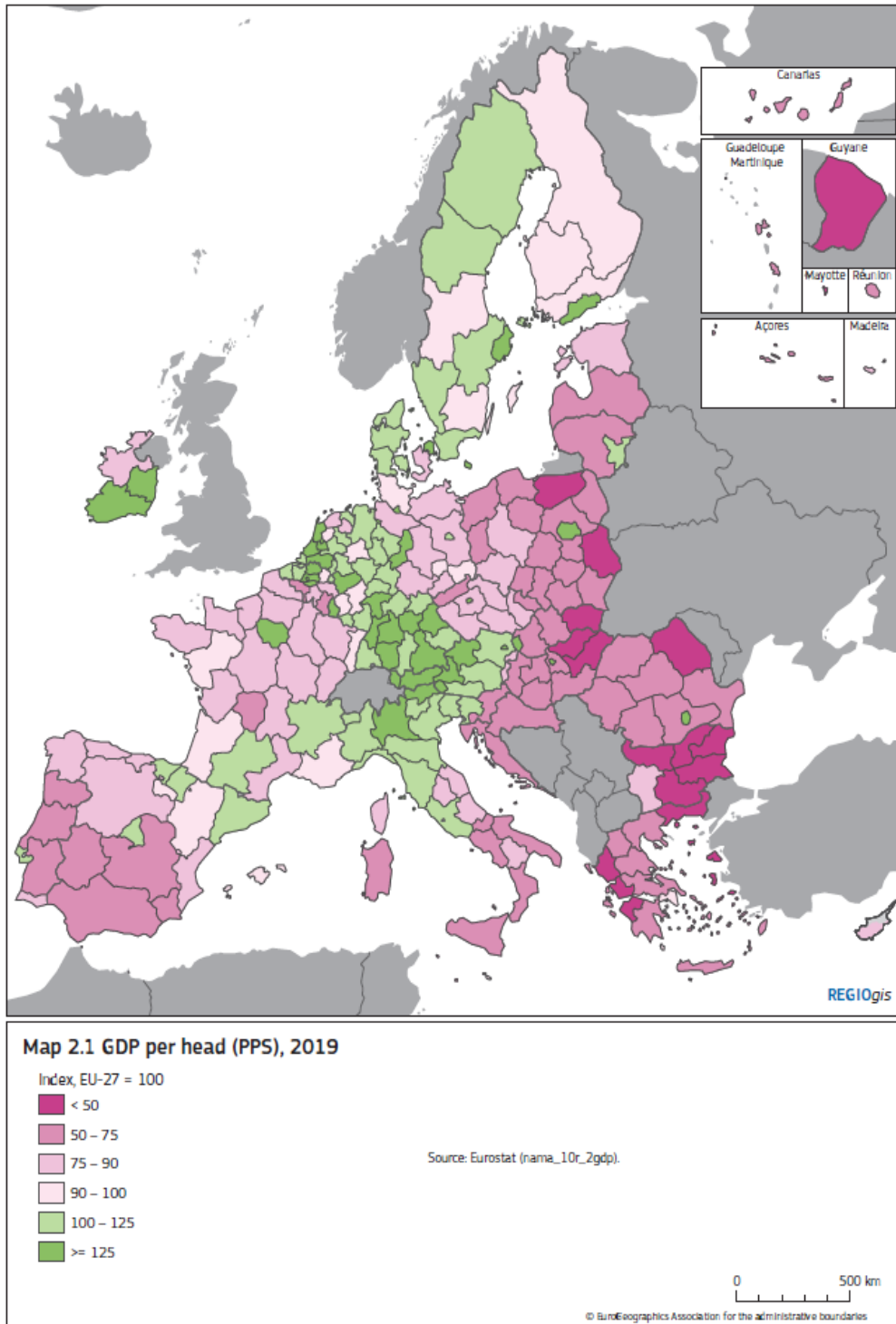
Given the topicality of the topic, the key method is a literature review mapping contemporary sources issued by relevant institutions, primarily by the European Commission, resp. institutions and their representatives. A literature review is a survey of scholarly sources on a specific topic. It provides an overview of current knowledge, allowing identifying relevant level of knowledge, approaches, trends and gaps in the current setting of economic policies and the directions in which they are implemented. Literature review doesn't just summarize sources – it analyses, and synthesizes to give a clear picture of the state of knowledge on the researched subject. A literature review in its most comprehensive form includes a synthesis of quantitative findings stemming from quantitative research studies and qualitative findings stemming from qualitative research studies. Synthesizing quantitative and qualitative findings in the same literature review renders the literature review process as a mixed research study.

2. Recent Trends in Convergence and Divergence Between EU Member States and Regions

The question of regional disparity is a serious concern in Europe. Although the evidence suggests that the EU economy as a whole has benefited, and continues to benefit, from globalisation, these benefits are not automatically and evenly transmitted to all regions. Some of the poorest regions in Member States that joined the EU more recently are catching up to the EU average, but others are falling behind. Economic integration is an important source of growth, but it leads to convergence only if conditions are right. Regional economic convergence has stopped in the EU, and divergence could become a threat to economic progress at a time when globalisation poses new challenges to economic cohesion (Iammarino et al., 2017). For the next analysis it is necessary to note that the 'economic convergence' primarily refers to a decrease in regional disparities in GDP per head. Also trends in disparities in related concepts such as productivity and employment are discussed. The information in this section is drawn from the Eighth report on economic, social and territorial cohesion – Cohesion in Europe towards 2050 (European Commission, 2022a).

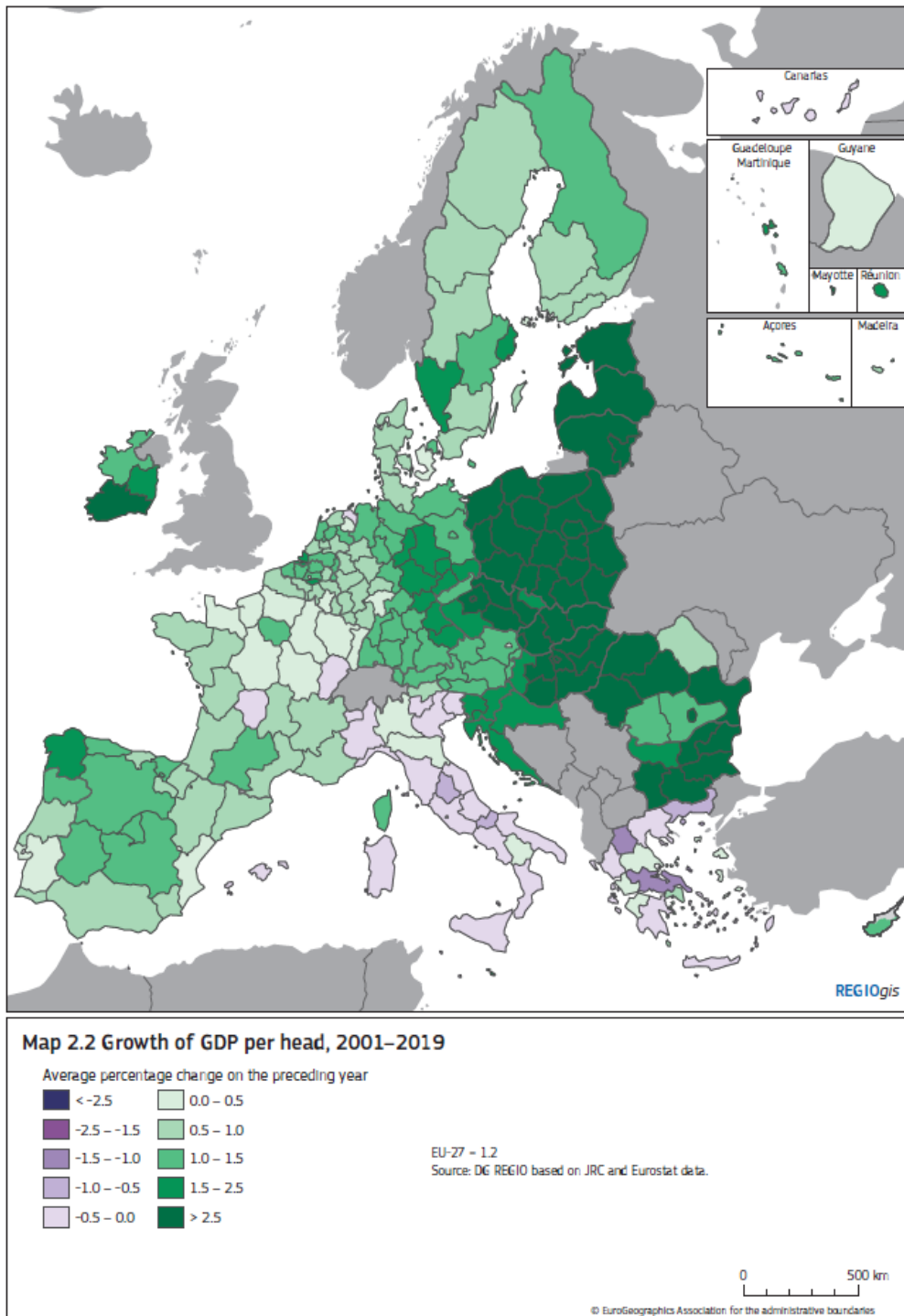
In 2019, over 1 in 4 people in the EU (29%) lived in a NUTS 2 region with GDP per head below 75% of the EU average in PPS terms, most of them in eastern Member States (Eastern those in central and eastern Europe that have joined the EU since 2004), Greece, Portugal, Spain and southern Italy, as well as in the outermost regions (The EU includes nine outermost regions: Guadeloupe, La Réunion, Mayotte, Guyane, Martinique, Saint-Martin (France), Madeira and Açores (Portugal) and Canarias (Spain), see Figure 1 (Map 2.1). In Bulgaria, GDP per head was below 50% of the EU average in all regions, except in Yugozapaden, the capital city region. Over the 2001-2019 period, GDP per head in real terms increased in the vast majority of EU regions, see Figure 2 (Map 2.2), albeit at a modest rate in most cases. Growth was particularly high in the eastern Member States and Ireland. In most regions in Greece, however, GDP per head fell over this period – as it did in Italy, both in many of the more developed regions in the north and in many of the less developed ones in the south. At the same time, growth was very low in transition regions in the north of France.

Figure 1: GDP per Head in Purchasing Parity Standards (in 2019)



Source: European Commission (2022a, p. 21).

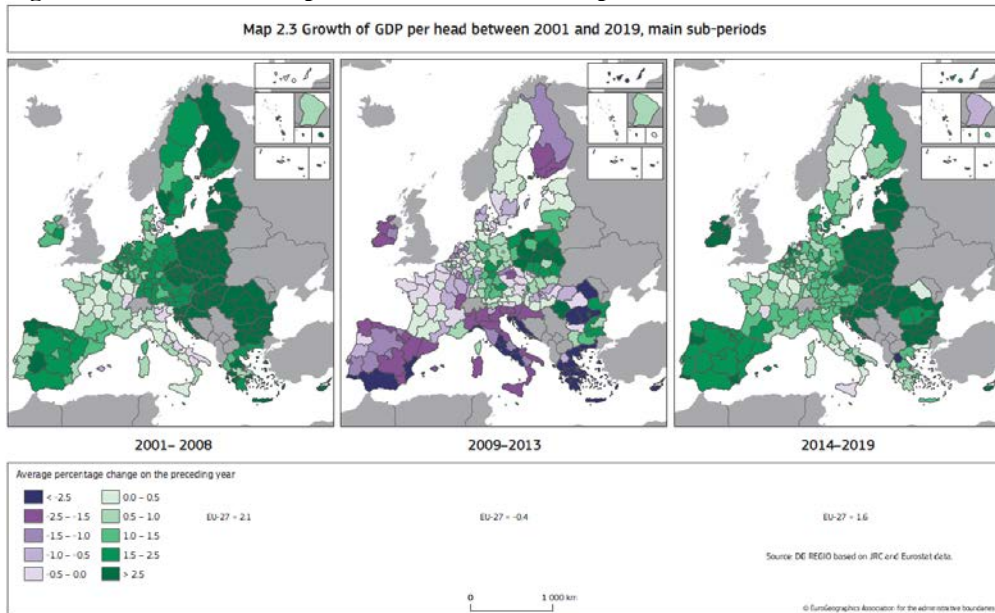
Figure 2: Growth of GDP per Head (Between 2001-2019)



Source: European Commission (2022a, p. 21).

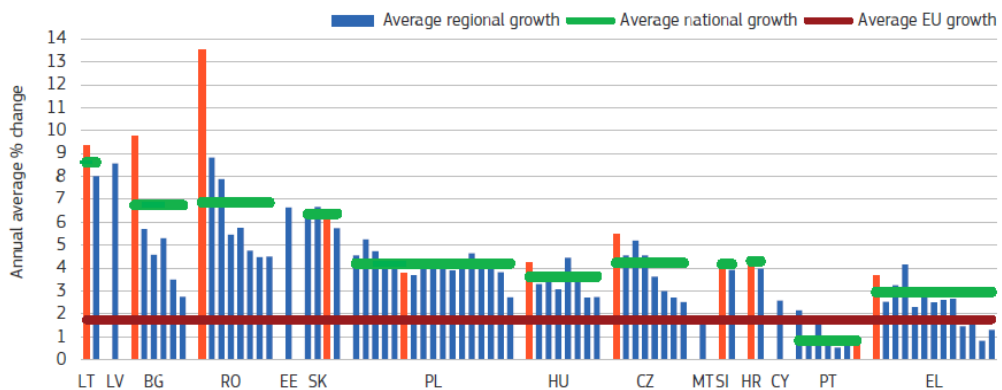
Between 2001 and 2008, nearly all regions experienced growth in GDP per head, see Figure 3 (Map 2.3). Growth was above average in both the less developed and the transition regions, with rates of over 5% per year in many of those in eastern Member States. This is in line with mainstream economic growth theories predicting that growth will tend to be higher, the lower the initial level of GDP per head. Most of these regions are in less developed and moderately developed Member States, where for the most part growth was faster than the EU average (Figure 4). In Romania and Bulgaria, where the growth rate was particularly high, the catching-up was not uniform across the country but was driven by the capital city region. Regions in southern Italy, however, did not follow this pattern of catching-up. They already experienced negative growth in the 2000s even though their GDP per head was well below the EU average.

Figure 3: Growth of GDP per Head in 2001-2019 Sup-Periods



Source: European Commission (2022a, p. 22).

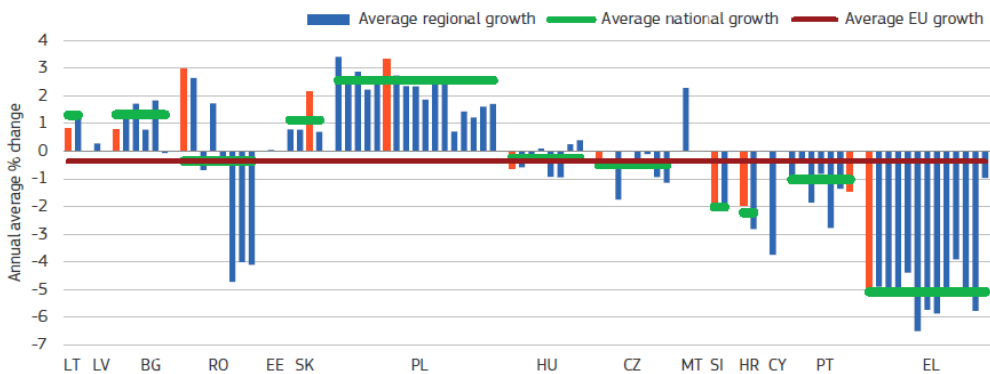
Figure 4: Growth Rates of GDP per Head in Regions in Less Developed and Moderately Developed Member States, 2001-2008



Source: European Commission (2022a, p. 23).

The global financial crisis of 2007-2008 led to GDP per head in the EU declining between 2009 and 2013. Around 60% of the EU population lived in regions with a declining GDP per head, see Figure 3 (Map 2.3) and Figure 5. The regions hit hardest were mainly in the southern EU countries, though also in Romania, Ireland and Finland. In most Greek regions, the reduction in GDP per head averaged over 3% per year. The crisis led to many of the less developed and transition regions growing more slowly (or shrinking more quickly) than the EU average during this period, so reversing the tendency towards convergence. The process of convergence was, therefore, brought to an end and disparities began to widen again. Most regions in Poland, and some in Bulgaria and Romania, were notable exceptions.

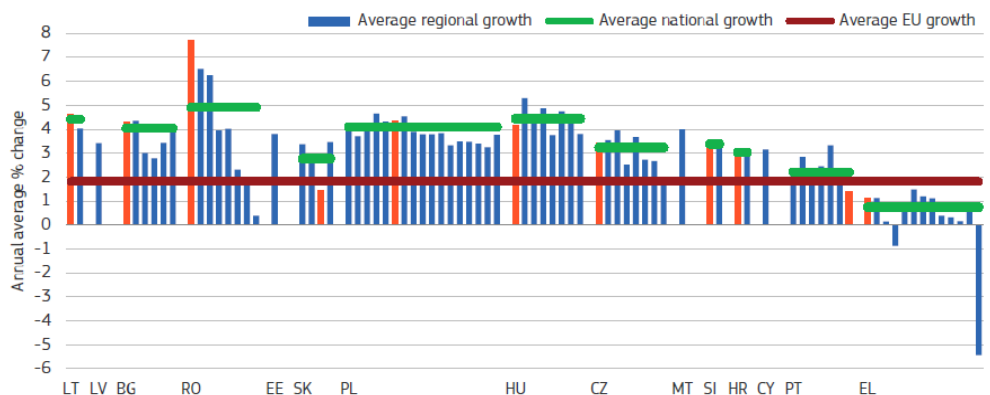
Figure 5: Growth Rates of GDP per Head in Regions in Less Developed and Moderately Developed Member States, 2009-2013



Source: European Commission (2022a, p. 23).

The 2014-2019 period shows a clear recovery from the Great Recession, see Figure 3 (Map 2.3) and Figure 6. Almost all regions experienced growth in GDP per head, though at a lower rate than in the pre-crisis period. High growth rates were restored in most eastern regions, so contributing again to convergence. By contrast, growth in many north-western regions remained below pre-crisis rates, Ireland being the main exception. In many regions in the hard-hit southern Member States, especially in Portugal and Spain, growth rates recovered; but in Greece, and many regions in Italy, growth remained low.

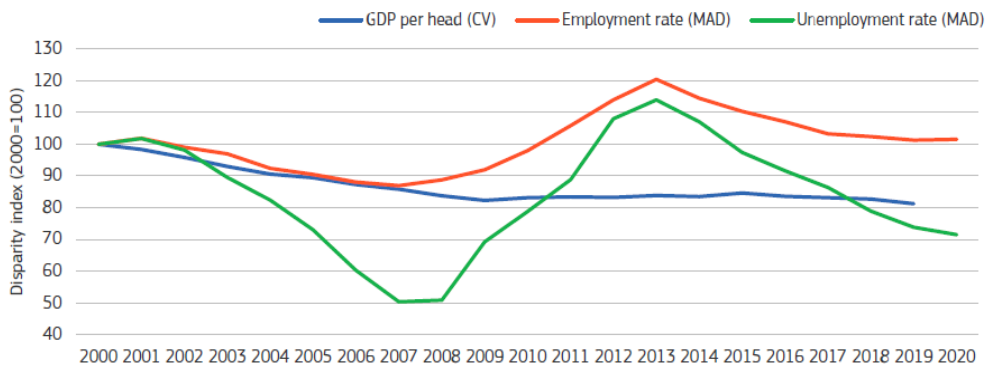
Figure 6: Growth Rates of GDP per Head in Regions in Less Developed and Moderately Developed Member States, 2014-2019



Source: European Commission (2022a, p. 24).

Prior to the 2007-2008 crisis, disparities in GDP per head in the EU were shrinking, mainly because of regions with the lowest levels growing faster than average (Figure 7). However, in the years immediately following the crisis, regional disparities widened slightly. There are signs that the long-term process of regional convergence, which was interrupted by the crisis, has resumed, although at a very slow pace. Regional disparities in employment and unemployment rates also narrowed from 2000 up to the financial crisis, after which they widened to reach a new peak in 2013. They then began narrowing again; but in 2020 the disparities in both were wider than in 2008. Disparities in the employment rate remain at much the same level as in 2000. For more information about social disparities see Staničková (2018).

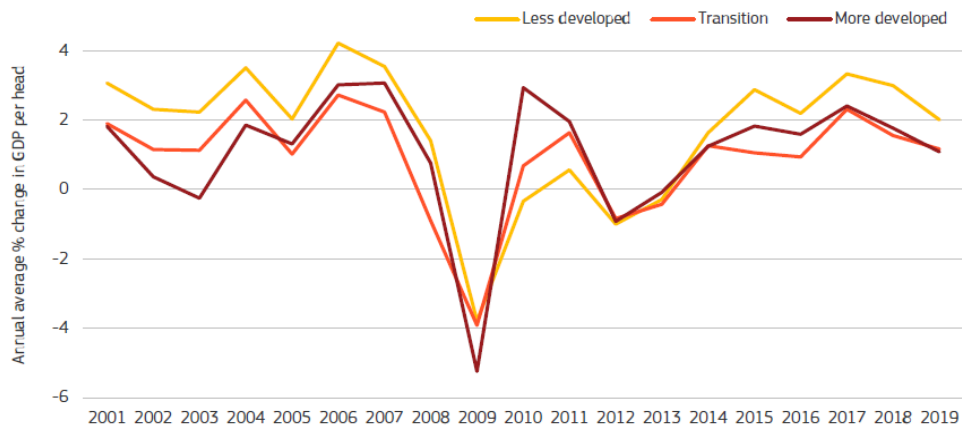
Figure 7: Regional Disparities Between NUTS 2 Regions in the EU, 2000-2020



Source: European Commission (2022a, p. 25).

The economic convergence of regions over the period 2001-2019, as noted above, was mainly driven by the catching-up of many of the less developed ones, their GDP per head growing faster than elsewhere, except in 2010 and 2011 immediately following the global financial crisis (Figure 8). The average picture, however, hides differing trends among less developed regions. While there has been strong growth and significant catching-up in those in eastern Europe, many less developed regions in southern Europe have experienced sluggish or negative growth and their GDP per head is diverging away from the EU average.

Figure 8: Growth of real GDP per Head by Level of Regional Development, 2001-2019

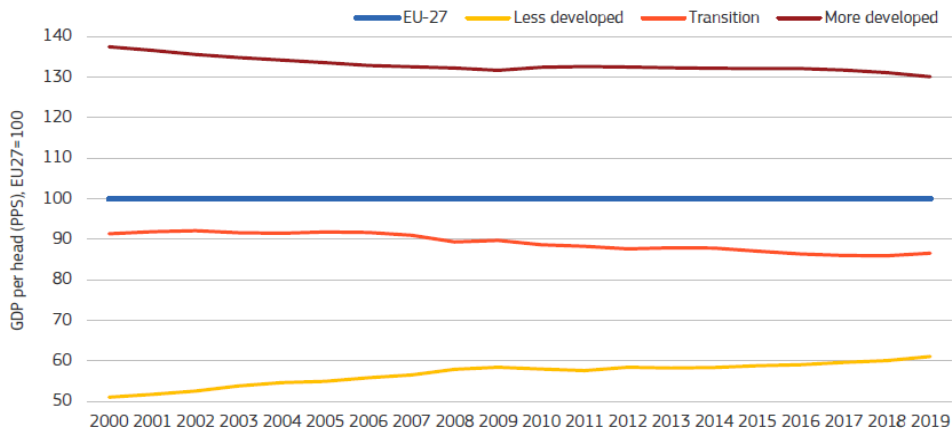


Source: European Commission (2022a, p. 25).

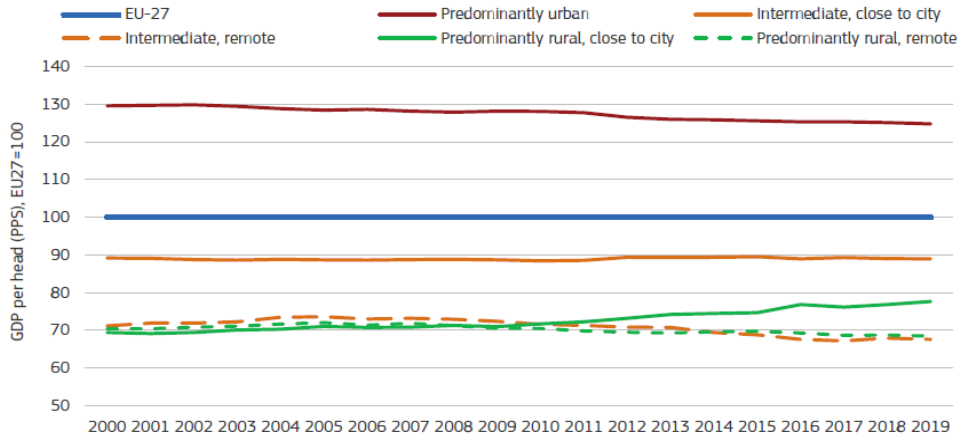
The transition regions, however, do not follow the same pattern. From 2005 onwards, growth in these regions was below the EU average, except in 2009. As a result, GDP per head, in PPS terms, diverged from the EU average instead of converging (Figure, part a). Predominantly rural regions have a GDP per head, in PPS terms, around 70% of the EU average (Figure 9, part b). Over the period 2001–2019 rural regions close to cities showed convergence to the EU average. This did not, however, hold for remote rural regions where GDP per head fell slightly relative to the EU average. Remote intermediate regions also diverged from the EU average over this period.

Figure 9: Changes in GDP per Head in PPS in EU Regions, 2000-2019

a) By level of development



b) By urban-rural regional typology and remoteness



Source: European Commission (2022a, p. 26).

The growing interdependence of the world’s economies has had a highly differentiated impact on EU regions. Although some have been well positioned to take advantage of the new opportunities it offers, others have been hit by job losses, stagnating wages and shrinking market shares as a result of low-cost competitors moving into more technologically advanced sectors.

3. The Impacts of the COVID-19 Pandemic on the EU Cohesion Policy

The COVID-19 pandemic, one of the most severe crises in a century, has been affecting economies and societies profoundly but also asymmetrically across places. The COVID-19 pandemic was a major shock deeply impacting people, enterprises, public authorities, municipalities and regions. The COVID-19 pandemic accelerated fragmentations between societal groups and between places. It risks reinforcing existing imbalances and inequalities in the EU. The lockdown of economic activities put in place to face the COVID-19 pandemic in Spring 2020 in all European countries (with the exception of Sweden) had deep consequences on the economy; an immediate drop of GDP, relatively quickly transmitted to the labour market with a substantial increase in unemployment rates, with a vicious cycle of consumption and investment reduction, and consequent GDP contraction (Capello, Caragliu, 2021). Data confirms the extent of this slump to be comparable in size with the largest contractions in the last century (WWII excluded). Because of the sheer magnitude of GDP contraction, and the vast number of macroeconomic and microeconomic effects this is likely to engender, several attempts to gauge the economic costs due to the COVID-19 outbreak have already been produced, mostly focusing on aggregate figures. Country-level estimates are based on survey evidence (Coibion et al., 2020), Computable General Equilibrium (CGE) model simulations (Maliszewska et al., 2020), and analysed in terms of their effects on various markets, such as on the labor (Kong & Prinz, 2020), tourism (Qiu et al., 2020), and financial (Zhang et al., 2020) ones.

As precisely described Capello, Caragliu (2021, p. 711), still, to date little is known about the regional breakdown of these costs, that are likely to be characterized by relevant spatial heterogeneity. In fact, if the lockdown has taken place at the national level, therefore closing all activities in all regions of a country, the effects on the single regions depend on the resilience of local economies to react to a crisis. Moreover, the capacity to develop a long-term way out of the crisis is also differentiated across regions. Is it reasonable to expect that regions most severely hit by the economic crisis will also be those that will have a more difficult recovery trajectory? Or will on the contrary regions that suffered relatively less from the economic crisis due to the lockdown register a more limited rebound?

The worst and most direct impacts have been avoided by swift policy actions. In this context Cohesion Policy played a role. The swift introduction of new measures to counteract the socio-economic effects of the pandemic were extremely important. To address cohesion challenges lying ahead of us and use the crisis as a chance for a transition towards a greener and more digital future, Cohesion Policy might need to adjust (Böhme et al., 2022).

Cohesion Policy reacted promptly to the emergency. The introduction of new measures to counteract the socio-economic effects of the pandemic were extremely important. The three interconnected objectives of the new CRII/CRII+ measures and REACT-EU, i.e., fuelling liquidity, fostering simplification and providing flexibility, enabled actions targeting needs that emerged during the pandemic. The EU Member States made use of these measures as far as they still had funding to allocate. In that sense Cohesion Policy played a role in cushioning socio-economic impacts in the areas most severely affected.

While the strategic re-orientation of funding helped to meet emergency needs, it diverted attention from long-term and structural issues. Resources were shifted from measures supporting mainly long-term strategic investments in national and regional development, such as infrastructure, R&D, and environment, towards extra support to struggling SMEs, citizens and the healthcare sector.

The administrative workload required to ensure that 2014–2020 Cohesion Policy programmes could swiftly respond to the emergency reduced resources available for preparing 2021–2027 programmes. This could lead to internal structural gaps hindering an effective reaction to the consequences of the pandemic and optimal use of available resources. Although Cohesion Policy has proven that it can respond very quickly, it may face challenges in the years to come. This is partly due to increasing inequalities in Europe, but also to medium-term legacies of the new simplification and flexibility measures, as well as increasing competition with other EU funding instruments created in response to the pandemic. The pandemic affects development in many ways. Regions experienced it differently as the impacts on the population's health and the restrictive measures varied substantially in Europe. Beyond these immediate effects, are impacts on socio-economic developments and GDP. Taken together, negative impacts are expected in the short- and medium-term.

In the short-term, local and regional development was most affected by severe restrictions and sensitive socio-economic structures. Regions potentially hit hardest are mainly in southern Europe. The pandemic also has social impacts on people's wellbeing and quality of life. In many regards, the economic disruption caused by COVID-19 inevitably threatens the most vulnerable groups of society more. In the medium-term, the pandemic will affect local and regional development beyond the more obvious immediate effects. Medium-term impacts will be shaped by more durable impacts on some sectors and structural elements, which affect how quickly an area can recover. In general terms, the pandemic risks reinforcing existing imbalances and inequalities in the EU. Existing differences may also widen at lower geographical levels between places. Convergence in the EU may be reversed.

Cohesion Policy helped to address the immediate needs caused by the pandemic. However, to address cohesion challenges lying ahead of us and use the crisis as a chance for a transition towards a greener and more digital future, Cohesion Policy might need to adjust (Böhme et al., 2022, pp. 8-9). Places can be very vulnerable to external shocks, the pandemic highlighted that regions need to be prepared to face crises and other important megatrends in the future, such as ageing, climate change and digitalisation. As regions are fighting the disruptions caused by the pandemic, they are also advancing in the green transition and the consequent move towards a zero-carbon economy. To achieve the objective of faster recovery and higher resilience to future shocks, policy in all domains should be co-ordinated across government levels and target places according to their specific needs.

4. Conclusion

The economic impact of the COVID-19 pandemic may deepen, resp. deepens regional disparities and worsen the risk of divergence within Europe. The COVID-19 crisis has increased social inequalities across Europe, from access to education, to work, medical treatment, and housing. The widening gap goes hand in hand with regional disparities, and this dangerous downward spiral is something the EU Cohesion Policy aims to put a stop to. To reinforce the stability of the EU, policies have to address these risks and strengthen convergence. While we cannot avoid that other crisis might come in the future, we can do much to be better prepared. Regions and cities need to enhance their resilience today, not only to alleviate the immediate blow of the current crisis but also to thrive in the future. The capacity of regions and cities to face pressures in the health sector, to provide (public) services effectively, including access to digital infrastructure, and the capacity to shift economic activities to remote working – also through a more skilled workforce – are all important factors of resilience amid the current crisis. However, the importance of these factors extends beyond the pandemic. They will also help to deal with other megatrends that challenge our regions and

cities, such as climate change, digitalisation and demographic change. Making regions and cities more resilient also requires to account for the need to improve living standards and the quality of the environment. Places offering good quality of life while maintaining access to key services might become increasingly attractive in the near future, which could change the way people and economic activities distribute across space. Long-lasting progress towards higher well-being and capacity to adapt to external shocks also require strengthening our efforts towards the broader objective of sustainable development (OECD, 2020). For the orientation of the further research and given the current de-globalisation trend, there is an increasing need for a well-functioning and equitable EU. The “Next Generation EU” can be a vehicle for such reforms. NextGenerationEU is more than a recovery plan – it is a once in a lifetime chance to emerge stronger from the pandemic, transform our economies and societies, and design a Europe that works for everyone. We have everything we need to make this happen – vision, plan and investment of €806.9 billion (in current prices, €750 billion in 2018 prices) to make it green, digital, healthy, strong and equal (European Commission, 2021, 2022b).

Acknowledgements

The paper is supported by SGS project (SP2022/7) of the Faculty of Economics, VSB-TUO.

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The EU Programming Period 2021–2027: Is the Role and Form of Project Management Changing?

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Abstract

The European Union's Cohesion Policy contributes to strengthening economic, social and territorial cohesion in the EU. It aims to correct imbalances between countries and regions, increase their competitiveness and improve the quality of life of all citizens. It delivers on the EU's political priorities, especially the green and digital transition in the programming period 2021–2027. The EU's budget of EUR 392 billion for Cohesion policy over the next seven years represents an investment in national and regional programmes via projects. With more than 100,000 successful projects, European funds are one of the most visible instruments of Cohesion Policy in the Member States. Despite a certain administrative complexity still remains an important part of the EU investment environment and is an opportunity to finance a diverse range of project plans whether cities and municipalities, entrepreneurs, small and medium-sized enterprises, or even non-profit organizations. However, they have to deal with how projects are created, managed, implemented and maintained. In this regard, the paper aims to assess whether the European Commission's updated methodology meets the needs of today's needs of project management and management of projects. As well as an alternative approach to project management in the form of AIDIC model is presented.

Keywords: AIDIC, EU, methodology, OpenPM², programming period, project

JEL Classification: C67, H43, M11, O22

1. Introduction

Global sourcing is about working in virtual teams in a global, multicultural environment. It requires a significant amount of organizational and behavioural change of people and organizations. Understanding cultural differences in working styles is key for successful global project management. Theories of international management, company internationalization, cultural dimensions and distances are helping to develop cross-cultural competencies and conflict management styles for international project managers (Heagney, 2016).

A professional association? Just for project management? Isn't project management just a variant on general management? Yes and no. There are a lot of similarities, but there are enough differences to justify treating project management as a discipline separate from general management. For one thing, projects are more schedule intensive than most of the activities that general managers handle. And the people in a project team often don't report directly to the project manager, whereas they do report to most general managers. The management and administration of project, grant or subsidy require a broad skill set and practical experience of involved persons, stakeholders and especially hard and soft skills of project managers.

The ninth programming period 2021–2027, or simply said funding phase of the European Union (EU) lasting for the next 7 years, began in January 2021. The budget of this funding phase amounts up to 2.018 trillion Euro and is administered in more than 350 individual funding instruments. Therefore, despite a certain administrative complexity, project still remains in the EU, resp. in the EU Member States, an important part of the investment environment and is an opportunity to finance a diverse range of projects. On top of the already complex appearing structures of EU funding, the COVID-19 pandemic, which hit the world and the EU Member States in 2020 (and ongoing) presents the EU with unprecedented challenges. These challenges lead the EU to a completely new budgetary situation and an increased and diversified number of funding programmes. In this context, the paper aims to assess whether the European Commission's updated methodology meets the needs of today's needs of project management and management of projects. As well as an alternative approach to project management is presented, i.e., AIDIC model created as result of the InnoPro project.

The above mentioned is realized through the method of literature review. A literature review is a survey of scholarly sources on a specific topic. It provides an overview of current knowledge, allowing identifying relevant theories, methods, and gaps in the existing research. A good literature review doesn't just summarize sources – it analyses, synthesizes, and critically evaluates to give a clear picture of the state of knowledge on the subject. Such a result of the literature review is part of the paper, approaches project management are introduced in general just in brief and special attention is dedicated to the EU context, EU project management methodology, tools and techniques are analysed, the most relevant ones are compared and evaluated, including partial specifications and advantages and disadvantages of each of them. This comparison is made on the basis of the comparative method. Comparative research is a research methodology in the social sciences that aims to make comparisons across different topics and areas of research interest. Comparison is a fundamental tool of analysis. It sharpens powers of description, and plays a central role in concept-formation by bringing into focus suggestive similarities and contrasts among cases.

2. Project Management in General and in the EU Context

So just what is project management, and, for that matter, what is a project? Project Management can be described as the activities of planning, organising, securing, monitoring and managing the resources and work necessary to deliver specific project goals and objectives in an effective and efficient way (Hyttinen, 2017). The project management approach used should always be tailored to the needs of the project.

The Project Management Institute (PMI®) defines in the Guide to the Project Management Book of Knowledge (PMBOK® Guide) a project as “*a temporary endeavour undertaken to create a unique product, service, or result*” (PMI, 2021). This means that a project is done only one time. If it is repetitive, it's not a project. A project should have definite starting and ending points (time), a budget (cost), a clearly defined scope – or magnitude – of work to be done, and specific performance requirements that must be met. It is better to say “should” because seldom does a project conform to the desired definition. These constraints on a project, by the way, are referred to as the PCTS (performance, cost, time, scope) targets.

A project is a series of activities aimed at bringing about clearly specified objectives within defined timeframe and with specific budget. A project includes (European Commission, 2021): clearly identified stakeholders, including the primary target group and the final beneficiaries; clearly defined coordination, management and financing arrangements; and a monitoring system to oversee and follow implementation and to support project management.

Every project is unique in terms of the problems that arise, the priorities and resources assigned to it, the environment in which it operates, and the project manager's attitude and style to guide and control project activities. Project is a temporary organisational structure set up to create a unique product or service (output) within certain constraints such as time, cost and quality. The project is defined, planned and executed under certain external (or self-imposed) constraints. These can relate to scheduling, budgeting, quality, but also to the project's organisational environment. These things must be addressed. Someone has to deal with them, which is usually a project manager. And it must be addressed somehow, i.e., on the basis of some approaches, some institutions and some methodologies, recommendations, standards, procedures, etc. And one of these approaches is represented by the EU. The EU, mostly through its executive branch, the European Commission (EC), funds thousands of programmes and projects every year from its budget (or better Multiannual Financial Framework), whether in the EU Member States, in Candidate countries to future EU accession or in third countries (i.e., development aid).

Based on Venice International University (2022), EU Project Management is a neologism that is used to indicate all the complex activities required for the purposes of the production, drafting and submission of European projects, meaning those proposals for funding addressed to the EU, in response to the calls for proposals that it publishes on an almost daily basis. The use of this term, which cannot be easily translated into the other European languages, began in Italy in the late Nineties. Officially it actually appeared for the first time in the name of the EU Project Management Training Centre in Venice, or the Centro di Formazione in Europrogettazione.

EU Project Management can involve both public entities (state and local, including institutes of economics and research) and private organisations (companies, associations, foundations, etc.), and is often referred to as one of the most promising "sources of employment". For businesses, in times of economic crisis and difficulty in accessing credit or risk capital, a European contribution can offer a chance for development not to be missed. Just as for the local Authority it is the compulsory route to be taken in creating innovative projects that cannot be supported with ordinary financing.

Due to the increasing competition for EU funding, professionals in EU Project Management must constantly update their skills and systematically cultivate the international and institutional relations required to build partnerships, whilst professional training procedures must provide both basic knowledge of the tools used in EU Project Management, and a significant amount of practical activity in the field. In actual fact, the European project, despite having to respond to and comply with strict regulations, is a "product" that is basically "crafted", where the hand of the developer and the skill in raising expectations and prompting curiosity, and in representing the initial ideas, actions, objectives and possible developments of European relevance, is still of vital importance for its success Venice International University (2022).

3. Gradual Development of Methodology from Project Cycle Management to PM² Project Management Methodology

Project Cycle Management (PCM), which includes the so-called Logical Framework Approach (LFA), is the chosen methodology for designing, executing and monitoring the progress of programmes and projects funded by the European Commission-and of many other international development institutions. This includes technical assistance to third countries as well as research and technology internal market development and other areas. The Logical Framework Approach (LFA) and its summary diagram, the Logical Framework Matrix (LFM)

is also widely used by public sector agencies across Europe to define programmes and projects with socio-economic variables, and in which inputs, outputs, results and impacts are not as clear-cut as for example designing a car or developing a software program.

PCM defines the logic, phases, requirements and documents needed for programme and project cycle, while the LFA consists of a series of methods and techniques for reviewing the needs of stakeholders, defining objectives, analysing options, deciding on a specific option, and finally defining the indicators (metrics), means of verification and assumptions and risks for different levels of the project: general and specific objectives, results and activities. All project information is then summarized in LFM, which can have as attachments the detailed schedule, budget and organization for the project.

The LFM by itself is a widely used tool for planning and monitoring public sector projects, but has its shortcomings, as it barely defines the methods for planning and managing the programmes or projects, its processes, inputs and outputs (except those which are deliverables), and lacks many of the tools and techniques defined in the Project Management Institute's (PMI®) A Guide to the Project Management Body of Knowledge (PMBOK® Guide), or the International Project Management Association's (IPMA) International Competence Baseline (ICB®) model, the UK Government's PRINCE2® methodology, or private methodologies, such as TenStep™ Project Management Process, a popular project management process present in fifteen countries through a network of Partner firms and licenses.

As could be expected in such a large institution – and similar to the US Federal Government – the standards and methodologies for programme and project cycle and individual project management varies somewhat among the different departments within the largest body of the EU – the EC. The “departments” of the EC – the Directorates General or DGs – specify the forms and detailed procedures for programme and project management. Nevertheless, there is a certain number of regulations and methodologies which are “more or less” universally known and applied across the different DGs. The overarching regulation of all contracts managed by third parties (most programmes and virtually all projects are contracted out) is the “General Conditions of Contracts financed by the Commission of the European Communities”. This regulation provides guidelines for all contractual and procedural regulations of the tendering, supervisory and financial issues-sort of a similar guidance as the Federal Acquisition Regulations (FARs) of the US Government.

Regarding the planning, design, financing, implementing and controlling of programmes and projects, the general guidelines are those of the “Project Cycle Management” Manual (version 2004 is the latest to date – European Commission, 2004). PCM is the compulsory methodology for External Assistance (Aid), but is also highly recommended for programmes and projects funded both by the Structural funds (the regional and social funds which are aimed at reducing the differences among regions) and by the EU “Internal market” programmes and pilot projects (Fuster, 2006).

PM² is a Project Management Methodology developed by the EC (2021). Its purpose is to enable project managers to deliver solutions and benefits to their organisations by effectively managing the entire lifecycle of their project. PM² has been created with the needs of European Union (EU). Institutions and projects in mind, but is transferrable to projects in any organisation. PM² is a light and easy-to-implement methodology which project teams can tailor to their specific needs. PM² is fully supported by a comprehensive training programme (including workshops and coaching sessions), online documentation and an active Community of Practice (currently only available within the EC and to a number of affiliate European Institutions). PM² incorporates elements from a wide range of globally accepted project

management best practices, captured in standards and methodologies. Its development has also been influenced by operational experience on various projects both within EU institutions and external bodies.

The PM² Methodology provides a project governance structure, process guidelines, artefact templates, guidelines for using the artefacts, a set of effective mindsets. PM² improves the effectiveness of project management by improving communication and the dissemination of information, clarifying expectations as early as possible in the project lifecycle, defining the project lifecycle (from Initiating to Closing), providing guidelines for project planning, introducing monitor and control activities, proposing management activities and outputs (plans, meetings, decisions), providing a link to agile practices (Agile PM²).

Open PM² is an EC initiative, which brings the PM² Methodology and its benefits closer to its broader stakeholders and user community. The Open PM² Initiative provides EU institutions, contractors and public administrations, as well as broader stakeholders, with open access to the PM² Methodology and associated resources. Its goal is to enable increased effectiveness in the management and communication of project work and thus to serve the objectives of the EU and the needs of member states and citizens. The initiative also seeks to rectify mistakes of the past, when efforts were duplicated and divergent project management approaches were sponsored rather than promoting convergent approaches based on similarities and the common interest of the broader European community. For more information see Melecký, Staničková (2020).

By opening PM², the Initiative aims to enhance project management competency within Europe, leading to increased project efficiency and success. Open PM² does this by:

- rationalising project management approaches across EU institutions and beyond,
- establishing a common language and processes, resulting in effective project communication,
- providing a common set of productive mindsets,
- enabling transparency and visibility for cross-organisational project collaborations,
- enabling better project management, leading to improved cost/effort efficiency,
- enabling the improved monitor and control of EU-funded projects and grants.

4. AIDIC Model – Alternative Approach to Project Management Based on PCM and PMI

AIDIC model (Assessment-Initiation-Design-Implementation-Closure) represents a unique approach in a general project cycle methodology and created within the team of project "*Innovation project management course – InnoPro*". It has been kept as lean as possible, while still providing enough information to allow for an effective understanding of the AIDIC model as practitioners start to use it.

The concept of the AIDIC model aims to provide an overall understanding of successful project management and project implementation. This production gathers the key elements of project management, project implementation, project management information systems, security, safety and ethical issues together. It facilitates project management from a wider perspective and defines a set of approaches and concepts to support future projects and the delivery of day-to-day project management work.

AIDIC model can be read from beginning to end, to learn about the methodology, or it can be used as a reference, to help you as you practice a project cycle. AIDIC model concept is light and easy-to-implement methodology which project teams can tailor to their specific needs. AIDIC model concept incorporates elements from a wide range of globally accepted project management best practices, captured in standards and methodologies. Its development has also been influenced by operational experience on various projects both within the EU institutions and external bodies.

AIDIC model is created based on the following project management methodologies and approaches:

- *the Project Management Institute (PMI)* – The Project Management Body of Knowledge (PMBOK® Guide),
- *the International Project Management Association (IPMA)* – Individual Competence Baseline (ICB4),
- *the European Commission Centre of Excellence in Project Management (CoEPM²)* – PM² Project Management Methodology,
- *the European Commission EuropeAid Cooperation Office (EuropeAID)* – Project Cycle Management (PCM) Guidelines.

AIDIC Model Description

At the start of a project, the amount of planning and work required can seem overwhelming. There may be dozens or even hundreds of tasks that need to be completed at just the right time and in just the correct sequence.

Seasoned project managers know it is often easier to handle the details of a project and take steps in the right order when the project is broken down into phases. Dividing project management efforts into these five phases can help give efforts structure and simplify them into a series of logical and manageable steps.

There are many different models for the phases a project goes through during its life cycle. At the simplest level, a project has a beginning, middle, and end. AIDIC model presented in our Innovation Project Management course is based on the basic concept of the project cycle within the well-known **IPEC model** (Initiate-Plan-Execute-Close) mainly based on PMI methodology but has been organically adapted to the needs of AIDIC model.

Based on PMI methodology, a Project Management Process Group is a logical grouping of project management processes to achieve specific project objectives. Process groups are independent of project phases and steps. Project management processes of IPEC model are usually grouped into the following five Project Management Process Groups (PMI, 2017):

- **Initiating** Process Group: Those processes performed to define a new project or a new phase of an existing project by obtaining authorization to start the project or phase.
 - **Project Initiation:** Initiation is the first phase of the project lifecycle. This is where the project's value and feasibility are measured. Project managers typically use two evaluation tools to decide whether or not to pursue a project:
 - *Business Case Document* – this document justifies the need for the project, and it includes an estimate of potential financial benefits.

- *Pre-feasibility Study* or *Feasibility Study* – this is an evaluation of the project's goals, timeline and costs to determine if the project should be executed. It balances the requirements of the project with available resources to see if pursuing the project makes sense.

Teams abandon proposed projects that are labelled unprofitable and/or unfeasible. However, projects that pass these two tests can be assigned to a project team or designated project office.

- **Planning** Process Group: Those processes required to establish the scope of the project, refine the objectives, and define the course of action required to attain the objectives that the project was undertaken to achieve.
 - **Project Planning:** Once the project receives the green light, it needs a solid plan to guide the team, as well as keep them on time and budget. A well-written project plan or design gives guidance for obtaining resources, acquiring financing and procuring required materials. The project plan gives the team direction for producing quality outputs, handling risk, creating acceptance, communicating benefits to stakeholders and managing suppliers.

The project plan also prepares teams for the obstacles they might encounter throughout the project and helps them understand the cost, scope and timeframe of the project.
- **Executing** Process Group: Those processes performed to complete the work defined in the project management plan to satisfy the project requirements.
 - **Project Execution/Implementation:** This project phase is most commonly associated with project management. Execution is all about building deliverables that satisfy the customer. Team leaders make this happen by allocating resources and keeping team members focused on their assigned tasks.
 - Execution relies heavily on the planning phase. The work and efforts of the team during the execution phase are derived from the project plan.
- **Monitoring and Controlling** Process Group: Those processes required to track, review, and regulate the progress and performance of the project; identify any areas in which changes to the plan are required, and initiate the corresponding changes.
 - **Project Monitoring and project control:** Monitoring and control are sometimes combined with execution because they often occur at the same time. As teams execute their project plan, they must constantly monitor their progress.
 - To guarantee delivery of what was promised, teams must monitor tasks to prevent scope creep, calculate key performance indicators and track variations from allotted cost and time. This constant vigilance helps keep the project moving ahead smoothly.
- **Closing** Process Group: Those processes performed to formally complete or close the project, phase, or contract.
 - **Project Closure:** Teams close a project when they deliver the finished project to the customer, communicating completion to stakeholders and

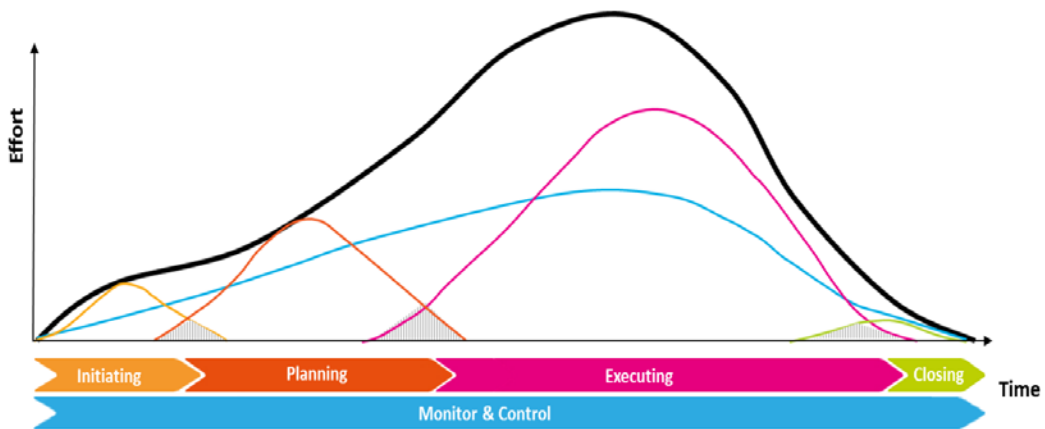
releasing resources to other projects. This vital step in the project lifecycle allows the team to evaluate and document the project and move on the next one, using previous project mistakes and successes to build stronger processes and more successful teams.

The project management processes are linked by specific inputs and outputs where the result or outcome of one process may become the input to another process that is not necessarily in the same Process Group.

Although project management may seem overwhelming at times, breaking it down into these five distinct cycles can help the team manage even the most complex projects and use time and resources more wisely.

Based on the common methodology of the EC – Centre of Excellence in Project Management, the IPEC project lifecycle has four phases with a different type of activity predominant in each phase (i.e., initiating activities are predominant in the Initiating phase, etc.), as Figure 1 shown. However, while phase-related activities peak in terms of effort during a specific phase, activities of this type can also be executed during neighbouring phase(s) (e.g., planning activities are also repeated in the Executing phase). A project moves on to the next phase when the goals of its current phase have been deemed achieved as the results of a formal (or less formal) phase-exit review.

Figure 1: IPEC Project Lifecycle based on PM² Project Management Methodology



Source: European Commission (2018)

The focus of a project shifts from initiating and planning activities in the beginning to executing, monitoring and controlling activities in the middle and acceptance, transitioning and closing activities at the end, description of the individual phases are given in Table 1.

Inexperienced project teams sometimes underestimate the importance of the work done in the initial project phases and start working on deliverables that are inadequately defined or planned. This results in the delivery of outputs, which are of poor quality and little value to end-users. This is a common and costly mistake, which is often the root cause of overall project failure and the failure to realize the project's intended benefits.

In the case of AIDIC model, presented in InnoPro course, every project begins as a concept, which is always “fuzzy,” and that the project team must formalize the definition of the job before doing any work.

Table 1: Project Lifecycle Phases based on PM² Project Management Methodology

Phase	Description
Initiating	Define the desired outcomes. Create a Business Case. Define the project scope. Get the project off to a good start.
Planning	Assign the Project Core Team. Elaborate on the project scope. Plan the work.
Executing	Coordinate the execution of project plans. Produce deliverables.
Closing	Coordinate formal acceptance of the project. Report on project performance. Capture Lessons Learned and post-project recommendations. Close the project administratively.
Monitoring and Controlling	Oversee all project work and management activities throughout the project: monitor project performance, measure progress, manage changes, address risks and issues, identify corrective actions etc.

Source: European Commission (2018)

AIDIC Model Stages Background

At the beginning of a project, the basic idea needs to be well explored and elaborated. Moreover, this initial phase includes goals for the project, decisions concerning the partners and parties to carry through the project implementation, and the project leader writing the plan and/or proposal. Even though the project management cycle and other project management methods create a tight framework, leadership should be visionary and motivating. 'Instead of looking at the project as a closed entity, this perspective sees the project as an open organization in tight contact and cooperation with the base organization and its environment.'

To be able to analyse and evaluate project management or project success, it is necessary to define the key measures or indicators. In an innovative project, the project success can be seen as long-term impacts: 'project success in consortia is a secondary and intermediary issue as compared to the expected longer-term impacts in the industry and benefits to member organizations. As primary measures of success, consortia typically seek for example industry-level success as compared to another country's industry in terms of market shares or profits.'

Stage 1: Assessment

Define the Problem: You need to identify the problem to be solved by the project. It helps to visualize the desired result. What will be different? What will you see, hear, taste, touch, or smell? What client need is being satisfied by the project?

Stage 2: Initiation

Develop Solution Options: How many different ways might you go about solving the problem? Brainstorm solution alternatives (you can do this alone or as a group). Of the available alternatives, which do you think will best solve the problem? Is it more or less costly than other suitable choices? Will it result in a complete or only a partial fix?

Stage 3: Design

Plan the Project: Planning is answering questions: what must be done, by whom, for how much, how, when, and so on? Naturally, answering these questions often requires a crystal ball.

Stage 4: Implementation

Execute the Plan: Obviously. Once the plan is drafted, it must be implemented. Interestingly, we sometimes find people going to great effort to put together a plan, then failing to follow it. If a plan is not followed, there is not much point in planning, is there?

Stage 5: Closure

Monitor, Control Progress & Close the Project: Plans are developed so that you can achieve your result successfully. Unless progress is monitored, you cannot be sure you will succeed. It would be like having a road map to a destination but not monitoring the highway signs along the way.

Of course, if a deviation from the plan is discovered, you must ask what must be done to get back on track or – if that seems impossible – how the plan should be modified to reflect new realities. Once the destination has been reached, the project is finished, but a final step should be taken. Some people call it an audit, others a post-mortem (sounds a bit morbid, doesn't it?). Whatever you call it, the point is to learn something from what you just did. Note the way the questions are phrased: “What was done well? What should be improved? What else did we learn?” We can always improve on what we have done. However, asking, “What did we do wrong?” is likely to make people a bit defensive, so the focus should be on improvement, not on placing blame.

4. Conclusion

Project Management has become a core competency, and nearly every manager is involved in managing one or more projects. Moreover, the role of projects in organisations is receiving increasing attention. Today, project management can be seen as a professional discipline with its own body of knowledge and skills. Project management expertise can benefit any kind of organisation. In order to focus on how projects contribute to the strategic goals of an organisation, a holistic, integrative view of project management provides the most value. This view should also include the process of selecting projects that can provide the best support for a particular organisation's strategy. Moreover, several project management models exist. Hundreds of thousands of projects throughout the EU have benefited from investment through the EU Cohesion Policy programmes over the years. The EU's budget of EUR 392 billion for Cohesion policy over the next seven years 2021–2027 represents an investment in national and regional programmes via projects. The EU Cohesion Policy contributes to strengthening economic, social and territorial cohesion in the EU. It aims to correct imbalances between countries and regions. It delivers on the Union's political priorities, especially the green and digital transition. What's new for 2021–2027? *Support to EU priorities:* 5 policy objectives focused on key objectives and thematic concentration on those most relevant for a competitive and future-proof Europe. *Climate targets:* weighted climate and environmental contribution of investments, minimum targets for funds, climate adjustment mechanism. *Greater empowerment of local, urban & territorial authorities in the management of the funds:* dedicated policy objective implemented only through territorial and local development strategies. *Simplification:* The new cohesion policy introduces one set single of rules for the eight Funds and a significant reduction in the amount of secondary legislation. This entails notably: Lighter and more frequent reporting. Lighter controls for programmes: sharp reduction of management verifications, “single audit principle”, proportionate arrangements for audits. Faster delivery: extended possibility to use simplified cost options and financing not linked to costs schemes. End of Commission approval for major projects. No more designation of management and control bodies. *Creating conditions for success:* streamlined and clear enabling conditions to be respected throughout the whole programming period for reimbursement from the Union budget. *Flexible programming adjusted to new challenges and emerging needs:* allocation of flexibility amount only after mid-term review of socio-economic situation and possible new challenges. *Reinforced visibility and communication provisions:* requirements for beneficiaries and operations of strategic importance.

Acknowledgements

This paper was created under "Innovation project management course" – Project 2019-1-CZ01-KA203-061373.

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State Aid in the European Union in the Context of the General Block Exemption Regulation Amendments

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Abstract

The article focuses on the state aid in the European Union (EU) in accordance with Commission Regulation (EU) 2021/1237 amending Regulation (EU) No 651/2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty. General Block Exemption Regulation (GBER) declares specific categories of the state aid compatible with the Treaty and exempts these categories from the requirement of prior notification and approval. This allows the EU Member States to implement state aid with full legal certainty and without prior control by the European Commission (EC). The subject of the paper is to discuss selected aspects of public support in the European Union in the context of present development on the internal market and identify its trend through the prism of actual state aid rules in the EU with special emphasis on the area of revised GBER. The basic research methods include the literature review, analysis, and comparison. The analysis covers the period of 2008-2019.

Keywords: *European Union, General Block Exemption Regulation, internal market, public support, state aid modernization*

JEL Classification: *H50, K20, L51*

1. Introduction

State aid control is an almost unique feature of competition policy in the European Union. State aid research is important today, inter alia, concerning compliance with the temporary framework of state aid rules provided by the Member States of the European Union in connection with the COVID-19 pandemic. The rules of state interventionism in the economy have been defined precisely in this field and they tend to seek a compromise between the position of the European Commission and the position of the Member State concerned with the admissibility of State aid (Jachowicz, Podsiadło, 2018). The advantages of state aid control are obvious. In many circumstances, subsidies can reduce economic prosperity by weakening incentives for firms to improve their efficiency and by allowing the less efficient to survive or even expand at the expense of the more efficient. The resulting disruption of trade can lead to friction between the national governments and retaliation, which can be a source of further inefficiencies. The EU's control system, based on an agreed set of fundamental principles firmly enshrined in the Treaties, therefore makes a significant contribution to ensuring that the benefits of economic integration can be reaped (Buelens et al., 2007).

In the European Union, subsidy expenditure is commonly known as state aid, the control of which is crucial for the proper functioning of the internal market (Schito, 2021). The objective of state aid control, as set out in the founding treaties of the European Communities, is to

ensure that government intervention does not distort competition and intra-Community trade. State aid is a term of the European Commission that refers to forms of aid from a public or publicly funded entity to undertakings engaged in economic business on a selective basis, with the potential to distort competition and affect trade between the Member States of the European Union. Lukošová (2018) emphasizes that the driving force is the globalization of economic activity, which connects the production and markets of different countries, trade in goods and services, the movement of capital and information, and the interconnected network of ownership and control of multinational companies. Kordoš and Krajiňáková (2018) underline that in the current economic complex of the EU, innovation and its support play an increasingly important role in the European economy.

The basic principles of state aid rules have remained unchanged since the signing of the Treaty establishing the European Economic Community in 1957. The rules set out in Title VII, Chapter 1 TFEU, which define the principles of European competition policy, aim to create optimal conditions conducive to the economic development of EU Member States and effective corporate governance in undistorted competition within the EU market (Barcik, 2016). Today, state aid rules are contained in Articles 107 to 109 of the Treaty on the Functioning of the European Union (TFEU). The concept of state aid is adapted in Article 107, paragraph 1, which provides: “*Any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favoring certain undertakings or the production of certain goods shall, in so far as it affects trade between the Member States, be incompatible with the internal market*”. By the above-mentioned article, the basic characteristics of state aid can be identified: the aid is provided by a Member State or through state resources; the aid confers an economic advantage on the recipient which it would not have received under normal market conditions; favors certain commercial enterprises or the production of certain goods (i.e. they must be selective); distorts or has the potential to distort competition; the activity is tradable between the Member States and the aid has the potential to affect trade. All five of these criteria must be met for public support to exist. If any of the above criteria are not met, the aid granted will not be considered public aid.

European legislation considers state aid to be generally undesirable and incompatible with the principles of the EU internal market and is therefore prohibited by EU law, with a few exceptions prohibited by EU law (Svoboda, 2019). Under Article 107 (2) and (3), primary law does not consider all State aid to be incompatible and provides a large area of aid that is completely or conditionally excluded from the scope of Article 107 (1). The second paragraph of Article 107 TFEU lists cases of State aid that are automatically excluded from the general prohibition mentioned above. There are three types of aid, which can be broadly defined as "social" aid; assistance in recovering the damage caused by emergencies and assistance for the economies of certain areas of the Federal Republic of Germany affected by the division. The third paragraph of Article 107 TFEU sets out the types of State aid that may be considered compatible with the internal market. The aid which is or may automatically be considered compatible with the internal market under these exceptions must be notified in advance to the Commission. Exceptions under EU law can be classified as *general exceptions* (Article 107 (2) TFEU); *individual exemptions* (Article 107 (3) TFEU); *block exemptions* (No 651/2014); *ad hoc exceptions* provided for by the Council (Article 108 (2), third subparagraph, TFEU).

In the early 1990s, legislation on the provision, control, and development of state aid was not a priority and the Commission's approach to changes in secondary treatment was rather case-sensitive (Mynarzová, Štverková, 2015). However, over the last twenty years, this has been an area of significant political development in the EU, to which it is responding with new regulations and their ongoing revisions and amendments. This led to a situation wherein contrast to the traditionally held concept of the ban on state aid to the private sector - it was

more appropriate to talk about the regulation of the conditions for authorizing state aid based on their assessment by the Commission (Janků, Mikušová, 2012). The provisions of the Europe 2020 strategy were also important for setting the direction of state aid in the EU. According to their assumptions, Member States should: reduce the aid intensity relative to GDP, reduce state aid that reduces competition, reorient sectoral aid to horizontal and regional aid and change forms of state aid from passive to active (Stępnia-Kucharska, 2013).

The global economic and financial crisis has increased pressure on the Member States to implement measures that could conflict with the competition rules. The crisis has also caused an increase in demand for a stronger state role in stimulating economic growth and a significant burden on the public budgets of the Member States. In this situation, Commission launched a reform of the rules for state aid (Mynarzová, Okręglicka, 2018). On 8 May 2012, the Commission set out an ambitious State aid reform program in the Communication COM/2012/0209 on State Aid Modernization (European Commission, 2012). As part of the State Aid Modernization package, the Commission has adopted ten guidelines and five regulations to render existing state aid control instruments and procedures more efficient (Sherr et al., 2017). Modernization had three main, closely linked goals: promoting growth in a strengthened, dynamic and competitive internal market; focus enforcement on cases with the greatest impact on the internal market; simpler rules and faster decision making. This state aid legislation aimed at rigorous and targeted state aid control, which should improve the functioning of the internal market through more effective policies aimed at reducing distortions of competition, maintaining a level playing field for market participants, and combating protectionism.

As a result of the implementation of the new set of state aid rules, the granting authorities in the Member States have been given a much wider scope to design and implement aid measures. The post-state aid modernization rules have been designed to strike a balance between a wider scope for the Member States and proper compliance and smarter state aid control. Therefore, the European Commission has a set of tools for smart and targeted state aid control to ensure the right balance between flexibility and accountability.

2. Problem Formulation and Methodology

One of the cornerstones of the reform is the revision of the General Block Exemption Regulation. GBER introduces an important exemption from the mandatory notification procedure. It declares specific categories of State aid compatible with the Treaty if they fulfill certain conditions and exempts those categories from the requirement of prior notification to the Commission. It thus allows the Member States to implement public support measures directly, without the prior consent of the Commission. Under Article 109 TFEU, the Council allowed the Commission to declare compatibility with the internal market and to exclude from the notification procedure aid in the following categories: *aid to small and medium-sized enterprises, research and development, environmental protection, employment and training, and regional aid*. Following this Enabling Regulation, the Commission adopted the General Block Exemption Regulation (Commission Regulation (EC) No 800/2008), which has been in force since 29 August 2008.

On 21 May 2014, the European Commission adopted one of the main legal instruments of state aid, Commission Regulation (EU) No 651/2014, which declares certain categories of aid compatible with the internal market by Articles 107 and 108 TFEU. As of 1 July 2014, this Regulation replaced Commission Regulation (EC) No 800/2008 with Articles 87 and 88 of the EC Treaty, which declares certain categories of aid compatible with the common market. The new regulation applies to aid in all economic sectors except those which are explicitly excluded

(Mynarzová et al., 2016). The Commission has included several new areas in the modernized block exemption system that had to be addressed in the past through notifications. The most important categories include *support for culture and heritage conservation*, *support for broadband infrastructure*, *support for sports and multifunctional recreational infrastructure*, *support for local infrastructure*, *support for innovation clusters*, and *process or organizational innovation or support for urban development* (see Table 1). The maximum allowable aid intensity for several types of aid has been increased. Many thresholds for notifying individual aid amounts have also been raised (Phedon, 2014). In Regulation (EU) No 2017/1084 of May 2017, the EC further extended the scope of the General Block Exemption Regulation (European Commission, 2017). These rules exempt *support measures for ports and airports* and give Member States more flexibility in promoting culture, multifunctional sports arenas, and entrepreneurship in the outermost regions of the EU (Mynarzová, Okręglicka, 2018).

Table 1: Categories of State Aid

Categories of aid
Regional aid
Aid for small and medium-sized enterprises
Aid for access to financing for small and medium-sized enterprises
Aid for research, development, and innovation
Aid for education (training aid)
Aid for disadvantaged workers and workers with disabilities
Aid for environmental protection
Aid to make good the damage caused by certain natural disasters
Social aid for transport for residents of remote regions
Aid for broadband infrastructure
Aid for culture and heritage conservation (including audio-visual works)
Aid for sport and multifunctional recreational infrastructures
Aid for local infrastructure
Aid for regional airports
Aid for maritime and inland ports

Source: European Commission (2014); European Commission (2017); Own elaboration (2021)

On 7 January 2019, the Commission launched an evaluation of the state aid modernization rules, as required by the Commission's Better Regulation requirements. This assessment took the form of an 'eligibility check'. It aims to assess whether State aid rules are still 'fit for purpose', considering the general objectives of the state aid modernization, the specific objectives of the legal framework, current, and future challenges and whether the objectives of this modernization have been met.

On 23 July 2021, the European Commission amended the block exemptions to bring the relevant state aid rules into line with the funding rules under the new Multiannual Financial Framework. The scope of the General Block Exemption Regulation has been extended. The new rules concern support provided through national funds for projects also supported under some centrally managed EU programs and state aid to support the dual transition to a green and digital economy that will also help recover from the effects of the coronavirus pandemic.

The relevant categories of support are (European Commission, 2021a, 2021d):

- **Aid for building energy efficiency projects.**
- **Aid for recharging and refueling infrastructure for low-emission road vehicles.**
- **Aid for fixed broadband networks**, 4G and 5G mobile networks, certain trans-European digital connectivity infrastructure projects, and certain vouchers.

In October 2021, the EC invited Member States to comment on some of the proposed changes to the GBER. The purpose of this planned revision is to consider the changes to the various sets of state aid guidelines currently under review and to further facilitate public support for the EU's green and digital transformation. The new rules should become the basis for a sustainable economy at a time of recovery from the effects of the coronavirus pandemic. EC proposed several changes to the GBER (European Commission, 2021b):

- **Aid for environmental protection and energy** – extending the capacity of EU Member States to provide support for different types of "green" projects; The introduction of new "green" conditions that need to be met for large energy-intensive companies to receive block exemption support in the form of reduced tax rates under the Energy Taxation Directive; ensuring an increased role of storage for the integration of renewable energy into the electricity system; facilitate green hydrogen investment by providing block exemptions for investment support for green hydrogen projects and hydrogen infrastructure investments; Encouraging ambitious building renovation projects by introducing a "green bonus" (i.e. higher aid intensities with a block exemption) to support the energy performance of buildings.
- **Aid for risk finance investment** - clarification and streamlining of the rules for risk finance support in line with the parallel revision of the Risk Finance Guidelines, for example by clarifying the eligibility rules for such support under the GBER; Extending the scope of support for start-ups to include support in the form of the transfer of intellectual property rights from a research organization to small and innovative enterprises.
- **Aid for research, development, and innovation** - simplification of the conditions for providing support for research, development, and innovation, e.g., by including the possibility to calculate indirect costs for R&D projects through a simplified approach to costs and by introducing new compatibility rules to support test and experimental infrastructures.
- **Regional aid** - harmonization of the conditions of the new regional aid guidelines, e.g., by extending the possibility to provide operating aid to prevent or reduce depopulation also in sparsely populated areas.

For the needs of the research, the author used some of the basic methods of scientific research to obtain the information necessary for comprehensive systematic processing of the issue. The author mainly used methods of qualitative but also quantitative research. The research methods used in this article are the study of literature, the analysis, and the comparison of the secondary data. Statistical data processed by the Commission were used in the paper. The period 2008-2019 was chosen to implement GBER in the European Union in 2008. Unfortunately, at the time of paper submission, the data for 2020 and 2021 were not available. Concerning the main objective of this paper, the following research hypothesis was presented. Hypothesis: The state aid granted under the GBER amendments is becoming the dominant legal form of state aid in the European Union.

3. Problem Solution

As we can see in Table 2, the volume of state aid in the EU has more than doubled from 61.52 billion in 2008 to 134.59 billion in 2019. Since the adoption of Commission Regulation, No 651/2014, we can see a steady increase in the amount of state aid. The largest volume of state aid in 2019 went to Research and development including innovation (10.4%), followed by Regional development (8.59%) and Sectoral development (8.12%).

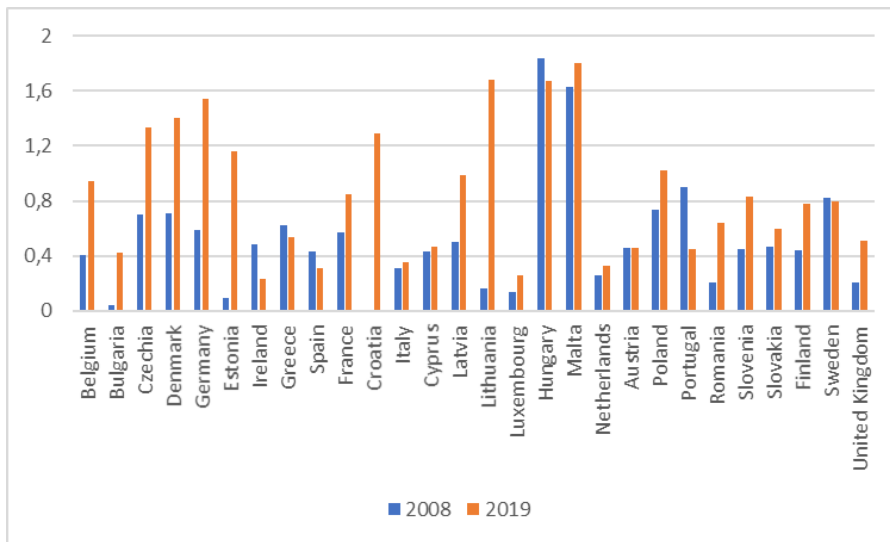
Table 2: Aid by Main Objectives (in million euro, from 2008-2019)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Regional development	13403	16590	14554	13447	12577	13410	15137	11719	9053	11023	12054	11568
Environmental protection including energy savings	13027	14236	14053	12940	15455	16221	37787	48298	59555	65938	72873	69154
Research and development including innovation	9321	11047	11066	10240	9624	9028	9102	8629	9674	9612	11336	14000
Training	863	973	847	907	1081	810	623	747	478	512	617	3123
Sectoral development	11856	12592	11744	5387	6049	5210	4916	5267	5037	5309	8471	10933
SMEs including risk capital	6301	5734	4581	3832	3939	3573	3794	4682	4479	5169	3862	3474
Culture	1485	1537	1856	1943	2375	2686	3446	4740	5720	6231	6516	6478
Employment	3208	2632	2805	2743	2803	2898	2723	2553	2295	2592	2585	3368
Social support to individual consumers	839	1103	2123	3404	3226	3330	5361	5703	4037	3951	4588	4632
Heritage conservation	23	40	319	405	579	575	534	575	28	24	23	15
Rescue and Restructuring	612	1124	687	848	4790	2681	1323	667	172	4768	541	475
Compensation of damages caused by a natural disaster	14	4	41	78	35	235	435	390	604	597	692	497
Promotion of export and internationalization	337	286	278	315	284	251	173	78	54	788	965	996
Closure aid	22	19	15	2954	1502	1553	1600	1613	1469	1570	1169	2104
Other	215	318	500	224	301	339	440	581	1796	2542	3705	3772
TOTAL	61524	68234	65469	59667	64621	62801	87394	96242	104450	120626	129999	134589

Source: European Commission (2021c); Own elaboration (2021)

As for the total volume of state aid expressed as a percentage of GDP, it varies significantly in the individual EU Member States. As we can see from Figure 1, in all EU countries except Greece, Hungary, Portugal, and Sweden, there was an increase in state aid relative to GDP during the period under review. The largest amounts of state aid to GDP were received in Malta (1.8%), Lithuania (1.68%), and Germany (1.54%) in 2019. In the Czech Republic, the ratio of state aid to GDP increased from 0.52% in 2008 to 1.33% in 2019.

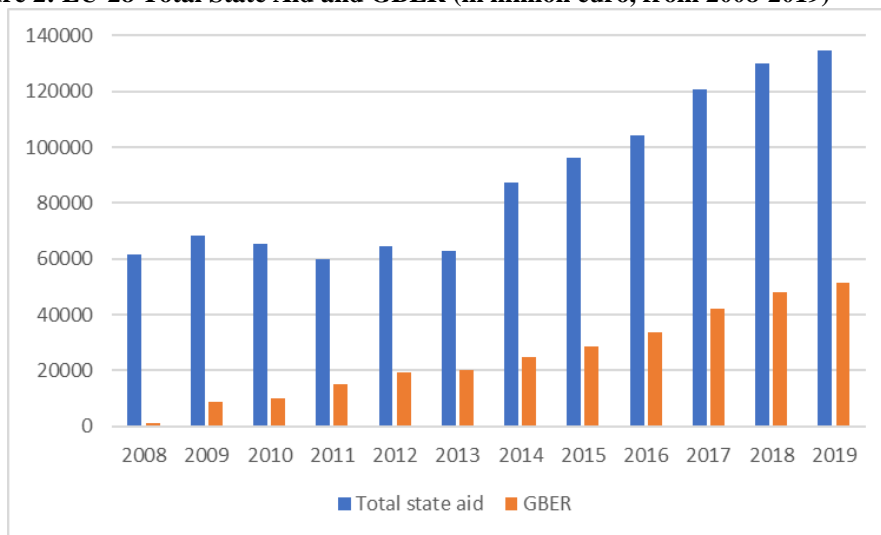
Figure 1: Total State Aid for the EU-28 (in % of GDP, in 2008 and 2019)



Source: European Commission (2021c); Own elaboration (2021)

As can be seen from Figure 2, state aid provided under the GBER is becoming the dominant legal form of public support in the European Union.

Figure 2: EU-28 Total State Aid and GBER (in million euro, from 2008-2019)



Source: European Commission (2021c); Own elaboration (2021)

Since the 2012 State Aid Modernization package, EU Member States have increasingly used the GBER. The full impact of the block exemption regulation, which came into force on 1st July 2014, can be monitored from 2015 onwards (Mynarzová and Okręglička, 2018). The total expenditure for the GBER in the EU-28 accounted for 24.6 billion euros, i.e., 30% of total expenditure in 2015. In the following years, the GBER gradually increased its share in the total value of state aid. In 2019, the total volume of GBER amounted to 51.59 billion euros. 1473

new GBER measures were implemented, which corresponds to 97% of new state aid measures (European Commission, 2021a).

4. Conclusion

In the paper selected aspects of the state aid in the European Union in the context of the General Block Exemption Regulation amendments were discussed. Trends in the development of state aid rules, with particular emphasis on the revised GBER area in the period 2008 - 2019 have been identified.

The GBER allows the Member States to implement certain aid measures directly with full legal certainty from 2008 (Commission Regulation (EC) No 800/2008). Since May 2012, the European Commission has implemented a major reform package, State Aid Modernization. The 2014 General Block Exemption Regulation (Commission Regulation (EU) No 651/2014) allowed the Member States to implement a wide range of State aid measures without the Commission's prior consent, as they are unlikely to distort competition, and have been amended several times to simplify the rules and extend the scope.

The research hypothesis stated in the article was verified. The state aid granted under the GBER amendments is becoming the dominant legal form of state aid in the European Union. As a result, more than 97% of newly implemented support measures fell under the GBER in 2019, and the EU Member States were able to implement them quickly for the benefit of businesses and regions without avoiding bureaucracy and time delays.

The broader General Block Exemption Regulation now allows for the exemption of more types of aid without notification. Due to the high utilization of the General Block Exemption Regulation, State aid measures can be processed much faster, as the growing share of measures under the General Block Exemption Regulation does not require any Commission decision before their implementation. The reform has enabled faster implementation of state aid, which supports investment, economic growth, and job creation. The modernized approach has enabled a better allocation of resources and thus promoted greater efficiency. This is in line with the Commission's approach, which focuses on delivering more and faster and at the same timeless where there is no added value (European Commission, 2021b).

Exempting certain aid from the obligation of prior notification and approval by the Commission is therefore a significant simplification that allows the Member States to grant aid quickly if the conditions limiting distortions of competition in the internal market are met. It is important to find the right balance between aid excluding a block exemption, subject to clear criteria to limit possible distortions of competition, and other state aid, which must be assessed by the European Commission before it is implemented.

In the context of the Covid-19 pandemic, the European Commission has introduced a temporary state aid framework, which has introduced more flexible rules to support companies in difficulty as a result of the pandemic. The state aid control system and rules are generally fit for purpose. There is, however, still scope for a further increase of expenditure under the current GBER in the coming years. The individual rules need some adjustment, also regarding the European Green Deal and the EU's Industrial and Digital Strategies, as well as further streamlining. The Commission is currently reviewing the relevant State Aid Guidelines and preparing the corresponding rules of the GBER. Future research will focus on the implications of the Temporary State Aid Framework introduced in the context of the Covid-19 pandemic and on the amendment of the GBER scheduled for the first half of 2022.

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The Perception of the European Integration and the Attitude toward the Migration in the Czech Republic

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Abstract

The paper deals with the connection between the support for the European integration and the migration using the example of the Czech Republic. The goal of the paper is to show how the approach to the migration after the refugee crisis influenced the perception of the European integration in the Czech Republic. The paper will analyze the perception of the migration in the Czech Republic as a general phenomenon, which has obtained new dimension in the context of the refugee crisis. In the connection with this crisis and with rise of terrorism the immigration has changed into acute political topic in Czech Republic too. The paper focuses on historical specifics of the Czech approach to the migration in the comparison with West-European countries. The paper will show that the consequences of the refugee crisis led to increasing criticism towards European integration in the Czech Republic. Critical attitudes toward migration during the refugee crisis in the Czech Republic were influenced also by specific historical development.

Keywords: *European Integration, Migration, Euroscepticism*

JEL Classification: *F51, F55, J61*

1. Introduction

Europe has faced to several serious crisis since the beginning of 21st century. One of them was so-called European refugee or migration crisis in years 2015-2016. Various authors consider the refugee crisis as “crisis of the European Union” (Pánek, 2018), or as “September 11” of Europe in the sense of a milestone, which questioned “European political, economic and social model” (Krstev, 2018). Unprecedented growth of asylum seekers showed weaknesses of European asylum system, and its consequences revealed differences in attitudes of Member States. Impacts of this crisis significantly increased the importance of the migration as a topic in discussions about the European integration. How Stockemer et al. (2019) reminded, the refugee crisis had two dimensions – first was “humanitarian crisis” and second is possible to labelled as “crisis of European governance”. Especially the second dimension could have significant consequence on the perception of the European integration. Efforts of European Commission to strengthen principles of solidarity by establishing of relocation system of asylum seekers aroused very contradictory reactions in Member States of EU. Dispute over refugee quotas has become the symbol of different views on future of the European integration.

Reasons for critical approach of Visegrád group can be explained by the example the one of its members. The goal of the paper is to show how the approach to the migration influenced the perception of the European integration using the example of the Czech Republic. The paper

focuses on historical specifics of the Czech approach to the migration in the comparison with West-European countries.

The paper uses term “refugee” in accordance with the definition from United Nations Conventions Relating to the Status of Refugees. In case of the Czech Republic is used here in accordance with the Czech legal system the term “asylee” for the „foreign national who has been granted asylum”, and the term “asylum seeker” who is defined as applicant for international protection. (Asylum Act) The paper is based on quantitative analysis of statistic data from publicly available sources (Eurobarometer, opinion polls of Czech agencies, Czech Statistical Office, documents of the Czech Ministry of the Interior etc.). The part of the paper dealing with historical context of Czech asylum policy is based partly on qualitative research of the Czech archival sources. The paper will test the hypothesis that consequences of the refugee’s crisis weakened the support for the European Union in the Czech Republic with regard on specific historical experiences with migration in the country in a comparison with Western Europe.

2. The Support for the European Union and its Theoretical Aspects

The rejection of the European Constitution in France and the Netherlands in 2005, the increase of support for Eurosceptics and populists after the refugee crisis, and finally Brexit have showed the importance of the public opinion in the EU. According to Hobolt and de Vries (2016), the growth of the scholarly interest in an influence of the public opinion was connected with the rejection of the Maastricht Treaty in first Danish referendum in 1992. How these authors reminded, in the case of support for European integration is “useful to distinguish between regime support and policy support”. Regime support includes support for membership of the EU, policy support is related to “collective decisions and actions taken by EU actors” (Hobolt and de Vries 2016). Topic of support for the European integration is narrowly related with the phenomenon of Euroscepticism. How remind Koźbiel (2020), the term Euroscepticism revealed in 80s as a characteristic for critics of the European integration. Scholars identify various dimensions and levels of sceptical attitude towards the European integration. Taggart and Szczerbiak (2001) defined “hard Euroscepticism” as a policy characterized by “principled opposition to the EU and European integration”, and “soft Euroscepticism”, which is critical only toward several aspects of the European integration. Lubbe and Scheepers (2010) distinguished political Euroscepticism as a resistance against supranational EU decision making, instrumental Euroscepticism as a rejection of EU membership, and EU-non identification. Mentioned authors analysed the influence of various factors (the introduction of the Euro, media attention, level of EU budget balance and left-right ideological balance) on the development of sceptical attitudes toward European Union in years 1994-2004. Later crises affecting Europe have not only strengthened Eurosceptic views, but have also offered further impetus to investigate their causes.

Various authors have focused on connection between crisis of the Eurozone, refugee crisis, Brexit and perception of the European integration. Schimmelfennig (2018) compared different impacts of Eurozone crisis and the refugee crisis. The refugee crisis was characterized by weak influence of transnational actors and by “absence of strong common interest in cooperation” which led to more independent acting of individual Member States. He mentioned also different costs of breakdown in Eurozone and in Schengen. Similarly, Hooghe and Marks (2019) emphasized differences in consequences of the Euro crisis and the refugee crisis for the European integration. They also mentioned different influence and roles of transnational actors in both crises. Stockemer et al. (2019) analysed the relation between the refugee crisis, attitudes towards immigrants and Euroscepticism using data from European Social Survey.

They found that Euroscepticism did not increase significantly after refugee's crisis, and also anti-immigrant attitudes remained without substantial changes according to their findings. On contrary with this interpretation, Conti, Di Mauro and Memoli (2018) pointed out growing "trend toward national sovereignty", which was supported by impact of "two shocks, the economic and the migration crisis". The paper of mentioned authors based on Standard Eurobarometer from year 2015 argued that Euroscepticism is typically related to exclusive nationalism, and with rejection of economic liberalism and globalisation. These factors influence also attitude toward immigration, and support connection between anti-immigrants. Taggart and Szczerbiak (2018) also compared effects of the three crisis (the Eurozone crisis, the refugee crisis and Brexit) and its influence on Euroscepticism in Europe. According to them, the refugee crisis had strong impacts to attitudes of political parties in post-communist states in Central Europe. Mentioned authors argued, that "migration crisis did lead to a significant reframing of the way that the EU was debated in these states, leading to a sharpening of Euroscepticism among mainstream political actors" (Taggart and Szczerbiak, 2018). Following part will focus in more details on one of these countries.

3. Perception of the Migration and the Support for the EU in the Czech Republic

Czech Republic was not directly affected by impacts of the refugee crisis. In 2015, the numbers of foreigners with residence permit grew to more 467 000, but the number of asylee remained low. International protection was granted to 470 foreigners (for 71 of them were granted regular asylum, the rest obtained the subsidiary protection). In 2016, number of granted asylum increased to 148 asylum seekers, but in following year their number decreased strongly to 29. The total number of asylum seekers in the period was around 1 500 (Czech Statistical Office, Foreigners in the CR). The main source countries of foreigners were and are Ukraine, Slovakia, Vietnam, Russia, Poland and Germany. Mentioned source countries are historically connected with Czechoslovakia. How reminded Czech Republic Drbohlav and Valenta (2014), asylum seekers played a marginal role in a situation of prevailing economic migration. Mentioned authors explain this trend by geographic position of the Czech Republic and by rather restrictive asylum policy. Impacts of the Russian aggression against Ukraine and unprecedented increase of war refugees' numbers have changed fundamentally the migration situation in the country.

However, the migration became a central topic in the Czech public discussion in years 2015-2017 (Prokop, 2021). Standard Eurobarometer surveys from years 2015-2018 show that immigration was perceived as the most important issue facing the EU. This opinion was more significantly expressed in the Czech Republic in the comparison with European average. For example, 76 % of Czech respondents labelled the immigration as main issue in autumn 2015 (Standard Eurobarometer, 2015). In 2019, 53 % Czech respondents choose same answer (on contrary with 34 % in whole EU). According to survey of STEM (Středisko empirických výzkumů, Centre of empirical surveys), in 2018, the majority of population (71 %) declared fears from refugees, who could obtain the asylum in the Czech Republic. (STEM, 2018).

Daniel Prokop (2019) pointed out the misleading interpretations of several opinion polls related to the migration. For example, according to opinion poll provided by agency Median in 2016, majority of respondents agreed with accepting of asylum seekers if certain conditions were met. These conditions included deportations in case of criminal offense (64 % respondents), work activities of asylees (62 % respondents), temporary asylum (58 %), solving problems in countries of refugee's origin (55 %), possibility to choose of asylees (54 %) and accepting only war refugees – 52 % (Median 2016). These results confirmed prevailing

security and economic justifications for fears of refugees. However, also this opinion poll confirmed prevailing negative attitude towards immigrants (including refugees) in the Czech society. Opinions polls provided by Public Opinion Research Centre (Centrum výzkumu veřejného mínění – CVVM) showed that the rejection of refugees by Czechs has long-term character. According to the survey provided in June 2015, more than 70 % of Czech citizens disagreed with accepting of refugees and immigrants from Syria and Northern Africa. Following opinion polls confirmed this trend, which involved the war refugees generally. Since 2015, around 60 % of respondents has rejected the acceptance of war refugees in the Czech Republic (See in Table 1). It is interesting, that more than 50 % Czechs began expressed negative attitude also toward to accepting of refugees from Ukraine in 2016. (Centrum výzkumu veřejného mínění – CVVM, 2015-2018). Another typical trend in the development of the public opinion related to accepting of refugees is specific time connection between the refugee crisis and anti-refugees' attitudes. Czech respondents expressed the strongest disagreement with accepting of refugees after actual ending of the refugee's crisis.

Table 1: Attitude of Czech citizens towards war refugees in years 2015-2017

	2015	2016	2017	2018
Agree with accepting of war refugees (without conditions)	4 %	3 %	2 %	3 %
Agree with temporarily accepting of war refugees	45 %	30 %	25 %	35 %
Disagree with accepting of war refugees	59 %	62 %	69 %	58 %

Source: Centrum výzkumu veřejného mínění – CVVM (2015-2018); Own elaboration (2022)

According to Prokop (2021), a negative view on migrants in the Czech society can be influenced by the growth of real security risk, or uncertainty towards globalization, but also by misusing a topic of the migration by populist politicians. Anti-immigrant rhetoric was originally typical only for populist Dawn of Direct Democracy. In elections in 2017, the new populist and anti-immigration party Freedom and Direct Democracy (Svoboda a přímá demokracie, SPD) obtained more than 10, 6 %. In 2018 and partly also in 2021, the migration became the important topic of the campaign before presidential elections, respectively before parliamentary. This development shows how the perception of the migration has changed also in Czech Republic. Electoral programs and proclamations of Czech politicians reduce discussion about migration policy to resistance against the mandatory quotas for relocation of refugees, and focus almost only on security dimension of migration. For example, former governing party in Czech Republic ANO presents itself as a defender of national position in the question of illegal migration. (Až do roztrhání těla, ANO, 2021). Coalition of ODS, TOP 09 and KDU-ČSL preferred the solution of the migration outside the borders of EU (Změna, které můžete věřit, SPOLU, 2021). The Czech Pirate Party and Mayors and Independent dealt with migration in its program in the section named "security". Coalition of this parties supports the solution of the migration in the place of its origin, and also declare the support for asylum procedures at borders. (Programové priority pro parlamentní volby. Piráti a starostové, 2021) Political statements mostly ignore new European suggestions of flexible solidarity. How Stojanov et al. (2021) reminded, after the refugee crisis Czech politicians and representatives of relevant institutions emphasize primarily a connection of the migration with security risks and economic problem.

Emphasis on rejection of mandatory quotas for the relocation of refugees was also connected with growing criticism toward the EU. Surveys of CVVM related to the refugees in 2015-2017 showed prevailing negative views to role of the European Union. In October 2015, more than 80 % of Czech citizens criticized acting of the EU. The survey from 2017 confirmed this strongly negative evaluation (Centrum výzkumu veřejného mínění – CVVM, 2015-2017). According to Eurobarometer from autumn 2015, 55% of Europeans disagreed that their country “could better face the future outside the EU”. Czech Republic belonged to more sceptic Member States – 39 % of respondents agreed, 47 % of them disagreed. (Standard Eurobarometer, 2015). Trust of Czech citizens in the EU was lower in comparison with European average.

Table 2: Trust in the EU in the Czech Republic in years 2015-2017.

	Spring 2015		Autumn 2015		Autumn 2016		Spring 2017	
	EU	CZ	EU	CZ	EU	CZ	EU	CZ
Tend to trust	40 %	43 %	32 %	27 %	36 %	29 %	42 %	30 %
Tend to not trust	46 %	45 %	55 %	63 %	54 %	66 %	47 %	63 %
Don't know	14 %	12 %	13 %	10 %	10 %	5 %	11 %	7 %

Source: Standard Eurobarometer (2015-2017); Own elaboration (2022)

Results show more long-term and deeper decrease of trust in EU in the Czech Republic in comparison with other Member States. For better understanding of this development is suitable to add, the growth of Euroscepticism in the Czech Republic was not connected with significant increase of trust to national institutions. According to Eurobarometer from spring 2015 only 13 % of Czech respondents tended to trust in national parliament, and 28 % of them in national government. These results remained without significant changes also in following periods. But in spring 2017 these numbers decreased again – to 12 % in case of national parliament and to 18 % in case of national government. The level of the trust in national government was comparable with the European average, but the trust in parliament in case of the Czech Republic was more significantly lower. Moreover, the trust in national institutions increased in EU to 36 % (parliament) and 37 % (government) in spring 2017 (Eurobarometer 2015-2017). The Eurobarometer survey showed that trust of the Czech public in the EU was higher than trust in national government and parliament. Of course, interpretations of these results must take into consideration also other factors which have influenced attitude of public toward national executive and legislative power. But generally, is possible to take in account the lower trust in institutions as one of potential factor determining the Czech perception of migration policy and the role of the European Union.

Czech historian Jaroslav Pánek (2018) argued that different views on migration in Western and Eastern Europe are connected with different civilization experience. According to him, Europe is divided to post-colonial countries (Western Europe) and post-totalitarian countries (Central and Eastern Europe), which are more sensitive to “forced transformation, including forced immigration”. Pánek criticized western politicians for “lack of understanding of this different historical experience”. This explanation ignores motivation and interests of other Member States without colonial past. Simplified historical arguments do not take into consideration other factors which supported anti-immigrants’ attitudes, not only in Central and Eastern Europe. Ivan Krastev (2018) offered more complex view on different attitudes toward

immigration in Europe. Famous politician scientist and philosopher from Bulgaria explained a negative perception of the migration in Central and Eastern Europe by different historical associations connected with multiculturalism, but also by impacts of the demographic decrease or mistrust of the cosmopolitan mindset. Different attitudes in Central and Eastern Europe can be connected also with specific development of the national identity. According to Hroch (1997), construction of national identity in Eastern Europe in 19th century was influenced by different conditions in comparison with Western countries (foreign rule, missing statehood). These differences deepened the rise of Communist regimes in following century.

Following brief overview of typical trends of the migration and asylum policy in Czechoslovakia could show the influence of specific historical experiences for the perceptions of the migration. Until 1989, the predominance of emigration was typical for Czechoslovakia. After 1989 Czechoslovakia and later the Czech Republic has gradually become a target country for increasing numbers of work-oriented immigrants. The country had only limited experiences with larger groups of immigrants – especially from culturally different environment. First Czechoslovak Republic became the asylum for about 20 000 Russian emigrants after Bolshevik Revolution, and later more than 22 000 Germans, Austrians and Jews found their temporary home in Czechoslovakia. However, inter-war Czechoslovakia was supposed to be only a transit country offering just a temporary resort for refugees mostly coming from Germany and Austria. The right to asylum was not anyhow published by the legislature and also the status of a refugee was not legally defined. Attitudes toward immigrants was characterized by clash of liberal and restrictive tendencies (Čapková and Frankl, 2008).

Impact of homogenization of country was typical trend of Czechoslovak post-war development. The new trend was ethnically and politically selective immigration policy. After 1948, Czechoslovakia became a refuge more than 12 000 Greeks who left their war-torn country. Greek community in Czechoslovakia was one of the largest in the so-called bloc – more Greek refugees lived only in USSR. (Králková and Tsivos, 2012). Communist regime not only in Czechoslovakia declared the reception of Greek refugees as mandatory act of solidarity and “important political and social task” (National Archives in Prague a). Ideological affinity between the governing regime of the host society and the refugees supported a possibility of refugee integration, and also determined attitude of the political representation. The spread of false rumors presenting refugees as a security risk was referred to as “work of reaction” (National Archive in Prague b) This specific case reminds the responsibility of political representation and its influence on public opinion towards refugees. However, asylum right in communist Czechoslovakia was codified only in the constitution of 1960 as well as labour migration, which was limited to eastern bloc countries.

After 1989 Czechoslovakia and later the Czech Republic has gradually become a target country for increasing numbers of work-oriented immigrants. Czech Republic provided asylum to about 5 000 refugees from Bosnia and Herzegovina in the half of 90s. (Fňukal and Šrubař, 2008). The change in the relationship to refugees was brought by the new Asylum Act of 1999 which incorporated the EU legislation. The amendment to the Asylum Act in 2002 introduced new restrictive elements in response to the growth in applications for asylum in the previous years. The refugee crisis strengthened restrictive elements of the Czech migration policy. Limited experiences with culturally different immigrants influenced the perception of refugees as a threat in connection with fears of Islamist terrorism. New feature of attitude toward the migration became the politization of this topic, which supported the increase of critical views on the European integration.

4. Conclusion

Results of various opinion polls provided on the national and European level confirmed strong influence of the refugee crisis on critical perception of the European integration in the Czech Republic. The suggestions of the European Commission did not take to consideration sufficiently that attitudes toward migration in the Czech Republic and in other countries of Central and Eastern Europe are influenced also by this specific historical development including postwar national homogenization and emphasizing of potential negative social and security impacts of migration. Prevailing emphasis on security dimension of the migration and criticism toward European asylum policy became significant features of Czech reflection of the refugee crisis. Increased medial attention and politization of discussion about refugees disproportionately increased the perception of migration importance for Czech Republic. Part of Czech politician representation uses different historical experiences with a migration for the legitimization of its xenophobic attitudes. How showed election campaigns in 2018 and partly also in 2021, migration was here used typically as substitutive pre-election topic serving for the mobilization of voters. Czech solidarity with Ukrainian refugees in time of the Russian aggression has showed that willingness to the acceptance of refugees is connected with various causes and specific character of every forced migration.

Acknowledgements

This research was financially supported by the Ministry of Education, Youth and Sports Czech Republic within the Institutional Support for Long-term Development of a Research Organization in 2022.

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Resilience as a New Trend in Regional Development of the European Union

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Abstract

Resilience have become very inflected concept in recent years, mainly in the sense of studying the resilience and flexibility of the region related to regional development. Although theories of regional development have a similar historical development as economic theories, there is no uniform definition of the term region. This also applies to the concept of resilience, which, although currently at the heart of economic policy-making and long-term sustainable growth strategies, as in the European Union, there is no precise definition of the term and no consensus on how resilience should be measured and what factors are for these purposes are the key onepp. This fact often leads to disagreement, misinterpretation and misunderstanding in the understanding and concept of resilience. Regarding this it is necessary for the purposes of further research to express understanding of the term region, define theories of regional development and at the same time introduce the theoretical basis of resilience. The aim of this article is to clarify, on the basis of previous systematic literary research, the connection between the old-new concept of resilience and the theories of regional development and its trend in the 21st century.

Keywords: *economic resilience, European union, regional development*

JEL Classification: *O18, O52, P48*

1. Introduction

In recent years, the concepts of resilience have become very popular in term of examining the resilience and flexibility of regions, especially in the context of regional development. Although the development of the theory of regional development has undergone a similar historical development as economic theory, there is still no single definition of the term "region". This also applies to the notion of "resilience", where there is no precise definition of this term and no agreement on how resilience should be measured and what are the key factors for this purpose. Even though resilience has become central to current economic policies and long-term sustainable growth strategies, as is the case in the European Union. Diversity of understanding the concept of resilience and flexibility often leads to disagreement, misinterpretation and misunderstandings in the understanding and conception of resilience.

Knowledge of regional development is a required for the creation of an effective regional policy, a policy influencing the spatial distribution of socio-economic activities at the supranational, state, regional and local levels. At the same time, regional development can be understood as the application of doctrines that deal with spatial phenomena, processes, relationships and decision-making, which are also influenced by natural-geographical, economic and social conditions in a given area (region). Regional development thus focuses on the existence of individuals, groups and companies, at the same time the primary goal is to

find the causes of laws and rules of spatial distribution of economic activities, unequal settlement of space and the subsequent search for tools to influence these processes. For regional development defined in this way, the terms regional science and regional studies are synonymous, with the term regional science being used since the middle of the 20th century, when Walter Isard tried to link economics and geography to create today's concept of regional development. The theories of regional development themselves are based on more general methodological approaches, which are mainly classical, neoclassical, Keynesian, neoliberal, and institutional approaches. These different approaches cause a different understanding of regional differences, individual causes of dependencies, the importance of factors determining the development of regions, etc. Therefore, before studying the theory of regional development, it is necessary to define the concept of region itself (Wokoun, Mates, 2006).

The main purpose of the paper is to identify the specific characteristics of theories of regional development with regard to the growing importance of the concept of resilience in the context of socio-economic processes. The article is based on systematic literary research, which examines research work in the field of development of theories of regional development and resilience. In this case, systematic literature research included literature documentation and screening, data extraction and analysis, and the final stage of writing literature research. In connection with the basic research question of understanding the relationship of resilience as a new stage of regional development in the European union, suitable works were found using data and available information sources. The works were selected on the basis of a comparison of individual dimensions of resistance indicators closest to the given topic.

2. Theoretical Basis for Understanding Regional Development

As mentioned in the introduction, the role of the region in the field of regional development studies, as well as the theory of regional development, is crucial. Therefore, before specification and explanation the theories of regional development from past to present, firstly, it is necessary to mention the term “region” and different approaches to its meaning.

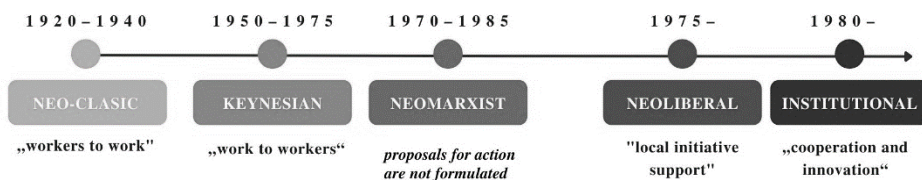
2.1 Definition and Understanding of the Term Region

The term region can be understood from many points of views, which makes it difficult to find a uniform definition. According to the theory of regionalism, a region can be a grouping of two or more countries that acquire different degrees of integration (or cooperation). The *political-geographical concept* views the region from two perspectives, as a geographical unit, or a whole created by the artificial separation of a territory from the national economy, or as a geographical unit at the national (international) or supranational level. The national level represents an administrative or geopolitical area within one country and is a basic variable for monitoring regional development and implementation of regional policy. On the contrary, the supranational level is understood as a spatial structure with specific features (political, social or cultural) spread over the territory of several states (Skokan, 2004). The *geographical approach*, as reported by Wokoun et al. (2008) defines a region as a part of an area characterized by a set of natural and socio-economic elements and links, the specific nature, location, arrangement and extent of integration forming a spatial structure with internal links that distinguish the area from surrounding spatial units. A region can be understood as a system that is composed of functional and infrastructural subsystems, etc. “A region is a defined area with functional elements in which there is a specific, functional and related infrastructure and a common interest in developing the region and improving the well-being. The region thus represents a system with target behavior” (Melecký, Poledníková, 2018, p. 8).

2.2 Theory of Regional Development

As already mentioned, knowledge of the theory of regional development is a necessity for the creation of effective regional policy, which is focused on space and its use. Due to serious disruptions of socio-economic systems, which may be caused by some kind of exogenous shock or caused by internal structural problems, the issue of regional development comes to the forefront of scientific interest and practical policies. The main key is to find a compromise between the need for economic performance and competitiveness of the region on the one hand and socio-political and environmental sustainability on the other. The country's stability can only be achieved if the regions are properly functional, which results in a growing interest in regional development issues. This in turn leads to a growing number of theories of regional development, and these theories differ not only in their view of regional development, but also in the definition of its main actors and mechanisms and, last but not least, the recommendations for regional policy makers. This difference in theories of regional development is further complicated by the fact that, just as there is no uniform definition of the term region, there is no one generally accepted approach to regional development. Before defining the theories of regional development, themselves it is necessary to distinguish between the term's regional growth and regional development, which are essentially based on the concepts of economic growth and economic development. *Regional growth* is understood here as a process leading to an increase in the total product of the region in a given period of time. In contrast, *regional development* is a set of processes that take place within a region and are the basis for positive changes in the region with regard to economic, social, environmental, cultural and other characteristics (Wokoun, Mates, 2006; Kutscherauer, 2006). In the past, a relatively large number of theories of regional development have been developed, and according to Blažek, Uhlř (2020), the set of these theories is conceptually hybrid, with the result that their initial principles are often contradictory. Theories of regional development are traditionally divided into two groups, convergent and divergent. The authors in the field of *convergence theories* are inclined to the opinion that the natural basic tendency of regional development is to balance differences between regions. On the contrary, in *divergence theories*, the authors are of the opinion that during the development there is rather a further increase in regional differences. The difference between the two groups lies in whether their authors give greater importance to the mechanisms and processes leading to the balancing of differences between regions, or, conversely, to the processes and mechanisms of differentiation.

Figure 1: Main development stages of theories of regional development and regional policy



Source: Blažek, Uhlř (2020); Own elaboration (2022)

The basic question that the theory of regional development seeks to answer is *the view of the role of the state, public administration in the economy and in society*. While extreme positions are represented by non-interventionist (especially neoclassical and neoliberal) and interventionist (Keynesian, especially neo-Marxist) approaches, most modern theories of regional development seek to deduce practical implications for policymaking and can therefore be described as interventionist. However, finding the right degree of interventionism involves,

among other things, solving a very complex dilemma between the principle of meritocracy and the principles of solidarity. The complexity of the solution is related to the subjective perception of these two principles by the individual and to the great variability of views between different companies over time. An important example of the importance of the dilemma between these principles is the creation of the structure of local and regional government financing systems. Another important dilemma is the question of the origin and significance of inequality for the economic and social development. Liberal guidelines generally argue that the greater the scope for market power is, the higher is the rate of economic growth. On the contrary, the need to maintain a competitive environment by preventing monopolies in the economy refers to the need to reduce the influence of market forces at least partially. The social aspect includes the philanthropic aspect, i.e., helping and protecting the disadvantaged, as well as people's incomes, not only their abilities but also existing external constraints (e.g., access to education, existing assets, social space, and geographical mobility) and risk appetite opportunity to some extent). In addition, maintaining a free market in some areas, such as health, is often socially unacceptable. Also, differences in the living standards of the inhabitants of different regions depend not only on the abilities and initiatives of the inhabitants, but also on the economic structure (which often has a significant impact on available natural resources in a given historical period). The impact of geographical location is similar, but there is also the impact of certain government decisions (e.g., the location of arms production, the location of government research institutes or large transport infrastructure, etc.), (Wokoun, Mates, 2006; Kutscherauer, 2006; Blažek, Uhlíř, 2020).

At present, the main direction of regional policy is the "regionalization" of sectoral policies and relations with other supporting state policies, especially social ones. An example of the first type is the EU Economic and Social Integration Policy, created in 1989, linking parts of regional and social and agricultural policy. "Regionalization" of sectoral policies means policy parameters that reflect the diverse needs of individual regions, whether in form or through intensive support. While almost all sectoral policies have clear local implications, only some policies have a sensitively embedded regional dimension, and we can speak of their regionalization. Examples of regionalization of sectoral policies are regional impact assessments of large infrastructure facilities, regionally differentiated levels of investment incentives for large foreign and domestic investors or active employment policies (Blažek, Uhlíř, 2020).

2.3 Trends in 21st century in regional development policy

Nowadays measures stimulating local initiative (deregulatory measures, support for SMEs) are more popular in regional policy based on neoliberal approaches, while policies formulated from the central level (attracting foreign direct investment, relocation of large companies or institutions to lagging regions) predominate in regional policy based on Keynesianism. In the case of the current concept of regional development, it is a regional policy that emphasizes the use and mobilization of local, endogenous development potential and the mobilization of local assets (human potential, knowledge, contacts, cultural and natural heritage, etc.). At present, there is a certain convergence between private and public sector actors. An example is the frequent use of tools based on cooperation between public and private sector actors (public private partnership) or various forms of networking activities. Although the procedures and tools used in previous periods, such as support for foreign investment inflows and after-care, are applied in this period, the current period is characterized by the extension of regional policy instruments to new, broader 'approaches, addressing the causes of regional problems, not just their consequences. In the current conception, one can observe a kind of departure from the conception of regional policy as a tool to retrospectively address the consequences of existing problems. On the contrary, there is a tendency to approach regional policy as a strategic policy

that is forward-looking and aimed at strengthening or maintaining competitiveness in the global economy. To be achieved by ensuring the implementation of as many activities with high added value as possible, which would enable the creation of a significant number of well-paid jobs for highly qualified workers (Blažek, Uhlíř, 2020).

A typical trend of the current guidelines is to increase the sensitivity of state administration and self-government to specific local conditions (so-called place-based approaches) and to increase responsibility for regional policy by transferring powers to apply the principle of subsidiarity. There is a noticeable shift towards decentralization in public administration, where an increasing range of competencies (and usually also adequate financial resources) is being transferred to the regional and local level, as stated by Blažek, Uhlíř, 2020. In connection with this, it is also possible from the 1990s. In the last century, we also observed a gradual increase in the thematic breadth of regional policy, from infrastructure support to business support to human resources development. This trend is probably most evident in the example of the gradual development of regional policy at European Union level, which is now called economic, social, and territorial cohesion policy. Another typical manifestation of current regional policy is also greater emphasis on strategic planning, setting measurable goals, time schedule for implementation of individual steps, quality implementation system, including clearly defined responsibility for implementing individual elements of the strategy or policy, monitoring the support programs, and evaluating their effectiveness and efficiency. In connection with these factors and the current trend of society, the issue of dissemination of innovations comes to the fore, in the sense of understanding regional policy as a strategic future-oriented tool. The issue of dissemination of innovations is related to the policy of attracting foreign investment, which is characteristic especially of regional policy inspired by Keynesianism. It can be stated that in recent decades the concept of socio-economic development has expanded significantly, as has the range of factors that are considered important for development.

3. Regional Economic Resilience as the New Trend in EU

In the past, national economies have always been vulnerable to various types of shocks, such as economic downturns, industrial shocks, currency crises and natural or health crises, which can destabilize regional economic growth and nature. An economy disrupted by this shock may move to a new growth trajectory by restoring economic ties within the region. The analysis of the concept of resilience is primarily aimed at answering the basic question that arises when studying resilience in a regional context, i.e., why one region is more prone to economic shocks than another. These mentioned influences lead to that, the concept of resilience has come to the forefront of interest not only in academic field, but also in political and public debates. Resilience, which is generally used to describe how an entity or system responds to shocks and disturbances, has been studied for many years. During that time, efforts were made to examine it and analyse various aspects of it. The term resilience is commonly used in research across all disciplines, from environmental studies, ecology, psychology, sociology and economics to materials science and engineering, with the result that the term is currently used in various contexts, especially as a desired element or as an attribute of an embrace, entity, or system that should be somehow promoted or supported (Martin, Sunley, 2015). In recent years, respectively, since 2020, the Covid-19 pandemic has led to an economic crisis, with significant repercussions at the regional level of the economy, and the concept of "resilience" and its very idea is at the forefront of economic geography and regionalism. Not only the economies of individual countries but also their regions themselves face the challenge of resisting economic fluctuations, not only in terms of the duration of the crisis in terms of dramatic changes and the complexity of the crisis (Ostárková, Staničková, 2021)..

3.1 Theoretical Basis of Resilience

The concept of resilience became part of the conceptual and analytical goal of regional economic studies after the years of the economic crisis 2007-2009, in line with the continuing importance of the region as an economic entity and subject of decision-making processes in public policies. In connection with this fact, there is a growing interest in the resilience of regional and local economies and urban economies. The field of regional resilience research is widely researched in research studies by foreign researchers (Martin, 2012; Rose, 2009; Cutter et al., 2008; Hill et al., 2008; Norris et al., 2008; Foster, 2006). Resilience is generally defined in these studies as the ability of a region or system to respond to shocks or disturbances and how it can ensure its continuous development in these circumstances. Given the above factors, we assume that given the current pandemic crisis, which has recently become an example of a global problem, the concept of resilience of country regions there is significant political pressure to implement resilience in regional policy and development. However, it is necessary to emphasize the paradox that occurs here: the pressure to use the idea of regional economic resilience (at any regional level) in political circles is somewhat ahead of the very understanding of resilience. In addition, it should be noted that the same concept of resilience is relatively complex, deep in content and somewhat complicated for evaluation and measurement. Related with regional development, there is currently no generally accepted notion of resilience nor is there a clear consensus on what exactly regional economic resilience means and how it should be conceived. At the same time, there is no generally accepted methodology for measuring regional resilience, nor its determinants and their relationship to agreed regional growth models. All this ultimately leads to misunderstandings and various variations in the use of the concept of resilience (Ostárková, Staníčková, 2021).

As already mentioned by, the importance of resilience is currently growing, not only due to the recent and ongoing global pandemic crisis but also the new war in Ukraine. There is currently no generally agreed approach to how the concept should be analysed and studied. Likewise, there is no generally accepted theory of regional economic resilience. Quantification of regional economic resilience is also a challenging issue for measuring and evaluating land at any stage. In general, *resilience* can be described as *the desired state of the system* (country, region, country, city). Its characteristic factors make the system economically resilient and at the same time capable of harmonious development and progress in any change in the external environment. The most traditional meaning of this term in the social science literature on resilience is the ability of the regional economy to maintain its current state (considered equilibrium) in the current occurrence of an exogenous shock. Regions do not differ significantly in resilience from other systems, they are equally prone to unpredictable shocks. The resilience of regional economies is therefore a good topic for academic research, not only in itself but also because of its potential importance as economic policy makers. A thorough study of resilience must include various research aspects from environmental, economic, institutional, social, and political studies that can provide a conceptual definition and a reliable and applicable comprehensive analysis of regional economic resilience (Staníčková, 2018), and nowadays we can say also geopolitical resilience studies which can include studies focusing on resilience of the defence sector. To understand the theory of resilience, it is necessary to realize that local, regional economies do not exist independently and are not isolated. The resilience of the domestic regional economy will in many cases can be shaped by conditions that affect the region from the outside, such as the strategies and decisions of policy makers, as well as government action or corporate behaviour. On the other hand, there is a growing belief that the primary responsibility for local economies lies with the local people themselves, not with official governments (Martin, Sunley, 2020).

3.2 Importance of Resilience in the EU

The European Union is among the largest regional entities that remain in the long term. According to Romanova (2020), the EU has been working with the concept of resilience since the days of the European Economic Community. In the 1970s, the notion of resilience emerged in connection with the problems associated with internal development and overcoming these problems, especially in connection with ensuring economic growth and resilient development. Later, in the 1990s, this concept took root in the security sphere, whose priority was to protect the population and ensure security. At the turn of the century, this concept became an integral part of the Union's relations with developing countries, whose priority was to use the concept of resilience to demonstrate the EU's external action and, above all, to promote the resilience of these partners. At the same time, in the EU, the concept of resilience is becoming part of the agenda for promoting the Union's democratic values, respect for human rights and the rule of law. The European Union has thus based its concept of resilience on solving internal problems and trying to help solve external global problems. Thanks to this approach, the Union has become a model to be followed in building resilience. From the history of the application of the concept of resilience at the level of the European Union, it can be said that the Union focused mainly on security and protection of democratic values, which are part of the EU Global Strategy, where the Union focused on protection against cyber threats, terrorism and security of energy supply (European External Action Service, 2016). However, with the arrival of the COVID-19 pandemic, which erupted in March 2020, there is a reversal in the concept of resilience. Prior to the pandemic, the concept of resilience focused on external relations with third countries and emphasized resilience to external security threats. The pandemic has changed the European Union's approach to internal transformation and focuses on addressing internal challenges. In the EU, however, the external dimension of resilience has not disappeared. Strengthening the resilience of foreign partners is still part of the EU's neighbourhood policy. Importance of supporting resilience of foreign partners came to the fore also due current situation in Ukraine (Ostárková, Staničková, 2021). As Kaňa, Dvoroková (2020) stays the present world, and notably the regions that surround the European Union, cannot be definitely labelled as a secure. According to Meszaros and Țoca (2020), building resilience in the neighbourhood has become one of the EU's top foreign priorities. These policies have one main objective: to build resilient states and societies in the neighbourhood and to create common unrestricted economic growth and functioning within the Community. Newly, the European Union understands resilience as *"the ability not only to withstand challenges and manage them, but also the ability to carry out transformation in a sustainable, just and democratic way"* (European Commission, 2020, p. 2), (Ostárková, Staničková, 2021).

In regional resilience, as mentioned by Ostárková, Staničková (2021), the emphasis on economic aspects of resilience or the development of innovation persisted for a long time. With the growing interest in climate change, this concept is coming to the forefront of national policymaking, but not as a necessary part of regional resilience policymaking. However, the turning point is in the European Union, which has made environmental resilience, including green transformation, one of the main dimensions of resilience, including the social and economic dimension, the geopolitical dimension, the green dimension, the digital dimension. In this respect, the EU is an innovator integrating the goal of building more resilient Member States' economies into all policies, not forgetting them in cohesion policy (European Commission, 2020a). Another innovation that the Union has "brought" is the digital dimension of resilience, which seems to be responding to the current pandemic situation. Emphasis is placed on the importance of digital protection for citizens and states and on the need for digital development and education among citizens. The digital dimension of resilience is also reflected in the new Digital Economy and Society Index (DESI) resilience measurement

methodology, which includes a category of key DESI indicators for economic recovery, for which the following four indicators are key: high-capacity networks (VHCNS) and 5G, digital skills, advanced digital technologies for businesses, digital public services. The DESI concept is based on five dimensions: connectivity, human capital, internet use, digital technology integration, digital public services (European Commission, 2020b).

Among other things, as previously mentioned by Ostárková, Staničková (2021). the European Union is pushing for the creation of a health union to build resilience, especially in response to a pandemic situation that would ensure the resilience of states in a hitherto relatively neglected health policy within a shared / supporting public health policy (Eur-lex, 2020). Building a health union used to be seen as something to be achieved and at the same time as very controversial, but this attitude has changed in the face of an unexpected shock in the form of a health crisis. As such, it is appropriate for future research to determine the research question as to whether it is unlikely that some hitherto controversial areas of economic resilience are controversial until a completely new shock arrives that will change this attitude. In addition to these concepts, the Union is introducing the first recovery instrument and other financial instruments in support of the main objective for the next four years, namely, to ensure a full recovery from the COVID-19 pandemic. The main financial packages include the Recovery and Resilience Instrument (RRF), whose structure and objectives cover key areas of the resilience dimensions already mentioned, such as helping the EU achieve its 2050 climate neutrality goal, set it on the path to digital transformation, create jobs and accelerate growth in this process; at least 37% of the investment and reform expenditure contained in each national recovery and resilience plan should support climate goals (European Commission, 2020; European Commission, 2020c).

At the same time, EU strategy papers still retain the older concept of resilience, i.e., towards strengthening external resilience to third countries, building resilience of developing countries and, finally, strengthening resilience in security with an emphasis on cyber defence. and the fight against misinformation, a phenomenon that has been growing in recent years (Romanova, 2020). According to Le Maire (2020), the main goal is to build the foundations of economic sovereignty by investing in green value chains, such as the recycling industry and the circular economy, and thus contribute to reducing energy dependence. Romanova (2020) builds on this context and emphasizes that energy sovereignty can currently be considered a cornerstone of European policy. Given the pandemic crisis, green transformation and current situation with Russia, energy diversification and the development of strategic energy storage are key to strengthening independence and resilience. It follows from the above that the European Union is focusing on the pandemic recovery process by building something new, not going back. Overall, the EU aims to ensure a stronger and more resilient digital and green transformation and economic recovery towards the future, including the Fourth Industrial Revolution (also known as 4IR), (Ostárková, Staničková, 2021).

4. Conclusion

Knowledge of the theory of regional development is essential for the creation of effective regional policy. General approaches, especially classical, neoclassical, Keynesian, neoliberal and institutional approaches, influence specific regional theories. Different approaches result in different understandings of regional differences, disparities, causes of dependencies, significance of factors and their importance determining regional development. The liberal approach and related approaches (neoclassical, neoliberal) have no supporters of a strong and permanent regional policy, but it does not reject the need to influence subjects in space. In recent decades, proponents of liberal approaches have recognized the importance of regional policy in addressing regional disparities. Proponents of the Keynesian approach, on the other

hand, support a strong regional policy in the sense of the "visible hand of the state" and reject the "invisible hand of the market." A new trend is represented by institutionalists, who introduced completely new approaches to regional development and began to work with factors that their predecessors neglected. At the same time, these factors were and are important for the development of the regions. They emphasize the importance of creating socio-cultural conditions that help to create and implement the innovations that are necessary to support competitiveness. Just as these main trends in regional development theories are different, so are the various appropriate tools for applying the relevant regional policy. In the case of neoclassical theory, these are interventions supporting market mechanisms, where the main instrument is one-off financial assistance for retraining or relocation of the population (labour force). Conversely, in the case of Keynesian theory, the main instruments of financial support in lagging regions are those that would help companies expand, such as subsidies or some form of relief. Last but not least, it is necessary to mention institutionalism, which, unlike the previous directions, emphasizes regional policy instruments focusing on mutual cooperation, innovative approaches, support for education, human resources, etc.

The individual theories of regional development, as already mentioned in the introduction, and as is also evident from the development of theories themselves, are to a large extent a reaction to the current situation in the economy. Whether from the first theories of regional development, which reflected liberal theories, to Keynesian theories that responded to the aftermath of the Great Depression, or subsequent theories that responded to the oil crisis. Even today, this trend of "reflection" of the current situation is evident. In general, the main shift in theories of regional development is the shift away from theories of regional development, which are the basis for regional policy makers, focused on addressing consequences rather than causes. This can be considered the greatest progress in the field of regional development, also in connection with the fact that current theories are focused on strategic planning and future orientation. This, to some extent, new phenomenon can best be observed in the European Union's regional policy, which since its inception has reflected the current geopolitical, economic and social situation. At present, it has incorporated the old-new concept of resilience into its policies. Strengthening resilience has become a new trend, not only in the scale of the European Union and its policies towards green and digital transformation, but also (thanks to the setting of EU regional policy) part of the policies of their Member States and sub-regions.

Even though the academic sphere has been dealing with resilience for several decades, this concept became known to economic theory mainly due to the economic crisis of 2007–2008. Although in the past national economies have always been prone to various types of shocks, such as economic downturns, industrial shocks, currency crises and natural or health crises, which can destabilize regional economic growth and nature, new impetus to study resilience and greater awareness of the concept has been triggered by pandemic crisis. The literature search shows that the fundamental aspect of resilience is the support of innovation, research and development and human capital development, which must be supported already at the level of regional policy making. The European Union has responded to these demands by incorporating the key concept of green and digital transformation into its Europe 2020 strategy, which should ensure the efficient use of public resources to ensure the sustainability and competitiveness of the region and ultimately the Union as a whole. It is necessary to emphasize the doubt of the perception of the concept of resilience and the resulting number of authors and approaches to the theory and method of measurement. Due to the pandemic crisis and the importance placed by the European Union, building resilience is becoming part of the reconstruction / stabilization policy of many countries in Europe and it can be assumed that this concept will follow many others. However, controversy arises over what the state, region, city considers to be key in building resilience. There is a diversity of countries, regions, cities

not only in the European Union, but also in any other country in the world, so each region in each country welcomes the strengthening of different resilience indicators than another region. The most significant case of controversy over economic indicators is industry. For many countries, industry is a key aspect. All the more so for a region that benefits economically from this through a population that lives, works, studies and builds life for future generations. There is a risk that promoting environmental resilience will, on the one hand, improve the quality of life and health, but on the other hand, most people will experience job losses and the associated additional effects on the economy (Ostárková, Staníčková, 2021).

In all economic theories, whether related to regional development or resilience, the influence of the human factor and the factor of something unforeseen can be observed, which may ultimately lead to the emergence of a new concept, focusing on the issue. Given the number of theories of regional development, and the directions and concepts that affect them, the effort to choose the only correct theory is impossible. However, it is appropriate to at least outline the main trends that are currently most appropriate to take as starting directions / factors / concepts. Probably the most important current trend is to emphasize strategic planning and future orientation and sustainability. This direction is also important from the point of view of the Czech Republic as a member state of the European Union, as this trend is also evident at its level and the economic, social and territorial cohesion of the EU is also oriented in this direction. Related to this is the importance of setting measurable goals, a time schedule for the implementation of individual steps, a quality implementation system, including clearly defined responsibilities for the implementation of individual elements of the strategy or policy, monitoring the course of support programs and evaluating their effectiveness and efficiency.

The current trend of decentralization, from a certain point of view, gives logical significance, as at the local level it "knows better" what is more to support in a given region, but there is the question of the qualification of regional administration management in lower territorial units. Undoubtedly, the most important trend in today's society is the issue of disseminating innovation and the related understanding of regional policy as a strategic future-oriented tool. In the area of the concept of economic resilience, the initial view of resilience according to Martin, Sunley, as a required element or as an attribute of a hug, entity or system that should be somehow promoted or supported, can be considered crucial. From the point of view of supporting regional development in the Czech Republic, with the aim of reducing disparities between regions and promoting competitiveness, the new approach of the European Union can be considered the most appropriate concept of resilience and understanding of resilience. The European Union sees resilience as "the ability not only to withstand and manage challenges, but also to transform in a sustainable, just and democratic way". The main dimensions of resilience include the social and economic dimension, the geopolitical dimension, the green dimension and the digital dimension. A new trend of the European Commission with regard to the current solution to the impacts of the Covid-19 pandemic has become the strengthening of resilience towards green and digital transformation. This new trend is integrated into all European Union policies, including regional policy, which redistributes preparedness, recovery and resilience instruments such as NextGEnerationEU (Recovery and Resilience Instrument) and REACT-EU (Recovery Assistance for Cohesion and the territory of Europe).

Acknowledgements

The paper is supported by the SGS project (SP2022/7) of the Faculty of Economics, VSB-TUO.

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The Role of Eco-innovation in Creating Economic Development: Long-term Interdependence on EU Example

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Abstract

Eco-innovation is an important factor of economic growth in the modern economy. For this reason, the European Union places great emphasis on analyzing the level of eco-innovation of member economies. An instrument used for this purpose is the Eco-Innovation Scoreboard, which illustrates how the level of eco-innovation in member countries differs from the EU average. In the face of growing environmental problems, the role of undertakings minimizing the negative impact of economic activity on the environment is constantly increasing. Eco-innovations play an important role in this process. The aim of the paper is to analyze the differentiation of the level of eco-innovation in the EU countries as well as the analysis of the sub-indices that make up this indicator. The paper uses a descriptive method, an analysis of the dynamics of change over time of the indicators and statistical methods to assess the diversity of indicators between the individual Member States.

Keywords: eco-innovations, economic development, GDP, economic growth, cointegration, Engle-Granger method.

JEL Classification: C91, D91, M51

1. Introduction

Eco-innovation, as a new concept, and green technologies are central to the Europe's future and at the core of the European Union policies (Andabaka, Basarac Sertić, Harc, 2019). Eco-innovations are solutions purposefully planned to minimize the environmental effect of manufacturing, consumption and discarding activities, even if their primary incentive is to capture opportunities and take advantage from environmental issues (Saturnino Neto, José Chiappetta Jabbour, Beatriz Lopes de Sousa Jabbour, 2014). Eco-innovation can be seen as an essential real economic facilitator (Montalvo, Díaz López Lope, Brandes, 2011).

In the face of growing ecological threats and increasing emphasis on environmental protection, as well as problems related to the pandemic and the closure of economies, economic development based on innovation has taken on a new dimension. Innovations should therefore increasingly be ecological innovations, i.e. innovations that serve to reduce the burden on the natural environment associated with economic activity and human existence on earth. Eco-innovation is innovation that leads to significant and visible progress in environmental protection. These are projects that are aimed at reducing the environmental impact of business activity. These are new or significantly improved products, processes, organizational or marketing methods that bring benefits to the environment greater than alternatives, and of course benefit the company implementing them. (Rozkrut, 2014; Ottman, 2011; Ziolkowski, 2007; Kemp, Pearson, 2008). Eco-innovation involves the manufacture and application of new

products, services, processes, systems and procedures to meet human needs and ensure a better quality of life while minimising the consumption of natural resources and the emission of pollutants into the environment per unit of a product or service throughout the life cycle compared to alternatives (Kemp et al., 2008; Carley et al. 2000).

The EU Eco-Innovation Observatory (ECI, 2010) defines eco-innovation as "the introduction of any new or significantly improved product (good or service), process, organisational change or marketing solution that reduces the use of natural resources (including materials, energy, water and land) and reduces the release of harmful substances throughout the life cycle". Eco-innovations take into account the full life cycle, they do not focus only on the environmental aspects of its individual stages. This means not only inventing new products and providing new services, but also reducing the environmental impact in the way products are designed, manufactured, used, reused and recycled (ECI & CfSD, 2016). According to the recommendations for entrepreneurs, eco-innovations can be an idea for a new venture or product, as well as for improving existing activities. Eco-innovation is at the heart of creating business models that are both competitive and respectful of the environment by reducing the resource intensity of products and services. (ICU & CfSD, 2016).

Both economists and governments in the current economic crisis caused by the COVID-19 pandemic and its consequences in the form of temporary lockdowns of the economy are looking for solutions that would quickly generate economic growth and allow to return to the development from before the pandemic. In such a situation, the concept of sustainable development is very often forgotten and actions are used that, although they affect a significant increase in GDP, have a negative impact on the environment. The literature presents few studies showing the relationship between crises and ecological activities, mainly because eco-innovation is a new issue from the point of view of analyzing the economy. During the development of the concept of sustainable development and preference for green energy sources, in principle, one major financial crisis appeared in 2007-2009. We are currently experiencing a second major crisis, albeit with completely different characteristics, with global origins, as almost all the countries of the world have closed their economies. Eco-innovation can be an opportunity to rebuild economies after the crisis, which at the same time will not cause significant damage to the natural environment and will take place in accordance with the principles of sustainable development.

2. Problem Formulation and Methodology

Our research shows which economies already have such a strong relationship between ecological approaches to the economy and economic development that they can confidently use this dependence to generate economic growth while restoring a strong economy after the pandemic. In the case of macroeconomic variables, which are most often characterized by non-stationary, the co-integrating relation shows the relationship of stable economic equilibrium and corresponds to the dynamic equilibrium between the studied non-stationary variables.

The Eco-Innovation Index (Eco-IS) provides an opportunity to analyse the impact of eco-innovation policy on the environment, as well as to answer the question of when and whether a new or improved product or process reduces the negative impact on the environment (Berkhout, 2011). Eco-IS illustrates how individual EU countries are doing in different dimensions of eco-innovation compared to the EU average. The indicator is important information for each country about the level of eco-innovation. (Kobryn, Prystrom, 2017). The European Commission, due to the growing role of eco-innovation, especially in the context of the Europe 2020 strategy, has established the Eco-Innovation Observatory (ECI). The ECI, established in 2009, is an initiative funded by the European Commission. under the

auspices of the European Commission's Directorate-General for the Environment and is an initiative that aims to observe the types, degrees and impacts of eco-innovation in Europe. It is focused on research into eco-innovation in the European Union. One of the main tasks of the ECI is to collect data related to eco-innovation in the European Union countries, as well as to develop integrated sources of information and analysis on trends and markets of eco-innovation, addressed to: business, politics, scientists, analysts. In particular, the information is used for European Union initiatives, such as the Environmental Technologies Action Plan. The Eco-Innovation Observatory is a platform that collects structured data and analysis on a wide range of eco-innovations in the European Union and in key regions of the world. (Wielogórka, Szczepaniak, 2019; Szpor, Śniegocki, 2012). With such a broad approach to the different aspects of eco-innovation, it is possible to analyse how different Member States are coping with different dimensions of eco-innovation compared to the EU average. The individual indicators show the strengths and weaknesses of the state and give a holistic view of the results of eco-innovation activities. The indicators used change over the years in order to be able to assess the level of ecological innovation of the Member States in the best possible way. This somewhat limits the possibility of making comparisons over time, but it is possible because the index shows how countries deal with eco-innovation compared to other EU countries (Spain, Markianidou, Doranova, 2018).

Currently, the value of the indicator in each of the five areas is calculated by the unweighted average of the underlying indicators. Therefore, each indicator has the same weight in these five areas. The Eco-IS Scoreboard of the 28 Member States of the European Union consists of 16 sub-indicators grouped into five strands: eco-innovation inputs, eco-innovation activities, eco-innovation outputs, resource efficiency outcomes and socio-economic outcomes. The index score in each of the five components is calculated using the unweighted average of the basic indicators. Therefore, each indicator has the same weight in five components. The overall scoreboard of the EU Member State concerned is calculated using an unweighted average of 16 sub-indicators to avoid distortions caused by the component scoreboard, which consists of only a few indicators.

Contributions to eco-innovation include three indicators (see table 1) triggering eco-innovation in a given country, research, relevant staff and investment (government funds and R&D expenditure in the field of environment and energy, total number of R&D workers and researchers, and total value of green investments at an early stage of development). Eco-innovation activities include three indicators representing the innovative activities of the enterprise in the field of reducing the consumption of materials and energy entry per unit of production and the creation of an environmental management system (enterprises that have implemented innovative actions aimed at reducing material inputs per unit of production, enterprises that have implemented innovative actions to reduce energy consumption per unit of production and registered according to ISO 14001 organizations). Eco-innovation products include three indicators representing the level of advancement and implementation of eco-innovation in corporations and communication by scientists and the media (patents related to eco-innovations, scientific publications related to eco-innovations and eco-innovations related to this in the media). The resource efficiency scores include four indicators showing the results of eco-innovation activities in the field of environmental protection, with a focus on efficiency and intensity (material efficiency, watertightness, energy efficiency and greenhouse gas intensity). The socio-economic results include three indicators relating to eco-industry (exports of products from organic industry, employment in the organic industry and turnover in the organic industry). On the basis of the indicators presented, it is possible to assess whether a country is eco-innovative (Smol, Avdiushchenko, Kulchytska, 2017; Sun Park, Bleischwitz, Joo Han, Kyung Jang, & Hyung Joo, 2017).

Table 1: Indicators That Make Up The Eco-Innovation Index

INDICATORS CONNECTED WITH ECO-INNOVATIONS
Eco-innovation inputs
Government's environmental and energy R&D appropriations and outlays (% of GDP)
Total R&D personnel and researchers (% of total employment)
Total value of green early stage investments (per capita)
Eco-innovation activities
Enterprises that introduced innovation with environmental benefits obtained within the enterprise (% of total firms)
Enterprises that introduced innovation with environmental benefits obtained by the end user(% of total firms)
ISO 14001 registered organisations (per mln population)
Eco-innovation outputs
Eco-innovation-related patents (per mln population)
Eco-innovation-related academic publications (per mln population)
Eco-innovation-related media coverage (per numbers of electronic media)
INDICATORS CONNECTED WITH INTRODUCING ECO-INNOVATIONS
Resource efficiency outcomes
Material productivity (GDP/Domestic Material Consumption)
Water productivity (GDP/Water Footprint)
Energy productivity (GDP/gross inland energy consumption)
GHG emissions intensity (CO ₂ e/GDP)
Socio-economic outcomes
Exports of products from eco-industries (% of total exports)
Employment in eco-industries (% of total employment across all companies)
Turnover in eco-industries

Source: own elaboration based on

https://ec.europa.eu/environment/ecoap/indicators/index_en [online]. [22.01.2022].

2.1. Model and Data

Variables used in economic research, especially those relating to macroeconomic and financial issues, are usually not stationary. Then the problem of the so-called apparent regression arises. Stationary analysis and co-integration tools have been used for some time in finance. Cointegration itself is defined as the long-term dependence of economic processes, which is interpreted as a path of equilibrium. This means that cointegration occurs if each process analyzed is integrated in the first stage, and the residual process from the cointegrating equation is not integrated. It is generally assumed that long-term integrated variables tend to long-term equilibrium (Buszkowska, 2014). Cointegration means the long-term dependence of economic processes, which is interpreted as a path of equilibrium.

Many economic time series can be characterized as being I(1). But very often their linear combination appear to be stationary. Those variables are said to be cointegrated and the weights in the linear combination are called a cointegrating vector (Hayashi, 2000). Many economic models entail such cointegrating relationships. In univariate models a stochastic trend can be removed by differencing. The resulting stationary series can be estimated using univariate Box-Jenkins techniques (Enders, 2004). Equilibrium theories involving nonstationary variables require the existence of a combination of the variables that is stationary. This illustrates the crucial insight that has dominated much of the

macroeconomic literature. So there exists a linear combination of these nonstationary variables that is stationary (Enders, 2004). Granger and Newbold showed that linear regressions used by many economists on non-stationary time series data is a dangerous approach that could produce spurious correlation. Cointegration is a natural replacement in some of the cases for correlation when representing relationships between assets (Damghani, Welch, O'Malley, Knights, 2013). If time series first achieves stationarity after differencing, but a linear combination is already stationary, the time series are said to be co-integrated.

The analysis of cointegration was carried out using the Engle-Granger algorithm using the Dickey-Fuller test, according to the following procedure (Charemza, Deadman, 1997, Syczewska, 2007):

1. Testing the unit element of each variable;
2. Estimation of the cointegrating equation;
3. Unit element test for the residual process in the cointegrating equation.

An extended Dickey-Fuller test (ADF) was used to test the unit element, and the study was additionally supplemented by the Kwiatkowski-Phillips-Schmidt-Shin stationarity test (KPSS), in which the null hypothesis assumes the stationarity of the time series. The tests were used for the variable value and for the increments of the variable (but for the increments the trend in the regression equation was not taken into account). If the series turned out to be part-time, then the first differences were calculated for it and the unit element test and the stationary test were carried out again. It was stated that cointegration occurs if each process used was integrated in stage I(1) and the residual process from the cointegrating equation was integrated at zero degree I(0).

The study of the relationship between economic growth and the eco-innovation rate for individual countries is based on determining whether one variable is the cause of another variable as understood by Granger (Charezma, Deadman, 1997). Causality in the Granger sense says that the variable Y1 is a cause in Granger's understanding of the variable Y2 ($Y1 \rightarrow Y2$) if the current values of the variable Y1 can be predicted with greater accuracy using past values of Y2 than without their use, under all other identical conditions (Charezma, Deadman, 1997). One of the disadvantages of this method is that it only provides information about linear relationships between variables. That is, in relationships where the dependencies are nonlinear, this test will be useless. Another disadvantage of the Granger causality test is the total dependence on the appropriate selection of variables and their delays. Omitting causal factors in model construction means that these factors are not represented at the output. Despite the shortcomings associated with this method, it is a good tool for identifying relationships between variables (Pisarski, 2013).

3. Problem Solution

The EU average for each indicator has been set at 100, so a country with an index below 100 has lower environmental innovation than the EU average. For the calculation of the EU-wide average, the source data for most of the indicators for each country are weighted by population, so that they are brought to comparability, sometimes the EU average is created by summing up the baseline data. Therefore, the EU average for the sub-indicator presents weighted averages of all data for individual EU Member States. The EU average of the indicators that represent absolute numbers are built directly, by summing up the underlying data. Missing data is not replaced by estimates. Countries for which data is not available do not get a result for a given indicator. The analysis included time series for the real GDP growth rate in the period from January 2009 to December 2020. The calculation was performed in GRET. The

results of the causality analysis are presented in the table 2 (countries for which there is a long-term relationship are bolded). A significance level of 10% was assumed. Values of this test are based on MacKinnon (1996).

Table 2: Engle-Granger Causality Analysis between GDP and Eco-innovation Index

COUNTRY	GDP GROWTH RATE	ECO-INDEX	RESIDUALS OF COINTEGRATION
Belgium	p=0.521 ~ I(1)	p=0.099 ~ I(0)	p=0.012 ~ I(0)
Bulgaria	p=0.639 ~ I(1)	p=0.278 ~ I(1)	p=0.845 ~ I(1)
Czechia	p=0.427 ~ I(1)	p=0.760 ~ I(1)	p=0.477 ~ I(1)
Denmark	p=0.699 ~ I(1)	p=0.624 ~ I(1)	p=0.629 ~ I(1)
Germany	p=0.036 ~ I(0)	p=0.658 ~ I(1)	p<0.001 ~ I(0)
Estonia	p=0.310 ~ I(1)	p=0.742 ~ I(1)	p=0.112 ~ I(1)
Ireland	p=0.340 ~ I(1)	p=0.005 ~ I(0)	p=0.311 ~ I(1)
Greece	p=0.004 ~ I(0)	p=0.896 ~ I(1)	p=0.008 ~ I(0)
Spain	p=0.141 ~ I(1)	p=0.560 ~ I(1)	p=0.234 ~ I(1)
France	p=0.289 ~ I(1)	p=0.769 ~ I(1)	p=0.099 ~ I(0)
Croatia	p=0.551 ~ I(1)	p=0.831 ~ I(1)	p=0.061 ~ I(0)
Italy	p=0.013 ~ I(0)	p=0.993 ~ I(1)	p=0.105 ~ I(1)
Cyprus	p=0.026 ~ I(0)	p=0.403 ~ I(1)	p=0.065 ~ I(0)
Latvia	p=0.195 ~ I(1)	p=0.789 ~ I(1)	p=0.023 ~ I(0)
Lithuania	p=0.433 ~ I(1)	p=0.979 ~ I(1)	p=0.059 ~ I(0)
Luxembourg	p=0.395 ~ I(1)	p=0.801 ~ I(1)	p=0.069 ~ I(0)
Hungary	p=0.644 ~ I(1)	p=0.346 ~ I(1)	p=0.704 ~ I(1)
Malta	p=0.688 ~ I(1)	p=0.496 ~ I(1)	p=0.111 ~ I(1)
Netherlands	p=0.364 ~ I(1)	p=0.628 ~ I(1)	p=0.486 ~ I(1)
Austria	p=0.139 ~ I(1)	p=0.839 ~ I(1)	p=0.134 ~ I(1)
Poland	p=0.515 ~ I(1)	p=0.774 ~ I(1)	p=0.301 ~ I(1)
Portugal	p=0.154 ~ I(1)	p=0.909 ~ I(1)	p=0.247 ~ I(1)
Romania	p=0.637 ~ I(1)	p=0.553 ~ I(1)	p=0.550 ~ I(1)
Slovenia	p=0.384 ~ I(1)	p=0.548 ~ I(1)	p=0.445 ~ I(1)
Slovakia	p=0.397 ~ I(1)	p=0.720 ~ I(1)	p=0.012 ~ I(0)
Finland	p=0.042 ~ I(0)	p=0.077 ~ I(0)	p=0.103 ~ I(1)
Sweden	p=0.165 ~ I(1)	p=0.698 ~ I(1)	p<0.001 ~ I(0)
United Kingdom	p=0.584 ~ I(1)	p=0.833 ~ I(1)	p=0.225 ~ I(1)

Source: Own elaboration based on Eurostat data [online]. [28.01.2022].

The results show that the long-term relationship between economic growth and eco-innovation exists in the current conditions for the following countries: France, Croatia, Latvia, Lithuania, Luxembourg and Slovakia. This means that eco-innovation measures currently have a causal impact on GDP growth in these countries. Therefore, these countries should take into account elements of eco-innovation in their economic development activities.

4. Conclusion

Eco-innovation studies integrate economics, management and environmental sciences (Crespi et al., 2016). Most countries (if not all) focus on eco-innovations and included it in regulations and policies, particularly after the global downturn of 2008-2009 (EEA, 2014). Based on the OECD Council Meeting at Ministerial Level (MCM) in June 2009, OECD countries agreed to develop and extend the “Green Growth Strategy” to improve economic growth by considering sustainability. The Background Statement for the OECD Global Forum on Environment on Eco-innovation in November 2009 declares: “Most OECD countries consider eco-innovation as an important part of the response to contemporary challenges, including climate change and energy security. In addition, many countries consider that eco-innovation could be a source of competitive advantages in the fast-growing environmental goods and services sector”.

One of the most important effects of innovation is its impact on economic growth. To put it simply: they can make it possible to increase productivity, i.e. achieve more production with the same inputs. And eco-innovation is any innovation that leads to the achievement of sustainable development by reducing the negative impact of production activities on the environment or ensuring greater efficiency and responsibility in the use of natural resources. The use of eco-innovation should facilitate the optimisation of growth potential.

In this paper findings show that for a small number of countries eco-innovations directly affect economic growth, which may be the reason for resistance to eco-innovation in other countries where there is no such link, therefore other countries must benchmark these ones to improve their own eco-innovation. The EU's commitment to sustainable economic growth is reflected in the policy framework promoting resource efficiency and environmental protection while ensuring quality of life. Eco-innovation is a powerful instrument that underpins that commitment while taking into account the economic, environmental, and social dimensions of sustainable development.

It is also worth noting that the war in Ukraine started by Russia on February 24, 2022 will generate colossal importance for energy sources and the development of eco-innovation. Around 40% of the EU's gas comes from Russia, but in this new era of sanctions and the cancellation of the Nord Stream 2 pipeline, the energy supply will have to change in Europe. In the longer term, one possibility is more renewables, which would represent a better outcome for emissions. However, total energy source (no matter if coal or ecological) have a significant impact on generating economic growth. Restricting trade with Russia must result in the search for new suppliers or a faster transformation towards eco-innovation. Results of our study in the long-term impact of eco-innovation on economic growth indicate which countries can achieve positive results from ecological sources, and which will be more profitable at the moment to look for other traditional suppliers. Further research in this area could give an answer what effect the diversification of suppliers has and what the diversification of sources in the territory of one's own country has. Additionally, the effect of extraordinary crisis factors such as the coronavirus pandemic or the effects of conventional war should be taken into account.

Acknowledgements

This paper was created within the project *The impact of ecological innovations on the quality of life, economic development and the condition of the natural environment* awarded to Jolanta Pakulska (decision number DEC-IEF-4/22) and project *The economic effects of the aging of the Polish population* awarded to Dariusz Karaś (decision number DEC-IEF-6/22), both

financed by Polish Ministry of Science and Education (funds for research or development work of Cardinal Stefan Wyszyński University in Warsaw).

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Milestones of European Integration: What Next?

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Abstract

The process of economic integration is the starting point of every integration process around the world, and the European Union (EU) is no exception. It is also based on the traditional economic theory of economic integration by Bela Balassa. Europe's integration process began in the 1950s, and the EU is considered to be a unique institution of this kind. Due to changes not only global, it is also necessary to focus on the future development of the European Union. The 27 Member States, as a whole, will agree on the shape of the European Union together. Based on the literature review method, the paper aims to define the theory of economic integration in the case of European integration after the second world war and try to define the ways how the EU should look in the future.

Keywords: *Bela Balassa, Economic integration, European Union, Future of the EU, literature review method.*

JEL Classification: *F02, F55, F60, I30, O10, O50.*

1. Introduction

The European Union is an integration grouping that can benefit from the developments of globalization so far. Europe's expansion in the post-war period is due to the effects of market liberalization and the dynamics of its growth. The prosperity of the European Union is based on the ties between the European states themselves. However, global competition is knocking at the door, and the challenges of the European Union call for new tools. Competitiveness becomes the key to evaluating a position in the world. Reforms are becoming the key to competitiveness. Reforms are a tool that can respond to societal events, such as the COVID-19 pandemic.

European integration is based on the traditional theory of economic integration by Bela Balassa. He was the first who define and mentioned economic integration in his book *The theory of economic integration* in 1961. Bela Balassa (1961/2011) defined economic integration as "the abolition of discrimination within the area". According to him, there are five stages of economic integration (Free Trade Area, Customs union, Common market, Economic Union, Full economic integration) that integration groups should go through in their development. Balassa's approach is known as the traditional approach to defining economic integration toward a higher degree of integration. The highest stage of his economic integration, known as full economic integration, should be the result of economic integration.

The concept of economic integration by Bela Balassa has been discussed and criticised over the years by many authors and scholars. Despite that, it is still the inspiration for integration groups around the world.

The European Union is considered the most successful integration group worldwide, based on Balassa's theory of economic integration. The concept of Balassa's economic integration started the European integration process as it's known today.

The project of modern European integration began in the 1950s. Europe was destroyed after the second world war, and the people no longer wanted to fight. Therefore, there was space to start The European integration process. Six Western European countries were established by the Treaty of Paris the European Steel and Coal Community (ESCC) in 1952. Six ESCC countries were founded through the Rome Treaty on European Atomic Energy (EURATOM) and the EEC (European Economic Community). The next step was signing the Single European Act in 1986. The Maastricht Treaty officially established the European Union in 1993. During that time, the other European countries joined the European Union. The fall of the Berlin Wall was a significant step toward restructuring the economies of the former Eastern bloc countries. These countries could also consider becoming part of the European integration process. The most extensive enlargement became a reality in 2004.

The paper aims to define the theory of economic integration in the practical case of European integration after the Second World War and to outline possible variants of the future development of the European Union. The systematic literature review is the primary method used in this contribution. The aim of this systematic literature review is to identify the theoretical case of economic integration, and the practical case of economic integration in the context of the EU.

Sources such as books, articles, and official information sources of the EU institutions were used. The paper is structured as follows: the theoretical part explains the historical evolution of the European Union, and the practical part discusses the main milestones of European economic integration. Attention is also dedicated to the future of the EU. European Union has to decide on it's future together.

2. Theory: History of the EU from an Economic Integration's Point of View

Bela Balassa was the first author to describe economic integration. According to him, economic integration can be defined as 'the abolition of discrimination within an area.' Economic integration can also be described as a process of economic cohesion of national economies. Another author defined economic integration as the process of combining different economies into a larger economic region. Although there is no clear definition of economic integration, the main goal of economic integration is to eliminate economic boundaries between at least two economies.

The goal of economic integration can also be set as a reduction in cost to consumers and producers, as well as an increase in trade between at least two countries (Musat, 2019). Easily, economic integration can be set as a process of eliminating discrimination in trade relations between countries (Marinov, 2015). The essential importance of economic integration is perceived by the growth of actual or potential competition. The terms Economic integration can also be described in many fields, such as labour mobility, capital, payments, monetary and fiscal policies, etc. (Musat, 2019).

But back to Bela Balassa's theory of Economic integration. He was a Hungarian professor of political economy who had to flee his country. Bela Balassa has mentioned for the first time the issue of the European integration process in the book titled 'The theory of economic integration' sixty years ago. Many authors and journals reviewed and discussed his book. Bela

Balassa created his model of European integration. According to Balassa, there are five different stages of economic integration. Balassa's forms of economic integration are based on an evolutive basis. Each higher stage of economic integration contains characteristics from all the previous lower stages. Stages can be viewed as steps in a process that ultimately aim to achieve total integration. Transitioning from one stage to the next means expanding the scope of economic activities (Sapir, 2011). According to Bela Balassa (1961/2011) the stages are following:

The Free Trade Area (FTA) is the first stage of economic integration by Bela Balassa. FTA is a place where there aren't trade barriers on goods, at least between two countries or unions. Each country or Union still can manage its tariff barriers to trade with non-member states. Free trade is also viewed as trade integration. An official definition was defined in the General Agreement on Trade and Tariffs (GATT). The definition of GATT says that the FTA can be viewed as a group of two or more customs territories where duties and other restrictive regulations are eliminated for all products in territories.

The Customs Union (CU) is a previous stage of European integration, plus each member country imposes a common external tariff on goods imported from nonmember countries. The common external tariff may be different for goods but not between union partners. One of the most known examples can be the European Community (EC) formed by the Treaty of Rome (1957) by France, Italy, West Germany, Belgium, the Netherlands and Luxembourg.

The Common Market (CM) is a previous stage of custom union plus free movement of labour and capital among member states. For this stage of economic integration, it is necessary to eliminate all trade barriers and to have a certain level of coordination of some economic policies. At this stage, there was a European union in 1993.

The Economic Union (EcU) is a form of economic integration that is more profound and more encompassing. EcU goals to harmonise and even unify monetary and fiscal policies in member countries. The economic Union is also viewed as the integration of policies. The final aim of the Ecu is the Economic and Monetary Union (EMU). There is a common exchange mechanism that should increase into a common currency based on a common market. The EMU should have its monetary policy and coordination of macroeconomic policies of member countries.

Full economic integration (FEI) described by Bela Balassa is the highest form of economic integration. FEI include the unification of fiscal, monetary, social, and anticyclical policies. Also necessary is the creation of supranational authorities whose decisions are binding on member countries (Musat, 2019; Marinov, 2015; Hosny, 2013, Sapir, 2011; Balassa, 1961/2011).

There was a space for the beginning of the European integration project after the second World War. By the Treaty of Paris was made the first step which established the European Steel and Coal Community (ESCC) in 1952. The treaty of Paris signed six European countries (Italy, France, West Germany, Belgium, Netherlands, and Luxembourg). The main goal of the ESCC was a single market in which sovereignty over coal and steel would be pooled and production would be controlled by supranational authority (Archick, 2021; Maher, 2021). The ESCC's members established by the Treaties of Rome European Atomic Energy (EURATOM) and the European Economic Community (EEC). The aim of the EEC was to develop common economic policies and connect the separate national markets into a single market for people, goods, capital, and services. The EURATOM aimed to ensure nuclear energy for peaceful purposes (European Commission, 2017). There were a series of enlargements in 1973, 1981, 1986, so Denmark, Ireland, the United Kingdom, Greece, Portugal, and Spain became a

members of European integration process. The next step was made by signing the Single European Act in 1986. Single European Act modified the Treaties of the European Communities to achieve a single market and the free movement of goods, people, capital, and services, also known as the "four freedoms" (European Union, 2021). The political situation significantly changed after the Berlin wall fell in 1989. The reunification of Germany became a reality in October 1990. This led to the rise of democracy in the countries of central and eastern Europe, which were long-time under the control by the Soviet political regime. The Treaty on European Union also known as The Maastricht Treaty established the current phase of the European Union. The Treaty on the European Union came into force in 1993. There was a step towards a deeper economic integration and political cooperation. The Maastricht Treaty determined provisions that resulted in the creation of the Eurozone. It defined eurozone members to share a common currency and the European Central Bank (ECB) a common monetary policy. Fiscal policy is not included (Baldwin, Wyplosz, 2012). There was the next enlargement in 1995. Austria, Finland, and Sweden became EU members. In the late 1990s the European union created a single currency to make life easier for consumption, travelling, and for business. The goal was achieved in 2002 when the euro replaced the currencies of 12 European Union's members. This group of countries that use euro as currency is called "euro area" (European Commission, 2017). The European Union was preparing for the biggest enlargement ever which became a reality in 2004. Eight formerly communist countries (Czech Republic, Slovakia, Hungary, Poland, Estonia, Latvia, Lithuania, Slovenia), Malta and Cyprus joined the European Union. In 2008, the Treaty of Lisbon came into force, aiming to provide the EU with modern institutions, and more efficient working methods. Then the subsequent enlargement was in 2007 (Bulgaria, Romania). The upcoming decade is called challenging. There was a financial crisis, and the EU helped several countries and established the banking union to ensure safer banks. Croatia joined as the 28th member of the European Union in 2013. The significant milestone of the European Union is the exit of Great Britain, also called a 'Brexit' EU. The Great Britain left the EU in 2020. (European Commission, 2021).

3. Methodology

The literature review was conducted as the main method. For all research disciplines and projects, relevant prior literature should always be taken into account. When reading an article, the author begins by discussing past research to map and analyse the research area, inspire the study's goal, regardless of discipline. The "literature review," "theoretical framework," or "research backdrop" are all terms used to describe this section. However, in order for a literature review to become a competent research methodology, the same processes must be followed and action done as with any other research to ensure the review is exact, precise, and trustworthy (Snyder, 2019).

There are many types of literature reviews, but a systematic literature review was selected for this research. A systematic review is a research method and procedure for identifying and critically analyse relevant research, as well as gathering and analysing data from that research. A systematic review's aim is to find all empirical data that answers a certain research question or hypothesis and meets the pre-specified inclusion criteria. This can be reduced by utilizing explicit and systematic processes when assessing papers and all relevant material, resulting in accurate findings from which conclusions and judgments can be taken. What is a systematic review's potential contribution? Conducting a systematic review has a number of benefits and potential contributions. We can, for example, establish whether an impact is consistent across research and what more studies are needed to demonstrate the effect. Techniques can also be used to determine which study-level or sample variables influence the phenomenon being examined, such as whether studies conducted in one cultural setting produce significantly

different results than studies conducted in other cultural contexts. Systematic literature review was a tool to include literature documentation and screening, data or information extraction, and the final step of writing the literature review. The aim of this literature review was to identify the theoretical case of economic integration, and the practical case of economic integration in the context of EU's future. The evolution of European integration and global situations will bring another future of the EU (Lau, Kuziemy, 2016).

4. Results and Discussion

European integration process has brought the world's largest common market, the euro currency, and the banking union. Therefore, it is evident that European economic integration has led to closer economic integration since its beginning in the 1950s. After the biggest enlargement ever in 2004, the financial crisis in 2008, Migration crisis in 2015, the European Union must face the following challenges. The first one is surely Brexit. Great Britain was the first country who officially left the EU. The second is still the global pandemic caused by the disease COVID-19. The third challenge is the current situation in Eastern Europe. The European Union have to face challenges and has to decide on its future with 27 Member States.

The current situation is not necessarily limiting to the future of the EU. The construction of the EU often took place in background of crises and failed beginnings. The EU was profoundly reformed by the Treaties of Maastricht, Amsterdam, and Nice, and at the same time, its size has more than doubled. The Lisbon Treaty and the ten-year debate that preceded it have opened a new chapter in European integration that has so far offered untapped potential. In 2017, on the 60th anniversary of the European integration process, the European Commission, led by Jean-Claude Juncker, published a White Paper on the Future of Europe. This white paper maps the factors behind the next decade and outlines several scenarios for how the European Union could evolve by 2025. It is also a document that has launched a debate that should help answer the question: What kind of future do we wish for ourselves, for our children, and for our Union?

The European Union is currently undergoing profound transformations that are inevitable and irreversible. Today, we must deal with increasingly unpredictable situations, which are difficult to predict. The five scenarios presented in this White Paper on the Future of Europe will help guide the debate on the future of the EU. The scenarios contain several insights into possible forms of the Union in 2025. The default condition of each scenario is that 27 member states will continue as the Union. The outlined scenarios are only illustrative, they aren't detailed plans or political projects. The debate on the future of the EU has been reduced too often to the selection of "more or less" Europe. This approach is misleading and too simplistic and wasn't used in the White Paper on the Future of Europe. The scenarios have many elements in common and are therefore not mutually exclusive. The final result will look different from the scenarios. The EU-27 will jointly decide which combination of the five scenarios, according to them, will best contribute to the development of the European integration project in the interests of European citizens. These are the five scenarios outlined in the White Paper on the Future of Europe.

1. Carrying on,
2. Nothing but the single market,
3. Those who want more do more,
4. Doing less more efficiently,
5. Doing much more together.

The five scenarios will have a major impact on the following areas of European policy. Single market & trade, Economic & Monetary Union, Schengen, migration & security, Foreign policy

& defence, EU budget, Capacity to deliver. The description of the impacts of individual scenarios on the six mentioned areas of European policy is in Table 1.

Table 1: The five scenarios: policy overview

Scenarios/ policy	Carrying on	Nothing but the single market	Those who want more do more	Doing less more efficiently	Doing much more together
Single market & trade	The single market is strengthened, including in the energy and digital sectors; the EU27 pursues progressive trade agreements	The single market for goods and capital is strengthened; standards continue to differ; Free movement of people and services is not fully guaranteed	As in "Carrying on", single market is strengthened and the EU27 pursues progressive trade agreements	Common standards set to a minimum but enforcement is strengthened in areas regulated at EU level; trade exclusively dealt with at EU level	Single market strengthened through harmonisation of standards and stronger enforcement; trade exclusively dealt with at EU level
Economic & Monetary union	Incremental progress in improving the functioning of the euro area	Cooperation in the euro area is limited	As in "Carrying on" except for a group of countries who deepen cooperation in areas such as taxation and social standards	Several steps are taken to consolidate the euro area and ensure its stability; the EU27 does less in some parts of employment and social policy	Several steps are taken to consolidate the euro area and ensure its stability; the EU27 does less in some parts of employment and social policy
Schengen, migration & security	Cooperation in the management of external borders stepped up gradually; progress towards a common asylum system; improved coordination	No single migration or asylum policy; further coordination on security dealt with bilaterally; internal border controls are more systematic	As in "Carrying on" except for a group of countries who deepen cooperation on security and justice matters	Cooperation on border management, asylum policies and counter-terrorism matters are systematic	As in "Doing less more efficiently", cooperation on border management, asylum policies and counter-terrorism matters is systematic
Foreign policy & defence	Progress is made on speaking with one voice on foreign affairs; closer defence cooperation	Some foreign policy issues are increasingly dealt with bilaterally; defence cooperation remains as it is today	As in "Carrying on" except for a group of countries who deepen cooperation on defence, focusing on military coordination and joint equipment	The EU speaks with one voice on all foreign policy issues; a European Defence Union is created	As in "Doing less more efficiently", the EU speaks with one voice on all foreign policy issues; a European Defence Union is created
EU budget	Partly modernised to reflect the reform agenda agreed at 27	Refocused to finance essential functions needed for the single market	Refocused to finance essential functions needed for the single market	Refocused to finance essential functions needed for the single market	Significantly modernised and increased, backed up by own resources; a euro area fiscal stabilisation function is operational
Capacity to deliver	Positive agenda for action yields concrete results; decision-making remains complex to grasp; capacity to deliver does not always match expectations	Decision-making may be easier to understand but capacity to act collectively is limited; issues of common concern often need to be solved bilaterally	As in "Carrying on", a positive agenda for action at 27 yields results; some groups achieve more together in certain domains; decision-making becomes more complex	Initial agreement on tasks to prioritise or give up is challenging; once in place, decision-making may be easier to understand; the EU acts quicker and more decisively where it has a greater role	Initial agreement on tasks to prioritise or give up is challenging; once in place, decision-making may be easier to understand; the EU acts quicker and more decisively where it has a greater role

Source: European Commission, 2017; Own elaboration

5. Conclusion

The primary purpose of this paper is the description of the theory of economic integration in the practical case of the European integration process. This paper is theoretically based, but is practically applied to the European integration process after the Second World War. On the one hand, the theory of economic integration by Bela Balassa, which is the basis of European integration, is defined here. On the other hand, the scenarios for future of Europe are described.

Better conditions have led to economic integration, among other interesting things, which is currently taking place. This means better conditions for all the parties involved as citizens,

regions, economies, and states. Europe having better bargaining, negotiating, and stronger power amongst its trading partners worldwide is another positive reason for economic integration. Many authors and scholars of the economic environment have discussed the concept and issue of economic integration. Scholars such as a Hungarian professor of political economy have defined economic integration in his well-known book 'The theory of economic integration' sixty years ago. This author has come with Balassa's theory, which is celebrating its 60th anniversary this year. His theory has, however, attracted both critics and big discussions. These mainly come from other authors. The theory states five main stages of economic integration, which are on an evolutive basis. Balassa's integration stages are Free trade area, Custom Union, Common Market, Economic Union and the last Full economic integration. These theories have been an inspiration worldwide for an integration grouping. One of the most successful examples of this is the European Union, which shows, over the years, the different stages of Balassa's theory of economic integration, which it has gone through. It is certain that the European Union is the most well-known integration group in the global world, and with the common market and single currency, it is considered to be a pioneer.

If we go back to the theory of economic integration, we can confirm that Balassa's theory is still alive and in practice, although some authors have extended some new stages of economic integration. The so-called new theory of economic integration is structured in seven stages from the lowest to the highest importance: Preferential Trade Area (PTA), Free Trade Area (FTA), Customs Union (CU), Common Market (CM), Economic Union (Ecu), Economic and Monetary Union (EMU), Full Economic Integration (FEI) and Political Union (PU). The European Union is now in a stage of economic and monetary union, although it depends from country to country. The members of the Eurozone are also considered to be a part of the stage.

After the financial crisis (2008), the migration crisis (2015), Brexit, the Covid-19 pandemic and the current adverse events in eastern Europe, the EU is increasingly facing unexpected challenges. The European Union is a changing place in a changing world, and it is necessary to adjust the way the European integration process works. EU policy settings need to change. This process was launched by the White Paper on the Future of Europe published by the European Commission under the leadership of Jean-Claude Juncker in 2017.

The White Paper on the Future outlines how the European Union could evolve by 2025. The White Paper describes five scenarios that the EU could develop (Carrying on, Nothing but the single market, Those who want to do more, Doing less but more efficiently, Doing much more together) or rather inspire. Five scenarios show perception, approach to the perception of EU policy (Single market & trade, Economic & Monetary Union, Schengen, migration & security, Foreign policy & defence, EU budget, Capacity to deliver). A precondition for the future development of the European Union is that all 27 Member States agree on a common future. The result should not be a choice of just one scenario, but a combination of approaches to EU policy perception that will bring about an effective form of the European integration process. The future research question is whether an effective form of the European integration process will be found.

The author of this contribution plans to go deeper into the problem of economic integration by using the European integration process as a case study. The author will also discuss the European integration process's strengths and weaknesses, anticipated and unanticipated problems, and future prospects. Another area of research will be the EU Council Presidency.

Acknowledgements

The paper is supported by the SGS project (SP2022/7) of the Faculty of Economics, VSB-TUO.

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Harmonization of Cross-Border Conversions, Mergers and Divisions, and its Envisaged Impacts

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Abstract

Two recent amendments to Directive (EU) 2017/1132 of the European Parliament and of the Council of 14 June 2017 on certain aspects of company law have been adopted and aim to harmonise and modernise EU company law and improve the application of the freedom of establishment. Presented paper deals with one of these amendments – the DIRECTIVE (EU) 2019/2121 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 November 2019 amending Directive (EU) 2017/1132 as regards cross-border conversions, mergers and divisions. The author shall examine historical development that eventually led to the adoption of the new regulation, case law of the Court of Justice of the EU on cross-border mobility of companies and circumstances of the adoption of the directive. The goal of this paper is to outline the envisaged impacts to the companies' mobility within the European Union, where said development and envisaged impacts will be demonstrated on the current data for cross-border transformations in the Czech Republic.

Keywords: cross-border transformation, conversion, merger, division, cross-border mobility of companies

JEL Classification: F15, K22, K33, K49

1. Introduction

One of the challenges entrepreneurs have been facing in the internal market is the lack of a legal framework for cross-border corporate mobility in the EU, specifically for cross-border conversions and divisions. The lack of legal framework can represent an obstacle or make the implementation of the cross-border operation impossible and thus can represent barriers to the exercise of the freedom of establishment.

The harmonized legal framework for cross-border transformations of companies in the European Union, being perhaps the longest awaited legislative proposal in European company law (Biermeyer, T. and Meyer, M., 2018), had been under discussion at the European level for several decades. Recently, two amendments to Directive (EU) 2017/1132 of the European Parliament and of the Council of 14 June 2017 relating to certain aspects of company law have been adopted and aim to harmonise and modernise EU company law and improve the application of the freedom of establishment. One of these amendments – the DIRECTIVE (EU) 2019/2121 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 November 2019 amending Directive (EU) 2017/1132 as regards cross-border conversions, mergers and divisions brought new harmonized legal framework for cross-border transformations. This Directive supplements the existing regulation of cross-border mergers

and newly introduces harmonized legal framework for cross-border conversions and cross-border divisions.

The above said new Directive entered into force on 1 January, 2020 and is to be implemented in the Member States with the deadline for transposition by January 31, 2023. However, according to Dumitru, O. I. (2021) so far only several Member States have started preparing the implementing laws and the majority of the states are still investigating the Directive in order to elaborate proposals.

The aim of this Directive is to revise the existing rules on cross-border transformations, which should provide concrete and comprehensive cross-border transformation procedures that facilitate and enhance cross-border mobility of companies within the EU, while providing effective and adequate protection to stakeholders such as employees, creditors or minority shareholders. Positive impacts of the new regulation can be expected especially for small and medium-sized entrepreneurs.

In this paper the author shall examine historical development that eventually led to the adoption of the new Directive, respective recent case law of the Court of Justice of the EU on cross-border mobility of companies and the circumstances of adoption of the Directive. The goal of this paper is to outline the envisaged impacts to the companies' mobility within the European Union. The envisaged impacts will be demonstrated on the current data for cross-border transformations in the Czech Republic.

2. Historical Context

In the following chapter the author shall introduce and examine historical context of the adoption of the Directive at the European level.

2.1 Historical Development

In 1990, rules for the taxation of cross-border mergers were adopted by Council Directive 90/434/EEC of 23 July 1990 on the common system of taxation applicable to mergers, divisions, transfers of assets and exchanges of shares concerning companies of different Member States, repealed by Council Directive 2009/133/EC of 19 October 2009 on the common system of taxation applicable to mergers, divisions, partial divisions, transfers of assets and exchanges of shares concerning companies of different Member States and to the transfer of the registered office of an SE or SCE between Member States. Cross-border mergers themselves were not regulated at the European level until 2005, when the Tenth Directive 2005/56/EC of the European Parliament and of the Council of 26 October 2005 on cross-border mergers of limited liability companies was adopted. The transposition deadline, within which the Member States were to adopt implementing laws was set at 15 December 2007. However, the transposition of the Tenth Directive into the laws of the Member States has not been without complications. As pointed out by Skálová, J. and Mejzlík L. (2015), the implementing laws were adopted with partial divergences in legal, accounting and tax regulations in the various Member States, which can cause considerable difficulties in implementing cross-border mergers. Unlike cross-border mergers, there was no harmonized legal framework for cross-border divisions and cross-border conversions at the European level.

In 1997, a proposal for the Fourteenth Directive on the cross-border transfer of registered office was drafted. This proposal provoked rich discussions in professional circles, negotiations on it were reopened in the following years, but the proposal was not adopted. Another similar initiative was the proposal for a Directive on the cross-border transfer of registered offices for

limited liability companies, which was launched in 2004 and was to be implemented by the end of 2007. Following the above proposals, the European Commission issued an Impact Assessment Opinion in 2007 containing the legal and economic analyses, on which the possible effects of the directive on the transfer of the registered office of companies within the EU were presented. In response to this document, further legislative work was suspended, as the resulting recommendations of this document were two possible follow-up options, namely "no action", or the adoption of the directive, with the provision that it is advisable to await an assessment of the implications of the adoption of the Tenth Directive in 2005 and the Court of Justice of the EU decision in *Cartesio* case, which was pending at the time, as regards it was expected that this issue could be resolved by the decision-making practice of the Court of Justice of the EU. However, the decision *Cartesio Oktató és Szolgáltató bt* (C-210/06) issued in 2008 did not provide for such clarification.

These above mentioned initiatives were followed by a number of other impetus to harmonize the regulation for cross-border transformations at the EU level. The issue of cross-border mobility was raised repeatedly within the European institutions also in previous parliamentary terms before the year 2017.

2.2 Case Law of the Court of Justice of the EU

The varied case law of the Court of Justice of the EU on cross-border mobility, as thoroughly analysed by Dumitru, O. I. (2021), was recently supplemented by the ground-breaking *Polbud-Wykonawstwo* judgment (C-106/16; OJ 1.12.2017), which according to Fillers, 2020 "forced" the European legislator to come with a proposal on cross-border conversions of companies offering some clarity.

The above mentioned judgement was addressing a case of a Polish company relocating its registered office to Luxembourg, whereas the competent Polish registration court rejected the company's request for removal from the Polish Trade Registry because it had not been provided with any documents regarding the company's liquidation process. In this judgment, the Court of Justice of the EU confirmed to companies the right to make cross-border conversions on the basis of freedom of establishment. In this case the Court confirmed that "*freedom of establishment is applicable to the transfer of the registered office of a company formed in accordance with the law of one Member State to the territory of another Member State, for the purposes of its conversion, in accordance with the conditions imposed by the legislation of the other Member State, into a company incorporated under the law of the latter Member State, when there is no change in the location of the real head office of that company.*"

As explained by Fillers (Fillers, 2020) in this particular case, the Court embraced the freedom of movement of companies within the internal market by stating that "*the registered office can be relocated by "will alone", irrespective of whether it is justified by the actual conduct of business or the company's structure*".

Another important point stated by the Court is that Articles 49 and 54 TFEU preclude national legislation of a Member State, which includes disproportionate conditions for the cross-border transfer of the seat of a company in the State of origin. In this specific case the Polish law included provisions stating that a company can transfer its seat to another Member State without losing its legal personality and be removed from the respective national registry, only if the company has been liquidated before. The Court resolved that such condition impedes the cross-border conversion and thus, represents a restriction on freedom of establishment.

2.3 Circumstances of the Adoption of the Directive

Following numerous initiatives at the European level in the previous years and the varied case law of the Court of Justice of the EU on cross-border mobility of companies, legislative changes concerning cross-border mergers and divisions were included in the Commission's work program for the year 2017, but following the decision of the Court of Justice of the EU in the *Polbud-Wykonawstwo* case, the company law package had to be supplemented to include the regulation of cross-border conversion.

For the purposes of the European Commission, the consultancy firm Ernst & Young prepared the *Ernst and Young Study on the Cross-Border Operations of 25 April 2018*. The main findings of this study are as follows. Cross-border transformations are used to increase productivity, adapt to internal market opportunities and simplify business structures. Although these operations are commercially attractive for entrepreneurs, the number of cross-border conversions and divisions each year is relatively low. The study estimates that around 600 cross-border conversions and 100 cross-border divisions take place across the EU each year. The study further states that the absence of common harmonized rules and differences and incompatibilities in national laws lead the entrepreneurs to choose another alternative instruments to the conversion or division, such as cross-border mergers or cross-border transfer of assets, instead of carrying out cross-border conversions or divisions. In some cases it can even lead the entrepreneurs to completely abandon the plan to carry out such operation. The study highlights the fragmented approach to cross-border conversions and divisions at Member State level, the associated inefficiencies and the problems this fragmentation poses for entrepreneurs, their shareholders, creditors and employees. To alleviate these problems, the study recommends to introduce a harmonized cross-border conversion procedure and cross-border division procedure, which would not only provide greater legal certainty for minority shareholders, creditors and employees, but would also lead to cost reductions per operation of €12.000-19.000 in case of cross-border conversions and of €12.000-37.000 in case of cross-border division depending on the size of companies and the participating Member States.

The results of the above discussed study were used in the preparation of the EU company law upgraded package, which includes two amendments to Directive (EU) 2017/1132, as regards cross-border transfers, mergers and divisions and as regards the use of digital tools and procedures in company law.

3. Envisaged Impacts of the Directive

According to the explanatory memorandum to the Directive, one of the main stated objectives pursued is to "*unleash the potential of the Single Market by breaking down barriers to cross-border trade, facilitating access to markets, increasing confidence and stimulating competition while offering effective and proportionate protection to stakeholders*". In the EU, out of around 24 million companies, about 80% were limited liability companies, 98-99% of capital companies were small and medium-sized enterprises. In the absence of harmonized legal framework for cross-border transformation, it has been difficult for entrepreneurs to apply the right of establishment in practice, especially for small and medium-sized enterprises, for which cross-border transformation is often very difficult due to the financial costs of such operation, especially for legal advice. The estimated cost savings per operation are €12,000-19,000, over a five-year horizon of €176-280 million. Harmonization of the legal framework could then contribute to greater economic activity.

Furthermore, the explanatory memorandum refers to the analysis of impacts of the Tenth Directive, which laid down a harmonised procedure at the EU level for cross-border mergers. There was presented that data clearly showed the positive effects of harmonized regulation of cross-border mergers following its adoption with a 173% increase in cross-border mergers between 2008 and 2013, which indicates that the procedure set up by the Tenth Directive substantially enhanced cross-border mobility.

In the light of the information above, further positive impacts on cross-border mobility can be expected in relation to harmonized legal framework for cross-border conversions or divisions.

4. Cross-Border Transformations in the Czech Republic

In the Czech Republic the Tenth Directive harmonising cross-border mergers was implemented in the Czech Act No. 125/2008 Coll. on the transformation of companies and cooperatives (the Czech Transformation Act) with effect as of 1 July 2008. In reaction to the Cartesio case the regulation of cross-border conversion was included in the Czech Transformation Act with effect as of 1 January 2012 along with the provisions regulating cross-border division.

4.1 Data Collection

The Czech Transformation Act requires a company participating in a transformation to announce certain information and publish documents on the transformation to be carried out in the Czech Commercial Register as well as in the Czech Commercial Bulletin. In this regard certain information on the transformations actually carried out in the Czech Republic can be retrieved from these sources, which are available on-line. The data collected and presented in Table 1 include merely transformations that were, based on the publicly available information, successfully completed.

Data containing cross-border transfer of the seat of European companies (Societas Europea) have been excluded from the data in Table 1, as regards such transfer of seat is governed by special rules contained in the of regulation 2157/2001 on the Statute of European company (SE). From the data in Table 2 transfers of seat carried out to another states outside the EU and EEA were excluded.

For purposes of indicative comparison with numbers in the EU/EEA, the author uses the data provided in the report compiled by Biermeyer, T. and Meyer-Erdmann, M. (2020).

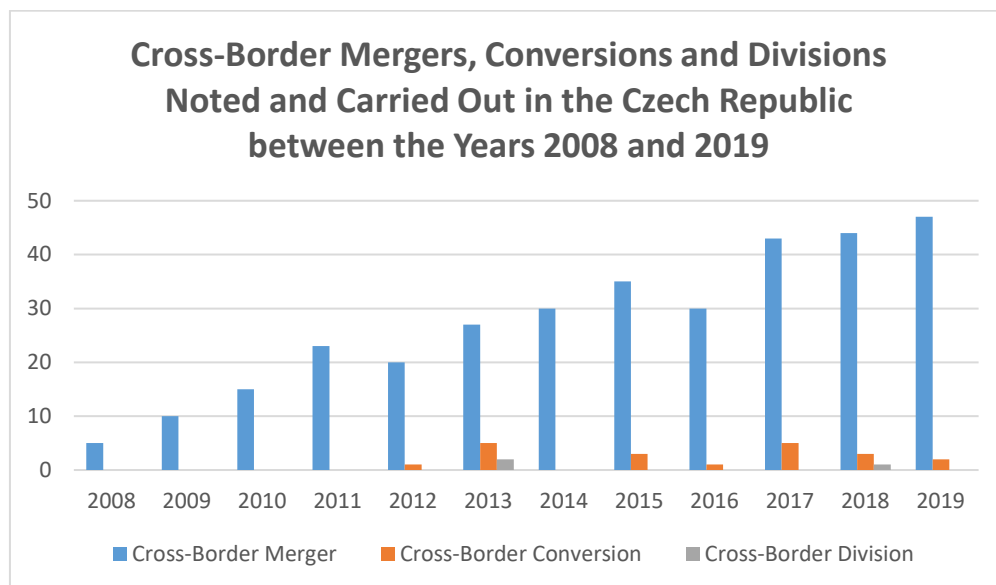
4.2 Numbers of Cross-Border Transformations in the Czech Republic

In Table 1 below, the numbers of Cross-Border Mergers, Conversions and Divisions noted and carried out in the Czech Republic between the years 2008 and 2019 are presented.

Table 1: Cross-border Mergers, Conversions and Divisions Noted and Carried Out in the Czech Republic between the Years 2008 and 2019

Year	Cross-Border Mergers	Cross-Border Conversions	Cross-Border Divisions	Total Cross-Border Transformations
2008	5	0	0	5
2009	10	0	0	10
2010	15	0	0	15
2011	23	0	0	23
2012	20	1	0	21
2013	27	5	2	34
2014	30	0	0	30
2015	35	3	0	38
2016	30	1	0	31
2017	43	5	0	48
2018	44	3	1	48
2019	47	2	0	49
Total	329	20	3	352

Source: Authors' own elaboration based on Economia, a.s. (2021); Ministerstvo spravedlnosti České republiky (2021); and Suková, A. and Skálová, J. (2020).

Figure 1: Cross-Border Mergers, Conversions and Divisions Noted and Carried Out in the Czech Republic between the Years 2008 and 2019

Source: Authors' own elaboration based on Economia, a.s. (2021); Ministerstvo spravedlnosti České republiky (2021); and Suková, A. and Skálová, J. (2020).

Based on the numbers presented in Table 1 and Figure 1, there is clear substantial difference in the numbers of cross-border mergers, for which there is harmonized legal framework, and the numbers of cross-border conversions and divisions, which are negligible in this comparison. Furthermore, there can be seen that there has been a steady increase of the numbers of cross-border mergers and conversions over the reference period, which could indicate increasing interest in cross-border transformations from entrepreneurs.

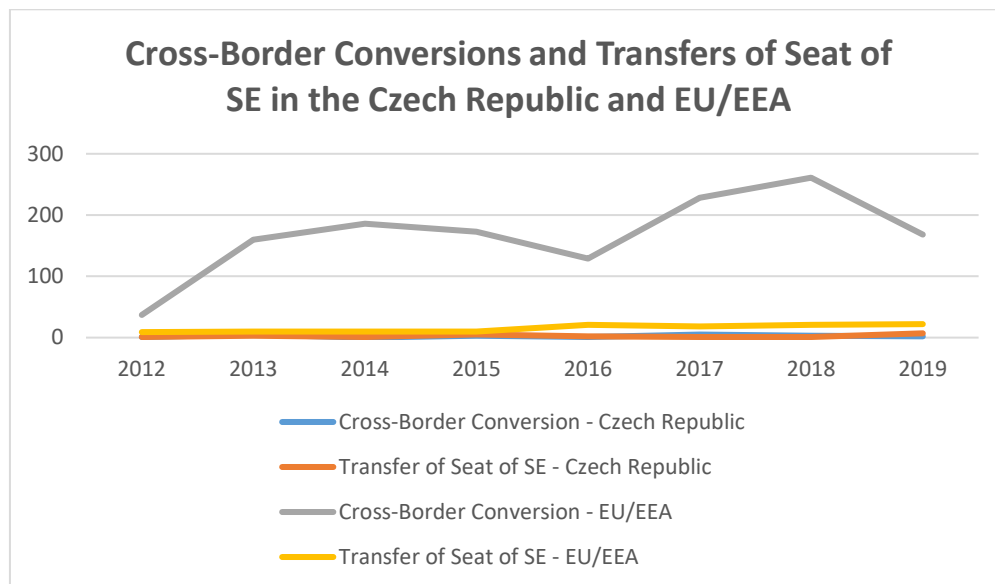
4.2.1 Numbers of Cross-Border Conversions and Transfers of the Registered Seat of SE in the Czech Republic

In Table 2 the numbers of noted and carried out cross-border conversions are presented in comparison to numbers of transfers of registered seat of European companies (Societas Europea) governed by special rules contained in the of regulation 2157/2001 on the Statute of European company (SE).

Table 2: Cross-Border Conversions and Transfers of the Registered Seat of SE Noted and Carried Out in the Czech Republic

Year	Cross-Border Transfer of Seat	Completed	Transfer of Seat of SE	Cross-Border Conversion of Other Legal Forms of Companies (limited liability company, joint stock company)
2012	2	1	1	1
2013	8	6	3	5
2014	1	1	1	0
2015	8	6	5	3
2016	3	2	2	1
2017	6	4	1	5
2018	4	4	1	3
2019	9	9	7	2
2020	14	9	7	7
Total	55	42	28	27

Source: Authors' own elaboration based on *Economia, a.s.* (2021) and *Ministerstvo spravedlnosti České republiky* (2021).

Figure 2: Cross-Border Conversions and Transfers of Seat of SE in the Czech Republic and EU/EEA

Source: Authors' own elaboration based on Economia, a.s. (2021); Ministerstvo spravedlnosti České republiky (2021); and Biermeyer, T. and Meyer-Erdmann, M. (2020).

Despite expectations, the numbers in Table 2 and Figure 2 demonstrate that there is merely a small difference in the numbers of cross-border transfers of the seat of SE and of cross-border conversions of other legal forms of companies, for which there was no harmonized legal framework. Biermeyer, T. and Meyer-Erdmann, M. (2020) in the report referred to the number of cross-border conversions in EU/EEA as astonishing considering that there is no harmonized framework in place yet. However, it is necessary to point out that the numbers of created and existing European companies in the EU are still far lower than the number of national legal forms of companies. In general in Table 2 and Figure 2 there can be seen that the number of operations for each year is in the Czech Republic still very low.

5. Conclusion

The new Directive as regards cross-border conversions, mergers and divisions supplementing the existing regulation of cross-border mergers and introducing harmonized legal framework for cross-border conversions and cross-border divisions should bring more clarity and certainty to the cross-border transformations procedure and eliminate some divergences in regulations in the various Member States, which could cause difficulties in implementation of cross-border transformations.

As envisaged by the legislator, not least due to the transposition of the amending directive as regards the use of digital tools and procedures in company law, the entrepreneurs can hopefully expect facilitation of the cross-border mobility as well as decrease of costs to be incurred in relation to the cross-border transformation process. Based on the data concerning cross-border transformations noted in the Czech Republic, following the development of the number of cross-border mergers, the facilitation of the process could lead to increase in the numbers of the performed cross-border conversions and divisions.

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What Is the Role of Germany in the European Union?

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Abstract

The question of Germany's role in the European Union (EU) has become a controversial topic of debate over the last decade. The main aim of the paper is to provide the overview of the existing knowledge about the development of Germany's role in European integration and discuss the future goal and challenges of German's policy. Is Germany a "rising power" or even hegemon or leader in the European Union? Results of literature review are ambiguous. We can observe the changes in the perception of Germany's role at the EU level as well as within the country itself. Germany has taken on its natural central role in some of the EU's agendas as economic and monetary affairs. There are other cases, where the German power was less forceful (the migration crisis or Ukrainian crisis). There is no doubt that Germany remains the European Union's most politically and economically influential member country.

Keywords: European Union, Germany, hegemon, role

JEL Classification: E65, E66, F02, F59

1. Introduction

After the end of the World War II, the emergence of a new societal system became the most evident in Europe. Integration in the western part of the continent was primarily motivated politically - to prevent further war conflicts in Europe as well as to build barriers against the spread of Soviet communism. The development of economic integration in democratic countries was conditioned by overcoming national differences and interests. There were two main approaches realized in practice: first, based on the idea of ever closer intergovernmental cooperation between sovereign states (European Free Trade Association), second, arguing for the necessity to create a common supranational single economic and political entity (European Union) (Horeháj, Šuplata, 2018, p. 467). The economic cooperation was originally motivated politically with aim to subordinate under the joint supranational control the German and French coal and steel industries. Since the reunification of Germany, the European Union (EU) has gradually developed into being more of a political project. (Somai, 2020)

Germany had crucial role in formation of the European cooperation – together with France, Italy, Belgium, Luxembourg and the Netherlands was one of the six founding member states of the European Coal and Steel Community in 1952. The same countries formed the European Economic Community and the European Atomic Energy Community in 1958.

Germany has played important direct or indirect role in whole development of integration process and European or world historic events, such as the collapse of centrally planned economies and their transformation, financial and economic crisis follow by Eurozone debt crisis, migration crisis, security crisis (e.g. Ukraine crisis), energy security (e.g. issue of Nord Stream 2 and relationship with Russia), Brexit, industry 4.0 or digital and environmental

transformation (Germany are most involved in these ideas) or Covid-19 crisis (e.g. together with France Germany pushed through comprehensive fiscal support package among all member states to tackle the economic impacts) (see e.g. Sucháček, 2014, Janning, Möller, 2016, Maull, 2018, Krotz, Schramm, 2021).

The question of Germany's role in European integration (leader, hegemon or driving force) is at the forefront of concerns to many researchers e.g. Kundnani (2011), Havlík, Janebová (2015), Janning, Möller (2016), Maull (2018), Horeháj, Šuplata (2018), Aggestam, Hyde-Price (2019), Szabo (2019), Eberle, Handl (2020), Hrivik, Klimacek, Mindar (2020), Margan (2020), Somai (2020), Krotz, Schramm (2021).

In line with the previous text, the main aim of the paper is to provide the overview of the existing knowledge about the development of Germany's role in European integration and discuss the future goal and challenges of German's policy. The paper does not seek to explain the whole background of Germany power, but to present the current selected perception of the role of Germany in the EU and its challenges as a starting point of the further research.

In the paper, the methods of literature review, analysis and synthesis are used to achieve the goal.

2. Germany's Role Formation in Europe: Background

Germany's position in the European and international space was strongly influenced in the post-war period by its involvement in the European integration process. In the early 1950s, Germany played a largely passive role, overshadowed and subordinated to the victorious powers in implementing solutions in the form of European integration. The role of Germany has been changing in changing Europe. Although Germany did not seek greater responsibility in Europe after reunification, for various reasons it has represented natural driving force in the EU. There are a number of authors and concepts that already tried to describe the role of Germany not only in Europe but also in the world.

2.1 Selected Models of State Power

One of the most common terms is the concept of Hanns Maull, a *civilian power*. A state identified as a civilian power lags behind its national material interests in favour of an international order that seeks to stabilize through rules and mutual cooperation. To eliminate violence in matters of international relations, the concept takes into account the respect and propagation of human rights and democracy in particular, which are generally referred to as universal values. The concept of civilian power defines German foreign and security policy after the World War II from about 1949 until the unification of Germany until 1990. This model can – with greater difficulty – be applied even after 1990.

Another well-known concept is the *geo-economic power*, developed mainly by Hans Kundnani (2011) and Stephen Szabo. According them international conflicts are not resolved geopolitically, but geoeconomically. The means to enforce national interests is no longer a use of war, but trade competition. The general definition of geoeconomic power is the use of state economic power as the primary source of power and influence over other states. Typical features of geoeconomic power are the dominant role of trade, mainly export-oriented. The model of geoeconomic power can be divided into “hard geoeconomic power” and “soft geoeconomic power”. Hard geoeconomic power is a term for advancing economic goals through the reuse of economic resources (e.g. euro crisis). Soft geoeconomic power is a term for pursuing political goals using economic means (Ukrainian crisis) (Kundnani, 2011).

Germany is characterized by the “golden middle way”, where coexistence between the state and exporters is important. As exports account for approximately 50% (43.8% in 2020) of annual GDP, making Germany one of the three largest trading nations in the world (KPMG, 2022).

2.2 Economic Key Facts of Germany

With a population of 83.2 million, Germany is the most populous member state of the European Union. It is also the largest and stable economy – in 2019, Germany’s GDP was 3.4 trillion euro and from 2004 to 2020, Germany had an average unemployment rate of 5%.

The German economy has its great innovativeness and strong focus on exports (dominance is mainly in high-selling sectors, such as car-making, mechanical and plant engineering, the chemicals industry and medical technology). Germany’s most important trading partners are the European Union countries, the USA, and China (Fazit Communication GmbH, 2021). So Germany belongs to group of countries characterized by good level of competitiveness (the Benelux countries, France, Austria). Competitiveness of these countries supports stable macroeconomic environment, availability of the latest technologies related to high innovation capacity and widely available research and education services. (Staničková, Melecký, 2017)

Germany holds 96 seats in the European Parliament and in decision making process of the Council of the European Germany represents 18.57% of population. Ursula von der Leyen was elected as the female German President of the European Commission in 2019. Germany also hosts various EU institutions: the European Central Bank and the European Insurance and Occupational Pensions Authority are located in Frankfurt am Main and the European Aviation Safety Agency is based in Cologne.

Last Germany’s Presidency of the Council of the European Union began on 1 July 2020. Fighting the Coronavirus pandemic and its consequences will be a central theme. (Council of the European Union, 2020) Like most countries in the European Union, the Covid-19 pandemic has affected the German people and their economy. The member states of the European Union are doing everything in their power to jointly cushion the worst blow to their national economies since the World War II.

Germany is characterized by institutional pluralism, especially the strong position of interest groups, the Länder (federal states), the Bundestag (the parliament of Germany), as well as the Bundesbank (central bank) and Bundesverfassungsgericht (the Federal Constitutional Court). The last two institutions have the potential to promote their model of functioning at European level, and it is no exception that their approaches and attitudes are taken into account in the European Union’s decision-making processes. (Bulmer, Paterson, 2019).

2.3 Key Milestones of Germany’s Policy and Role in the EU

In the post-war development in Germany, the rapid restoration of the ruined country and economic growth was known as the German “economic miracle”. It was the result of L. Erhard’s successful ordo-liberal economic policy. The state had an irreplaceable place in it however its measures were focused in particular, on creating a political and legal framework for the efficient functioning of the market system. (Horeháj, Šuplata, 2018, p. 469). During this period, the main person of Germany was historically the first Chancellor Konrad Adenauer, who significantly contributed to the establishment of the European Economic Community.

During Willy Brandt's Chancellery (1969–1974), Germany was already internationally rehabilitated after the events of World War II, proving its Western orientation, known as the "Westbindung". Willy Brandt worked to improve relations with the Soviet Union, Deutsche Demokratische Republik (German Democratic Republic, GDR) and other communist countries in Eastern Europe. This initiative is often referred to as "Ostpolitik".

The East German economy had a privileged economic position within the "Eastern Bloc", although after reunification it was insufficiently competitive. After the fall of the Berlin Wall in 1989 and the reunification of the Republic in 1990, the East German economy had to modernize to catch up with its West German counterpart, as well as other European and world economies. Even more than 30 years after unification, political and social disparities persist between East and West Germany. On the other hand, Germany, which is the main trading partner for most of the EU countries, was one of the key factors for the region of Central and Eastern European economies rapid growth in the last three decades. German automakers, retailers, banks and manufacturers have attracted inexpensive skilled labour. In large numbers, they therefore penetrated the region, setting up thousands of factories and offices, and helped local enterprises to fulfil orders (Margan, 2020, p. 586).

Angela Merkel (CDU/CSU) has been symbolizing German unification policy since 2005. The leading politician, who asserted herself in the EU and who formed her political views in the GDR. The challenge in managing Westbindung and Ostpolitik persists and has had a significant impact on the federal government's crisis solution, both in the context of the migration and eurozone crisis or the crisis in Ukraine.

The long-term Germany's pro-European approach resulting from unification or generational exchange, has been replaced by a pragmatic approach in which German interests prevail. Developments in the year 2010 moved Germany to a central role in the EU. One of the key factors was the eurozone crisis. In this crisis, the Franco-German partnership, which was a tool for political solutions in cases where the EU institutions could not intervene, lost its balance. The balance has been lost due to Germany's stronger economic base, which today represents the industrial heart of the European Union.

Moreover, these tendencies are influencing the perception of the European Union's institutions calling for democratisation of the decision making in the EU, because of solitary actions such as Germany's "Refugees welcome" and the migration agenda behind the Brexit. In 2015, Germany became the second most popular destination for international migrants globally. Since the refugee crisis German's domestic issues have been closely linked to foreign policy. At no time since the fall of the Berlin Wall had Germany been as isolated in the EU as it was in spring 2016. Germany's domestic situation was clearly the major driving force behind Merkel's actions on the Turkey deal. On the one hand, Merkel worked to bring the whole of the EU together to deal with the refugee challenge – ensuring the survival of the EU's migration scheme, and promoting European solidarity with Greece. On the other hand, some EU member states pointed out that Germany was responsible for dealing with the refugee challenge, after unilaterally suspending the Dublin system and failing to consult with the rest of the EU. (Janning, Möller, 2016, p. 5)

As Bulmer stated (Hospodářské noviny, 2020), there are many examples where Germany has been reluctant to take on the role of hegemon. It is still valid that Germany is reluctant to act as a leader due to its historical experience with Nazism.

On the other hand, Germany together with France are the two biggest countries in the EU which often have available the necessary political, material, institutional, and idealist resources to provide leadership. A recent survey amongst politicians and experts has confirmed that

Germany and France (in this order) are the most contacted and most influential EU countries (Krotz, Schramm, 2021, p. 49)

3. Future Germany's goals and Position in the EU

The change of the Germany's role and the other EU members positions was induced by Brexit. Brexit can still disrupt internal equilibrium of the Union and to decrease its influence and credibility in future. The EU lost the world's fifth largest economy, a nuclear power and a member of the UN Security Council. This underlines certain risks for the EU's external relations, due also to weakening its inner cohesion. On the international scene, it was expected that the EU will lose its position and significance which could mean some certain economic and political risks. Germany and France together achieve a much stronger position and influence within the Union after the UK's departure. The strengthening of a supranational character of the EU and a position of Brussels' bureaucracy was respected first of all by Germany and France. (Hrivik, Klimacek, Mindar, 2020)

Also Margan (2020) states that only Germany and France are these two countries can carry out reforms in the EU because of their powerful after the United Kingdom left the EU. In the past, there were large differences between Germany and France regarding the preferences and interests, economic and political reforms in the EU. (Krotz, Schramm, 2021) This is no longer the case and together they are launching an urgent reform initiative in the EU also in Euro area. The aim is "united and more independent" EU and Eurozone. Together they will pursue and achieve the goal of making European economies white strong and capable of meeting the current global challenges (Margan, 2020, p. 587).

The new German government of Olaf Scholz has made reforming the EU, as well as its own economy and society, a top priority. Olaf Scholz is formally taking power after Angela Merkel 16 years as leader in December 2021. Scholz's cabinet includes seven Social Democrats, five Greens and four Free Democrats. At federal level, Germany will focus particularly on the green and digital transition "to set the right course into the future". Germany will make the transition to a climate-neutral and digitised society in the 2020s (Euractiv, 2022).

With the French EU Council presidency getting in full swing, Germany is pushing for a more sovereign EU and wants to discover new pathways to reform the bloc, together with France. Chancellor Olaf Scholz said in his first government statement that European policy has become a major part of our domestic policy. Berlin is particularly keen to advance European strategic sovereignty by increasing its ability to act in a global context and to be less dependent on other players in areas such as energy supply or digital technology. Germany's ambitions are closely aligned with France's, which will put a special emphasis on the EU's strategic sovereignty during its presidency. (Euractiv, 2022)

The new government's coalition agreement specified that they want to use the *Conference on the Future of Europe* as a starting point for EU reform that should ultimately lead to the "development of a federal European state". While major reform of the EU is currently off the table due to the unanimity requirement that comes with it, chancellor Scholz is advocating for a multispeed Europe. Scholz also stressed the need for close alignment with France on European topics, as the "Franco-German understanding is the precondition for progress in Europe." (Euractiv, 2022)

The new coalition wants to foster cooperation with like-minded democratic states that share the EU's democratic values and to enable the EU to compete in the "competition of systems" with authoritarian states. One of the major tools to enhance the bloc's strategic autonomy is the "Strategic Compass", which aims to develop Europe's strategic and military capabilities

to advance the EU's capacity to act in the world. The compass was launched during the German EU presidency in 2020. Another change the German government will push for is to make more use of qualified majority voting in the EU's external relations. (Euractiv, 2022)

However, there are major challenges ahead at European level – especially regarding the reform of the EU budgetary rules and the rule of law issues with Poland and Hungary. But there are some points of friction in the Franco-German couple, most notably the reform of the EU's fiscal rules. France, Italy and several other member states are pushing for more flexible EU fiscal and debt rule. (Euractiv, 2022)

The new government wants to take a tougher line on countries that violate the rule of law and wants to use existing rule of law instruments “more rigorously and timely.” This will also apply to the disbursement of the pandemic recovery funds, where wants to make payments conditional on adherence to the rule of law. However, Germany also intends to offer closer cooperation to Poland – seen as the major rule of law offender, together with Hungary – in other areas, most notably the Weimar Triangle, a political forum of France, Germany, and Poland. (Euractiv, 2022)

Further challenge for Germany is security crisis in Europe. With regard to EU security and defence, Germany has been rather reluctant when it comes to increasing defence spending and taking part in military interventions. After the Russia's invasion of Ukraine in February 2022. Germany changed in rhetoric and would sharply increase its spending on defence to more than 2% of its economic output.

4. Conclusion

Germany, founding EU country, is the world's fourth largest and Europe's largest economy, based on exports of high-quality manufactured goods. Is Germany a “rising power” or even hegemon or leader? Based on the literature review the answer is ambiguous. We can observe the changes in the perception of Germany's role at the EU level as well as within the country itself. The position is also based on whether Germany assesses not only its own interests but also the interests of its partners. There are the agendas where German role in the EU was leading (such as the eurozone crisis). On the other hand, there are other cases, where the German power was more traditional and less forceful (the migration crisis or Ukrainian crisis). Germany's role has been changing as the European context in which it had to be played out. Nowadays it is more relevant in the context of new German government, post-Brexit world and new European challenges such as international relations, security, defence of democracy and recovery of European economies. New German government has set itself ambitious goals to launch a reform process of the EU. There is no doubt that Germany's capacity to lead is strong and Germany has significant ability to influence member states from all regions of Europe. Our future research will be orientated to the evaluation of the Germany's role in the selected past and future EU and world relations' questions (e.g. Eurozone crisis, migration crisis, power in the EU after Brexit – French-German relations or conflict in Ukraine) according to chosen theoretical models of state power.

Acknowledgements

Paper was also composed within the support of talented students, at the Faculty of Economics, VŠB-TU Ostrava.

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Tax Burden in Denmark, Finland and Norway in Comparison with the Czech Republic

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Abstract

The paper deals with the application of tax policy in selected countries of Scandinavia and the Czech Republic through the application of the method of description, analysis and comparison. The aim of this paper is based on a study of the tax system of the Czech Republic and selected countries of Scandinavia to analyse the differences in their functioning, find out how far taxpayers are in individual countries and recommendations for further development of tax policy in the Czech Republic. When applying the comparison method, tax quota indicators and individual direct and indirect taxes are used. The average wages for employees of individual states, valid for the year 2021, are also compared.

Keywords: EU tax policy, European taxes, Scandinavia, tax burden, tax quota

JEL Classification: L66, M48, O52

1. Introduction

Since the inception of the European Communities, tax policy has been one of the most sensitive components of government policy, as it affects Member States' national budget revenues, the purchasing power of the population and price formation.

Tax policy is used to meet national and social goals. Its purpose is to determine the amount and method of taxation of individual economic entities. Tax policy is most often used as a means of reducing or supporting certain economic activities - for example, customs are intended to protect certain sectors of the economy from foreign competition, as well as tax breaks or tax reductions, while the introduction of excise duties on certain products disadvantages their production. Influencing the level of private spending - by increasing or reducing taxes, the government can affect the level of real GDP and inflation; in the area of social contributions and progressive taxes, tax policy is a key component of the system of automatic stabilizers contributing to mitigating cyclical fluctuations without government intervention. Influencing the motivation to save and work - if the tax burden on households is reduced, this leads to an increase in the supply of capital and thus to a reduction in the interest rate on the capital market (Široký, 2013). Marginal level of income taxation - this indicator can be used as an indicator of how the tax system discourages work, because a high level of marginal income taxation leads to a decrease in people's motivation to increase their income.

Tax policy has five functions. Fiscal functions fulfil the state budget, allocations provide tax support or disadvantage consumption, redistributive reduce differences in pensions of individual entities, the stimulating state supports economic growth and stabilization contributes to mitigating fluctuations in the economic cycle.

Current theories recognize four principles of tax policy. The principle of efficiency says that tax revenues should be higher than the costs of tax collection and administration, or in general that the costs of tax collection and administration should be as low as possible. The principle of justice is divided into vertical and horizontal. According to the principle of horizontal justice, everyone who is "the same" should pay the same tax. It is, of course, a question of what the term means as well. This principle should be understood in the sense of general justice, i.e. some specific criteria, such as religious and political beliefs, race, are not taken into account in taxation. According to the principle of vertical justice, those who are better off should pay a higher tax. This means that people who have higher assets or income are able to pay the tax. This principle is often interpreted as the principle of progressive taxation, but even at a linear rate, those who have a higher income or property pay a higher tax. The principle of flexibility and administrative efficiency says that taxes should not change often, that the taxpayer should be able to calculate them easily, that he should know in relation to the state, that tax uncertainty should be as small as possible. In other words, the taxpayer should not be too bothered by taxes (Strecková, Malý, 1998).

The history of taxes is closely linked to the emergence of money. Today, taxes are usually paid in cash; in the past, payments were also common in kind or in the form of service, such as slavery, forced labour, military service or military service. Initially, taxes formed a supporting, supplementary source and were originally purpose-built payments. Property taxes or head taxes originally predominated for direct taxes, and excise duties and turnover taxes predominated for indirect taxes. In the slave society, tithes and attributes were collected, which was a one-time benefit from land or heads. In feudalism, it was already domains, shelves, contributions and excuses. In capitalism came the emergence of the first progressive taxes, customs duties were imposed mainly on imports, the emergence of tax returns and tax revenue was determined according to the actual situation.

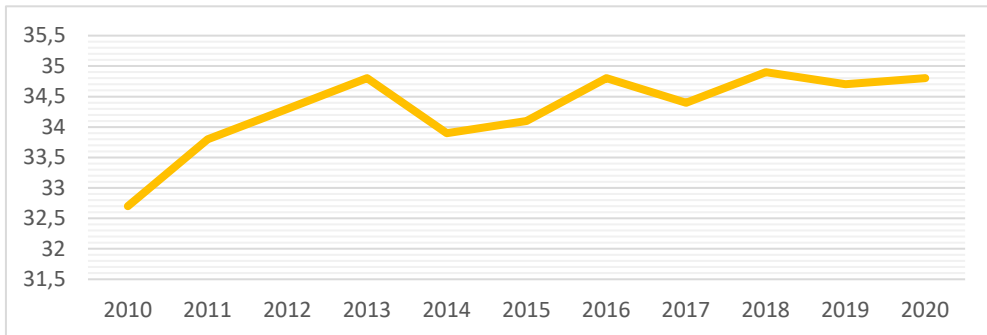
There are two reasons why taxes arose - basic and supplementary. The basic functions are the state, which is public administration. This includes the legislature and governing bodies, their staff and the enforcement authorities - the police, the judiciary, the prison and the army. Complementary are the secondary functions of the state, which aim to influence the economy and social functions. It is a matter of redistributing wealth between different sections of the population in order to avoid differences in living standards. Usually the largest state expenditures are the social area of the state, but the high rate of redistribution of funds for the poorer population is usually attributed to socialism. Investing in the economic function of the state is called fiscal policy. It is mainly the construction, maintenance and operation of infrastructure. On the contrary, the state can also support subsidies, for example, it affects the production and consumption of various goods and services.

The highest public revenue is tax revenue. All entities are subject to multiple taxes at the same time. This is called total tax liability. It is a set of all amounts that the entity has to pay. The term tax liability is also associated with the term tax quota (Láchová, 2014). Tax quotas are an international benchmark for the share of a country's collected taxes in its gross domestic product (Vančurová, 2018). The data are published by the Organization for Economic Cooperation and Development (OECD). The tax quota can be divided into simple and complex. A simple tax quota expresses the share of taxes and duties excluding social security contributions in GDP at current prices. The compound tax quota is a much more thorough indicator because it expresses the share of all taxes and duties and other mandatory payments, such as social and health insurance, in GDP at current prices.

Data from Eurostat for the period 2010-2021 were used for this comparison. Each graph shows the tax quotas of selected countries in Scandinavia and the Czech Republic.

Graph (figure 1) shows the development of the compound tax quota in the Czech Republic in the years 2010-2020. The chart shows that the highest tax quota was in the Czech Republic in 2018 and 2016, namely 34.9%, while the lowest was in 2010, namely 32.6%.

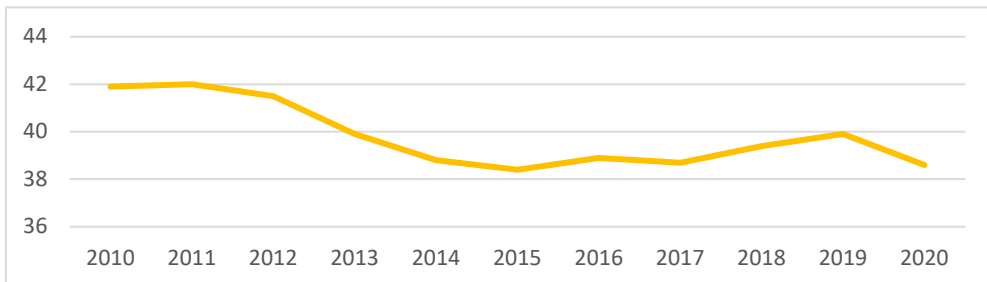
Figure 1: Tax Quota in the Czech Republic in Years 2010 - 2020 (in %)



Source: Eurostat (2021); Own elaboration (2022).

Figure 2 shows Norway's tax quota graph for 2010-2020. It is clear from the graph that the tax quota for this period was the highest in 2010 and 2011, at 42.1%, when it decreased until 2015. However, it has risen again since this year, but has fallen again since 2019.

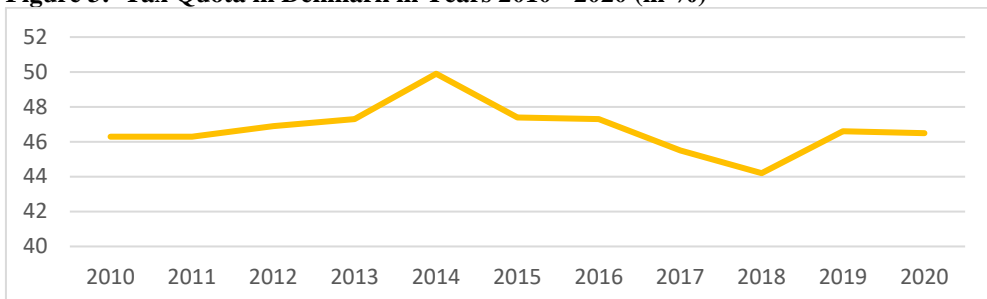
Figure 2: Tax Quota in Norway in Years 2010 - 2020 (in %)



Source: Eurostat (2021); Own elaboration (2022).

Figure 3 shows Denmark's tax quota graph for 2010-2020. It is clear from the graph that the highest tax quota was 49.9% in 2014, while in 2018 it was the lowest, only 44%. The graph shows that the tax quota in Denmark has been at approximately the same level in recent years.

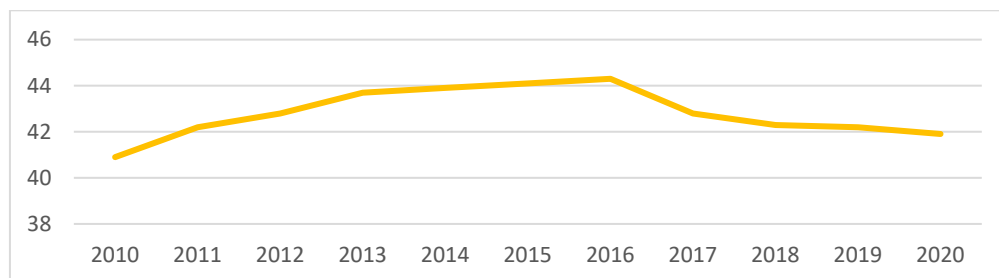
Figure 3: Tax Quota in Denmark in Years 2010 - 2020 (in %)



Source: Eurostat (2021); Own elaboration (2022).

Figure 4 shows Finland's tax quota graph in 2010-2020. It is clear from the graph that from 2010 to 2020 the tax quota fell to 40.9%. Then it grew until 2016, when it reached its maximum of 44.3%. Tax quota decreased again since 2016.

Figure 4: Tax Quota in Finland in Years 2010 - 2020 (in %)



Source: Eurostat (2021); Own elaboration (2022).

2. Comparison of Tax Burdens in the Czech Republic, Norway, Denmark and Finland

This subchapter is devoted to comparing individual countries and their burdens. First, total labour taxes are calculated for average wages in each country. Furthermore, the tax burden of two products, which are subject to excise duty and value added tax, is compared.

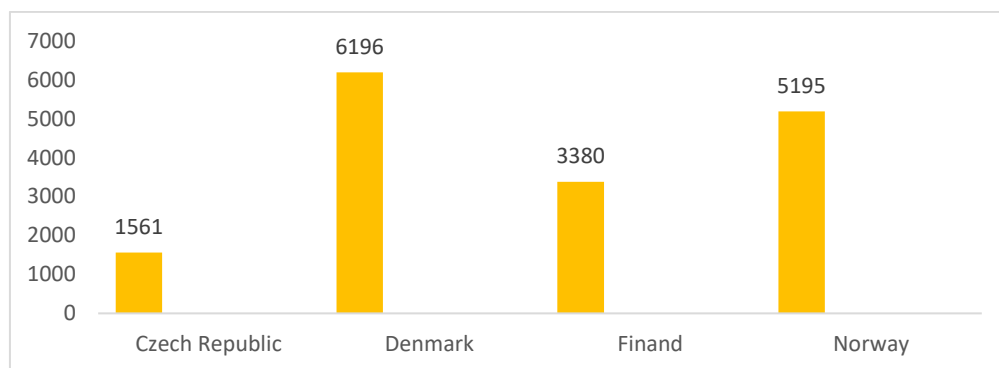
For the purposes of calculating the individual labour tax summaries, they were the same as the average wages of the states for 2020.

For the purposes of calculating the tax burden, Finlandia vodka 1 l (40% alcohol content) and Pilsner Urquell 12 ° 0.5 l beer (4.4% alcohol content) were selected. For these purposes, prices from the Alko.fi, Fleggaard.dk, Vinmonolet.no and Alkohol.cz portals were added on 10 November 2021.

2.1 Model and Data

Figure 5 shows the graph of the average rates of selected countries for 2020. Average wages are converted into the single currency EUR according to the CNB exchange rate list, valid for 10 November 2021.

Figure 5: Average Wages in Selected Countries, in EUR



Source: KPMG (2021); Own elaboration (2022).

It is clear from the graph that the Czech Republic has the lowest average wage, while Denmark has the highest average wage. However, this indicator does not tell us anything, because it is a gross average wage. For this reason, it is necessary to calculate the total taxation of labour, thus deducting all taxes and mandatory fees in each country.

The basis of income tax in the Czech Republic is a gross wage. The net salary is calculated from the gross salary by deducting the compulsory health and social insurance contributions. 15% income tax is calculated from the tax base and a taxpayer discount of CZK 2,320 per month is deducted. The total income tax on average monthly income for 2020 is therefore CZK 5,253. Together with other levies, labor taxation in the Czech Republic is 33.59%.

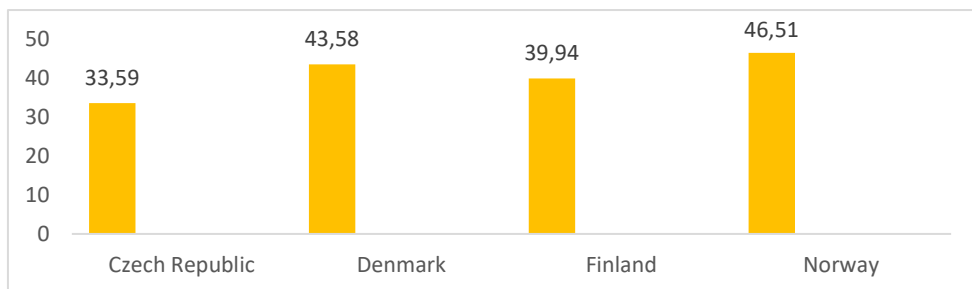
In the case of Norwegian income, the tax base is slightly different. The current income tax base and the personal income tax base are calculated here. The current income tax base is taxed at a flat rate of 25 %, but the personal income tax base is taxed at a progressive rate of 0 %, 1.4 % and 3.3 %. Social security is calculated from gross monthly income. After adding up all tax levies, labor taxation in Norway is 46.51 %.

In Denmark, a social contribution of 8 % is deducted from gross monthly income, on which the personal pension is based, which is reduced by an additional allowance of DKK 1 133,333. This gives a taxable pension, from which the tax to the church and municipalities, the health care allowance and the income tax are further calculated. Basic personal support must be deducted from all these items. After adding up all taxes and social contributions, labor taxation in Denmark is 43.58%.

In Finland, the taxable pension is calculated on the basis of the gross monthly income adjusted by the daily allowance and the health care allowance. The tax for municipalities in this case is chosen at 18.5%, this is the tax rate in Helsinki. The state tax is calculated from the taxable base rounded up to the nearest euro, subtracting the lower tax limit, multiplied by the tax rate and added to the tax rate in EUR for the given income category. The State tax therefore amounts to EUR 717.749. Television tax is calculated on taxable income. After adding up the total tax levies, labor taxation in Finland is 39.94%.

Figure 6 shows the graph of the individual total labor taxes in %. The highest taxation of labor is 46.51% in Norway, while the lowest taxation is 33.59% in the Czech Republic.

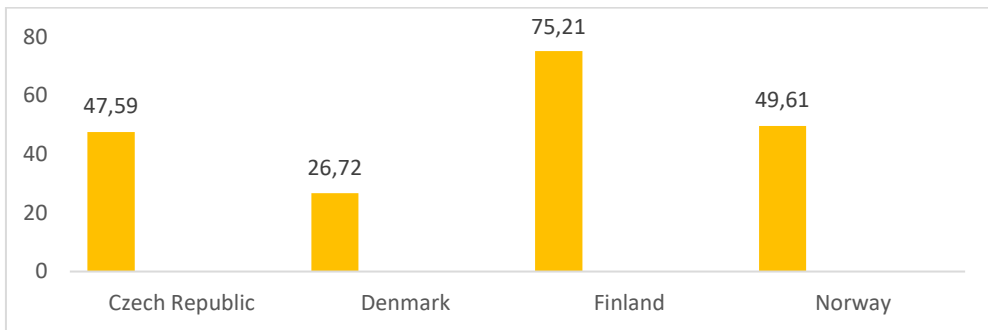
Figure 6: Total Labour Taxation in %



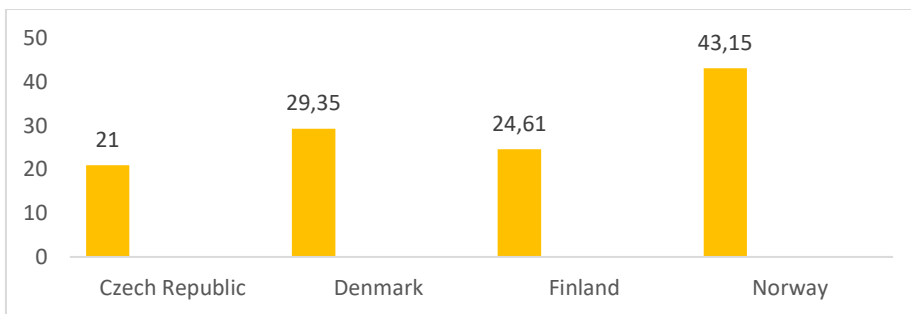
Source: Eurostat (2021); Own elaboration (2022).

2.1.1 Calculation of the Tax Burden on Products with Excise Duty

Finlandia vodka products with an alcohol content of 40% and a volume of 1 l and Pilsner Urquell 12 ° beer with an alcohol content of 4.4% and a volume of 0.5 l were selected for this purpose. Tax burdens are shown in graph in figure 7 for vodka and figure 8 for beer.

Figure 7: Total Vodka Taxation in %

Source: Eurostat (2021); Own elaboration (2022).

Figure 8: Total Beer Taxation in %

Source: Eurostat (2021); Own elaboration (2022).

The tax burden on vodka is the largest 75.21 % in Finland. This is since there is prohibition in Finland and alcohol is sold here only in shops with a state monopoly. The situation is the same in Norway, so the load from selected countries is in second place. On the contrary, the lowest tax burden, only 26.72 %, falls on Denmark.

The tax burden on beer is very similar in all countries. The highest load of 29.35 % is in Denmark and the lowest in the Czech Republic. It is also because the Czech Republic is a nation of brewers and there is also the lowest VAT rate. Interestingly, in Finland the tax burden on beer is only 24.61%, which is a significant decrease compared to the vodka burden. This is due to the fact that although there is a ban in Finland, beer and beverages up to an alcohol content of 4.5% are commonly sold in supermarkets.

3. Problem Solution

The tax quota, which shows the share of a country's collected taxes in its gross domestic product, was the highest in Denmark in 2020, when it reached 47.3%.

The average monthly wage is the highest in Denmark and the lowest in the Czech Republic. The average wage income tax rate is the highest in Norway. It is 25%. On the contrary, it is the lowest in the Czech Republic. This is also because in the Scandinavian countries there are progressive tax rates and revenues are taxed twice because there are state and municipal taxes.

Another variable to compare the tax policies addressed in this contribution is the tax burden on products that are subject to value added tax and excise duty. The highest value added tax 25 %, is in Norway and Denmark, and the lowest in the Czech Republic. The tax burden on

alcohol is highest in Finland and lowest in Denmark. The tax burden on beer is similar in all countries, however it is the highest in Denmark and the lowest in the Czech Republic.

In my opinion, tax policies in selected countries are similar. Every policy has its pros and cons. If, for example, in the Czech Republic the rate of social insurance paid by the employer was reduced, there would be an increase in income from direct taxes and thus also an increase in personal income tax rates. The high income from social insurance in the Czech Republic is also beneficial for social policy. This leads to relatively high social benefits. The overall taxation of labour in the Czech Republic is the lowest even under the assumption of high social and health insurance rates compared to other countries. The VAT rate is the lowest of the countries being compared, which is also evidence of the lowest tax burden on selected products. Increasing the VAT rate in the Czech Republic, with the price of goods unchanged, would increase the tax burden and thus increase income from indirect taxes to the state budget, which would have an impact on the decline in social insurance income. On the contrary, by increasing the VAT rate, assuming an increase in the price of goods, with the average wage unchanged, the disposable income of a citizen of the Czech Republic would not be sufficient to normally finance his needs. Therefore, in my opinion, the increase in the VAT rate should be offset by an increase in average wages.

4. Results and Discussion

Many of the profound transformations the EU is currently undergoing are inevitable and irreversible. Others are more difficult to predict and will come unexpectedly. The EU can be drifted by these events or try to shape them. Now we must decide. The five scenarios will help guide the discussion on the future of the EU.

Scenario 1: Continuation of previous practice. A positive action plan based on a common goal continues to deliver concrete results. Citizens' rights under EU law are respected. The unity of the EU27 is maintained, but in the event of major disputes, it may still be put to the test. Only a common commitment to achieve common results in important areas will help to close the gap between promises on paper and citizens' expectations. Impact on single market and trade policy: Strengthening the single market, including in the energy and digital sectors; The EU27 continues to conclude progressive trade agreements. Impact on EU budget policy: Partial modernization to meet the reform agenda agreed among the 27 members.

Scenario 2: Single market only. The priorities that the EU is refocusing on mean that Member States' differing views on emerging issues often need to be addressed bilaterally on a case-by-case basis. Citizens' rights under EU law may be curtailed over time. Decision-making may be easier to understand, but the ability to act together is limited. This can lead to widening gaps between expectations and real outcomes at all levels. Impact on single market and trade policy: The single market for goods and capital is strengthened; standards gradually diverge; free movement of persons and services is not fully guaranteed. Impact on EU budget policy: Reorientation - funding essentials necessary for the single market

Scenario 3: The countries they want are doing more. The unity of the EU27 is maintained, with the countries that want to have the opportunity to work more closely together. Citizens' rights under EU law are beginning to vary according to whether they live in a country that has decided to do more. Questions arise about the transparency and accountability of the various levels of decision-making. The gap between expectations and real results is narrowing in countries that want and have decided to do more. Impact on single market and trade policy: As in the "Continuing the current practice" scenario: strengthening the single market and the EU27 continues to conclude progressive trade agreements. Impact on EU budget policy: As in the

"Continuing the current practice" scenario; some Member States will increase budgets in areas where they choose to cooperate more.

Scenario 4: Doing less but more efficiently. A clearer division of responsibilities helps European citizens to better understand what is being addressed at EU27 level and what is being addressed at national and regional level. Citizens' rights under EU law are strengthened in areas where we want to do more and limited in other areas. This will help to bridge the discrepancies between promises and results, even if expectations are not met in some areas. It should be noted at the outset that the EU27 has a real problem agreeing which areas need to be prioritized and where they should do less. Impact on single market and trade policy: Common standards are set to a minimum, but compliance is strengthened in areas regulated at EU level; trade matters are dealt with exclusively at EU level. Impact on EU budget policy: Major overhaul to reflect the new priorities agreed at EU27 level

Scenario 5: Doing much more together. Decision-making processes at EU level are much larger and faster. Citizens have more rights directly under EU law. However, there is a risk of losing support to the part of society that feels that the EU does not have the necessary legitimacy or that it is taking on too many powers from national authorities. Impact on single market and trade policy: Strengthening the single market by converging standards and strengthening compliance monitoring; trade matters are dealt with exclusively at EU level. Impact on EU budget policy: Major upgrades and increases, backed by own resources; the fiscal stabilization function operates in the euro area.

5. Conclusion

The topic of tax bothers each of us, whether we are looking at the payroll or watching the news about various tax adjustments or tax evasions. Taxes are the basic tool for financing the needs of the state. Tax policy has always been a symbol of national sovereignty. With the country's accession to the European Union, its sovereignty does not end, but the functioning of the single market requires harmonization, coordination or exchange of information in the field of taxation.

The aim of this paper was to compare the tax policies of the Czech Republic and selected countries in Scandinavia. These countries are Norway, Denmark and Finland. These countries were chosen because each has its own uniqueness. In the case of Norway, it is non-membership of the European Union, in the case of Denmark it is membership of the European Union, but also non-membership of the monetary union, and in the case of Finland it is membership of both the European Union and the monetary union. To compare tax policies, it should be noted that tax policy is not just about the tax system. It is a set of several factors together, such as tax quotas, tax revenues, tax harmonization or tax burdens.

In each sub-comparison, a different country leads. For example, in comparison with average wages, Denmark leads, but in terms of overall labour taxation, Norway leads. The tax burden on vodka is the highest in Finland, but the tax burden on beer is the highest in Denmark. The Czech Republic takes the lead in social and health insurance rates.

Acknowledgements

This paper was created within the project SGS *New trends and methodological approaches in the development of composite indices and their application to territorial units of the European area*. Project registration number SP2022/7.

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Impact of Satisfaction on Customer Citizenship Behaviour on the European Smartphone Markets

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Abstract

This study examines the impact of satisfaction with smartphones on the selected European markets on customer citizenship behaviour (CCB). Customer citizenship behaviour comprises extra-role behaviours that customers voluntarily engage in during or after the product (service) delivery. In our case three dimensions of CCB has been measured: recommendations, helping other customers and providing feedback to the company. A total of 174 respondents from three European countries (Czech Republic, Poland, Hungary) were surveyed. To test proposed hypotheses, multi-items scales were used. To further assess convergent and discriminant validity of all measures, a measurement model was subjected to confirmatory factor analysis. Findings explain how intensively satisfaction affects each dimension of customer citizenship behaviour.

Keywords: *customer satisfaction, customer citizenship behaviour, confirmatory factor analysis, European smartphone market*

JEL Classification: *C40, C83, M31*

1. Introduction

According to Eurostat (2022) 81 % of individuals in European Union use smartphone for private purposes. In 2020 smartphone market in Europe accounted for almost \$120 billion and it is expected that it will grow by 8 % annually over the year 2027 (Marketwatch, 2022). In February 2022, Apple reached the largest market share in Europe (34,52 %) and overtook Samsung with market share of 31,56 % (Statcounter, 2022). In the context of these facts, it is obvious that consumer attitudes towards the smartphone brands as well as other aspects of consumer behaviour are key information for different smartphone market participants, in particular vendors and distributors.

The area of consumer behaviour has already been broadly investigated and described. As Yi and Gong (2013) mention, at first the consumer decision making process was in the centre of interest. Later, as many marketing scholars and managers have realized that consumer plays an active role in the process of decision and consumption of products or services, different approaches were developed to describe how customer may co-create the value of company. As Assiouras, Skourtis, Giannopoulos, Buhalis and Koniordos (2019, p. 2) mention according to Vargo and Lusch (2016) “value co-creation can be defined as the actions of multiple actors, who are often unaware of each other, that contribute to each other's wellbeing”. Mitrega, Klézl

and Spáčil (2022) point to other concepts in similar research areas like customer participation or customer engagement.

1.1 Customer Citizenship Behaviour

The concept of customer citizenship behaviour (CCB) was developed based on organizational citizenship behaviour (OCB) (Groth, 2005). OCB relates to employees' behaviour, and it can be defined as "individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization" (Organ, 1988, p. 4). It relates to extra-role activities of employees that can lead to higher organizational effectiveness (Bove, Pervan, Beatty, Shiu, 2009).

Several studies (Bowen, Schneider, 1985; Bettencourt, Brown, 1997) proved that customers play the role of partial employees, mainly in service industries, and so the framework of OCB can be applied to customer role (Groth, 2005). Customer's participation can be perceived in two levels: in-role and extra-role behaviour. In-role behaviour involves such activities that are necessary for providing services without any obstacles, e.g., arriving on time when customer is ordered to visit a doctor (Fowler, 2013). On the other side, extra-role behaviour relates to customer's voluntary activities, such as sacrificing his or her time, or effort. And this type of behaviour refers to CCB. CCB as voluntary and discretionary actions by customers is not explicitly rewarded by a company. Outcomes from such behaviour mean a benefit for the company and for other customers too (Balaji, 2014). And in this regard, customers may contribute to firm's development and quality improvement as well as employees. Bettencourt and Brown (1997) emphasize customers' participation in service quality as they can be promoters of the firm, co-producers of the service and consultants to the organization.

Groth (2005) defines three dimensions of CCB: customers' recommendations, helping other customers, and providing feedback to the company. Customers' recommendations refer to the situation when customer is satisfied with the product or service on such level, that he or she is willing to provide positive word-of-mouth communication to other people (Fowler, 2013). Another customers' voluntary activity is willingness to help other customers for example with using new product. As Yi and Gong (2013, p. 1281) define, „helping refers to customer behavior aimed at assisting other customers”. The third dimension of CCB – providing feedback – refers to the situation when customer is willing to communicate with the company about his or her satisfaction with the product or service, or to suggest some improvements (Bove, Pervan, Beatty, Shiu, 2009). Companies usually get the feedback using customer satisfaction measurement, online reviews etc.

It is necessary to emphasize that CCB is conditional construct. Groth (2005) proved that it is positively related with customer satisfaction. Theoretical support for link between satisfaction and CCB comes from social exchange theory (Bowen, 1990). The importance of customer satisfaction and its measurement was investigated several decades ago. Oliver (2010) defines satisfaction as discrepancy between customers' product or service expectations, and their evaluation of real experience with it. Darko and Liang (2022) mention that many different indices for customer satisfaction measurement was developed, e.g., SERVQUAL, American Customer Satisfaction Index (ACSI), European Customer Satisfaction Index etc.

2. Problem Formulation and Methodology

In this part of article, the problem is defined, then the data used for solving the problem and methodology are described.

2.1 Problem Formulation

The concept of CCB was originally developed mainly for service industries. Many authors (Anaza, 2014; Groth, 2005; Revilla-Camacho, Vega-Vázquez, Cossio-Silva, 2017; Woo, 2019) have researched validity of CCB concept in hospitality and tourism, personal care services, services delivered via Internet, airline services, online shopping etc. However, customer may behave in the sense of extra-role when buying tangible product too. Hypothetically they can also provide the recommendations, help other customers to use the product, and provide the feedback to the company.

For these reasons we have decided to investigate, whether the three dimensions of CCB are relevant for consumer behaviour within the selected European smartphone markets, and if so, what is the impact of customer satisfaction with smartphone brand on each of those dimensions. The smartphone market was chosen as it is one of the most dynamic markets in the world and because smartphones belong to one of the most frequent used durable products (Spáčil, 2016).

2.2 Research Methodology

To get the data online survey was conducted during the year 2020. Judgemental sampling, i.e., non-probability sampling technique was used. Sample structure can be seen in Table 1. In total 174 respondents from three countries of Visegrad group – Czech Republic, Poland, and Hungary – were asked about their satisfaction with their smartphone brand, and they also expressed the level of (dis)agreement with several statements, that were used to measure three dimensions of CCB. Multi-items scales were used.

Table 1: Sample Structure

		Frequency	Percent
Gender	Male	74	42,5 %
	Female	100	57,5 %
Age	18-24	167	96 %
	25+	7	4 %
Country	Czech Republic	88	50,6 %
	Poland	69	39,7 %
	Hungary	17	9,8 %
Smartphone Brand	Apple	79	45,4 %
	Samsung	24	13,8 %
	Xiaomi	32	18,4 %
	Huawei	22	12,6 %
	Other	17	9,8 %

Source: Own elaboration (2022)

To measure the first dimension – customers' recommendations – these statements were used:

3. I say positive things about my smartphone brand to other.
4. I recommend my smartphone brand to my peers.
5. I encourage friends and relatives to try my smartphone brand.

To measure the second dimension – helping other customers – these statements were used:

1. I teach other customers how to use smartphone correctly.
2. I help the other customers when they do not know how to use smartphone.
3. I explain to other customers how to use smartphone correctly.

To measure the third dimension – providing feedback to the company – these statements were used:

1. I provide information when surveyed by smartphone producer.
2. I would provide helpful feedback to customer service about my smartphone.
3. I would inform smartphone producer about service provided retailer (dealer).

Also, the customers' satisfaction with the smartphone brand was measured in the same way using these statements:

1. Overall, I am satisfied with my smartphone brand.
2. I am delighted with design of my smartphone.
3. I am pleased with functions of my smartphone.

To verify the validity of CCB dimension, factor analysis was used as it enables to identify underlying dimensions or factors, to identify a new, smaller, set of uncorrelated variables, and to identify a smaller set of salient variables from a larger set (Valečková, Velčovská, 2018). Correlation analysis was used to measure the level of dependence between customers' satisfaction and statements relating to CCB dimensions. All data were analysed in statistical program IBM SPSS Statistics.

3. Problem Solution

Before the validity of CCB dimensions and analysis of impact of satisfaction on customer citizenship behaviour will be performed, several findings about overall satisfaction with smartphone brand will be described at the beginning of this chapter.

Overall satisfaction as well as other statements was measured on the scale of 1 to 7 (where 1 = strongly disagree, 7 = strongly agree). When we compare overall satisfaction by smartphone brands, respondents with iPhones (Apple) and Samsung are the most satisfied (average value 6,43 and 6,42 respectively). Xiaomi and Huawei reached the average value of overall satisfaction 5,81 and 5,55 respectively. Respondents who mentioned another smartphone brand are, on average, satisfied at the lowest level (5,18). Based on the ANOVA test, it was found that there is statistical dependence between smartphone brand and overall satisfaction. In comparison according to the country, respondents from Czech Republic are the most overall satisfied with their smartphone brand (average value 6,15), respondents from Poland are satisfied with the average value 6,03, and Hungarian respondents are satisfied with the average value 5,94. However, statistical dependence between smartphone brand and nationality was not proven based on ANOVA test.

As shown in Table 2, the respondents agree in the biggest extend with the statements that they are delighted with design of their smartphone (average value 6,13) and that they are satisfied with the brand of their smartphone (average value 6,08). All statements are rated above average. Also, three other statements were evaluated with high marks. It was satisfaction with functions of the smartphones, praising positive things about smartphones to others and recommending smartphone brand to other consumers. On the contrary, respondents least agree with that they would inform smartphone producer about service provided by retailer (average value 3,71).

Table 2: Average Values of Agreement with Statements Concerning Smartphones

Statements	Average Value
I am delighted with design of my smartphone.	6,13
Overall, I am satisfied with my smartphone brand.	6,08
I am pleased with functions of my smartphone.	5,98
I say positive things about my smartphone brand to other.	5,72
I recommend my smartphone brand to my peers.	5,70
I encourage friends and relatives to try my smartphone brand.	4,98
I help the other customers when they do not know how to use smartphone.	4,97
I explain to other customers how to use smartphone correctly.	4,47
I would provide helpful feedback to customer service about my smartphone.	4,35
I teach other customers how to use smartphone correctly.	4,22
I provide information when surveyed by smartphone producer.	3,94
I would inform smartphone producer about service provided by retailer (dealer).	3,71

Note: Measured on a scale of 1 to 7, where 1 = strongly disagree and 7 = strongly agree.

Source: Own elaboration (2022)

3.1 Validity of CCB dimensions

Factor analysis was carried out for statements to reduce their number to only a few factors. First, the internal consistency of the battery was confirmed. The value of Cronbach's Alpha was 0,810 and so the first condition for the application of factor analysis was met. Next, the value of the KMO Index was verified, which should reach a minimum value of 0,6. The KMO Index was in this case equal to 0,738, that means the second condition was also met. Bartlett's Test of sphericity was equal to zero, the null hypothesis was rejected, and an alternative hypothesis was accepted. It can be stated that there is a correlation between the variables, so it is possible to use factor analysis. Subsequently, factor analysis was performed based on the principal components method, Varimax rotation and Kaiser's rules. Original nine statements were reduced to three new factors.

As it can be seen in Table 3, first factor can be named "Helping other customers" as it encompasses three statements about teaching other consumers how to use the smartphone and giving them help and good advice about this device. Second created factor can be named "Customers' recommendations", and it includes a total of three original statements concerning recommendations of the smartphone brand to others, saying positive things about it, and encouraging other people to try the brand. The third factor can be named "Providing feedback to the company", and it includes a total of three original statements about providing information and feedback about the smartphone to the producer.

Table 3: Factor Analysis

Rotated Component Matrix			
	Component		
	1	2	3
I say positive things about my smartphone brand to other.		0,886	
I recommend my smartphone brand to my peers.		0,934	
I encourage friends and relatives to try my smartphone brand.		0,786	
I teach other customers how to use smartphone correctly.	0,860		
I help the other customers when they do not know how to use smartphone.	0,872		
I explain to other customers how to use smartphone correctly.	0,897		
I provide information when surveyed by smartphone producer.			0,660
I would provide helpful feedback to customer service about my smartphone.			0,862
I would inform smartphone producer about service provided by retailer (dealer).			0,799
Extraction Method: Principal Component Analysis.			
Rotation Method: Varimax with Kaiser Normalization.			
a Rotation converged in 4 iterations.			

Source: Own elaboration (2022)

3.2 Impact of Customer Satisfaction on CCB Dimensions

To research the impact of customer satisfaction on each dimension according to CCB theory, correlation was performed within the data analysis. According to De Vaus (2002), a substantial correlation occurs when the value of correlation coefficient is above 0,5 and very strong correlation appears when result value is above 0,7. The higher the value of the coefficients is, the stronger is the relationship between the variables. Significance tests were also performed, at the significance level of 0,01 and 0,05.

3.2.1 Impact of Customer Satisfaction on Customers' Recommendations

In this section, the relationship between satisfaction and recommendation was compared. The results (see Table 4) show that there is a substantial and very strong correlation between several statements and levels of satisfaction. Significance was confirmed for all three statements. Between consumers' satisfaction with their smartphone brand and praising positive thing about their smartphone very strong and positive relationship exists. The same can be stated also for the correlation between consumers' satisfaction with their smartphone brand and recommending this smartphone brand to their peers. In both cases the impact of satisfaction level is very strong, it influences whether the consumer will provide positive word-of-mouth about his or her smartphone to other people or not. In the second described case the satisfaction has high impact of how strongly the consumer will recommend the brand to his friends, family, and other consumers. Substantial correlation is visible also between being pleased with functions of consumer's smartphone and both saying positive things about the smartphone brand to others and recommending this brand to others. Again, in both cases there is a strong and positive relationship between variables. Being pleased with the functions that smartphone provides is very important, as it impacts how positively will consumer be speaking about his or her smartphone brand to others and how intensively he or she will recommend this brand.

Table 4: The Relationship between Satisfaction and Recommendation

	Overall I am satisfied with my smartphone brand.	I am delighted with design of my smartphone.	I am pleased with functions of my smartphone.	I say positive things about my smartphone brand to other.	I recommend my smartphone brand to my peers.	I encourage friends and relatives to try my smartphone brand.
Overall I am satisfied with my smartphone brand.	1	0,486**	0,673**	0,761**	0,678**	0,467**
I am delighted with design of my smartphone.	0,486**	1	0,561**	0,482**	0,461**	0,277**
I am pleased with functions of my smartphone.	0,673**	0,561**	1	0,608**	0,568**	0,361**
I say positive things about my smartphone brand to other.	0,761**	0,482**	0,608**	1	0,804**	0,567**
I recommend my smartphone brand to my peers.	0,678**	0,461**	0,568**	0,804**	1	0,665**
I encourage friends and relatives to try my smartphone brand.	0,467**	0,277**	0,361**	0,567**	0,665**	1
** . Correlation is significant at the 0.01 level (2-tailed).						
* . Correlation is significant at the 0.05 level (2-tailed).						

Source: Own elaboration (2022)

3.2.2 Impact of Customer Satisfaction on Helping Other Customers

No significant correlations have been confirmed in the relationship between satisfaction and consumer assistance (help). Although the conditions for significance were met, in this case all correlation coefficients were around 0,2, which shows only low to medium correlation between these variables. There is not strong and important relationship between customer's satisfaction and degree of how customer will be helping other customers and giving them advice about the smartphone.

3.2.3 Impact of Customer Satisfaction on Providing Feedback to the Company

When comparing relationship between customer's satisfaction and providing feedback, there is also very weak or almost no correlation. All correlation coefficients were between 0 and 0,2. In addition, significance was not confirmed for any of these variables. Therefore, it can be stated that there is no relationship between level of satisfaction and how well and intensively will customer provide feedback to the company.

4. Conclusion

As it was mentioned above, the aim of this paper was to research, whether the three dimensions of CCB are relevant for consumer behaviour within the selected European smartphone markets, and if so, what is the impact of customer satisfaction with smartphone brand on each of those dimensions. Based on the results from confirmatory factor analysis it was proved that all three dimensions of CCB (Groth, 2005) are valid for smartphone market. We can say that within this market customers tend to play the extra-role in the sense of giving positive word-of-mouth communication, helping other customers, and giving feedback to the company.

Research of customer satisfaction impact on each of three CCB dimensions showed that the impact can be proved only for one of them, and it is the dimension called Customers' recommendations. In this case the most significant correlation is between overall customer satisfaction with the smartphone brand and saying positive things about smartphone brand.

Also, satisfaction with smartphone functions has positive impact on recommendations of the brand to other people. Unfortunately, impact of customer satisfaction on other two CCB dimensions was not proved. It means that even if customer is satisfied with the smartphone, we cannot automatically assume that he or she will tend to help other customers or give feedback to the company. This fact can be put in the context of statements evaluation when statements concerning the area of helping other customers and giving feedback to the company were evaluated on the lower level of average values (see Table 2).

It is necessary to point out that this research has its limitations. Especially the sample size and structure are not quite representative. For the future research it would be useful to compare behaviour of customers of different age, as in our case the sample consisted mainly of young people of age under 25 years. Also, application of CCB theory on different markets with tangible products or products with important accompanying services could be investigated.

Acknowledgements

This paper was created within the project Students Grant Project (SGS) *Consumer Attitude Analysis on the B2C Market*. Project registration number SP2022/126.

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Development Cooperation between the European Union and Africa – Dependence or Partnership?

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Abstract

The development cooperation between the EU and African countries is determined by the both historical and contemporary economic and political interests of the EU in these countries. The main priority of this cooperation is the eradication of poverty. The additional priorities include the defence of democracy and human rights, environmental and climate protection measures, and the promotion of gender equality. The aim of the study is to present and to evaluate the development cooperation of the EU and African countries on the basis of normative economy in the context of the dependency theory. According to the authors, an important factor determining development cooperation is the partnership of the parties involved. The lack of this partnership, while replacing it with an asymmetric relationship, may be the direct cause of the lack of tangible benefits of cooperation for African developing countries and their underdevelopment.

Keywords: *development cooperation, development aid, European Union, Africa, EU –Africa partnership*

JEL Classification: *F35, F53, F55, F63*

1. Introduction

The European Union (EU) is widely regarded as an important international coordinator of development assistance, which determines its future directions. Research on EU development cooperation is important because of the historical background of development cooperation, in particular the essence of the North-South divide, its colonial origins and the Euro-Africa project, as well as its evolution into a mutual partnership.

The Cotonou Agreement is considered in the literature (e.g. K. Raffer 2001, M. Farrell, 2008; J. Modrzyńska, 2014) as the moment of breaking the asymmetric relations between the EU and African countries and the first manifestation of cooperation based on mutual partnership. The study of this problem is therefore relevant in view of the ongoing evolution of EU–Africa cooperation, as well as from the point of view of the new institutional setting of this cooperation, primarily the new Organisation of African, Caribbean and Pacific States (OACPS) – EU partnership agreement, agreed in 2021.

Moreover, in the light of Africa's economic backwardness and the unsatisfactory level of poverty reduction in the region, the authors believe it is very important to further develop research to diagnose the reasons for the asymmetry in development cooperation between the

EU and African states so far. In this regard, the paper will attempt to examine the development cooperation of the EU and African countries in terms of historical conditions in the context of asymmetric relations between the EEC (European Economic Community)/EU and African countries. There are no analyses in the literature on the impact of Europe and the EEC/EU on the failure of development cooperation so far manifested in the persistence of the status quo on the African continent. Therefore, the authors wish to fill the above research gap. The aim of the study is to present and to evaluate the development cooperation of the EU and African countries, from dependence toward strong partnership. The authors stress the importance of real robust partnerships, which are necessary for any real cooperation. In the case of the EU and Africa, it is particularly necessary and extremely important. The study will be conducted on the basis of normative economics in the context of dependency theory, which attempts to explain the underdevelopment of developing countries through the prism of their economic dependence on developed countries.

By addressing the issue of development cooperation, the authors will also extend the limited hitherto output of analyses in this field, which is a symptom of Eurocentrism, especially of Polish research after 1989, the marginalization of development policy in Poland and the short tradition of providing aid to third countries in Poland. The study was completed on January 31, 2022.

The study used descriptive method and non-reactive research method, especially:

- the historical-comparative method in order to present the differences and similarities within the different institutional forms regulating development cooperation between the EU and African countries, and to show the evolution of this cooperation in the context of international demands for development at the beginning of the 21st century;
- the method of systemic analysis due to the interdisciplinary and multidimensional nature of EU development cooperation, which can be treated in terms of the implementation of EU foreign policy and the role of the Union as an international organisation providing a platform for solving global problems, as well as a manifestation of the division of the world into rich Europe and the poor South;
- the method of critical analysis of the literature on the subject including scientific publications on international development cooperation, EEC/EU development cooperation with African countries, the Cotonou Agreement, negotiations on the future form of development cooperation after 2020, with particular emphasis on dependency theory, as well as studies and reports, and official documents of international organisations (especially the EU).

2. The Historical Background of the Development Cooperation between the EU and Africa

The increasing disparity between wealthy developed countries and poor developing countries continues to be one of the greatest global challenges in the world today. This is reflected in the international debate on how to overcome or mitigate the effects of underdevelopment, as well as on actions to increase the effectiveness of development assistance. Although initiated after World War II, the subject of this debate, i.e., national and regional development disparities, dates back to a much earlier period, namely the industrial revolutions.

The concept of the rich North refers to the states at the forefront of the modernisation process resulting from the Industrial Revolution. Thus, the rich North grew out of Europe (Milewski

2004, p. 182), where the process of modernization (Davies, 1998) took place. The cradle of the rich North was the British society, followed by other nations of the old continent. In the 19th century, industrialization reached America and Japan, incorporating these countries into the global North. Countries that remained outside the stream of industrial revolutions by default remained on the margins, already building the world of the global South in the 19th (Solarz, 2012). The division of the globe into highly developed and developing worlds is the *legacy* of Europe. To quote Zygmunt Bauman (Bauman, 2005), author of the concept of postmodernity, 'as far as history is concerned, Europe has definitely been an export country with (until recently) a permanent positive balance with the rest of the world... (...) Europe discovered all the lands of the world, but no one discovered Europe. Europe has successively dominated all the continents, but it has never itself been dominated by anyone. It has also invented a civilization that the rest of the world tries to imitate or is forced to imitate, although it has never (at least until now) been the other way around. Hence, 'the North-South divide is marked by Eurocentrism' (Solarz, 2012). Therefore, when analysing the development assistance, it is impossible to ignore the historical conditions in the shape of the relationship between the 19th century Industrial Revolution and the highly developed countries of Europe.

Although on the one hand the 'old' Europe appears to be the source of the present global dichotomy demonstrated in the division into rich and poor countries, on the other hand it has been conducting aid-related activities aimed at reducing developmental differences by raising the living standards in the poorest and least developed countries of the world since the 1950s.

The beginnings of the support for the development of poor countries of the South, including African ones, were largely determined by the desire to maintain influence in former colonies, as well as the long-term economic and political interests of European donors (Kozłowski, 2001). Former European colonial countries realized that maintaining economic underdevelopment there would not be beneficial for either side in the long perspective (Bagiński and Kowalska, 2010), especially considering the intention to maintain influence in former colonies, hence the decision to actively promote development.

Besides, in the post-war years and especially in the 1950s, the geopolitical concept of Euro-Africa grew in importance in Europe. The founding of the EEC encompassing the overseas possessions of the founding states was nothing but a political manifestation of this concept (Hansen and Jonsson, 2014). The Euro-Africa project at first pointed to the mutual benefits of economic and intellectual linkage between Europe and Africa. Europe was to provide capital, economic, and intellectual support for Africa, while Africa was to provide raw materials and territorial resources. Even at this stage, however, one can see the mentoring and thus superior role of the 'developed' Europe in relation to the 'underdeveloped' Africa, which remains in need of support. The desire to make amends for colonialism and the resulting sense of responsibility for former dependent territories are just as significant.

3. EU and Africa Development Cooperation and Dependency Theory

Considering the historical background of the division of the world into rich North and poor South as well as the concept of Euro-Africa and the 'special' character of the relations between the EEC, its founding countries and the African associated territories, followed by many years of asymmetrical development cooperation of the EEC/EU with African countries, it seems justified to set the examined issues in the dependency theory.

Within the paradigm of dependent development, underdevelopment is a consequence of the domination of developed countries, and the processes of the creation and exploitation of colonies by the developed countries of Europe are a flagship example (Boehlke, 2004, p. 38).

The concept of dependency of Andre Gunder Frank – considered a leading dependencyist – assumes a chain of connections of world metropolises and states with their satellites (Frank, 1966, p. 29). In a metropolis-satellite relationship, metropolises suck capital or economic surplus from their satellites. Such relationships exacerbate inequalities and disparities and consequently reinforce dependencies. Metropolises, as a result of being first in the creation of new technologies, economic and political expansion, are responsible for the international division of labour. Satellites, on the other hand, play the role of suppliers of cheap raw materials and agricultural products to the metropolis. Transfer of technology and physical capital to satellites occurs only to the extent necessary to ensure the economic development of the metropolis (Bartkowiak, 2013).

The above approach distinguishing two categories of states: metropolises versus satellites is adhered to by most of the experts (Ferraro, 2008), but some refer to synonymous concepts such as dominant versus dependent states, centre versus periphery or metropolises versus periphery. In light of the above, the EEC and then the EU can be considered the metropolis or centre, The role of the periphery, on the other hand, is played by the African territories associated with the EEC initially on the basis of the Treaty of Rome and later – the newly formed African states covered by the Yaoundé, Lomé and then Cotonou Conventions.

To know the relationship between metropolises and satellites or centre and periphery, there is a need to define the concept of dependency. The most widespread definition of dependency was formulated by Theotonio Dos Santos – one of the founders of dependency theory. According to him, dependence is a situation of historical conditioning, in which some countries are favoured in the global economy at the expense of others, which limits the development opportunities of the latter (Dos Santos, 1971, p. 226). The sources of dependence were sought in the functioning of the world system and in the politics of metropolises (Wziątek-Kubiak, 1988, p. 19), or external influences on the periphery. The primary role in the formation of dependence was given to colonization leading to the periphery of the world economy (Ibidem).

Against the background of the presented theory of dependency in normative economics, it is possible to confirm the asymmetry in EEC/EU relations with African countries and then to treat the above-mentioned asymmetric relations as the cause of the underdevelopment of African countries (Caradaica 2018, p. 104). Hence, the authors are of the opinion that it is necessary to move away from the questions that have been repeatedly asked by academics concerning the volume of aid and the way in which it is provided, and replace them with questions about the nature of development cooperation, or rather the degree of its asymmetry.

4. Toward the EU – Africa Partnership

The historical background described above makes cooperation between developed Europe and African countries extremely difficult and places the latter in a situation of subordination and dependence. These countries are neither economic nor political partners for donors and are often weakened by their unstable internal situation. A sense of injustice for the years of colonialism and the division of Africa following decolonisation is also significant. EU –Africa development cooperation is therefore also asymmetrical, reflecting the subordination and dependence of developing countries on developed ones.

Globalization and with it the deepening institutionalization of development cooperation, especially within the European Union, has resulted in new prospects for cooperation with African countries. The beginning of the 21st century has brought reflection on the current development cooperation and actions taken so far, as well as prompted multilateral and bilateral donors to make the objectives of development assistance coherent, which were

collected in the Millennium Declaration announced in 2000 at the UN Summit in New York, the Paris Declaration of 2005 on raising the effectiveness of action, and then the 2030 Agenda for Sustainable Development adopted by the UN leaders in September 2015. The new formula of development cooperation requires the application of partnership principles and increased participation of developing countries in the process of shaping the rules of international cooperation (Proczek and Osuch-Rak, 2020). However, taking advantage of the opportunities brought by globalization also depends on the ability of developing countries to conduct effective economic and financial negotiations and implement the adopted solutions (Frydrych, 2013, p. 280–281).

Multilateral cooperation between the EU and the African countries therefore has a history of more than 60 years. It was regulated, among others, by France with the Treaty of Rome in 1957 and then sealed by the first Yaoundé Convention in 1963. To this day, it is an example of unique cooperation between developed and developing countries.

Although the concept of partnership in relations between Europe and Africa has been present since the 1970s (del Biondo, 2020), changes in EU – Africa relations were sanctioned only in 2007 in the Joint Africa – EU Strategy (JAES), which formally established the strategic partnership between the two regions (EU – Africa Strategic Partnership). The most important goals of the partnership included going beyond cooperation based on a donor-beneficiary relationship, as well as expanding EU-Africa cooperation by addressing common global challenges, such as migration, climate change, peace and security. Despite many criticisms of the partnership in EU – Africa relations (e.g. Slocum-Bradley and Bradley, 2010), it is important to point out that the direction of this transition has been maintained and will continue.

At the end of 2016 the European Commission, together with the High Representative of the Union for Foreign Affairs and Security Policy, published a Joint Communication to the European Parliament and the Council entitled ‘A renewed partnership with the countries of Africa, the Caribbean and the Pacific’. In this document, on the basis of an evaluation of the results of the Cotonou Agreement to date, which pointed out, among other things, the unsatisfactory results of the diversification of ACP economies or the lack of growth in regional dynamism and the importance of regional organisations such as the AU, a vision for a new partnership is presented. In particular, the Communication points to the need to support democratic societies, social development and good governance, and subsequently also to sustainable and inclusive economic growth. Thus, it particularly emphasized the growing importance of people's attitudes and social well-being in building economic prosperity.

In 2018, negotiations began between the EU and the African, Caribbean and Pacific (ACP, now OACPS) countries on a new post-Cotonou agreement. Indeed, the existing agreement did not reflect the objectives of the global development agenda introduced in Agenda 2030 (Medinilla and Bossuyt, 2019, p. 1). However, the negotiating process itself was already marked by a lot of internal bargaining on the African continent regarding the representation of African countries in talks with the EU. It was preceded by an attempt to include African Union representation in the talks (Hurt, 2020, p. 147). During the period of the Cotonou Agreement, cooperation between the EU and the AU was strengthened through the JEAS strategy, symbolising a more balanced and less dependent relationship between Europe and Africa, and the role of the AU as a leading institution on the African continent. Ultimately, the AU Extraordinary Summit agreed that the existing OACPS negotiating team should continue to lead the negotiations, and to satisfy the AU's desire to be involved, it was proposed that AU mandated officials could oversee the regional protocol negotiations with the EU (Medinilla, and Bossuyt, 2019, p. 5).

Consensus on the content of the post-Cotonou agreement was reached on December 3, 2020. Its final form and international significance may confirm the EU's potential to set new directions for international cooperation and implement innovative solutions aimed at increasing the effectiveness of development cooperation. The new international situation, the expectations of the international community concerning the cooperation between the North and the South and the emergence of unprecedented global challenges require new ways of action.

The new document updates the catalogue of topics – of contemporary importance where cooperation between the EU and the OACPS can be mutually beneficial – the digital economy, cyber security, the fight against drugs, organised crime and trafficking, data protection and migration (Boidin, 2020, p. 1–2). Migration issues were also highlighted in the 'New EU – Africa Strategy' adopted on 25th March 2021. In it, the European Parliament called on the Commission to take into account the migration priorities of African countries in the post-Cotonou agreement in order to shape a genuine partnership on the basis of equality (EP, 2020).

In the new agreement, the EU and OACPS strongly reaffirm the commitments made internationally, directly addressing many of them. The 2030 Agenda Sustainable Development Goals and the Paris Climate Agreement are the 'overarching framework' that the partnership will follow. Throughout the agreement and its thematic chapters, there are at least 35 references to existing multilateral agreements or arrangements. The coherence of actions under the renewed partnership with the global development agenda is central to the new partnership as a tool for enhancing the effectiveness of development cooperation.

Partnership will remain the leitmotif of the new agreement and it is much more visible than in the Cotonou Agreement. To show that the EU and the OACPS are equal partners, most of the provisions in the agreement have been worded symmetrically. Also, on the issues of policy coherence for development and development financing, both parties to the agreement have made commitments together, rather than, as in the case of the Cotonou Agreement, the EU pledging to support OACPS efforts.

One of the most significant changes in the new approach to shaping EU–Africa relations is the inclusion of the voice of civil society. Both in the main document and in the regional protocols, there are many references and commitments to ensure that the relevant actors and organisations of both parties to the Agreement are informed, involved as appropriate, in the consultation process and then in the implementation of activities. It should be noted that the Agreement also promotes the active participation of young people, including in the development, implementation and monitoring of policies that affect them.

At the same time, the question arises about the real impact of the new partnership on the effectiveness of development cooperation activities. However, the new agreement appears to be mainly political, as expressed in the very objective of the agreement, which is to 'establish an enhanced political partnership', instead of 'promoting the development of OACPS countries' (Boidin, 2020). The political dimension of the partnership thus formulated also seems to be confirmed by the European Parliament, which in its new EU-Africa strategy stresses, among other things, the centrality of relations with Africa to the mandate of Commission President Ursula von der Leyen, or the need to strengthen EU – AU contacts and make them more regular at the highest political level (EP, 2020). However, the political dimension of the post-Cotonou agreement may be crucial in mobilizing both the financial resources and the wide range of actors whose engagement is essential to make the partnership referred to in the aforementioned documents a reality.

However, external factors must also be constantly taken into account in shaping the EU – Africa partnership, in particular Africa's growing bilateral relations with China (as opposed to the multilateral relationship promoted by the EU) (Kovářová, 2014). Analysts are increasingly indicating that China's role in Africa may be different from the one that is commonly ascribed to it (e.g. 'new coloniser' or 'new centre'). With a strengthening presence, including growing trade and intensified development assistance, they may be a catalyst for rethinking Africa's development trajectory (Agbebi and Virtanen, 2017).

5. Conclusion

The EU–Africa development cooperation constitutes an example of cooperation between developed and developing countries. Its character, initially unilateral and typically commercial, has evolved into a relationship based on bilateral partnership with a scope including not only trade but also development, political dialogue and even migration.

The division of the world into rich North and poor South, colonialism and the Euro-Africa project are the source of asymmetry in European development cooperation. An important factor determining the shape of EU development cooperation with Sub-Saharan African countries is the partnership of the parties involved. However, the Cotonou Agreement is an ambiguous example of a mutual partnership between the EU and Sub-Saharan African states. At the same time, the practical dimension of EU development cooperation with African countries stands in contrast to the philanthropic rhetoric of the EU regarding development cooperation with countries from this region.

A new partnership agreement was signed in Cotonou, with aid for sustainable development at its heart, clearly going beyond the narrow framework of trade and the flow of funds. However, the new agreement has not produced spectacular results. Trade between the EU and African countries has increased, but their share of total EU trade has not changed. The same African countries are still leading the way and the structure of trade is still not sufficiently diverse.

The new post-Cotonou agreement represents a further step towards a genuine partnership and a definitive shift from the donor-recipient paradigm in relations between the EU and the OACPS, towards enhanced political dialogue that takes greater account of the dynamics of change on the African continent, including the importance of the AU.

The strengthened political dimension of the new agreement is a consequence of both making the agreement's objectives more consistent with those of the global development agenda, including in particular the Sustainable Development Goals and the Paris Climate Agreement, and of the EU giving it adequate prominence.

The comprehensive EU-Africa cooperation strategy is today based on five priorities, i.e.: (1) the green transformation and energy access partnership, (2) the digital transformation partnership, (3) the sustainable growth and jobs partnership, (4) the peace and security and governance partnership and (5) the migration and mobility partnership. The need for a stronger partnership stems from the growing dynamics of EU-Africa cooperation, which, now based on compatible interests and values, should enable both sides to achieve common goals and tackle global challenges (EC, CoUE 2022). The increased focus on specific needs and addressing specific problems is also reflected in the creation of three regional protocols that take into account Africa's specific circumstances – as requested by African leaders (Carbone, 2021). The Covid-19 pandemic has further highlighted the need for a robust EU-Africa partnership.

The recovery from the pandemic crisis is therefore an opportunity to build better relationships within a close EU-Africa partnership. According to the authors, the EU's proposed aid package

should spur public and private investment for energy transformation, environmental transformation and digital transformation that will support connectivity and improved access to the digital and data economy, sustainable growth and jobs creation. The creation of youth-owned businesses in Africa is also needed as well as enhancing mobility and employability of students, young graduates and skilled African workers. Supporting initiatives on pandemic preparedness, health security and equitable access to basic health services, and investing in inclusive and equitable quality education, including through the promotion of vocational education and training, also seems particularly relevant.

At the same time, the EU intends to support the stimulation of private investment by mobilizing innovative financial instruments, supports a common framework for dealing with debt that goes beyond the debt-suspension initiative. The EU and AU have already agreed to combat illicit capital and money flows and to seek a solution to the erosion of the domestic tax base and profit shifting and on tax transparency.

It also seems essential to strengthen cooperation between EU and African researchers, to intensify open and inclusive exchanges of ideas on the basis, inter alia, of a joint EU-AU innovation programme, to promote exchanges for young citizens and students, on the basis of an expanded Erasmus+ programme, to develop partnerships between universities, to facilitate cultural exchanges and the circulation of artists and works of art.

On peace and security, on the other hand, there is an urgent need to strengthen the partnership for adequate training, equipment, strengthening and scaling up of autonomous peacekeeping operations of African defence and security forces, notably through EU missions and funding, and support for law enforcement and cyber-security capabilities.

It is also of utmost importance for the EU and the AU to continue to promote the rule of law and respect for human rights and international humanitarian law in order to prevent irregular migration, enhance cooperation in the fight against human smuggling and trafficking, support strengthened border management and achieve effective improvements in return, readmission and reintegration, strengthen the dialogue on migration between the two continents. Therefore, the EU and the AU should strengthen their partnership in finding durable solutions for asylum seekers, refugees and vulnerable migrants in need of international protection.

Despite the clearly political nature of the agreement, EU -Africa relations will also be driven by social change and the activities of civil society organisations. The new partnership, thanks to the above-mentioned solutions, is expected to result in greater mobilization of financial resources on both sides of the partnership, as well as in the inclusion of a broader group of development cooperation actors, who can both give impetus to the actions and then monitor them and verify the results.

Acknowledgements

This publication was produced within the project: *Jean Monnet Module on the European Union Multidimensional Strategy for Tackling Africa's Challenges (EU4AFRI)*. With the support of the Erasmus+ Programme of the European Union. The European Commission support for the production of this publication does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

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Selected Determinants of Income Poverty Among Migrants and Asylum Seekers in the European Union

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Abstract

In this paper we investigate the selected determinants of income poverty among migrants and asylum seekers in the European union. The research studies different aspects and social parameters of poverty among immigrants in the EU. We utilize the 60 per cent of the median in the distribution of equivalent disposable income as the poverty line. Among scientific literature we can find a plenful of research on immigrants' poverty in European union member states and beyond. This topic is becoming more popular and explored in the last decade of migration crisis that generate a huge mass of refugees and asylum seekers entering European countries. To reach the primary purpose of the paper we use household-level data on incomes and living conditions from EU-SILC database. Results show that education level, marital status, and social benefits are robust determinants to decrease the probability of being poor among migrants and asylum seekers.

Keywords: *asylum seekers, European Union, income distribution, migration, poverty*

JEL Classification: *F22, I32, J61*

1. Introduction

This study is trying to investigate the key determinants of poverty among migrants and asylum seekers. To reach the primary purpose of the paper we use household-level data on incomes and living conditions from EU-SILC 2018 database and selected macro variables like income, social benefits, and migrants to population ratio. In contrast to previous studies presented in the literature review, we focus our attention on current data for year 2018, using a combination of personal characteristics of respondents and macro parameters. The current migration and refugee crisis had a significant impact on the social-economic environment of the EU recipient countries, which may have affected the power of poverty determinants. The question of up-to-date effects of determinants on migrant poverty after crisis is the innovation of the study. Results show that education level, marital status, and social benefits are robust determinants to decrease the odds of being poor among migrants and asylum seekers. On contrary, elementary occupation of working migrant increases the probability of falling into poverty.

The history of Europe is significantly marked by international migration flows that have political, economic, and cultural influences (Fassmann, 2009; Van Mol and de Valk, 2016). A significant contribution to the demographic change of the continent was made by the processes of decolonization and the influx of migrants from the former colonies of European powers in the second half of the last century and labour force migration aimed at restoring the old continent after the Second World War (Boswell, 2005). Integration within the European Union

and some similar specifics on the continent, such as language or culture, have also contributed to the diversification of migration flows and the change in the demographic structure (Bárcena-Martín and Pérez-Moreno, 2017). According to Eurostat (2020), in 2019 alone, about 2.7 million people arrived at the Member States of European Union, and as of the beginning of 2020, about 23 million were non-EU citizens. The EU member countries with the largest share of migrants were Germany, France, Spain, Italy, and the Netherlands (World Bank, 2021). Although the highest concentration of migrants expressed as a share of total immigrants per 1000 inhabitants were found in geographically small countries, such as Malta, Luxembourg, Cyprus, and Ireland (Eurostat 2021). Regarding refugees or asylum seekers as part of the total migrant flows, their largest numbers for 2018 were represented in Germany (161,885 or 16%), France (126,580 or 17%), Greece (64,975 or 13%) and Italy (53,440 or 23%). The total number of first-time asylum applications in the EU 28 increased from 263,140 in 2011 to 1,256,580 in 2015 and fell to 675,535 in 2019 (Eurostat, 2020), reflecting the resurgence of the migrant crisis caused by political and security turbulences in the Middle East and North Africa (Marfleet and Hanieh, 2014; Hanmer et al. 2020).

The influx of immigrants and asylum seekers not only had a particular impact on the political, economic and cultural environment (Jamal Bouoiyour, Amal Miftah and Refk Selmi 2019; Guzi, Kahanec and Ulceluse, 2021) but also affected the pattern of income inequality and poverty in the host countries. In addition to the problems associated with their integration, the groups of migrants and asylum seekers are often situated in the lower segment of income distribution and have a high probability of falling below the poverty line. Confirmation of these trends can be found in many studies examining the likelihood of poverty among migrants and factors influencing the level of low incomes that determine the status of a migrant or asylum seeker as a poor. More on these issues is incorporated in the next section of the paper.

2. Background for Studying Poverty and Literature Review

The concept of poverty is a long studying issue that became an object of research among economists, sociologists, and statisticians. Poverty is usually grouped in few oppositional conceptualizations but solely determines lack of resources or material deprivations. However, non-material deprivations became to be examined after the introduction of Amartya Sen's capability approach in conceptualizing human development (Sen, 2006). According to Sen's perspective, person suffer from poverty when he or she is deprived of basic needs, including physical necessities, education, participation in social activities, etc. (Haslam, Schafer and Beaudet, 2017). More narrowed approach of poverty conceptualization is lack of income that limits the consumption and achieving minimum physical needs. In this context absolute and relative poverty measured by income per capita or household become relevant. In this paper we use the term poverty as material criterion of income, meaning living below the national poverty line or, in our case, the equalized disposable household income.

In the scientific literature many factors contribute to the poverty of migrants and asylum seekers that are frequently disposed to discriminatory hosting society that includes limited language and access to education, local labour market constraints, and limited social networks. This determinants effect poverty on the macrolevel and household level. Few works on country level indicators and their effect on poverty can be mentioned. Saunders (2002) or Nienaber (2020), for instance, examined the unemployment rate that showed to be a significant cause of poverty, though in-work poverty seems to be the case for most of EU countries (Marx and Nolan, 2012). Inequality and its impact on poverty are another known relationship that is closely linked and affect each other. The positive relationship between income poverty and income inequality can be found in recent studies of Karagiannaki (2017), Kakwani and Son (2008), or Zaman et al. (2020). In the last decades the education and human capital became

very important factor concerning poverty elimination and appear to be significant in the macrolevel studies on poverty determinants (Awan et al. 2011). Cimpoeru (2020), for instance, presents the study encompassing the investigation of abovementioned macro determinants and their impact on poverty among young natives and migrants in 23 European countries. The result of her study indicates that unemployment and inequality are the main factors causing poverty and social exclusion for both young migrants and young natives.

There are also more studies looking at the problem of poverty and causing parameters among migrants and asylum seekers that investigate the issue within and beyond the borders of Europe. We can mention several single-country studies including Caner and Pedersen (2018) for Germany and Denmark, Kesler (2015) for Germany, Sweden, and the United Kingdom, Blume et al. (2007) for Denmark and Sweden, Munoz de Bustillo and Antón (2011) for Spain and Lukaszewicz (2017) for Poland. These studies examine poverty determinants among immigrants with the emphasis on immigrant-native poverty gaps or solely study the migrant's poverty related to the age characteristics. The recent studies presenting investigation of multiple European countries or whole EU area were performed by Lelkes and Zólyomi (2008), Bárcena-Martín and Pérez-Moreno (2017) or Cimpoeru (2020). Rare study was conducted by Hanmer et al. (2020) addressing the gender issues and incidence of poverty among Syrian refugees in Jordan.

Abovementioned authors studied poverty issues among migrants and unambiguously concluded the higher risk of poverty among migrants than natives. Bárcena-Martín and Pérez-Moreno (2017), for instance, applied the wide set of microlevel and macrolevel determinants that have a potential impact on poverty incidence. Using European Union Statistics on Income and Living Conditions (EU-SILC) they introduced household structure variables like gender, education, age, work contract and ownership of accommodation. Additionally, the macrolevel parameters like gross national income per capita, unemployment, in-work poverty and social benefits were incorporated as well. To define the impact of the chosen determinants or risk of poverty among migrants or natives most of the studies applied the linear probability models (Blume et al., 2007; Kesler, 2015; Bárcena-Martín and Pérez-Moreno 2017; Jakobsen and Pedersen 2017; Caner and Pedersen 2018). In contrast to the abovementioned works, we use updated EU-SILC data for the year 2018, moreover simultaneously control for household level parameters that effects the probability of poverty among migrants and refugees. Similar to Blume et al. (2007), Bárcena-Martín and Pérez-Moreno (2017), or Caner and Pedersen (2018), we define the poverty threshold as 60% of the national median equivalized disposable income, albeit 50% of the median income (Jakobsen and Pedersen, 2017) can be found in the literature up to date.

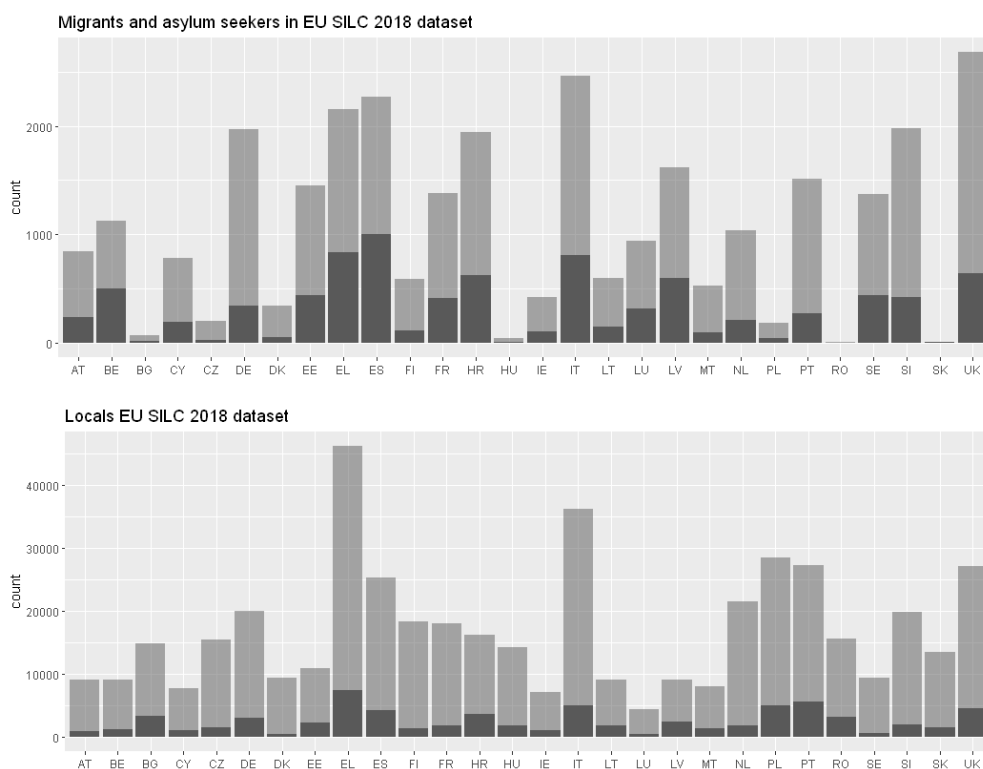
2.1 Model and Data

To fulfil our objectives, we use the data of the EU Statistics on Income and Living Conditions database (EU-SILC), which contains target variables for obtaining detailed information about income, poverty, living conditions and social exclusion. This dataset contains cross-sectional data over a given period with variables on household income, housing conditions, education, labour, health information, citizenship and origin. Variables are structured into 4 different documents (Household register, Personal register, Household data and Personal data) collected at household level (living conditions, income) and individual level for persons aged 16 and above (labour, education and health information). The information is structured in overlapping panels with a 4-year rotation, which means that the households are completely renewed every fifth year (the rotational design). The sample selection is based on a number of subsamples similar in size and design and is representative for the whole population. The reference

population of EU-SILC is composed of private households and their current members, on the territory of member states, at the time of data collection (European commission, 2019).

To reach the purpose of this paper, we use cross-sectional data of EU-SILC database for the year 2018. We use open source software RStudio to transform and merge the observations for the member states including UK. Afterwards we merge the personal data with the household data, by household identity and the country of observation, to obtain personal dataset with households living below the poverty threshold or 60% of median equivalized disposable income and their personal variables. This gives us a database that contains 521 778 observations across all EU member states also including observations for the United Kingdom with variables for personal and household level. Our main purpose is to study the determinants of poverty among the persons that at some point migrated in the EU.

Figure 5: Observation Counts for the Whole Dataset (Equivalized Disposable Income below 60% of Median Income Threshold Darkened)



Source: Author’s representation of EU-SILC dataset for 2018 using RStudio with Ggplot2

Thus, we make a subsample from the personal register of persons that were born outside the EU member states. Our subsample has 30 524 observations of the persons born outside the EU, but it contains also the individuals that already received EU citizenship. We mitigate this by making another sub-sample from the personal data file that will contain only the individuals with other than EU citizenship, which gives us a data set of 12 305 observations. The obtained subsamples are presented in Fig. 1 where the grey bars represent the observation count for each member state and the darkened area are the observation counts for the observations that

are below 60% threshold of equivalized disposable income in each subsample. We see that poverty among the persons that migrated is higher relative to locals. Out of 470 866 observations, 69 917 were below the threshold for locals which represents 14.85%. Out of 30524 migrants, 8 928 persons or 29.25% had their equivalized disposable income below the 60% threshold. We can assume here, that being born outside the EU is already affecting the poverty distribution. When we narrow our subsample to the persons that were born outside the EU but also during the interview possessed other than EU citizenship, we find that 4 546 out of 12 305 observations or 36.94% had their income below the poverty threshold.

Table 7: Selected Indicators for the EU Member States and the UK (2018)

County	Poverty threshold, in EUR	Immigration 2018	Accumulated Migration	Migration to population ration	GNI, USD	Social benefits, % of GDP
Austria	15105	105633	1593399	0,180238	48950	29
Belgium	14212	137860	1873511	0,163954	46010	27
Bulgaria	2154	29559	153974	0,021918	8530	16
Cyprus	9202	23442	207591	0,174554	26990	18
Czech Republic	5453	65910	752773	0,070816	20560	18
Germany	13628	893886	12550982	0,151389	47410	29
Denmark	18062	64669	557573	0,096239	61260	30
Estonia	6314	17547	134775	0,10195	21300	16
Greece	4718	119489	1274288	0,118727	19060	25
Spain	8871	643684	6256804	0,133699	29280	24
Finland	14727	31106	267289	0,048461	48160	29
France	13332	387158	7969646	0,118769	41150	31
Croatia	3995	26029	636073	0,155601	14280	21
Hungary	3254	82937	496368	0,050776	14980	16
Ireland	14952	97712	836625	0,171886	59280	13
Italy	10106	332324	5906960	0,097762	33810	28
Lithuania	4137	28914	259290	0,134544	16530	15
Luxembourg	20683	24644	264515	0,435093	79440	21
Latvia	4400	10909	223227	0,07968	17450	16
Malta	8868	26444	46219	0,09537	27090	15
Netherlands	14410	194306	2041933	0,118499	51250	27
Poland	3944	214083	667739	0,017584	14150	21
Portugal	5607	43170	893945	0,086927	22030	23
Romania	1970	172578	391142	0,020085	11430	15
Sweden	15324	132602	1746117	0,171605	55640	27
Slovenia	7946	28455	380263	0,183357	24610	22
Slovakia	4477	7253	182863	0,033573	18320	18
United Kingdom	12878	603953	9202494	0,138466	42410	20

Source: Estimation of accumulated migration: Knomad (2017), Social benefits as a % of GDP: OECD (2022)., Data on population and GNI: World bank. (2022).

The levels of poverty thresholds for individual economies of the EU member states and the UK are presented in Table 1. Of course, thresholds vary tremendously because of cost of living in the member states. In some Member States the level of 60% poverty threshold is higher than

the equivalized median income in other countries. This basically means that for example in Bulgaria half of the population lives under the median income of 4 224 EUR meanwhile in Denmark the 60% of the median equivalized household income or the poverty line is 18 062 EUR. These statistical differences are because of different prices of living conditions.

The data for other determinants were obtained from international organizations like OECD and the World bank. We use social expenditure as a percentage of GDP as a control variable for different welfare benefits levels, with the assumption that the greater is the level of wealth redistribution in the society the lower are the poverty rates. Social benefits could aim at low-income households, the elderly, young or unemployed persons raising household income and helping rise from poverty. The data from the OECD doesn't account for the private transfers between households because they are not considered "social". It also accounts for the effect of the tax system by direct and indirect taxation and by tax breaks for social purposes (OECD, 2022). The level of GDP per capita is macro variable which is indicative of economic opportunities. It is obvious that that the GDP per capita is tightly linked with the cost of living and thus with the level of poverty threshold, but we assume that the higher the GDP per capita the more possibilities will an individual have to escape poverty.

As shown above we see an increase in people below the poverty threshold for born outside the EU and for the holders of other than EU passports. In order to further establish what determinants are linked with poverty we use a logistic regression model. For our research, it is of particular interest whether variables such as education level, marital status, tenure status, temporary type of work contract, elementary occupation, female are significant for determining poverty among migrants.

2.1.1 Model Calibration

The dependent variable for logistic regression model is coded from the data on disposable equivalized household income, available in the household data file. We code a dummy variable for persons with below poverty threshold disposable income which receive 1, if above 0.

For independent variables we control for gender by creating a dummy variable which has the value of 1 if female otherwise 0. We are trying to identify if gender is somehow related to poverty among migrants. For education, we made a dummy variable that receives a value of 1, if a selected person has tertiary or above level of obtained education, otherwise 0. It is assumed that the higher the obtained education the lower the probability of being poor. EU-SILC incorporates data on type of working contract, and we code this dummy variable as 1 if the contract is for a limited period assuming that workers on a temporary contract are more economically vulnerable. The occupation type is coded in 9 different groups in a way to reflect the elementary types of employment (the 9-th category in the database). We apply a variable that received 1 if the occupation is elementary. The assumption is that elementary occupations are not providing enough income to reach the minimum threshold. We control for marital status as well. If a person is married then the variable receives the value of 1, otherwise 0. We also control for dwelling type, anticipating that if a person owns an accommodation unit the risk of being below the threshold will be lower.

Macroeconomic variables such as GNI per capita are used to investigate if the economic level is affecting in some manner whether a person is more likely to fall into poverty. The level of social benefits as a percentage of GDP is considered a factor of wealth redistribution and we assume that higher allowances will reduce the probability of being poor. The accumulated migrant population to total population ratio is considered as an indicator of labor force abundance (scarcity) and competitive job environment. Therefore, we assume that higher migrants to population ratio will increase the probability of being poor.

In our specific case we use Gretl 2019d software to estimate a model with the dependent variable that is not continuous, but discrete, also referred to as qualitative response model.

$$y_i = \begin{cases} 1 & P_i \\ 0 & 1 - P_i \end{cases} \tag{1}$$

The dependent variable is representing the poverty threshold criterion (1 if below the threshold and 0 if above). We consider y_i to be to be a random variable and analyse its distribution conditional on the explanatory x_i . Gretl estimates the logit model via maximum likelihood, where the log-likelihood can be written as:

$$\ln\left(\frac{P_i}{1-P_i}\right) = a + bx + e \tag{2}$$

where p_i is the probability of poverty, b is a vector of parameters to be estimated, x is a vector of explanatory variables and i is the individual with its personal characteristics for the year 2018.

3. Problem Solution

According to logistic regression results the number of incomplete observations is 3 977 as Gretl deals with missing values by dropping the observation. The number of correctly predicted cases is 67.1% which indicates that the model is statistically significant and fits the results well. The social benefits to GDP ratio (*Social_BEN_GDP*) show a negative and statistically significant coefficient indicating that an increase in wealth redistribution has a negative influence on the predicted probability of being poor. The GNI per capita (*GNI_macro*) shows a positive coefficient, but the results prove to be statistically insignificant. Migrants to population ratio (*Mig_to_Popul*) seems to indicate that there is a decrease in predicted probabilities of being poor with a rising percent of migrant population, though the P -value indicates that result is not statistically significant.

To interpret the predicted probability of Social benefits (*Social_BEN_GDP*), we could highlight the changing impact of x on P using:

$$P = \frac{\exp(\beta_0 + \beta_1 x)}{1 + \exp(\beta_0 + \beta_1 x)} \tag{3}$$

to receive:

b_0	b_1	x	P	Change in P
-0,15	-0,0151	1	0,457967659	
-0,15	-0,0151	10	0,424552335	-0,0185
-0,15	-0,0151	15	0,406262331	-0,0183
-0,15	-0,0151	20	0,388228681	-0,0180
-0,15	-0,0151	30	0,353105806	-0,0351

The values of predicted probability (P) decreases by 0.018 as social benefits on GDP increase from 15% to 20% and by 0.035 going from 20% to 30%, if all other remain fixed. This means that migrants are less likely to end up below poverty threshold in countries with more generous social benefits system and even more so in countries with social benefits reaching above 20% of GDP.

The results for the selected personal type variables proved statistically significant with exemption of gender (*Female*) and tenure status-owner (*Tenure_Owner*). Results are in line

with our expectation as the coefficient for gender predictor is positive, albeit the result is not statistically significant. The result regarding tenure status is in line with our expectations as well. Being an owner of accommodation reduces the probability to fall below the poverty threshold, though the *P*-value is higher than 0,05.

The results for Education (*EDU_LvL3andUp*), Elementary occupation (*Occup_element*), Temporary working contract (*Temp_Contract*) and Marital status (*Married*) all proved to be statistically significant and totally in line with theoretical assumptions. Education (*EDU_LvL3andUp*), has a negative value meaning that tertiary and higher obtained education reduces the likelihood for migrants being under the poverty threshold.

Having tertiary education or above and being below the poverty threshold is 0.534 times that of being below poverty threshold and lower than tertiary education, controlling for all other variables being constant. In other words, the likelihood of being poor with higher level of education decreases versus lower levels of education, which is in line with expectations.

Figure 2: The Results for the Set of Independent Variables

	Coefficient	Std. Error	z	p-value	
const	-0,153462	0,153231	-1,002	0,3166	
GNI_macro	1,07451e-06	3,07290e-06	0,3497	0,7266	
EDU_LvL3andUp	-0,627531	0,0624722	-10,04	<0,0001	***
Female	0,0215468	0,0495167	0,4351	0,6635	
Occup_element	0,218873	0,0544513	4,020	<0,0001	***
Tenure_Owner	-0,0718309	0,0627315	-1,145	0,2522	
Temp_Contract	0,416546	0,0549357	7,582	<0,0001	***
Married	-0,387587	0,0492227	-7,874	<0,0001	***
Social_BEN_GDP	-0,0150651	0,00631957	-2,384	0,0171	**
Mig_to_Popul	-0,453055	0,595309	-0,7610	0,4466	

Mean dependent var	0,327570	S.D. dependent var	0,469355
McFadden R-squared	0,031750	Adjusted R-squared	0,029852
Log-likelihood	-5099,766	Akaike criterion	10219,53
Schwarz criterion	10289,81	Hannan-Quinn	10243,54

Number of cases 'correctly predicted' = 5592 (67,1%)
 f(beta'x) at mean of independent vars = 0,469
 Likelihood ratio test: Chi-square(9) = 334,457 [0,0000]

The same is also true for marital status (*Married*). Being married and below the poverty threshold is 0.6787 times that of not being married below the poverty threshold. Married marital status decreases the likelihood of being poor, but the impact is less intensive than that of the education level.

The type of job (*Occup_element*) and the temporary type of working contract (*Temp_Contract*) are statistically significant and increase the odds of being poor. If the occupation is in the elementary jobs it increases the odds of being under the poverty threshold by 24%. If the

contract is temporal, it has even stronger effect and increases the odds of falling below the national poverty line by 51.6%.

4. Discussion

To summarize our results on poverty determinants among migrants and asylum seekers in EU Member States we can discuss on several important issues. Firstly, we find that the overall poverty is more than two times higher among migrants in comparison to locals. In this context, it is always a difficult question how to introduce measurement in topics that are usually highly politicized and yet very actual. There is a wide field for counter arguments and methodological criticism of the 60% of median equivalized household income measurement of poverty. Still this form of measurement provides us with insight of main determinants for policy makers to enhance the integration of migrants and asylum seekers into the host societies. Secondly, it could be argued that refugees and asylum seekers are in even worse conditions not having the access to the labour market and to the social system, which would introduce additional factors to poverty odds. From the practical implementation standpoint, it is clearly visible that active social programs and policies allow to help materially deprived households and are significant in reducing poverty. When studying migrant-native poverty gap Jakobsen and Pedersen (2017) or Bárcena-Martín and Pérez-Moreno (2016), for instance, have found gender to be a significant factor for predicting poverty among migrants in 2011 and 2012, respectively. With our dataset for the 2018 we see that gender is not being relevant for predicting poverty among migrants. This could be a result of gender policies impact on lowering gender disparities. Finally, incorporation of occupation variable for studying incidence of poverty among migrants is rare in the literature up to date but included in our analysis. Labour market accessibility could be a significant factor for reducing odds of falling into poverty. In practical context these findings are relevant for the policy makers and indicate that not only the job accessibility but also type of occupation is critical to move out of poverty and achieve the smooth integration for migrants and asylum seekers.

5. Conclusion

Migration trends are rising with globalisation, the movement of people is intensifying like never in history and this tendency is likely to continue. In the European union we see large foreign population inflows, often referred as migration crises. It is a very discussed topic in mainstream media and in academia. Some argue that quantity is the dialectic part that is the most important. Our research shows that quality indicators are significant, and quantity is not. The results point that families are more resilient in going through challenges and hard times so family reunification is a good policy for reducing poverty. We find that helping of those in need is relevant to reducing the odds of poverty, social programs aimed at poor are important and relevant.

Our main goal was to study the poverty determinants of the most materially deprived group of population (migrants, asylum-seekers and refugees). Using the EU-SILC database we were able to identify 8 928 observations of the most materially deprived people, who were born outside the EU member states, possess other than EU passports and their income is below the 60% of the median equivalized disposable income in the country of observation. The first two big determinants which raise the likelihood of being under the poverty threshold are being born outside EU and holding other than EU passport, the percentage raises from 14,8% for locals to 36,9% for migrants.

With a logistic regression model, we investigated the poverty determinants that are relevant among the migrants and asylum seekers, who we consider already the most materially deprived group, because the poverty in this group is more than two times higher compared to locals. With the logit model, build in the Gretl 2019d software, we investigated the determinants that are leading to higher likelihood ratios of being under the poverty threshold. From the macroeconomic standpoint the results show that the percentages of social benefits to GDP are lowering the predicted probabilities to fall into poverty. It is less likely for a migrant person to suffer from poverty in the countries with higher redistribution rates of social benefits systems. This effect even strengthens if the share is higher than 20% of GDP. Social protection systems help individuals and families, especially the poor and vulnerable to cope with crises and shocks, find jobs, improve productivity, invest in the health and education of their children, and protect the aging population. The proportion of migrants to total population and gross income proved to be statistically insignificant for predicting poverty among migrant and asylum seekers. Level of education and marital status proved to have a strong effect in reducing the probability of being poor. The persons with obtained tertiary education and higher are less likely to be in poverty. Being married reduces the odds of being poor. We find that labor characteristics also had statistically significant results and showed that migrants with elementary occupations and temporary working contracts are more likely to fall into poverty. The effect of most determinants is in line with theoretical assumptions and results of relevant literature up to date.

Acknowledgements

This paper was created within the *Migration Governance and Asylum Crises* (MAGYC) project that has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No. 822806.

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Smart Specialization Policy in the European Union: Past–Present–Future

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Abstract

The Smart specialization (SS) policy is a concept incorporated as a key feature of the European 2020 innovation strategy. Since then, it has become a highly relevant element of regional and industrial policies in the European Union (EU). It has also changed the paradigm design of cohesion policy from its redistributive logic to a development focus advocating a new strategic orientation. The objective of this article is to discuss the process of the evolvement of SS policy in the EU. Firstly, this article compares the SS concept with other emerging approaches to industrial and innovation policy. The main goal is to analyze key features of the SS concept and its novel principles that broke with traditional policy approaches and practices. On the other hand, the article also identifies the uptakes and downs of implementing the SS concept in different European regions. Finally, the article looks at the sustainability of this concept with the relevance of changes in European cohesion policy and the emerging rise of mission-oriented innovation policy focusing on tackling societal changes such as climate crisis.

Keywords: cohesion policy, European Union, innovation policy, smart specialization,

JEL Classification: O25, O31, O38, R11

1. Introduction

This paper focuses on the smart specialization policy as established by the European Union and the process of its development. Smart specialization policy is an innovation policy that focuses on developing new specializations in regions. It aims to identify and exploit opportunities in regions to develop new growth paths build on related variety and diversification. (Foray, 2015) Since its origin connected to the start of the 2014 programming period, it has developed into an important feature of the current regional innovation policy. However, its implementation presents its pros and cons, and the future-oriented use of the smart specialization approach confronts it with new challenges with respect to contributing to solving the large challenges of economic, social and mainly environmental sustainability.

Regions represent the critical level within the framework for shaping innovation capacity (De Bruijn and Lagendijk, 2005). The regional innovation system (RIS) approach has increased our understanding of regional innovation dynamics and led to the development of place-specific and efficient innovation policies. Nevertheless, this policy is also viewed as a static framework. This approach was criticized for looking at certain well-functioning, successful, regional economies, but the historical development was not very much reflected upon (Asheim et al., 2011; Doloreux and Parto, 2005). These developments have called for making the RIS approach more dynamic. One of the paths to reflect these needs is to focus on underlying the understanding of how RISs can be transformed to meet new demands for economic

restructuring (Asheim et al., 2019). The smart specialization approach stands up for the development of innovative strategies that promote economic structural change to guarantee the long-term competitiveness of regions (Foray, 2015). This means focusing on policies that support regional economies to restart their industrial base by diversification into newly established or new related economic fields (Boschma, 2014). The concept of smart specialization was created by experts associated with the Knowledge for Growth Group (K4G), with the main author being the Swiss economist Dominique Foray. The basic goal is to help the emergence and development of innovation activities with high potential for growth and spillovers, i.e., to change the structure of the economy towards activities with high added value. The smart specialization strategy thus represents one of the most important attempts to redefine approaches to innovation policymaking in several decades.

The aim of this paper is to critically review, synthesize and discuss the process of evolution of the smart specialization approach. This paper contributes to the discussion on the role of regions in the economy and the pursuit of their innovativeness. It also touches upon the need to act towards the grand societal challenges on the local level. A reasonable question to ask therefore is, does the smart specialization concept still represents a useful and relevant approach? Can this approach still produce important insight on how to promote regional growth and at the same time solve challenges such as climate crisis or sustainability? This article aims to answer the preceding questions and provide a critical lens to this concept. The methodology of this article is based on intensive qualitative research to enable deeper investigation of the smart specialization concept, its novel principles and challenges in its implementation. The research consists of review of scientific literature and strategy documents published by the European and regional institutions. The empirical section focuses on identification of regions' issues and challenges with the implementation of smart specialization concept. This is followed by a discussion of future policy initiatives following new trends within innovation policy. Added value is created by confronting these initiatives focusing on societal challenges with the concept of smart specialization policy.

The paper is structured as follows. The next section provides the conceptual background of the smart specialization theory and reflects upon its role within other innovation-based concepts. Section 2 also explains the innovations imposed by smart specialization strategy that break down with traditional approaches and practices. Section 3 discusses the implementation of the SS concept by revealing the challenges connected to it. Section 3 also touches upon the future role of the concept towards the reflection of new European challenges. Finally, the paper concludes with some policy suggestions and a discussion about the limitation of the concept and future research. It can be argued that the smart specialization concept still plays a critical role, however, it needs to adapt to societal challenges not just with recommendations but with compulsory policy lines.

2. European Union: Smart Specialization

Regional development policy in European Union focused on reducing regional differences through the common European market via redistribution of funds and has been present since the establishment of the Treaty of Rome. Starting in the 1990s, the European Union devoted part of its European Regional Development Fund (ERDF) to boost the technological deficit of less developed regions. This direction continued in 2000 when the development focus shifted from the redistribution itself (from rich to poor regions) towards the enhancement of the international competitiveness of the whole EU through its innovation-based regions (Wolfe, 2010). To mark this change to more contextualized, bottom-up strategies, that should support local actors in mobilizing networks and setting priorities for global competitiveness the "smart

specialization approach” was established (Morgan, 2017). This was achieved mainly because of the role of the European Commission that set up the development of Research and Innovation Strategies for Smart Specialisation Strategies (RIS3) as a condition for receiving EU funding (ex-ante conditionality), initiated under the Thematic Objective for Research and Innovation of the ERDF (European Commission, 2014). Capello and Kroll (2016) argue that this led to the paradigm shift in the design of cohesion policy from being grounded on a redistributive logic toward a development logic. Smart specialization as a policy concept was also incorporated as a key element in the EU 2020 Strategy.

Smart specialization is according to European Commission described as a place-based approach characterised by the identification of strategic areas for intervention based both on the analysis of the strengths and potential of the economy and on an Entrepreneurial Discovery Process (EDP) with wide stakeholder involvement. It is outward-looking and embraces a broad view of innovation including but certainly not limited to technology-driven approaches, supported by effective monitoring mechanisms (European Commission, 2022a). This new approach advocates for the strategic orientation of innovation policy with the emphasis on modernization of regional economics, their diversification into new fields building on the knowledge base and capabilities developed in past (Asheim et al., 2019).

The concept itself derives from the theory of new industrial policies (Rodrik, 2004), the evolutionary economic geography (Martin, 2010) and the systemic approach to innovation focusing on learning models and knowledge bases (Jensen et al. 2007). The smart specialization concept also stems from similar theoretical ideas as the concept of constructing regional advantage approach (CRA) (Klímová and Žítek, 2018). The smart specialization builds on three concepts: embeddedness, related variety and key enabling technologies. Embeddedness recognises the role of path dependency in regional development focusing on existing industrial advantages. Related variety calls for specialized diversification to adapt the technologies and networks in established sectors to complementary ones. Key enabling technologies are specific technologies (for example photonics, biotechnology and nanotechnology) that can streamline the region’s dynamics. Not every region can be the leader in these technologies but can improve the industries in the value chain (Bradford and Bramwell, 2016).

Table 1: Novel Principles in Smart Specialization

Principle	In contrast to
Analysis of regional assets and potentials	Imitating successful strategies implemented by different regions
Place-based and evidence-based regional innovation policies	"One size fits all" policy, models
Broad understanding of innovation	Narrow R&D oriented strategies
Bottom-up policies	Top-down policies
Entrepreneurial Discovery Process	Picking winners
Support on a few selected priorities	Generic support
Focus on radical as well as incremental innovation	One goal regarding the development of innovation
Prioritization is an interactive process (important role of entrepreneurs)	The role of omniscient planner
Transformative strategy backed by EU funds	Lack of EU support and guidance

Source: own analysis (2022)

The main difference of the SS concept derives from the fact, that smart specialization focus on place-based and evidence-based innovation policies. These policies are established considering regional assets thus moving beyond the imitating successful strategies implemented in other regions. In practice, the regions should look further than “one size fits all” policy models and traditional narrow R&D oriented strategies or imitating strategies (European Commission, 2012). The concept stresses the Entrepreneurial Discovery Process advocating for the involvement of stakeholders in the identification of the areas where the region can have a comparative advantage and the prioritization process (Trippi et al., 2019). The term entrepreneur is not understood in a rigid organizational spirit, but much more broadly, so it can include important entrepreneurs, but also active employees of universities, research organizations, public administration etc. These stakeholders are empowered to identify the domains of innovation that should be investments priorities. These should reflect the regional knowledge assets and productive advantages and be viable competitive features for ensuring the region's successful economic growth (Bradford and Bramwell, 2016). These all break down with the traditional policy approaches and practices as noted in the table 1.

The smart specialization should respond to the economic challenges of regions and focus scarce resources on activities that have economic potential. This can lead to the development of strategies that rejuvenate traditional sectors and ensure the economic transformation of the area. Regions are more visible to international investors because it helps to position regions in specific international markets or value chains (corresponding to attracting private investments). Besides, this leads to the improvement of the region's connections to other regions as well as internally within the quadruple helix network. By focusing on tailoring strategy to region's specific needs it makes sure the resources are spent efficiently and the overlaps are avoided. At last, it ensures the promotion of knowledge spillovers and cross-clustering (technological diversification) (Dzemydaitė, 2021)

The authors of the SS concept leave each state free to choose the rank at which the RIS3 will be developed and implemented, while a two-tier approach is also possible (existence at national and regional level). Each region thus selects vertical priorities within RIS3 based on the performed analysis, within which it uses the EDP process to look for domains of perspective specialization and to focus their attention significantly on their support. The purpose of the strategy is not to support some specializations at the expense of others, but on the contrary to do something beyond the current regional or innovation policy activities for promising areas (Masana, 2021). In other words, it is about finding out in which research and innovation domains your region excels (Klímová, Žítek, 2018).

3. From Theory to Practice

More than 120 smart specialisation strategies have been developed and implemented during the programming period 2014-2020. These strategies pursued investments of over 40 billion EUR (65 billion EUR including national co-financing) (European Commission, 2021). European regions have become the leaders in using the concept. This approach also spread worldwide as other countries outside the EU (such as Eastern Partnership countries, or Latin America, Africa) investigate opportunities to apply the SS concept as well (Dzemydaitė, 2021).

Early experiences with the smart specialization were investigated by academics by the case study approach (Cooke, 2016; Estensoro and Larrea, 2016; Iacobucci; 2014). These studies imply several failures of regions such as a focus on too broad areas of specialization, missing the research of links between the sectors, not considering the complementarities with other

regions and not choosing the strong enough relations between industrial activities and regional assets and the regional development potential. Comprehensive overview of challenges in smart specialization practices is shown in the Table 2. These studies were conducted in the early stages of setting up the smart specialization when the regions were not enough knowledgeable to provide efficient results. On the other hand, there were additional studies that show more positive results. Survey results by McCann and Ortega-Argilés (2016) provide information that many regions have been successful in integrating smart specialization in their policy processes. They also argue that the EDP made the innovation policy more inclusive (in many cases it had led to the reorganisation of the establishment of coordinating bodies/platforms or thematic working groups). New clusters also emerged thanks to the EDP. Nevertheless, they also mention that many regions did not pay attention to monitoring and evaluation of their strategies. Tripl et al. (2019) focused on the phase of implementation of the SS concept and argue that unclear funding and budgetary commitments are key setbacks in this phase. The most recent research done by Foray et. al. 2021 states that the identification and development of transformative activities remain a significant challenge in the practical implementation of the concept.

Table 2: Challenges Affecting Smart Specialization Practices

Pattern	Influence
Degree of decentralization and autonomy of a region	Regions that have limited formal competencies cannot influence properly the adoption and implementation of smart specialization policies.
The quality of the institutional set-up	Ineffective institutions can hinder the set-up of smart specialization strategy and undermine its effects. The role of past policy experiences is also critical.
The level of participation	Stakeholders' capacity to be active in setting up SS and their knowledge used in creating the SS.
Cooperation of stakeholders	Setting up SS requires cooperation on a triple/quadruple helix basis and multi-level governance.
Different specialization of stakeholders	Stakeholders that are active in setting up SS needs to have different background/knowledge and level of specialization. The necessity to have a variety of maturity of involved stakeholders.
Level of formal and informal institutional collaboration	Well internal and external connected regions represent a stronger capacity for joint implementation of SS.
Governance perseverance	Implementation of SS is highly influenced by governance changes. It can affect the funding, prioritization etc.
Level of smart specialization prioritization	The too narrow definition of these priorities can lead to the elimination of some stakeholders and not sufficient implementation.

Source: own elaboration based on Cooke, 2016; Estensoro and Larrea, 2016; Iacobucci, 2014; McCann and Ortega-Argilés, 2016; Kroll, 2015; Tripl et al., 2019

3.1 Regional Aspects

Kroll (2015) argues that the extent to which smart specialization has influenced or boosted changes in policymaking strongly differs across regions. He defined three different types of regions. Central and Northern European regions are drivers of smart specialization because the

activity has led to the change in government policy practices; Southern European regions represent active beneficiaries that have already had established some of the parts of smart specialization and Eastern European regions where because of the established traditional system was difficult to apply the implementations of smart specialization to governance principles.

It was also argued by Karo et al. (2017) that the well-developed regions are successful in realizing this concept. These regions have a well-established culture of cooperation that enables the realization of these policies. In less developed regions, the smart specialization strategy is in most of the examples just a necessary condition to fulfil to unlock EU funding (Karo et al., 2017). Blažek and Uhlíř (2020) clearly state that smart specialization contributes most to the development of highly developed regions, while some less developed regions are not able to implement it. This is mainly due to the inefficient level of public administration, lack of institutionalization of the concept and the governance of smart strategy including the differentiation of priority activities, development of policy instruments and budgetary processes. If SS is to become an important concept in these regions as well, attention needs to be paid to improving public governance quality (Morgan 2017). Moreover, as noted by Hassink and Gong (2019) successful examples of smart specialization are in relatively small regions, where the EDP process led to a transformation of an existing cluster.

3.2 Focusing on Future

It is necessary to state that the smart specialization concept has been focusing on ensuring national/regional economic growth. This focus is closely related to the main goal of European cohesion policy. The smart specialization approach was developed in an economic and political context in the 2010s. During these times, the cohesion policy was led with a predominant concern to ensure territorial, economic and social cohesion. However, there ought to be nowadays an ever-increasing extent of demands that the innovation, industrial policy should not only reflect economic goals but should also focus on enhancing capacities to tackle dynamic challenges we are facing (climate change, ageing society, migration etc.) (Asheim et al., 2016). These challenges are often referred to as grand societal challenges because they are complex, systemic, interconnected, and urgent, requiring insights from many perspectives (Mazzucato, 2018). These findings require us to move beyond the classic paradigm of focusing strictly on economic growth. Questions about societal benefits and the possibilities of innovation to tackle these changes are critical (Schlaile et al. 2017). We are aiming to focus on a "mission-oriented innovation policy" as stated by Weber and Truffer in 2017. This means focusing on turning these challenges into problems that drive innovation across multiple sectors and actors shifting its focus on mobilizing technology. These should ensure inclusive and sustainable economic development. Asheim et al., 2018 also argue that it is necessary to link smart specialization policies with a system innovation policy (horizontal innovation policy). These require new regulations and norms.

Smart specialization will be an important element of cohesion policy in the programming period 2021-2027. The smart specialization will be strengthened in 2021-2027 by good governance requirements that highlight the necessity of having a competent institution or body responsible for its management and measuring performance towards the objectives of the strategy. Action to manage the industrial transition and international cooperation are also mentioned as new elements of this policy (European Commission, 2022b). However, the need of reflecting the societal challenges is not described in any of the official directives and policy documents.

Nevertheless, the European Commission introduced a new initiative called Smart Specialisation Strategies for Sustainability (S4). This initiative focuses on creating place-based strategies, that combine directionality with bottom-up energy. The aim is to connect strategies at a regional and national level with EU wide policies such as the European Green Deal or UN's 2030 Sustainable Development Goals. It mobilises transformative innovation in a systemic approach for cross-sectorial solutions it focuses on synergies between innovation, sustainability, infrastructure and skills; and it connects investment with regulation and reform (European Commission, 2022c). Important is to note that S4 is a voluntary choice. The EC also published new publications focusing on the topic such as *Fostering the green transitions through Smart Specialization Strategies; Addressing sustainability challenges and Sustainable Development Goals via Smart Specialization; Smart Specialization, Sustainable development Goals and Environmental Commons*. These publications provide guidance and examples on how to foster environmentally oriented activities in the context of smart specialization. It also provides suggestions on how to strengthen and revise the SS approach towards accomplishing the European Green Deal and UN Sustainable Goals. However, it is important to mention that regions are not obliged to take this "road" as these aspects are voluntary. These documents are also published only in English and are very recent (published in 2021,2020). The communication of these possibilities for regions is also not enough presented (a few articles on the SS platform).

4. Conclusion

Nowadays, smart specialization represents an important piece of current regional and industrial policies in the European Union (McCann and Ortega-Argilés, 2016). As stated in the article, policymakers and academics have paid great attention to the smart specialization concept. This concept represents a place-based approach that emphasises prioritization through the entrepreneurial discovery process. This paper aimed to discuss the process of the evolvement of smart specialization policy in the European Union. As this concept is very young and was developed and implemented in a very short time, it can be argued that it is the policy running ahead of theory as stated by Foray (2015). On the other hand, this concept has become increasingly prominent and received attention not only from academics, politics but also internationally thanks to OECD or World Bank. The number of publications focusing on the topic exceeds 100 thousand (Google Scholar search).

First, it is necessary to state that smart specialization offers many positive variables such as deepening the focus on place-based and place-sensitive approaches through the creation of the strategies. These strategies are supported by European regional funds which is critical while considering its actual implementation. It leads to more effective spending of European resources, concentrating on certain domains of knowledge of expertise. Smart specialization also places the focus on regional policy stakeholders (their participation through EDP) and takes regions specific needs and resources into account. This leads to the creation of synergies between the institutions and the elimination of fragmentation and duplications of policy interventions. However, based on previous analysis, the article pointed out challenges the concept of smart specialization is facing. These challenges include the level of participation, the quality of institutional set-up, cooperation of stakeholders, governance perseverance, level of prioritization etc. It is also necessary to argue that not every regional government was prepared for such an approach and there were differences mostly at the level of economic development of the regions.

On the other hand, through the smart specialization policy, the governments are seeking economic growth that is smart and innovation led. It is necessary to see this also in the context of grand societal challenges such as tackling climate change, improving public health etc. The question arises: how do the smart specialization concept fit into the overall goals of the European Union related to climate change and other social challenges? As noted in the article the new programming period supports the smart specialization concept, but its heading towards the grand societal challenges is reflected in minor ways. As the smart specialization concept succeeded in involvement of the regional actors, this aspect can be highly relevant while focusing on grand challenges. It can together with the elements of mission-oriented policy promote the regional growth as well as to group different actors together to find ways towards solving grand challenges. However, the main goal of the renewed EU SS concept is to improve the functioning of the process itself deepening its monitoring and evaluation. But is it enough? It is necessary to argue that the EU should move towards encouragement of solving the grand societal challenges. There are some attempts such as S4 initiatives and new publications showing examples of good practice how to concentrate on solving comprehensive issues within smart specialization policy. However, these are voluntary for regions to focus on. These aspects should be made compulsory by the EU legislation within the process of setting up the RIS3 Strategy. This would lead to both promotion of regional growth and at the same time focus on societal challenges. To conclude, the future success of the SS concept will stem from its capacity to turn its very well-established ground base into the set-up serving the implementation of EU climate and sustainable goals, in a relationship that would help the regions to focus on their untapped resources as well as pursuing these grand social goals challenges. This European regional policy showcase as smart specialization concept definitely is should better reflect these challenges the EU and the citizens are facing.

Acknowledgements

This paper was created within the project Specifické faktory konkurenceschopného rozvoje na regionální a lokální úrovni. Project registration number MUNI/A/1406/2021.

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Size Matters... And Age Too - Differentiated Integration Approach to the Functions of the EU Council Rotating Presidency

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Abstract

The objective of this paper is to present how the roles attributed to the institution of the EU Council Rotating Presidency changed after the reform of the Lisbon Treaty. It argues that the legal modifications introduced by the treaty brought about some further going changes of the roles performed by the EU member state presiding the EU Council. The analysis goes beyond simple reading the Reform Treaty and focuses on the perceptions and expectations towards the Rotating Presidency (as understood by the logic of appropriateness). The change of perceptions regarding the roles of the Rotating Presidency is seen in relation to the level of the council system and its field of competence. As a result this study delivers a map of roles (expected behavior in a given institutional setting) according to their salience, as well as the level and the competence area of the Council. The explanatory variables employed go also along the lines: old / new and big / small member states, which makes it possible to identify the relatively important differences in the roles prescribed for the new and small as well as the old and big member states chairing the EU Council. The study is based on the analysis of the perceptions and expectations towards the Presidency gathered from experts (dealing with the presidency on practical or more theoretical grounds) in the form of questionnaires and, complementary, semi-structured interviews.

Keywords: rotating presidency, Lisbon Treaty, CEE, differentiated integration, EU

JEL Classification: F50, F55, F59

1. Introduction

The presented paper aims at incorporating the differentiated integration approach (Riedel, Gierlich 2021) to the problem of changing roles attributed to the Rotating Presidency function directly after the ratification of the Reform Treaty of Lisbon. The new system has not been subject to systematic scholarly analysis yet, and as such this paper constitutes an innovative contribution to the better understanding of the new situation. Indirectly, however equally important, it also addresses the need for further operationalization of the Presidency's roles and takes the stand in the discussion on the nature of the political influence and impact power that the chair disposes. Above all however, analyzing the role perceptions is justified in order to capture the Presidency concepts in the transitional period (RPs performed directly after the treaty change). Any future research of the Presidency performance will require a reference point which should be the norms and expectations which are re-formed after the treaty change.

The theoretical assumptions suggest that the institutional change created by the treaty reform acts as a 'critical juncture' - as understood in the historical institutionalist perspective - and can be treated as an important mile stone in the evolution of the Presidency. Its perceptions and expectations (Maurer 2008) are tested along the lines of the two variables: the size of the chairing member state and its years of membership in the European Union. Roles perception of the Council's rotating Presidency is a legitimate analytical approach, locating itself in a well established field of research on tasks, roles, performance and evaluations of the Presidencies. Therefore the closes theoretical stream to the presented study is the sociological institutionalism with its focus on norms and logic of appropriateness. However this analysis also uses some from other elements present in other variations of institutionalism (rational-choice and historical) that are useful in interpreting the findings of the empirical part of the analysis. Each of the institutionalist perspectives offers some adequate explanatory potential for discussing different aspects of Presidency roles evolution.

The spirit of this study is explanatory as it aims to face the challenge of investigating the roles performed by the Rotating Presidency of the EU Council (RPEUC) in the new treaty regime. The fundamental novelty of the situation sums up, beyond other aspects, to the change in which the so-far six-months rotating Presidency - at both the European Council (EC) and the European Union Council (EUC) level - was modified into a hybrid system combining a rotating component at the EU Council level and its formations, with the establishment of a semi-permanent President for the European Council (Blavoukos, Bourantonis, Pagoulatos 2007). Additionally, the Presidency lost its roles in the field of foreign policy for the prerogatives of the strengthened High Representative for Foreign and Security Policy.

The structure of the analysis proceeds as follows: the next section conveys the scientific problem formulation and methodology used in the process of investigation. It tackles the theoretical deliberations – both in the sense of previously used models as well as in proposing its own combination of selected theory components representing explanatory potential. This part offers also wide-ranging overview of Presidency roles identified in the literature. Subsequently, the methodology of gathering and processing data is described. The following part delivers the problem solution. By explaining the research design, the author shows how the main hypotheses are related with the research questions. The empirical heartland of this analysis is constituted of data gathered through semi-structured interviews and questionnaires with heterogeneous group of Presidency stake-holders and the analysis of the documents as well as other primary or secondary sources. This analysis looks mainly at the '*demand side*' – namely the expectations and perceptions linked with the rotating element of the new Council Presidency. Finally in the concluding section, the author discusses the main findings of his research in the context of the great theoretical debates related with the subject matter.

2. Problem Formulation and Methodology

Like it has been indicated in the introduction, the main aim of the paper is to answer the question about the roles conceptions as regards the Rotating Presidency in the EU Council after the ratification of the Lisbon Treaty - how the traditional roles performed by the chairing member state changed as a result of the Lisbon Treaty provisions and political practice. The Presidency roles are conceptualized on the basis of perceptions of and expectations towards this institution and are linked with the so far Presidency roles investigations present in the scholarly literature.

The conceptualization of the roles performed by the Presidency in the European Union is becoming a subject of a growing body of literature (Tallberg 2004; Thomson 2008) but also international relations (Sullivan, Selck 2007), negotiations and decision making (Kollman

2003; Tallberg 2006, 2008), leadership (Metcalf, 1998; Colette, 2008) and organization studies (Fernández 2008; Wierzykowska 2008) as well as generally political science as such (Schalk, Torenvlied, Weesie, Stokman 2007; Smyk 2008). Important to notice - it is mostly *atheoretical* and descriptive, and rarely interacts with general theoretical debates (Tallberg 2006, p. 9). Despite the great body of literature addressing the Presidency, still the most salient questions raise controversies. The scope and depth of the debate embraces many important questions not only for the organization of the Council but with direct and indirect implications for the institutional system of the whole EU.

Another important part of the literature on the Presidency, crucially important from the point of view of the goals of this analysis, deals with the roles performed by the chairing actors. The earlier roles conceptualizations present in the EU Presidency studies create a certain background for the analysis and therefore requires more advanced exploration. Directly or indirectly the writings on Presidency roles refer mostly to the sociological institutionalism approaches that focus on norms and role conceptions as explanatory variables of appropriate behavior. There is relatively limited number of studies identifying specific roles performed by the Presidency. The most commonly recognized are the roles of: leader, broker, mediator, organizer, representative to the third parties and other community institutions, administrative manager, agenda manager, national representative. Apart from this, less frequently the following roles are spotted: privileged information manager, procedural controller, 'policy entrepreneur', initiator, point of contact.

Some of the roles are further developed and split into sub-roles, like for example the leadership role, which – depending of the type of leadership (task-oriented, group-oriented, transformation-oriented, or defending national interest, as conceptualized by Schout, Vanhoonacker 2005) relate to the above mentioned roles of an organizer, leader, broker. Due to the flexible definition of a role – both in academic and everyday language, very often they are misunderstood, mixed with different types of behavior or with specific tasks. It is a subject of high subjectivity to decide which tasks or functions can be treated as a separate role and which are just an element of an earlier identified or wider defined roles. In some cases the roles are named differently but refer to the same tasks and functions, as in the case of broker (Warntjen 2008) and mediator, in which the specific authors describe the same performance labeling to it different role names.

The most commonly recognized roles attributed to the Presidency function can be described as follows: **Administrative manager** (this role is shared with the General Secretariat of the Council) – the Presidency decides on the number and timing of both formal and informal meetings of the Council formations. **Chair of the meetings** – distributing the voice, deciding on the sequency of floor-taking, summarizing, drafting conclusions. **Information manager** (very often referred to as a 'point of contact') among the member states and other EU institutions. **Broker** (or **mediator**) is a role that is a consequence of the above stated tasks and roles that is of central importance for any Presidency which wants to see its priority dossiers adopted. **Agenda manager** The Presidency may be conceptualized as the "gardener of the political agenda, who cuts and prunes, removes the weed, sows new seeds, and adds the extra nourishment that allows some plants to grow into their full potential." (Tallberg 2006, p. 14). **Amplifier** – the above mentioned agenda manager role translates to other roles identified by scholars as the amplifier role which sums up to the strengthening of already existing tendencies and **the silencer** role, cooling down or scaling down certain issues by using the procedural or informational advantage, decrease the pace of integration. To what extend can the Presidency be an **initiator** then? The Presidency 's initiator role associated with agenda setting power, is highly controversial. As indicated earlier, while some observers have attributed only very limited initiator powers to the Presidency (Hayes-Renshaw, Wallace 1997), others have argued

that it has 'agenda-shaping powers' (Wurzel 2004; Tallberg 2010). The **representative** function becomes more and more important in the inter-institutional relations. The second dimension of the **representative** function has been the relations **to the third parties**. Over the years, the Council's role has grown significantly in this field, however the Treaty of Lisbon changed the leadership of external representation, granting the Permanent President of the European Council and the High Representative for Foreign and Security Policy the leading roles. It does not affect however the total elimination of the Rotating Presidency from this area, especially in the transition period, due to the fact that the border between internal and external relations becomes blurred. Last but not least, the Presidency plays the **leadership** role. Being a leader constitutes an *umbrella role* present in many other roles (e.g. broker, mediator) however by most authors is recognized as a separate one. Leadership can be understood as an asymmetrical relationship of influence in which one actor guides or directs the behaviour of others towards a certain goal over a certain period of time.

Analyzing the EU Council and in particular its Presidency in terms of role conception seems to be adequate from the point of view of the treaty change and consequent new institutional settings. The transitional years following the ratification of the Lisbon Treaty are critical due to the fact that the first permanent President of the European Council and the forthcoming Rotating Presidencies of European Union Council interact in the mutually adjusting process. This *momentus* of institutional conversion 'bridges' two treaty regimes and at the same time re-defines the former conceptions of the roles performed by the precedent presidencies. At such a point, it is important to identify and discuss the Presidency roles according to their salience. Analytically, for the better understanding of the Presidencies performance, it is also important to verify the saliency of the specific roles along the lines of the variables of the size of the chairing member state and its years of membership as well as the field of competence of the council and the level of the council system (from the top – summit level, through the ministerial one and Committee of Permanent Representatives (COREPER) to the working groups).

Consequently the informants, who were governmental officials preparing the Rotating Presidency as well as experts involved in the preparation process, were addressed the question on their perceptions and expectations towards the presidency roles on the saliency scale. At the same time the specific roles were correlated with the competence field of the council, the level of the council system as well as other variables like the size of the country and years of membership. Methodologically, the undertaken research is carried mainly through an extensive investigation of primary data, including documents (like treaty provisions, communicates, council summit / Presidency conclusions, Presidency guidebooks, etc.), as well as secondary data – specialist publications and periodicals. A separate, substantive set of sources used in the analysis is a collection of claims gathered in the form of a semi-structured interviews (n=42) with Presidency stakeholders which was complementary to the questionnaire (n=122) gathered from a heterogeneous group consisting of politicians, eurocrats and officials from different levels of member states' administrations involved in Presidency matters, experts preparing the Presidency teams and academics specializing in this field.

3. Problem Solution

The new situation, after the treaty reform, changed the perceptions of and expectations towards the roles performed by RPEUC. The goal of the empirical part of the analysis is to identify and discuss the new role conceptions in the light of the existing literature. Consequently, the data gathered is analyzed comparatively to the past situation (before the treaty change) as well as in reference to the saliency scale and in relation to the previously discussed variables (size of the country, years of membership, field of competence, level of the council system).

The first conclusion that can be drawn from the collected claims is that the most appreciated role attributed to the rotating Presidency remains the brokering role, especially when the legislative process is concerned (as the Council field of competence), and the inter-institutional representation role – however predominantly in the law-making prerogative of the Council. The informants suggest that it is the growing power of the EU Parliament that explains this trend. Consequently, the two roles of the presidency, namely the broker / mediator and the inter-institutional representative role get somehow merged – as the presidency needs to mediate (be the broker of compromise) not only between and among the negotiating parties in the council but also vis-à-vis the Parliament that is stronger and stronger co-decision maker.

Therefore, it is not surprising to see that the most highly ranked roles are those associated with the brokerage (like information manager or administrative manager). The least appreciated roles became the external representation, which is understandable from the point of view of the treaty change. However, important to notice, many informants underlined that during the transitional period the external representation tasks will gradually disappear from the Presidency dossier. On the lower levels of the national administration, the civil servants questioned the very nature of the border line between foreign and domestic policies. In today's globalized world, especially in the integrated Europe, identifying what belongs to the traditional foreign affairs and what belongs to the domestic sphere of political decision making – the line between the two is blurred (often invisible), movable and flexible. Therefore, on the technical level, it is very often impossible to state the competence border lines between and among the different layers of the multi-level polity of the EU.

The rotating Presidency roles, when seen through the prism of the level of the council system, disappeared from the European Council level. However, in the interviews, many discussants pointed a potential influence of the lower levels of the council on the European Council by setting (at least parts of) its agenda with the unsolved problems on the lower levels.

In general, the informants highly ranked these Presidency role more on the lower levels of the council system. This does not apply however to the leadership role. Here the higher the level was (on the ministerial level the most), the more demand for leadership qualities – all in total however on rather small ratings. It may also be speculated that the context of the euro-zone crisis may play a role here. It generated an extra-ordinary demand for leadership on the political level (less on the technocratic levels), which explains to some extent why more leadership expectations on the ministerial level. Apart from this, it is also natural that the more detailed the debates and negotiations are and the more expertise-driven the arguments remain, then there is also less room for leadership qualities.

The differentiation between small and big as well as new and old member states does not seem to be a descriptor that was expected to be counter-intuitive. The perceived strength of the Presidency is positively correlated with the size of the country and the number of years as a member. However, the size of the country is more important. In details, the informants do not see any difference in such roles as: administrative manager, information manager or the brokerage. They do see a small difference in the roles of agenda manager. The greatest

difference was notified for the roles of a leader or national interest defender – in such cases the older and bigger member states seem to be more effective (40-45% difference).

Important argument with reference to the external representation function / role – namely the costs of the Presidency, was raised in the interviews with the informants. A Presidency that does not need to bear the costs of external representation (for example, the summits with the third parties) can be – up to the rough estimations – up to 50% less costly. The costs having been held in the previous, pre-Lisbon, system, were not perceived as justifiable or simply ‘worth’ as reported by the discussants. The smaller member states usually do not feel as benefitting that much from the EU-China summit, in relative terms – compared to the resources invested in such an undertaking. Such a statement itself can be treated as a supranational one by nature as it indicates the readiness to delegate

4. Conclusion

Applying the differentiated integration approach (Riedel 2018) to the studying of EU institutional apparatus allows to describe and explain the diversity present in the EU system. Based on the data analysis, scholarly literature and observation of the political practice of the transitional presidencies, it is legitimate to disagree with the statement that the rotating Presidency is - after the Treaty of Lisbon going into force - a subject of agony. It will still remain relevant (Thomson 2008, p. 594) however in a modified way - modified by the supranationalisation force implied by the reform. The growing complexity of the EU decision making machinery (more issues, more negotiating parties and gradual introduction of new modes of work) also stimulated the demand for brokerage within the Council. This is reflected in the data presented above. In the line of the same functional demand however, the Presidency gravitated powers both in relation to its international counterparts (parallel the EU's increasing involvement in world politics) and other EU institutions. Consequently, the increasing powers of other EU institutions, like the EU Parliament, also acted as a *stimuli* for further consolidation of the chairing power within the Council (Tallberg 2010, pp.250-251).

The presented data also does not verify negatively any of the presented ways of theorizing the presidency. For example, the formal leadership theory which – in a rational choice institutionalism manner – highlighted some roles, including agenda management, brokerage, or representative functions – still keeps valid, at least partially. Some of its highlighted roles keep holding a very strong position in the saliency scale (for example: mediator/broker), whereas some got minimized (for example: external representation) or speaking more precisely – ‘migrated’ to the permanent presidency. In general, one may state that all three ways of theorizing presidency hold their explanatory potential.

The Rotating Presidency will most probably continue to develop in an evolutionary mode, just like it did so far, however in the new institutional set up and in the new context. The observed growing formalization of the Presidency's responsibilities and tasks (Tallberg 2006) did not prevent it from the on-going process of various interpretations and various performance. The office still remains institutionally underdeveloped and therefore its future development can be characterized as an open-ended process. Historical school of institutionalism offers a useful term the ‘critical juncture’ which is especially adequate in the situation of the treaty change. The turning point in the development of a system that is at the same time exceptional and crucial, resulting in the foundations laid for a new path or new dynamics to be established. Such a change may involve the creation of norms and procedures that break, to a greater or lesser degree, with the institutional legacy of the past. (Fernandez 2007). Translating this mechanism into the specific situation explained in this paper, the ratification of the Reform Treaty acts as a ‘critical juncture’, as it shapes new paths and new dynamics in the further

development of the Union's institutions. New paths as regards the launch and evolution of the (semi) permanent President of the Council and new dynamics as regards the evolution of rotating Presidency roles – their redefinition, re-interpretation and salience change according to the lines defined by the variables.

The analyzed treaty change with regard to the rotating Presidency of the EU Council is not a replacement of one institution with another or modifying the previous form of the institution. It is a transformation that consists of both modification of the previous form and introducing a new institution. This transformation results in the creation of a new Presidency system of the Council, which can be described as a dual Presidency, which is a hybrid. In terms of the mechanics of the Presidency functioning, it is both rotating and permanent. Additionally, it also makes the Council a more hybrid institution, since the traditionally inter-governmental part of the EU institutional apparatus got implanted with a supranational component at its very top.

The (rather modest) debate about the supranationalisation tendency in the Council locates itself between the two poles, one suggesting that the DNA of the Council is inter-governmental and the spirit of community is quite weak and rather façade or even illusive (Tallberg 1010; Wallace 1985; Kirchner 1992), whereas the other one points that - in the process of Europeanisation - the sense of community is more and more present in the negotiations among the member states making it more oriented towards the Common good (see: Schout 1998; Westlake 1999). Additionally, more nuanced arguments - trying to combine two, supposedly contradictory positions – have emerged (e.g. Fernandez 2007) claiming that both the Council and the Presidency itself combine both communitarian and intergovernmental components. The argument delivered in this study takes the claim that the Presidency performs numerous complex roles in which responsibility and opportunity are present at the same time and shape the norms associated with its functioning (Niemann, Mak 2010). All parties present in the Council decision making system balance between national governments' interest and the Community interest. However, the conclusions of this research argue that the proportions between the two poles move the Council and its Presidency system towards more supranational positions. It can be derived both from the marginalization of the national interest defender role expressed in the interviews, as well as the priority given to the roles built on the impartiality norm.

The further supranationalisation of the council is enhanced in various ways, institutionally by introducing an additional supranational actor (who is anticipated to consolidate and strengthen the leadership qualities), normatively by the expectation that the intergovernmental roles are to get minimized whereas the supranational – enhanced. The logic of appropriateness also makes the actors to marginalize the national interests defender role on the lower levels of the council where the Presidency still has its importance. Even before the Treaty of Lisbon being ratified, it has been observed that during the decades of institutional development the Council went through the process of progressive *communitarization*. It no longer represents exclusively administrative role associated with the defense of intergovernmental interests. Due to the growing salience of the 'culture of compromise' principle it has become a complex exercise increasingly associated with the defense of Community interests (Fernandez, 2007, pp. 621). In general the story of European integration may be told as a history of permanent dialog of two logics: supranational - represented in the functioning of such institutions as the Commission, European Court of Justice, or European Parliament, and intergovernmental – represented by the Council as the platform for inter-state bargaining and negotiation. What can be observed right now is the acceleration of the supranational dynamics within the Council system, which - taking into account the important position of the Council in the whole EU institutional apparatus – generates the same result for the EU architecture as such. These

conclusions contribute to the scholarly discourse on differentiated integration in Europe (Riedel 2017). EU member states of different size and years of membership vary in their performed roles attributed to the Rotating Presidency of the EU Council.

Acknowledgements

This research was supported by the NCN (Narodowe Centrum Nauki / National Science Center) grant entitled “Determinants and Dynamics of Differentiated Integration in (Post)Brexit Europe” (2020/37/B/HS5/00230)

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The Core Indicators to Verify Resilience and Economic Integration: Can EU Areas Become More Stable by Selecting Different Growth Indicators and Datasets?

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Abstract

This research answers an urgent question of the stability of results when implementing different methods, core indicators, and datasets for analysis. This study reveals differences in the primary datasets (PWT, WB, and IMF) for the most valuable indicators (like real GDP growth rate) for the EU. There could be differences in levels, but significant discrepancies in trends can lead to estimation bias just by selecting the core indicators and datasets. These differences would mean that classical methods of econometric analysis could increase bias. The mentioned bias can significantly affect the strategy of public expenditures. The improper estimation of this bias can lead to obscene public policy implications that can be avoided by the proper understanding of the background of the control estimators (like GDP/GNI/GRP) and their limitations of applications to control the level of regional development.

Keywords: EU integration, measurement of national income and wealth, real GDP growth bias

JEL Classification: C90, E01, E60

1. Introduction

There are many methods for assessing the sustainability and integration of regions from an economic point of view. At the same time, almost all of these methods use only a few key indicators to analyze the accuracy of their calculations. There are 12 such indicators: GDP/GRP [Gross Domestic Product], GNP/GNI [Gross National Product/ Gross National Income], NNP [Net National Product] (Dasgupta & Mäler, 2000), NDP [Net Domestic Product], NIFC [National Income at Factor Cost], TP [Transfer Payments], PI [Personal Income], and DPI [Disposable Personal Income]. The primary indicator is GDP (including indicators derived from it, for example, GDP per capita).

Thus, if GDP is the primary indicator for calibration of methods and models for the analysis of economic resilience of regions (Huggins et al., 2014; Iammarino et al., 2019), then the problems of the models can be traced through the GDP indicator.

The concept of this indicator (GDP/GRP [PC]) dates back to the first works in quantitative macroeconomic analysis (S. Kuznets, 1941; S. S. Kuznets, 1941; Smith, 1942). The later works just purified the concept of national income and reduced the estimation biases. It gradually led to the mentioned range of the 12 most popular indicators of economic development.

However, some economists might argue that there were earlier works on quantitative macroeconomic indicators and analysis. The older ratios were primarily theoretical and attempted to create solid measurements and scales (Baxter, 1974; Graslin, 2008).

At the same time, this indicator (GDP/GRP [PC]) has become the basis for the models in the regional economy since the very first works on this topic (Borts & Isard, 1962). Many authors argued that GNI (and related indicators like GDP) produce a solid background for the regional analysis (S. Kuznets, 1941; Marshall, 1890; Smith, 1942).

The further development of economic thoughts (Hillinger, 2002; Nicholson & Auden, 1955) eliminated the previous problems with these indicators [like double-counting, wrong estimations of the non-marketed services and commodities].

Finally, there are the 12 most popular indicators for estimating the national economies and calibrating the models to analyze regional economies: GDP/GRP, GNP/GNI, NNP, NDP, NIFC, TP, PI, and DPI. They all have similarities in terms of the benefits and shortcomings (Bergh, 2009).

Since the 1960s, the implementation of GDP (per capita) as a proxy variable for regional development and national welfare has received both mass support (Boulding & Galbraith, 1959; Harrod & Hicks, 1939; Hicks, 1959; S. Kuznets, 1941; Lutz & Samuelson, 1961; Shell & Mishan, 1969) and critics (Arrow et al., 2004; Aufhauser & Scitovsky, 1976; Batabyal & Dasgupta, 2002; Daly et al., 2007; Easterlin, 1974; Hirsch, 1995; Kahneman et al., 2004; Ng, 2003; Nordhaus & Tobin, 1972; Sen, 1976; Stevenson & Wolfers, 2008; Weitzman & Löfgren, 1997).

In addition, GDP [PC] is a proxy for the regional development indicators. It has a significant (above 0.65) correlation with the outputs and outcomes, knowledge sustainability, fourth and fifth waves of knowledge capital, and WCIR score for measuring the regional competitiveness (Huggins et al., 2014).

The classical criticism of GDP (and similar indicators) has six main directions. The first direction is the estimation of GDP either as revenue (Stiglitz, 2005) or as gross costs (Daly et al., 2007; Mishan, 1967; Shell & Mishan, 1969). Both indicators (revenue and costs) are insufficient for any qualitative analysis.

The second direction is the bias of overestimating "rich" countries and regions by the problems with the exponential growth in the time series (Sanders & Lawn, 1999), especially in the long run (Daniel & Ehrlich, 1990; Gilland et al., 1990).

Lexicographic principles create the third direction of criticism of GDP. This bias guarantees overestimating "richer" regions by rivalry consuming luxury and overestimated commodities (Encarnacion, 1964; He, 2015; Liu et al., 2015; Stockholm, 2005). Therefore, the most developed regions can have fraudulent output growth (while the actual situation can be the opposite). The same principle underestimates poorer countries and territories, these researchers argue.

The fourth direction of criticism considers the concept of uneven distribution (Massey, 1979; Sen, 1976; Usher & Sen, 1987). This concept can produce the average output growth with the median output decrease. For example, one of the most notable economists (Stiglitz, 2005) found such a pattern in the U.S.

The fifth criticism evaluates the informal economy that produces benefits with no visible (for GDP) costs (Mbiriri et al., 2017; Mughal & Schneider, 2020; Onwe, 2013). For example, people in impoverished European regions can prefer home medicine (thus, the government can

spend minimal sums). If these individuals came to official hospitals, the government would see the costs. The potential budget limitations can force governments to decrease financing of, for example, hospitals and medicine. The quality of services will be lower while incentives to prefer home medicines will be higher. Therefore, the poorest regions can have the highest positive bias by stimulating informal economies.

The sixth criticism direction regards the depletion of natural resources (Atkinson et al., 1997). Countries and regions can increase their output (GDP) by utilizing more natural resources (Hicks, 1959), thus looking richer today in exchange for being poorer tomorrow.

2. Problem Formulation

The research question is **what different biases can be in the leading output indicators used as proxies for analyzing the level of economic development of countries and regions.**

This research estimates if the analysis results stay the same when selecting the indicators of growth of the core indicators (like the real GDP).

The classical approach defines resilience as a comparative measure within different regions (Hart & Sitas, 2004; Lagravinese, 2015). Such methods usually concentrate on a parameter of labor (through employment rate [the most popular way]) for assessing resilience and even recovery (Giannakis & Bruggeman, 2020; Lagravinese, 2015). One of the core factors in this concept is GDP (PC).

The above approach is the primary method to estimate the micro-regions. The other techniques utilize GDP (PC) and similar indicators (the relevant part of this paper provides their analysis).

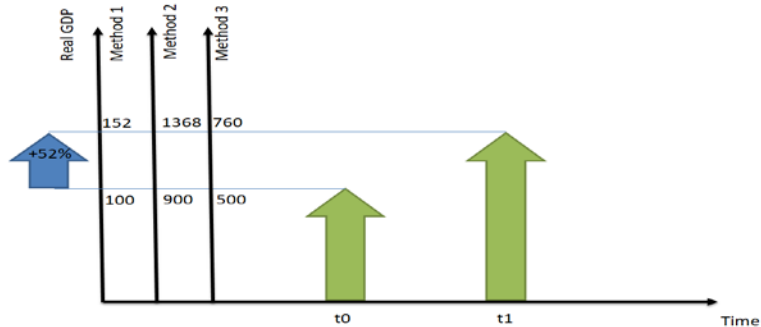
Thus, the researcher either has to deal with the GDP parameters to estimate the regional resilience or use the classical approach (which strongly depends on the GDP parameters). The strong orientation on the GDP (PC) and similar indicators is a gap in the modern state of knowledge. This research shows this is not the issue of the limitations in applying the GDP/GRP (PC) and similar indicators, but the question of the necessity to implement them in general terms in the analysis of the resilience of the regions and their recovery potential.

3. Methodology

This research utilizes three different datasets: PWT (Feenstra et al., 2015, 2021; Zeileis, 2017), WB (World Bank, 2020, 2022), and IMF (International Monetary Fund, 2022). There could be two sources of discrepancies among the three datasets: different measurement standards and bias.

The mentioned different measurement standards would mean different scales for measuring the same indicators (for example, real GDP in levels). At the same time, the growth indicators show the data as it is without these differences, even if the measurement rules were different. The figure below explains this fact in more detail.

Figure 1: Explanation on why Growth Indicators Remove the Bias with Different Measurement Approaches



Source: Own elaboration (2022).

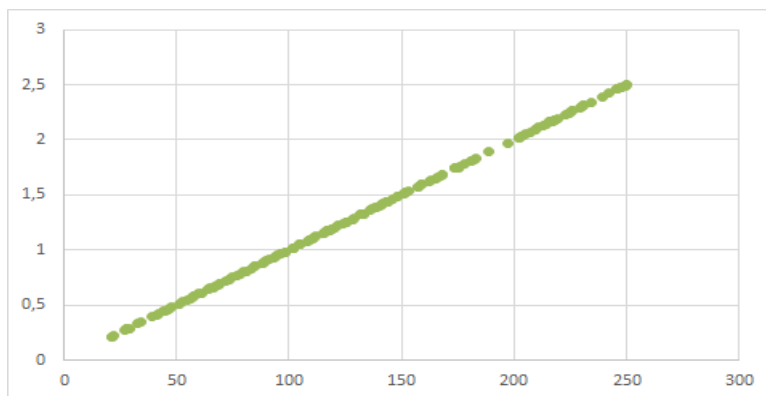
The figure above shows that the real GDP growth stays the same, notwithstanding different measurement methods (if they provide objective results). It is similar to cases in biostatistics. For example, if doctors measure children's height, they can implement different scales (like centimeters, inches, meters, and millimeters). Choosing a particular measurement standard (for instance, meters) will surely give researchers different results.

However, if researchers measure the growth rate, any scale should provide the same results (in percentages). In our previous example, the growth from 100 to 152 is the same 52% as growth from 500 to 760 (both parameters measure the same subject by implementing different measurement standards).

On the contrary, suppose growth rates were different. Suppose three doctors measured the growth rate of the same kid (at the same times) with three measurements: centimeters, inches, and meters. If three doctors receive significantly different results, the measurement method needs urgent correction (for example, implementing the standing height device). Similar is fair for comparing countries and regions.

In other words, the plot of the growth rate of the products of two different measurement styles should provide the regression line of the perfect fit on the chart with all the dots staying perfectly along this line. The chart below represents this example better.

Figure 2: Example of why Growth Indicators Remove the Bias with Two Different Measurement Approaches on the Observation Plot



Source: Own elaboration (2022).

The plot above represents the same observations measured by two different approaches. The values create a perfect fit line, and any deviations from such a line would demand significant improvements in the measurement approaches.

On the other hand, this study offers a method for the minimal criterion of correctness: forecast of positive and negative values. For example, suppose some measurement bias exists, then the growth sign should coincide. Suppose a "positive growth" (p) is any value equal to or above zero. Then, the "negative growth" (n) is any value below zero. The third possible variant is missing data values (NA). Then, "pp" and "nn" would reveal the correct estimates (both predict the same direction of growth). On the contrary, "np" and "pn" represent the wrong evaluation. In addition, "NAn" ["nNA"] or "NAp" ["pNA"] would mean insecurity in the correctness of assessment because there is no opportunity to compare the estimates within two datasets.

Therefore, there are three possible types of forecast: true [including the partially uncertain situation when the data in some datasets is missing, while the other datasets show the same direction of growth], false, and uncertain.

In addition, this study offers discussion on the representative indicator of growth. Indicators in national currencies might create specific scales on the plots and cause challenges when comparing the levels. On the contrary, indicators in the same currency chained for some particular year (for example, 2010) better represent the actual situation with the growth.

At the same time, the chained indicators adjusted to the purchasing parities would produce the most "real" GDP growth rate. This research offers to implement this indicator (the real GDP growth rate) for all three datasets. The approaches for estimating the real GDP growth rate should produce the same results (zero hypothesis of the paper).

Alternatively, significantly different results in the growth rates (alternative hypothesis of the paper) would mean potential biases in the socio-economic analysis of regions and countries.

4. Problem Solution

The table below represents the analysis of the differences of signs in the growth rates of EU countries.

Table 1: IMF, WB and PWT Real GDP Growth Rate when Coincided Signs of Growth (28 EU Countries, 1980-2019)

IMF->WB->PWT (1980-2019)	S1	S2	S3	S4	S5	S6	S7	100% Certainty	SUM
TRUE, %	Fully certain	nnn	ppp	Partially	nNAn	pNAp	Other	73,75%	76,43%
n		88	738	certain	10	20	0	88+738	856
FALSE, %	nNAp	nnp	nnp	npp	pNAn	pnn	pnp	ppn	11,07%
n	3	29	3	4	2	12	24	47	124
UNCERTAIN, %	NANANA	Other							12,50%
n	140	0							140

Source: Own elaboration (2022). ISO3 codes of included countries: "AUT", "BEL", "BGR", "CYP", "CZE", "DEU", "DNK", "ESP", "EST", "FIN", "FRA", "GBR", "GRC", "HRV", "HUN", "IRL", "ITA", "LTU", "LUX", "LVA", "MLT", "NLD", "POL", "PRT", "ROU", "SVK", "SVN", "SWE".

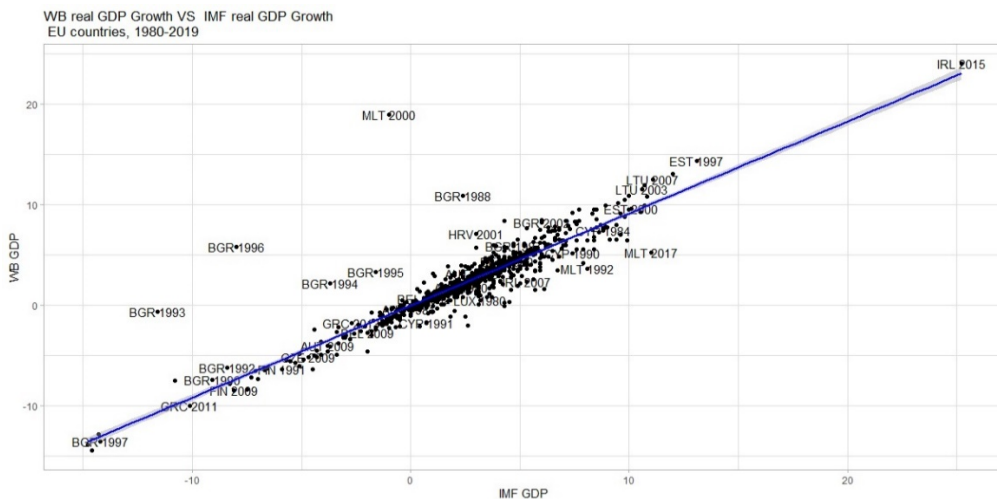
Notes: n – a negative sign of real GDP growth; p – a positive sign of real GDP growth; NA – missing data. Data representation: exact sequence: IMF->WB->PWT. For example, pNAn means positive sign at IMF, missing data in WB, and negative sign of real GDP growth in PWT [in a total number of such cases (N)]. TRUE means true prediction. FALSE means different datasets estimated different signs of real GDP growth in the EU (for example, PWT could forecast real GDP growth for some country for some year, while IMF or WB – decline in this indicator). "Other" means other possible combinations of possible variants (summed up altogether). Part of the remaining ¼ of observations (12.5% of 23.57%) might regard a few countries that did not exist politically but were geographic regions. The three datasets can have no information for these regions for some periods. This research does not attribute the reasons but shows the absence of facts in all the three datasets without estimating the genuine reasons for this issue (assessing these regions for these dates can be a topic for future research in this field).

The differences in signs mean situations when one dataset assesses the growth of a particular country while another dataset estimates a decline (both indicators are in real terms). Thus, such conditions can cause real economic growth not by objective socio-economic measures but by selecting a different dataset. This situation of at least partially correct prediction [in terms of the signs of growth] occurs in roughly 75% of cases in the EU economies. Part of the remaining ¼ of observations (12.5% of 23.57%) might regard a few countries that did not exist politically but were geographic regions. The three datasets can have no information for these regions for some periods. This research does not attribute the reasons but shows the absence of facts in all the three datasets without estimating the genuine reasons for this issue (assessing these regions for these dates can be a topic for future research in this field).

The above table represents the most vivid discrepancies of the indicators when one dataset shows real GDP growth, while the other dataset is sure in decline. The maximum difference between the indicators of the real GDP growth can be roughly 20% for the same year (and same country) between the three datasets in the EU countries.

The plots below represent a more detailed analysis of discrepancies (the signs and the actual values).

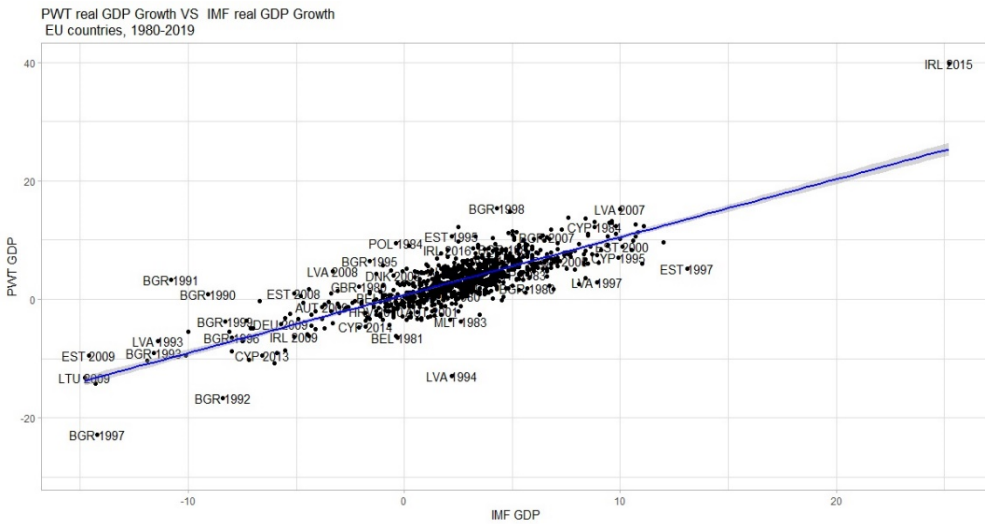
Figure 3: WB Real GDP Growth and IMF Real GDP Growth in EU Countries, 1980-2019, Percentage



Source: Own elaboration in the programming language R (2022).

There is no perfect fit pattern. Analysts would see an ideal line in observations if WB and IMF datasets would measure the real GDP growth with the same accuracy but with different measurement standards. A region with perfect matches is rare (one EU country for all three datasets).

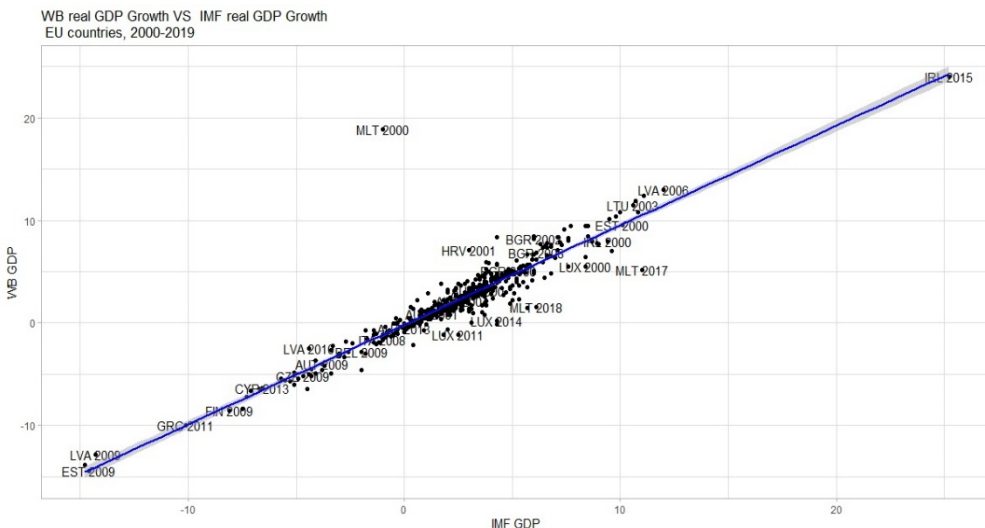
Figure 4: PWT Real GDP Growth and IMF Real GDP Growth in EU Countries, 1980-2019, Percentage



Source: Own elaboration in the programming language R (2022).

The correlation here is lower than in the previous case. The slope of the regression line inclines closer to the horizontal line (decreasing the potential linear interrelation).

Figure 5: WB Real GDP Growth and IMF Real GDP Growth in EU Countries, 2000-2019, Percentage

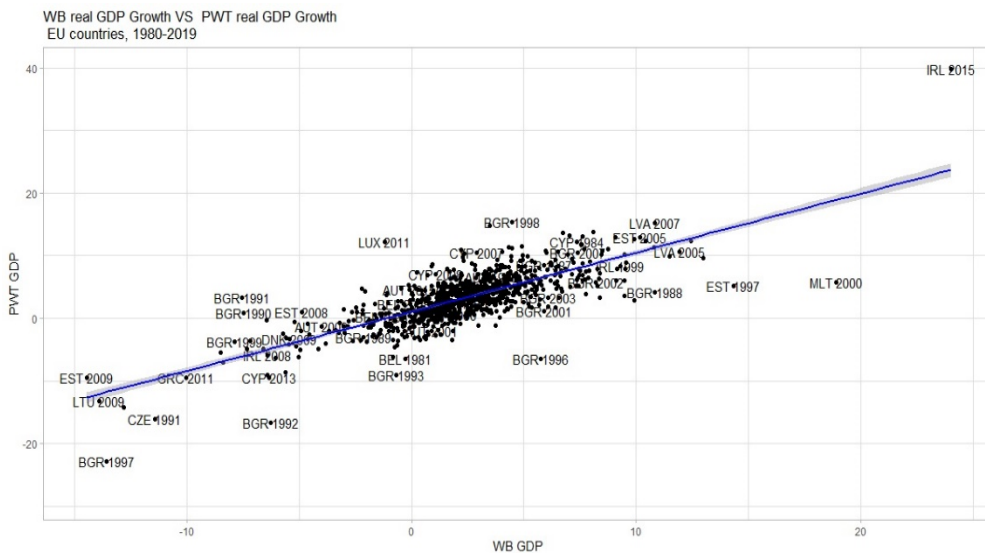


Source: Own elaboration in the programming language R (2022).

This chart enlarges the previous analysis results for the most recent EU periods within the two datasets with the highest mutual correlation and dependence (IMF and WB). Upper and bottom side outliers justify the line to a better fit. This fit could be a partial coincidence because the upper and lower distance between the outliers exists. It means that when an analyst selects a specific country, she could receive a pattern far from perfect fit (because only the average EU line has the best fit among the datasets possible).

In other words, researchers could receive different results of regional development of the EU countries (and regions) just by selecting different datasets. For example, if the researcher would choose Malta (in 2000), she could receive tremendous growth in almost 18% in the WB dataset, or a significant decline in -1% for the same country for the same year in the IMF dataset. Even this fact (that the average results for the entire EU have a better pattern) does not guarantee minimal bias when selecting EU countries, regions, and periods for analysis.

Figure 6: PWT Real GDP Growth and WB Real GDP Growth in EU Countries, 1980-2019, Percentage

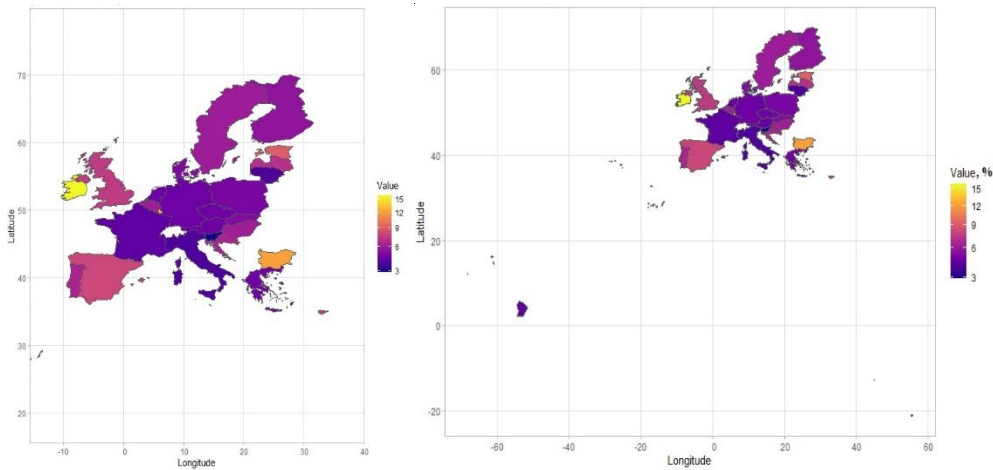


Source: Own elaboration in the programming language R (2022).

The slope of this line is one of the closest to horizontal among the other patterns. Every time selecting PWT would produce the most significant shift from the results. PWT is the principal data source for the economic and regional analysis in the world, this study estimates. If PWT were a better measure, then WB and IMF would be worse measures of economic indicators for regions and countries. Alternatively, if the opposite were true that WB and IMF were better "measures" for analysis, then PWT would increase bias. Anyway, the regional or national-level analysis results can be a subject for significant influence of the original datasets.

At the same time, GDP growth is one of the indicators with minimal bias. The other macroeconomic indicators can have even higher discrepancies in the original datasets. Since the models for measuring the level of regional development have high correlations with the GDP growth and similar indicators (Huggins et al., 2014; Pike et al., 2007), then regional analysis becomes an even more challenging task. It becomes challenging to calibrate any regional development model because the growth of real GDP [GRP] is a vital model calibrating parameter.

Figure 7: The Highest Annual Difference in Real GDP Growth in EU Countries (Without and With Specific Overseas Territories) by WB, IMF, and PWT Datasets, 1980-2019, Percentage



Source: Own elaboration in the programming language R (2022).

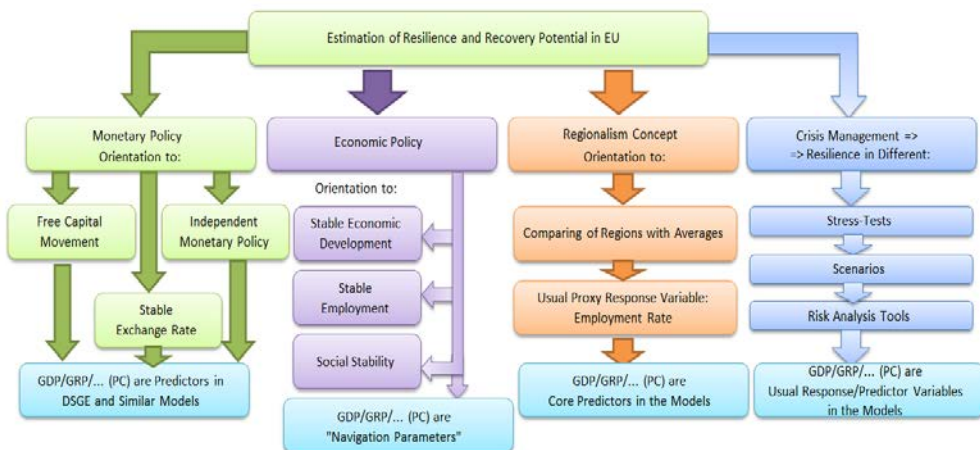
Great Britain was a member of the EU during the period of analysis, and it is in the final steps of quitting the EU at the moment of writing this paper.

The chart above demonstrates the most significant annual difference between the datasets. For example, there was one year when the error in estimating the real GDP growth for Ireland was around 15%. All these errata accumulate to different end indicators in years. Thus, the more time elapses, the more discrepancies between the three datasets researchers could observe.

4. Discussion

There are four main approaches for estimating regional development resilience and recovery potential. The scheme below represents them.

Figure 8: The Approaches for Estimating the Economic Resilience and Recovery Potential (in Terms of Overall Strategies)



Source: Own elaboration (2022).

The first approach comes from the monetary policy. It has a core hypothesis of the possible application of one or two (at maximum) simultaneous purposes for any EU country (Aizenman et al., 2013; Pisani-Ferry, 2012): free capital movement (capital resilience), stable exchange rate (currency resilience), and an independent monetary policy (monetary policy resilience).

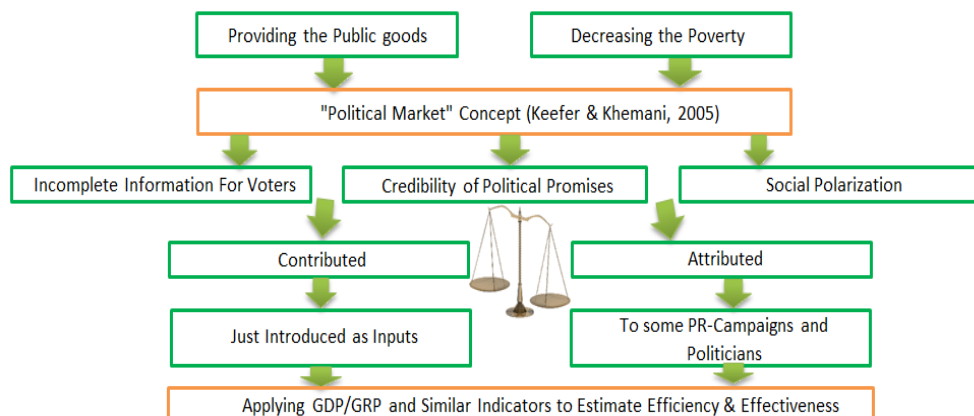
If, for example, all three were possible in the Czech Republic, then people could borrow in Euros and deposit them to the local banks having up to 2-3% annual surplus (depending on a concrete time). Such a policy would make the Czech Central Bank abandon it because it could only guarantee the rate by selling its Euro reserves (which have limited quantities) to buy Czech Korunas. In other words, implementing all three strategies at once would either minimize resilience or provisionally support resilience by reducing inner recovery potential (foreign currency and gold reserves) for times of crisis.

Anyway, selecting one or two monetary policy directions usually concentrates on the expectations and current output gaps, GDP, and similar indicators (Bårdsen et al., 2002; Roberts, 1995; Rudd & Whelan, 2005; Slobodyan & Wouters, 2012).

This research estimates that these target indicators [for example, GDP] can be imprecise. Therefore, this research suggests that implementing these policies can be blurred in practice.

On the contrary, governments run their economic policies based on the effects of attribution and contribution (Keefer & Khemani, 2005). The scheme below represents this process better.

Figure 9: The Contribution and Attribution Concepts in the Framework of Resilience



Source: Own elaboration (2022).

Thus, the potential bias in assessing the GDP and similar indicators can increase blurriness significantly in estimating regional resilience. Moreover, implementing different datasets can offer specific politicians bonuses based on the attribution effect. In this case, selecting potential public spending programs and later estimations of their efficiencies can become space for possible manipulations shifting the "scales" towards the projects with more potent attribution effects. On the contrary, gaining "contribution effects" by supporting needed projects to develop the economy and resilience becomes less lucrative. This research estimates that due to the potential bias of the GDP and similar indicators, such threats to stability are possible.

The part "Problem Formulation" provides criticism of the third concept based on the potential bias of the GDP and similar indicators.

In addition, the part "Introduction" describes the overall scope of critics to the very concept of GDP. The researchers in this field underestimate the potential bias of the databases and methods in estimating the GDP concentrating on other aspects of GDP (on limitations in the application of GDP instead of analyzing the true nature of the bias inside the different mechanisms of calculations of GDP). This research proves there is a high possibility of a significant bias in the very tools of measures of the GDP and similar indicators.

Thus, the models based on these parameters can have a significant "inborn" bias in their application and utilization. This research suggests that the mainstream "fast-food-like" approach (estimating and calibrating models based on the GDP and similar data) might have significant disadvantages even if the data vendors are effective institutions in the data collecting and estimation.

5. Conclusion

The results' application to the fourth concept (crisis management) is beyond the scope of this research (figure 8), and this can become a basis for future research in this field. The initial intuition declares that the potential bias in GDP and similar indicators can increase the bias of the results of the crisis management tests, thus, making the entire economic system less resilient and more vulnerable, especially in times of crisis.

In addition, the potential bias of the GDP and similar indicators produces a shadow for the indicators related to GDP/GRP/GNI/... For example, GDP is a composite measure. If there is a potential discrepancy in its estimating, there could be discrepancies in its original parameters. The estimation of this bias can become a topic for future research.

The analysis produced in this research reveals an interesting pattern. Countries and regions can become more or less stable by social and economic improvements and by selecting variables and the primary datasets. Sometimes choosing a different dataset makes all the work done.

We achieved the primary goal of this research by comparing three different datasets for the indicator that should be the same notwithstanding the measurement approach: the real GDP growth. Different datasets can show the economic growth and economic decline for the same country and same period in 11% of cases for the EU countries between 1980 and 2019. The maximum absolute difference between the real GDP growths can be 20% for the same EU country in the same year. The patterns of the real GDP growth between the three datasets have no perfect matches (except one country of the EU).

Therefore, we revealed the additional bias for GDP/GRP and similar indicators: the datasets' bias. Implementing different methods and datasets can make the analysis results unstable (even for the most valuable indicators (like the real GDP growth)).

In addition, this bias has a significant influence on the strategies of public expenditures because most economic public policies regard real GDP growth as one of their main priorities.

The primary method to avoid this bias is by the proper understanding of the background of the control estimators (like GDP/GNI/GRP) and their limitations of applications to control the level of regional development.

Acknowledgments

The project that funds this research has number 6/2022 (ES507012, "Measurement and evaluation of the digitalization effects at the regional level in selected countries," Faculty of Economics, Prague University of Economics and Business [VSE, Czech Republic]).

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CSR Development and Outcomes in the European Tourism Context. A Literature Review Perspective

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Abstract

Corporate social responsibility (CSR) is a business model characterized by a strong element of self-regulation, that allows companies to become socially responsible, with a visible impact within society and the environment. Through CSR a company decides to contribute positively to society and the environment, providing and promoting wellbeing in the workplace, creating brand images that highlight its dedication to improve sustainable activities and benefit society at large. CSR has been implemented in various types of industries, but in the past decades, the industry of tourism has implemented and analyzed the results of this business model. The research paper focuses on a theoretical approach on the issue of CSR and tourism industry, highlighting various European Union (EU) level aspects connected to the issue. Newer European Union countries face obstacles in implementing EU level policies in tourism, therefore contributing to further debates on issues of sustainability and CSR.

Keywords: CSR, tourism industry, European integration, sustainability

JEL Classification: M14, Q01, Z32

1. Introduction

Corporate Social Responsibility (CSR) manages to elude a fixed definition, but it seems to have more or less the same epistemological components, that are found in any definition, as Moratis (Moratis, 2016) mentions. The concept behind CSR has a prolific history, beginning in the 1950s and reaching a level where the International Organization for Standardization (ISO) published a guide for implementing CSR (ISO [online], 2018). The ISO 26000 argues that CSR aims to contribute to sustainable development. As such, the guide presents seven characteristics of an organization that implements CSR, ranging from human rights, labour practices, to community involvement. Despite the many facets of CSR, the most cited definition, according to Google, is the one given by the Commission of the European Communities, in 2011, which says that CSR "is a concept whereby companies integrate social and environmental concerns in their business operations and in their interactions with their stakeholders on a voluntary basis" (Commission of the European Communities [online], 2001). As Dahlsrud concludes, it seems that even if CSR definitions manage to revolve around several identical concepts, it does not offer an adequate procedure to engage the challenges

that corporations face along the way. Companies may have to develop their own ways of implementing and developing CSR (Dahlsrud, 2008).

At a European level, the 2011 renewed EU strategy for Corporate Social Responsibility, concentrates on the issues of how companies can integrate social and environmental issues into their business model. In the same document, a company would voluntarily interact with its stakeholders. It is pertinent to observe that CSR refers to actions that are taken by companies, but such actions are beyond the legal limits. Companies would act with the specific purpose of solving social and environmental problems. The results would aim creating smart, sustainable, and inclusive growth for the social market. Higher employment rates would be one of the consequences. The EU CSR strategy was considered of great importance, especially after the financial crisis of 2009. Business behavior would revolve around social and ethical performance. The document offers a concise and precise definition of CSR: “the responsibility of enterprises for their impacts on society” (European Commission [online], 2011).

CSR practices and concepts apply to various fields of economy. For the purposes of this article, they shall be described for the tourism industry. In general, CSR in tourism is accomplished by respecting local cultures, the environment, and investments in the development of local communities. In this context, modern tourism implies a development in the behavior of both tourists and tourism businesses (Manente et al, 2014). According to the European Commission’s evaluation, tourism was one of the most severely hit industries through the Covid-19 pandemic, therefore the priority is to accelerate tourism with regard to the green and digital transitions (European Commission [online], 2020). Therefore, it is important to adapt tourism both in its physical and digital operations, in order to reduce the negative effects of the ongoing pandemic.

The research paper focuses on a theoretical approach on the issue of CSR and tourism industry, highlighting various European Union (EU) level aspects connected to the issue. It will present various implications for environmental sustainability in their operations, renouncing unethical labor practices, the adaptation to medium and small businesses, and the social relations of CSR. The purpose of the article is to offer an overall perspective on CSR as it is implemented in the tourism industry at the European level.

2. Methodology

The article investigates the CSR development and its outcomes in the context of European tourism industry. It aims at identifying a series of factors, mentioned in specialized literature, that can be quantified in order to determine how, for example, economic growth and the environment, impact CSR in tourism at the European Union level.

As for the method used in researching literature, a combination of scoping literature review method and argumentative literature review were used. The research paper, therefore, aims on the one hand, to identify the scope of specialized literature on the topic of CSR within the European Union, while on the other hand, it selectively uses literature to delineate the CSR policies that favor European tourism.

3. CSR, Society and Environment

The previous section showed the progress of CSR definition in the EU milieu, but the concept can be further developed, as it is shown in the CSR Commission Staff Working Document, published in 2019, where the previous definitions are provided, together with a further explanation, which revolves around companies needing to adapt their business operations and strategies, by integrating social, environmental and consumer concern. The definition moves beyond the practical elements, comprising both ethical and human rights concerns in the business endeavor. Considering this expanded concept, a delineation of business conduct is thus provided, fully explaining the range of influence that companies have on society's development. Profit seems not to be the sole point of reference for companies, but profit done with limits. However, these limits are not intended to restrain the operations, but create a new and improved business model, that favor human rights and the protection of the environment (European Commission [online], 2019).

The same document also refers to Responsible Business Conduct (RBC), which is a complementary concept for the CSR. According to the document, the RBC is a concept that aims to have beneficial outcomes for the economic, environmental and social progress, through the implementation of measures for sustainable development. RBC also addresses and various negative or problematic impacts on business operations, whether direct or indirect. CSR and RBC touch on issues related to human rights, since they deal with employees in various fields of activity. Therefore, the European Commission's document highlights the states' obligation to protect, respect, and fulfil human rights and the encompassing fundamental freedoms. In this context, businesses have a profound role, as they are considered specialized organs or society, that perform specialized functions. Their operations must be accomplished with the highest regard for human rights and freedoms. In the case of abuse, it is the joint responsibility of both public and private sectors to address and remedy any such abuses (European Commission [online], 2019).

The development of CSR theory points towards an ever-increasing care for human rights, cultural development, and the environment. Since the 1950s the shift towards employees, customers, and society at large. There was a significant shift in the economic environment, because corporations were being run by shareholders, not individuals, meaning that companies would not only care for the interests of the shareholders, but also for the interests of the communities in which they operated. Social care and social responsibility became integral part of companies' identities (Latapi, et al, 2019). Various other concerns impacted the economic development, such as civil rights, women's rights, consumers' rights, which made companies re-evaluate their operations, by getting involved in legal, ethical and philanthropical activities. As time passed, companies were seen as an integral part of legal, ethical, and philanthropical actions. Their responsibilities would allow for communities and society at large to develop. In this context, the 2008 economic crisis showed the limits of companies' willingness to remain in countries where governments-imposed obligations that made operations more difficult. Some companies relocated in countries where social and environmental requirements are more relaxed, while others adopted CSR policies and dedicated their operations to address social and environmental issues (Camilleri, 2017).

CSR is important for society, the environment, and human rights, because even if it eludes any fixed definitions, it does touch on important matters, such as strategic CSR, performance at a social level, relevant business ethics, and corporate citizenship. These are also concepts that are used to define and conceptualize CSR. In the first instance, corporate social performance (CSP) deals with social legitimacy, and it refers to a company's application of principles to social responsibility. It is a meaningful expression of responsibility (Cho, Lee, 2019), because

CSP deals with policies, programmes, and outcomes on social responsibility. It appears that people who are looking for jobs are interested in CSP, because it deals with organizational ethics, which may be in tune with their own values. In essence the image of a company is improved by CSP, by proving a genuine interest in social responsibility (Camilleri, 2017).

Business ethics is part of the CSR concept and it developed in time, together with concepts such as CSR and CSP, coupled with public policy, and stakeholder management. As the concept developed, more companies became interested in integrating the principles of CSP and CSR. The important element of business ethics is that it became part of the academic curriculum, thus preparing new generations of students to engage responsibly and ethically in business management (Camilleri, 2017). The stakeholder theory blends both the concept of business with that of ethics. The point of the issue is to have companies treat stakeholders responsibly, in order to create an effective relationship. The moral issues that companies needed to address, would positively impact stakeholders, therefore they would develop policies that had social consequences. The issues that needed addressing were related to issues such as illegal practices, employee health and safety policies, improved quality of work environment, employment discrimination, and consumer abuse, which negatively impacted urban life and environmental pollution. An important element of CSR is corporate citizenship, which presents the corporations as social institutions. In this perspective, corporations respond to non-market pressure. The concept applies to a wider range of meaning, where it promotes social and environmental behaviors, but from a global context. It may be the most important concept, because it directly considers business as active participants in society. Corporate citizenship addresses social and ethical issue of business activities (Camilleri, 2017; Waddock, 2001).

The next concept is strategic CSR which aims at allowing companies to pursue profit, but in a socially responsible manner. Offering jobs and fair pay to employees yields acceptable return on investment to owners and shareholders. Companies who use strategic CSR would also invest in technology, innovation, that would amount to creating new products and services. In this context, the issues would be related to employee morale, the overall image of the company, together with popular opinion and the reputation of the company (Fanti, 2017). An important benefit of strategic CSR would be greater credibility, coupled with increased company value. The reverberating impact of the concepts presented above, lead to the very issues of sustainability and responsibility in the corporate world. Sustainability and responsibility should not have negative impacts on companies. Their existence focuses on allowing companies to have increased financial performance. In order to meet the two criteria, companies would aim for economic development, institutional effectiveness, stakeholder orientation, and sustainable ecosystems. Among others, a direct result of implementing CSR would be adding value to society, as well as for the environment. Companies could also aim for shared company value, but it appears that not all companies are good for society or the environment, therefore causing a need for re-evaluations on behalf of shareholders and the legislative environment (Camilleri, 2017).

4. CSR Development in the Tourism Industry

In order to properly analyze the issue of CSR in tourism, a definition is needed. At the European level, the European Commission is tasked with elaborating the necessary documents that provide the correct information for the tourism industry, in our case. A proper definition of CSR in tourism industry was redacted by the European Commission (2021). The CSR in tourism can be defined in terms of tourism companies that “integrate social and environmental

concerns in their own business mission, strategies and operations and in their interaction with their stakeholders on a voluntary basis” (European Commission [online], 2021).

On a general note, CSR on the part of businesses aims for accountability, proper business conduct, community involvement, corporate governance, environmental protection, human rights protection, production quality, and a dedicated care for the workplace and the employees. For the tourism industry, of specific importance is building and retaining customer trust. In the case of tourism, responsible tourists will be interested in businesses that comply with ethical and environmental values. Therefore, the businesses need to operate in full accord with CSR principles. When certain businesses operate without any responsibility or when they retain the extra-charges that are usually used for operating responsibly, trust is lost, and the businesses are affected. As a business, being transparent with clients regarding their responsible operations, ensures consumer trust. The consumer’s expectation that a business is willing to operate in accordance with its obligations is paramount for developing customer trust. A company that operates within the CSR principles, will ensure that its operations and various activities are well known and properly documented, to build the confidence and trust of the customer. It follows that if a company acts responsibly in social and environmental issues, the customers or consumers will show a higher level of trust in the company and in the products or services it offers. Certifications, labels, and reporting systems are the most visible means through which a company or a business proves good-will and willingness to operate in full accordance with CSR principles. Tourists seem to be willing to buy responsible packages and holidays, from tourist business who operate through CSR principles, thus creating a competitive edge (Manente et al, 2014). It remains an important fact that all the guidelines developed by EU commissions aim at supporting governments, businesses, and various other enterprises to understand and implement CSR practices. The guidelines are the result of collaborations between research results, expert input, various tried practices and valued standards (Adamek, 2016).

Specifically for the tourism industry and CSR, tourist businesses employ and operate by using the services and expertise of people, in specific environments, at national and international levels. The tourism industry is one of the most visible branches of economic development, when it comes to how the operate responsibly and sustainably, by implementing and supporting human rights and protection of the environment. CSR principles urge businesses to operate with respect to the cultures, traditions, customs, and lifestyles of the local communities, by having a positive impact in their lifestyles. In this context, the tourism industry becomes aware and willing to operate in such a manner as to benefit the local communities, at an economic level. Long-term business development and sustainability, presents an opportunity for tourism to thrive, without negatively impacting local communities or the environment (Manente et al, 2014). Despite the best efforts of local and European leaders, different cultures and nations will approach CSR principles differently, therefore a careful analysis of individual cultures is required, in order to assess how CSR principle can be implemented efficiently at the EU level (Habek, 2018).

The tourism industry has a daunting task if it implements CSR principles. Social responsibility and environmental protection require long-term vision, the protection of sustainable resources, being equitable, to provide meaningful and fair remuneration for the host community, provide economic benefit and obtaining guest satisfaction, coupled with educating the tourists on environmental and social concerns (Dodds and Joppe, 2005). There are issues created within the industry, where international hotel companies and big tour operators implemented CSR operating principles, the same cannot be said of SMEs that struggle to implement CSR principles and obtain certifications that are recognized by agreed international standards. Therefore, they cannot operate and organize their business to be labelled as responsible.

Despite most of Europe's tourism industry is made up by SMEs, they are lacking necessary funds to operate as efficiently as big tourism businesses, and also lack a proper business development plan, community development skills, and they may not even have a proper knowledge of the destination, even though they operate in it (Miller, 2001). It is advisable to organize SMEs in such a way that that CSR principles aid them in collaborating and partnering, since communication and dissemination of CSR information boosts public support (Ondrej, 2020), and in the case of tourism industry, tourist support.

Considering the limitations of SMEs versus big tourism businesses, CSR could become a medium through which European tourism industry benefits by economic development aimed at improving local communities, both by increasing the quality of life and facilitating a high-value and positive tourist experience. The environment has a high value in the tourism CSR operating principles, because it is the central element that not only is visited, but also experienced, and, if operating principles are implemented, it would also sustain responsible and valuable tourist experiences in the foreseeable future. CSR driven tourism operations benefit poor communities, as well as the environment. CSR operating tourism is converted into sustainable tourism, that favors and drives sustainable community development. Thus, becoming the means through which present and future generations will have needs met (Ogonowska and Torre, 2016).

An important element of the European tourism industry was the introduction of EU Ecolabel, introduced in 1992. The label referred to the promotion of environmental excellence, that were voluntarily accepted and applied by all EU member states (Blanco, 2015). The label applied to for both products and services, and any provider could apply for such a label. The certification agency is independent, therefore there are great efforts put into play to ensure a high-quality expertise. The purpose of ecological certification was to protect specific areas, as well as natural resources. Protecting the environment became also a tourist marketing tool, which brought an influx of tourists, that made the local population weary of the certification's effectiveness and utility. Despite the large sums invested in ecolabels, the tourist operators aim at consumer demand, that would make the investment worthwhile. Tourism, in general, aims at eco-minded and environmental-minded tourists. It seems that sustainable tourism is demand driven, offering the tourism industry the motivation to continue investing in certification and social and environmental responsibility. The result is that the tourism industry adopted vertical differentiation strategies, which means that products and services can be distinguished by quality or decisive feature. The tourism industry, the services are ordered according to their sustainability features. This translates into tourists willing to pay extra for services tailored to their specific needs or preferences. The results vary in times, but the aim is that tourism businesses to improve local amenities, from an ecological, social, and environmental perspective. The pressure would come from the consumers, and the tourism industry would respond. The issue is whether the tourism operators understand and identify the reasons for the consumers shift in preferences (Ogonowska and Torre, 2016).

From the perspective of the employees, who might be from an urban or a rural area, or from a local community, it appears that they have positive reactions to companies who act in full accordance with social responsibility principles. That is to be expected, but the once a company's employees witness both responsibility and irresponsibility, the negative effect of the irresponsible actions may have a longer and deeper negative effect on the employees, than the responsible actions. Companies who are willing to implement CSR policies and principles, should hear to voices of the employees, since they are the ones working in the very environment that the company is trying to change. Meaningful dialogue between employees and employers is reached when the former are appreciated and considered an integral part of the company. The leadership should also extend its reach beyond employees into the job

seeking communities and social media. The CSR policies may create an environment that describes the company as engaged and dedicated to principles that, in effect, are reaching far beyond the employees, namely into the communities (Jang et al, 2022).

From a theoretical perspective, CSR and firm reputation and performance depends on how ethical the leadership is. The question is whether principles that apply to companies outside Europe, also apply to the European cultural context. It is theoretically arguable that when managers are involved in implementing CSR principles, the company as a whole reaps the benefits. Managers who have a strong ethical background will strive to implement these principles at a company level. In this sense, they are the driving force for positive change. Thus, they facilitate employees to reach their full potential, because the working environment is safe. CSR principles are also easier to implement, since the stakeholders view the ethical management as a guarantee for ethical conduct. Such leaders serve the common good, and will not sacrifice ethical standards for organizational performance. Honesty, fairness, and trustworthiness are principles that raise the stake for employees, who follow suit. Company performance increases, because employees are motivated to act ethically for both personal and company benefit. Trust in a leadership that has high moral values increases and it builds a healthy organizational culture (Zhu et al, 2014).

CSR in tourism cannot have significant results in short periods of time. Despite the need for long-run implementation, policies and practices can be hindered by the fact that sustainability does not offer the same benefits to residents and the tourism industry. Maximization of benefits can only occur in time. Tourism can have negative effects for local population, especially in protected areas and in historic tourist destinations, therefore CSR would aim to implement policies and practices that contribute steadily to both quality of life and economic benefits, for the tourism industry and the local communities. Through CSR, tourism businesses need to argue for their presence in various communities and give account as to how they conduct their business. In this context, businesses that contribute to the community are much more likely to prosper than those aimed exclusively at profits. Sustainable tourism is better accepted and integrated, than mass tourism (Ogonowska and Torre, 2016). In this context, tourism businesses who are engaged and dedicated to fair and equitable treatment of employees, who treat suppliers and customers fairly, who support and are engaged in local communities, who donate to charitable causes and who promote environmental sustainability, fare better and thrive in communities weary of the negative impacts of tourism (Crook, 2005). CSR policies seem to develop better communication and integration between businesses and local communities.

5. Conclusion

Despite the fact that the article is theoretical in character, the research dedicated to CSR in tourism reveals a plethora of issues that communities and the tourism industry faces. The European Commission's documents dedicated to CSR and tourism manage to present a functional environment, where companies thrive alongside employees and the communities in which they function. CSR presents the tourism industry with challenges that need to be addressed lest they endanger their operations. The active involvement of European institutions, such as the European Commission, enables the creation of a tourism environment, that aims at improving current negative aspects, but also developing sustainable policies, that protect both the tourism industry and the local communities. Local communities, tourists, employees, and the media are prone to observe how social responsibility is put into practice, and how it leads to better environmental and economic outcomes. CSR principles and policies may not put

profit first, but they offer a sustainable and long-term development, that does not aim to satisfy the needs of one generation, but of future generations as well.

Future research on the topic of CSR and the tourism industry at the EU level will try to identify the relations between various CSR dimensions and the financial performance of companies that are active in the tourism industry. The research questions will focus on how the economic growth and the environment influence various dimension of CSR in the tourism industry.

Acknowledgements

The research has been funded by the University of Oradea, within the Grants Competition "Scientific Research of Excellence Related to Priority Areas with Capitalization through Technology Transfer: INO - TRANSFER - UO", Project No. 000/2021. No. CSR 318/2021.

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University Students Perceptions on Distance Education in Selected European Union Countries

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Abstract

The SARS–COV–2 pandemic has hit European Union countries in many areas. One of these areas is education. Teaching not only at universities had to adapt to the circumstances, which are also present across the countries of the European Union. Non–stop teaching methods have become more widely used. Now some countries or specific universities have again started distance education. This type of education is likely to play a major role in the future and therefore needs to be addressed. This paper deals with university distance education in the Czech Republic. The aim of the paper is to find out what are the attitudes of students regarding distance education through a questionnaire survey. Because feedback is important for the quality of their teaching.

Keywords: covid–19, distance education, European Union, higher education, perception

JEL Classification: C12, I23, I28

1. Introduction

The SARS–COV–19 (COVID–19) epidemic broke out at the end of 2019 and spread rapidly around the world. One of the most affected areas was the European Union. The affected European countries have been forced to take measures to prevent the epidemic from spreading. These measures also affected higher education. The classic present form of studying in the class has been replaced by a remote model on the internet (Stevanovic, Bozic and Radovic, 2021). Ensuring a high quality of education is one of the goals of the European Union (Mazur–Wierzbicka, 2020 or Halásková and Schwarcz, 2018). On education at universities in the Czech Republic, for example in (Göttlichová, 2018). At present, some countries or universities are closing again due to the deteriorating pandemic situation. One of these countries is the Czech Republic.

According to (Wagner, Kupriyanova, Ovezová and Ilina, 2021), distance learning is based on the use of information and communication tools, which allow teaching between a student and a teacher without having to physically meet. While in full-time courses, students participate in person.

University students perceive distance education differently based on the year of study they study. For example, according to (Stevanovic, Bozic and Radovic, 2021) first–year students are much less motivated in their home schooling than senior students, who considered distance learning to be an interesting way of teaching.

On distance education for preschoolers, for example (Veraksa, Chursina and Gavrilova, 2021), according to which distance education allows these children to develop higher mental functions.

Distance education has a number of disadvantages. Such as the speed and quality of the Internet, lack of motivation, distraction (family, television, etc.), unattractive teaching content from the teacher's point of view, more tasks than in classical teaching, etc. (Bataineh, Atoum, Alsmadi and Shikhali, 2021). Some students, especially at the beginning of the introduction of distance education, could not participate in this teaching. For example, because they had no equipment (computer, laptop, etc.) (Karadag and Yucel, 2020).

According to (Rizunová and Strzelecki, 2020), economics students have a moderate feeling about increasing their efficiency and productivity in distance learning. According to this study, students consider distance learning tools to be intuitive and plan to use them voluntarily in a classical teaching environment. Nevertheless, they still prefer classic teaching to distance learning.

Opinions on distance learning also differed among teachers. Some teachers had major problems with distance learning due to their insufficient skills in information communication technologies. On the other hand, some of these educators have developed their ICT skills for these reasons. Furthermore, preparation for distance learning is much more difficult for teachers than traditional school teaching. For example, according to (Nash and Churchill, 2020), some educators have halved their publishing activities compared to the previous situation (Cicha, Rizun, Rutecka and Strzelecki, 2021).

According to (Babacan and Yuvarlakbas, 2021), it is necessary to support the use and application of technological platforms.

The aim of the paper is to find out what are the attitudes of students at the University of Economics in the Czech Republic. The reason for this contribution was the fact that distance learning was currently introduced at the analyzed university. At this time, distance learning was provided by the university via MS Teams application in real time according to a set schedule.

This post is currently very topical and can be of benefit to students, teachers, parents or educational institutions.

2. Problem Formulation and Methodology

The aim of the paper is to find out what are the attitudes of university students regarding distance education.

2.1 Model and Data

The Mann – Whitney test for two independent samples is used to verify the identical level of two small samples from unknown distributions.

The test criterion U is the number of all cases in which the values of one selection are preceded by the values of other selection in ascending order of all observations.

The determination of the number of these cases for both selections is denoted U_1 and U_2 . If in the file consisting of both selections with the range $n = n_1 + n_2$ each value is assigned to an ascending order number and these orders are then summed separately for each sample, the sums R_1 and R_2 for each group are obtained. Applies to (1):

$$U_1 + U_2 = R_1 - n_1 \cdot \frac{n_1 \cdot (n_1 + 1)}{2} + R_2 - n_2 \cdot \frac{n_2 \cdot (n_2 + 1)}{2} \quad (1)$$

If the observed variables are classified into more than 2 groups and the data do not come from a normal distribution, it is necessary to use the Kruskal – Wallis test. The test is based on arranging all detected values by size.

Test criterion G is then based on the sum of order numbers in individual selections R_i (Pecáková, 2018).

The data were obtained via questionnaire online survey (GoogleForms application) (e.g. Wagner, Kupriyanova, Ovezova and Ilina, 2021), which was conducted in December 2021 at the University of Economics in Ostrava, Czech Republic.

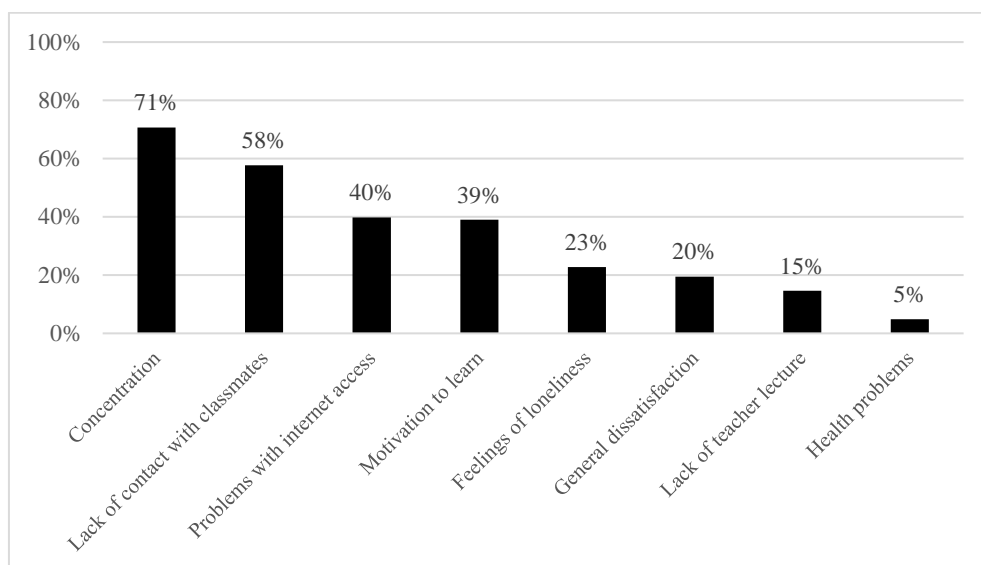
3. Problem Solution

One hundred and twenty–three respondents took part in the questionnaire survey, of which 42 were men (34.1 %) and 81 women (65.9 %). A total of 68% of respondents of the bachelor's program and 32% of respondents in the follow-up studies responded in the questionnaire survey.

Students most agree with the statement "I prefer the completion of courses online to full–time", 39.8 % of students completely agree with it, another 37.4 % tend to agree with it. In second place was the statement "Teaching method of a teacher motivates me to participate in online courses", 34.1 % of students completely agreed. In third place was the statement "I believe that there is no difference in the quality of online teaching compared to full–time", which was fully agreed by 32.5 % of students.

The most common reported disadvantages of distance education are shown in Figure 1.

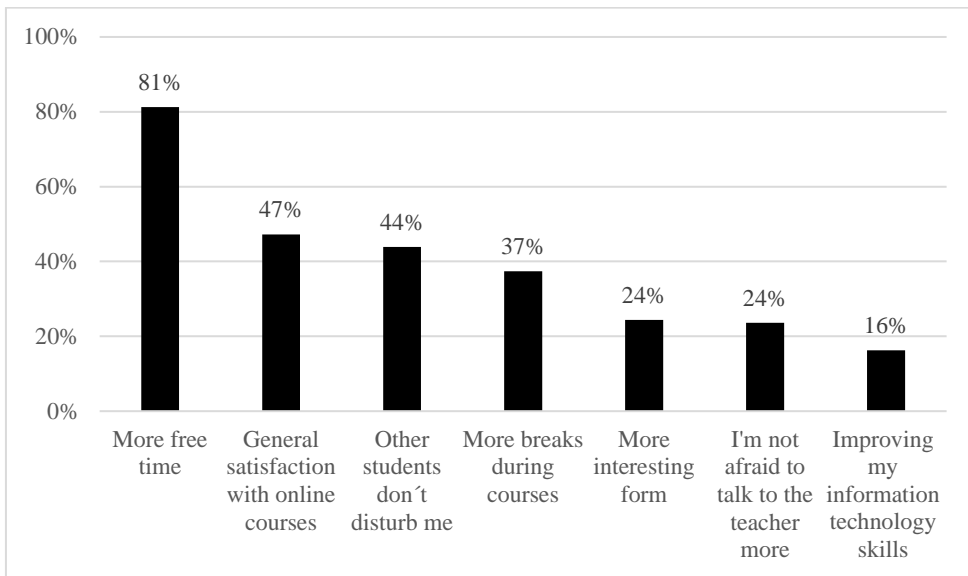
Figure 1: Disadvantages of distance education



Source: author's calculations (2021)

The most common reported advantages of distance education are shown in Figure 2.

Figure 2: Advantages of distance education



Source: author's calculations (2021)

3.1 Attitudes of Men and Women to Distance Education

Hypotheses to verify differences in attitudes between men and women are following:

- H₀: There are no significant differences between the attitudes of men and women
- H₁: There are significant differences between the attitudes of men and women

Table 1 and 2 show the results of the Mann – Whitney test.

Table 1: Results of the Mann – Whitney test for attitudes

Attitudes	Mann – Whitney test	
	Criterion	P-value
I'm satisfied with online courses	1606	0.602
I prefer online courses to full-time	1639	0.735
I see no difference in quality of online and full-time courses	1528	0.343
Online courses should have been shorter than full-time courses	1407.5	0.108
More students attend online courses than full-time courses	1538	0.367
Teacher's camera turned on improves quality of the course	1617	0.646
I prefer completion of online courses to full-time	1572.5	0.466
Teacher's way of teaching motivates me to participate in online courses	1626	0.677
My bad access to a computer negatively affects my ability to attend online courses	1550.5	0.355

Source: author's calculations (2021)

Table 2: Results of the Mann – Whitney test for academic performance

Attitudes	Mann – Whitney test	
	Criterion	P-value
Due to online courses, I do not spend more time preparing than in full-time courses	1632.5	0.793
In online teaching, I do not postpone my school duties more than in full-time teaching	1616	0.643
My academic performance is improving due to online teaching	1609	0.613
My limited access to school library during online teaching has a negative impact on my ability to learn	1527	0.328

Source: author's calculations (2021)

The hypothesis was tested separately for each statement. Based on the test and a comparison of the p-value with a significance level of $\alpha = 5\%$, the tested hypothesis was not rejected in any statement. We can say that at the 5% level of significance, the attitudes of men and women to online teaching do not differ statistically significantly.

3.2 Attitudes to Distance Education according to Individual Years

Hypotheses to verify differences in attitudes between individual years are following:

- H_0 : There are no significant differences between attitudes within years
- H_1 : There are significant differences between attitudes within the years

Table 3 and 4 show the results of the Kruskal – Wallis test.

Table 3: Results of the Kruskal – Wallis test for attitudes

Attitudes	Kruskall – Wallis test	
	Criterion	P-value
I'm satisfied with online courses	12.714	0.013*
I prefer online courses to full-time	14.174	0.007*
I see no difference in quality of online and full-time courses	47.810	0.000*
Online courses should have been shorter than full-time courses	21.277	0.000*
More students attend online courses than full-time courses	11.339	0.023*
Online courses improve information technology skills	5.431	0.246
Teacher's camera turned on improves quality of the course	9.506	0.050
I prefer completion of online courses to full-time	6.943	0.139
Teacher's way of teaching motivates me to participate in online courses	18.802	0.001*
My bad access to a computer negatively affects my ability to attend online courses	20.215	0.000*

Source: author's calculations (2021)

* statistically significant differences between grades

Table 4: Results of the Kruskal – Wallis test for academic performance

Attitudes	Kruskall – Wallis test	
	Criterion	P-value
Due to online courses, I do not spend more time preparing than in full-time courses	18.207	0.001*
In online teaching, I do not postpone my school duties more than in full-time teaching	9.786	0.044*
My academic performance is improving due to online teaching	8.671	0.070
My limited access to school library during online teaching has a negative impact on my ability to learn	18.753	0.001*

Source: author's calculations (2021)

* statistically significant differences between grades

Based on the performed Kruskal – Wallis test, pair comparison tests were performed for statistically significant statements.

Overall, there are statistically significant differences between the 1st and 5th year and between the 3rd and other years.

4. Conclusion

The paper dealt with the attitudes of university students regarding distance education. Education is one of the basic pillars of economic growth (Palašćáková, Kokoliová and Palašćáková, 2018 or Plešniarska, 2018) and for this reason this topic is very important. At the same time, it is necessary to constantly deal with the application of information technologies in education (Zounek, Záleská and Juhaňák, 2020).

The most common disadvantage of distance education is the fact that students could not stay focused during online learning. On the contrary, students see the biggest advantage in having more free time. Students most agree with the statement "I prefer the on-line completion of courses before the present model". On the contrary, they agree the least with the statement "My access to a computer negatively affects the ability to participate in online learning".

Based on the testing of statistical hypotheses, it was found at the 5% level of significance that the attitudes of men and women to online teaching do not differ statistically significantly. On the contrary, within the school years, attitudes differ at the 5% level of significance. Statistically significant differences are found between the 1st and the 5th year and further between the 3rd and other years.

A limitation of this contribution is the fact that the questionnaire survey was conducted at only one university in one country. To obtain the overall situation regarding the impact of the COVID-19 pandemic, a comparative questionnaire survey is needed at several universities or in more than one country.

However, despite its limitations, the paper is very topical and beneficial for its field, and given the current situation regarding the COVID-19 pandemic, this topic will resonate in the future. For this reason, the author will continue to address this topic, for example in the area of individual grades, subjects or in the area of hybrid courses.

Acknowledgements

This paper was created within the project SGS *Evaluation of the Personal Income Tax Reform Effects on tax Revenue and Tax Progressivity in the Czech Republic*. Project registration number 2022/01.

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The Impact of Consumer Profile on the Attitudes on the European Wine Markets

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Abstract

This paper examines the impact of consumer profile on the consumer attitudes on the wine market. Based on McKinney research which has been conducted on the Australian wine market this contribution tries to depict the role of four basic wine consumer segments (connoisseurs, aspirational drinkers, beverage wine drinkers, new wine drinkers) on building the opinions, beliefs and attitudes concerning with the wine consumption. Two European countries (Czech and German) that are primarily considered as beer markets were selected to apply the customer typology of McKinney study. The sample of 867 respondents from those two European countries was surveyed. The findings portray intercultural differences between observed market and show how different consumer typology influences the thinking of wine drinkers.

Keywords: *consumer attitudes, consumer segments, wine market*

JEL Classification: *C40, C83, M31*

1. Introduction

The wine production has become more commercial and global in the past decades and a lot of the wine is nowadays sold in retail. The wine producers no longer focus only on wine growing and oenology but they try to include managerial approach oriented on the customers. Therefore, management and marketing practices in running the wine business are becoming indispensable (Orth, Lockshin & d'Hauteville, 2007). The wine market is a mass market and highly competitive market with the sign of local patriotism in some European countries. It is also regulated market via EU Delegated regulation 2018/273 and EU regulation 2021/2117 (European Commission, 2022). The contribution focuses on the impact of changes in European environment on the character of consumer behaviour in the wine market.

1.1 The Characteristics of European Wine Market

The European Union is the world-leading producer of wine. Between 2016 and 2020, the average annual production was 165 million hectolitres. In 2020, it accounted for 45% of global wine-growing areas, 64% of production and 48% of consumption. Wine is the largest EU agri-

food sector in terms of exports (7.6% of agri-food value exported in 2020) (European Commission, 2022).

European countries are among the world's most prolific wine producers. Three European countries famous for their wine industries, Italy, France and Spain, topped the world's leading countries in wine production in 2020. The three countries also accounted for a significant share of the global vineyard surface area, largely owing to their Mediterranean climate, which has historically made wine-growing flourish in these areas. Other market leaders in wine production on the European continent include Germany, Portugal and Romania. Germany was the fourth largest producer of wine in Europe, with 8.4 million hectoliters of wine produced in 2020. In that year, the size of the European wine market exceeded 147 billion U.S. dollars and was predicted to continue growing to more than 219 billion U.S. dollars by 2025. (Statista, 2021).

1.2 The Characteristics of German Wine Market

According to Wine Institute (2020) Germany ranks 9th in the world wine production and it is the 4th biggest European producer of wine. In 2020 Germany accounted for 3,2 % of the total world wine production amounting 8,4 million hectoliters. In the past decade, the production fluctuated between 8 and 10 million hectoliters per year (OIV, 2019).

The overall wine consumption in Germany has been slightly increasing in the past decade (OIV, 2019; Wine Institute, 2020). According to the Statista (2020) the wine consumption in Germany amounted 19,8 million hectoliters and accounted for 8,18 % of the world wine consumption in 2020. This makes Germany the fourth biggest wine consumer in the world behind the US, France and Italy. In 2013, German households spent €11.2 billion on alcoholic beverages. The per capita consumption in Germany remains stable in the past decade. In 2012 the per capita consumption was 28,2 l/capita. That means 20th place in the world in terms of per capita consumption. (OIV, 2019; Wine Institute, 2020).

1.3 The Characteristics of Czech Wine Market

According to Wine Institute (2020) the Czech Republic ranks 33rd in the world wine production and account for only 0,16 % of the total world wine production. In 2019 the wine production amounted 635 thousand of hectoliters, 63 % was white wine, 28 % red wine, and 9 % rosé wine.

The total wine consumption in the Czech Republic has almost tripled since 1995 (OIV, 2019; Wine Institute, 2020). In 2019 it amounted 2,05 million hectoliters and accounted for 0,81 % of the total world wine consumption (OIV, 2019). In terms of wine consumption per capita the Czech Republic ranks low with the consumption fluctuating around 22 l/capita in last couple years (OIV, 2019). However, in 1989 the per capita consumption was lower than 14 l/capita (Horáková, 2017).

1.4 The Consumer Typology on the Wine Market

There are many studies which are focusing on segmentation in the wine industry. Two articles described differences between men and women wine buyers (Lockshin, Corsi, 2012). Barber (2009) found men had both greater objective and self-assessed wine knowledge compared to women. Atkin et al. (2007) found that if a consumer was unsure about what wine to buy, women were more likely to seek information from store or restaurant personnel. Also, Generation Y are subject of many consumer studies (Navrátilová, 2013, Pawlasová et al., 2014, Klapilová et al., 2016, Pawlasová et al., 2017). Agnoli et al. (2011) used choice analysis to understand Gen Y's alcohol purchase behaviour across different consumption situations. Ritchie (2011) studied Gen Y drinkers and she found wine was used mainly in groups, because a bottle was too large to drink alone. Mueller et al. (2011) has confirmed that Gen Y appear to be more oriented to hedonic success and status than the other generations. Wolf et al. (2005) found that Gen Y consumers preferred cheaper wines to the other generations.

There are many studies trying to build typology of wine consumers. Lockshin, Spawton and Macintosh (1997) specified five type shoppers of wine stores. McKinna's study defined criteria for segmentation (Keown, Casey, 1995). Criteria are based on benefits which are sought by those consumers who purchase wine. He identifies four types of wine consumer:

Connoisseurs

McKinna identifies consumers who perceive wine education as a hobby, and they know a lot about wine. This segment consumes wine on daily basis and make their decisions in advance of purchasing. They have a broad spectrum of tastes and like to experiment (Keown, Casey, 1995).

Aspirational drinkers

Members of this segment are concerned with the social aspects of wine and tend to be attracted by fashionable brands and labels. They are highly risk-averse and spend considerable time in the search process. McKinna also holds that aspirational drinkers are strongly influenced by wine writers, journalists, opinion leaders and are likely to attend wine appreciation courses (Keown, Casey, 1995).

Beverage wine consumers

McKinna suggests that this segment consume wine avidly but have little desire to appreciate what they are drinking. They purchase in convenient retail outlets or in an impersonal supermarket environment. Choice is dependent on consistent taste, price and price-related promotions (Keown, Casey, 1995).

New wine drinkers

This segment is composed of the young and first-time drinkers who, according to McKinna, are attracted to wine consumption by the behaviour of their parents or other reference groups. Consumer context will strongly influence their choice. These consumers are not fully aware of parameters for choice and their preferences are not yet established (Keown, Casey, 1995).

2. Problem Formulation and Methodology

Consumers' characteristics and behaviour are rapidly changing nowadays as the consumers are more mature and demand higher quality products. This fact brings many challenges for both wine producers and retailers (Horáková, 2017).

2.1 Problem Definition

This paper explores the attitudes to wine consumption. "What benefits do the consumers expect from wine?" "Are consumers price sensitive?" "Does the price reflect the quality of wine?" "In which usage situation do consumers prefer to drink wine?" "Is it necessary to have the expertise in wine field to enjoy wine taste?" "Are consumers ready to try new brands and tastes of wine?" These are the research questions that should be answered by survey. The question is if different reactions of consumers on the statements which measure their attitudes contribute to building the typology of wine drinkers.

Because the goal of paper is to portray the impact of consumer profile on the consumer attitudes on the wine market it is necessary to search the role of moderators (country, gender, age, education, frequency of consumption) in this process. Intercultural differences are perceived as key drivers for consumer behaviour. Theoretical concept will be verified using two countries from central Europe (Czech Republic, Germany) that were chosen for survey. Germans are heavy consumers because they are fourth in the world wine consumption. Also, wine consumption per capita is relatively high (see chapter 1.2). While Czechs are except South Moravia region focused on beer. Czech wine consumption is just one tenth of German one.

2.2 Research Methodology

For this research on-line questionnaire has been applied. Forms by Google were used to collect all necessary data. The mix of convenience sampling and quota sampling has been selected as the most suitable type for this study. Quota was set for number of respondents from each country (400 respondents). Quota was kept on both markets (see table 1). The other segmentation criteria (gender and age) have not been under full control due to convenience sampling and number of respondents in particular categories have been disbalanced (see table 1). Sample size was 867 respondents (Horáková, 2017).

Table 1: Structure of Sample

	Male	Female	Gen Y	Gen X	CZE	GER
Absolute frequency	286	581	603	264	458	409
Relative frequency	33%	67%	70%	30%	53%	47%

Source: Horáková, 2017

Data collected from both countries were firstly edited and coded. Then data were analysed via statistical package of IBM SPSS Statistics version 28. Factor analysis and cluster analysis were used for typology of wine drinkers. Principal component analysis was chosen as an approach for factor analysis because the aim was to determine the minimum number of factors that will account for maximum variance (Malhotra, 2010). Varimax procedure was used as method for rotation of factors. Hierarchical agglomerative clustering was applied as clustering procedure. From many agglomerative methods the centroid method has been chosen. In the centroid method the distance between two clusters is the distance between their centroids (means for all the variables).

3. Problem Solution

The results are structured into three sections: (1) determining the factors of attitudes to wine consumption, (2) identifying the segments of wine consumers and (3) consumer profile of wine segments.

3.1 Determining the Factors of Attitudes to Wine Consumption

Ten statements (see table 4) were submitted to respondents to express the attitudes towards wine consumption. For the factor analysis to be appropriate, the variables must be correlated. Bartlett's test of sphericity can be used to test the null hypothesis that the variables are uncorrelated in the population (Malhotra, 2010). A large value of the test statistic (1022.7) will favour the rejection of the correlation matrix. Another useful statistic is the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. This index compares the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients. Relatively higher value of the KMO (0.620) (see table 2) statistic indicate that the correlation between pairs of variables can be explained by other variables.

Table 2: Bartlett Test of Sphericity

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling		0.620
Bartlett's Test of Sphericity	Approx. Chi-Square	1022.687
	df	45
	Sig.	0,000

Source: own elaboration

Final number of factors was based on eigenvalues. Only factors with eigenvalues greater than 1.0 are retained, the other factors were not included in the model. First factor accounts for 18 % of the variance, whereas the second accounts for 17% and the third accounts for 16% respectively (see table 3).

Table 3: Rotation Sums of Squared Loadings

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.054	20.543	20.543	1.813	18.127	18.127
2	1.720	17.196	37.739	1.715	17.151	35.279
3	1.313	13.130	50.869	1.559	15.591	50.869
4	0.933	9.332	60.202			
5	0.862	8.622	68.824			
6	0.784	7.840	76.665			
7	0.687	6.870	83.535			
8	0.641	6.415	89.949			
9	0.518	5.180	95.130			
10	0.487	4.870	100.000			

Extraction Method: Principal Component Analysis.

Source: own elaboration

An important output from factor analysis is the factor matrix. The factor matrix contains the coefficients (factor loadings) represent the correlations between the factors and the variables. Interpretation is facilitated by identifying the variables that have large loadings on the same factor. This impact is expressed by figures in bold (see table 4). Based on the findings three factors were classified and named with respect to consumer attitudes. “Gourmet” factor prefers quality wine with its taste (colour, scent) while “Aspiration” factor emphasizes social context of wine. “Connoisseur” factor stresses either hobby or expert approach to wine consumption.

Table 4: Rotated Factor Matrix

	gourmet	aspiration	connoisseur
1_I drink wine primarily because of its taste/ color/ scent	0.748	-0.189	0.008
2_I associate wine consumption with formal occasions	0.198	0.594	0.017
3_Wine drink consumers with higher social status	0.055	0.630	0.153
4_I often drink wine because others drink it too.	-0.414	0.647	0.002
5_I would never drink wine alone	-0.225	0.608	0.055
6_I like to try new kinds of wine	0.742	-0.029	-0.057
7_One have to be an expert to recognize good wine	0.074	0.254	0.607
8_The price of wine depends on its quality	0.096	0.062	0.826
9_It is possible to buy quality wine at a low price	0.419	0.221	-0.596
10_I always drink only quality wine	0.498	0.151	0.351

Extraction Method: Principal Component Analysis.

a. Rotation converged in 5 iterations.

Source: Horáková (2017), own elaboration

3.2 Identifying the Segments of Wine Consumers

Based on the application of cluster analysis four segments were recognized. Cluster centroids are presented in table 5. Aspirational drinkers are those consumers who associate wine drinking with social aspects. Innovators are trying new kinds of wine and they have no prejudice to cheaper wines. Connoisseurs display high involvement in wine purchase and consumption, and they are well educated in the oenology. Beverage wine consumers show little interest in what they are drinking.

Table 5: Cluster Centroids

	beverage	connoisseurs	innovators	aspirational	Total
1_I drink wine primarily because of its taste/ color/ scent	3.699	4.430	4.382	2.735	3.975
2_I associate wine consumption with formal occasions	2.223	3.225	3.535	3.568	3.165
3_Wine drink consumers with higher social status	1.420	2.365	2.444	3.135	2.320
4_I often drink wine because others drink it too.	1.306	1.532	1.895	3.510	1.928
5_I would never drink wine alone	1.694	2.358	2.640	3.994	2.580
6_I like to try new kinds of wine	3.031	4.041	4.127	2.342	3.567
7_One have to be an expert to recognize good wine	2.352	3.437	2.484	3.213	2.884
8_The price of wine depends on its quality	2.648	3.853	2.324	3.213	3.032
9_It is possible to buy quality wine at a low price	2.756	2.706	3.960	2.729	3.097
10_I always drink only quality wine	2.057	3.447	2.847	2.594	2.830

Source: Horáková (2017), own elaboration

3.3 Consumer Profile of Wine Segments

There are substantial intercultural differences among wine segments based on customer attitudes (see Table 6). The difference is confirmed by statistical test on 95% level of significance. While connoisseurs are most typical segment in the Czech Republic, innovators and aspirational drinkers are most frequent segment in Germany.

Table 6: Structure of Wine Segments Based on Country

	Czech Republic	Germany	Total
beverage wine consumers	21,3%	20,8%	21,1%
connoisseurs	37,2%	26,2%	32,0%
innovators	27,7%	32,6%	30,0%
aspirational drinkers	13,8%	20,4%	16,9%

Source: own elaboration

The respondents were asked to assess their knowledge of wine on five-point scale. The average score was recalculated by linear extrapolation to percentage. Higher percentage indicates higher awareness of wine culture according to the respondent perception. Expertise of connoisseurs has impact on their self-assessment. This is valid namely in German case.

Table 7: Self-Assessed Knowledge Based on Wine Segments and Country

	Czech Republic	Germany	Total
beverage wine consumers	41%	40%	41%
connoisseurs	56%	63%	59%
innovators	54%	48%	51%
aspirational drinkers	32%	27%	29%
Total	49%	46%	48%

Source: own elaboration

Price sensitivity of different wine segments was measured on both markets by question “How much are you willing to pay for a wine bottle?” Generally, the price sensitivity according to the wine segments is statistically significant. If we compare markets just German market shows statistical significance concerning with wine segments.

Table 8: Willingness to Pay for a Bottle Based on Wine Segments and Country (€)

in €	Czech Republic	Germany	Total
beverage wine consumers	5.87	5.50	5.70
connoisseurs	6.02	7.65	6.65
innovators	5.91	5.94	5.93
aspirational drinkers	6.01	6.13	6.08

Source: own elaboration

Wine segments differ each other based on the demographic categories (gender, age, education). All findings are confirmed by statistical tests on 95% level of statistical significance.

4. Conclusion

The paper has confirmed findings of McKinna's study that classified four types of wine consumer (connoisseurs, aspirational drinkers, innovators, beverage wine consumers). The structure of wine segments differs according to all observed moderators (country, gender, age, education). There are substantial intercultural differences among wine segments based on customer attitudes (see Table 6 and 7).

There are some limitations concerning with this contribution. Firstly, the sample structure is not balanced according to age and gender which affects namely the share of wine types based on consumer attitudes. Also, consumer context depends on the demographic profile. Secondly, the attitudes are measured by statements but either detailed quantitative survey concerning with wine expertise and price sensitivity, or panel survey would be appreciated. Thirdly, survey including two countries has shown some intercultural differences, but the choice of countries is debatable. In next survey, two countries with the similar number of inhabitants (the Czech Republic, Austria) can be selected. Another approach may involve traditional wine countries such as France, Italy and Spain. In any case the multicultural study could provide valuable insight into the nature of the consumer profile.

Acknowledgements

„This paper was supported within the project SGS “Analysis of Consumer Attitudes on B2C Market” – project registration number SP2022/126“.

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The War in Ukraine as a Threat to EU Trade with China – Perspectives of Mutual Relations in Today Context. Outer-Inner view – Impact of the War on European Integration Process.

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Abstract

The end of the New Silk Road? The Russian invasion of Ukraine threatened China's connection with Europe and also raised serious questions about the fate of China's New Silk Road project. More than four decades had passed since the European Union (EU) and the People's Republic of China (commonly known as China) established diplomatic relations in 1975 and economic relations in 1978. They became mutually indispensable economic partners, presenting both challenges and opportunities for both sides on a range of issues. The EU-China relationship is evolving, growing and changing as the EU and China grow and change. How does the EU fit into China's strategic narratives? How does China fit into the EU's strategic narratives? How are the perspectives of mutual relations (especially the New Silk Road) influenced and changed by the war in Ukraine? How does the war in Ukraine change the future orientation of the European integration process both for internal to external issues? The article aims to address these questions by examining scholarly writings and professional studies. Based on a comparative analysis of scientific literature, a comprehensive analysis of the EU-China relations is performed and today's context is taken into account.

Keywords: China, cooperation, EU, globalisation, New Silk Road, Russia, Ukraine, war.

JEL Classification: E02, F02, O52, O53, P51

1. Introduction

For generations, Europe was always the future. It took off with the vision of Altiero Spinelli and Ernesto Rossi, political prisoners locked up by a fascist regime on the isle of Ventotene during the Second World War. Their manifesto *For a Free and United Europe* painted a picture of a place in which allies and adversaries would come together to ensure that the “old absurdities” of Europe would never return. More than sixty years ago, inspired by that dream of a peaceful, shared future, the EU's founding members embarked on a unique and ambitious journey of European integration. They agreed to settle their conflicts around a table rather than in battlefields. They replaced the use of armed forces by the force of law. They opened up the path for other countries to join, reuniting Europe and making us stronger. As a result, our troubled past has given way to a peace spanning seven decades. Even in these years, however, the problems and challenges of the time have been addressed, and these are, of course, still present today. Europe's challenges show no sign of abating. Our economy is recovering from the global financial crisis but this is still not felt evenly enough. Parts of our neighbourhood are destabilised the Russian invasion of Ukraine, what resulting in the largest refugee crisis since the Second World War.

The current situation need not necessarily be limiting for Europe's future. The Union has often been built on the back of crises and false starts. From the European Defence Community that never got off the ground in the 1950s, to the exchange rate shocks of the 1970s, through to aborted accessions and rejections in referenda in recent decades, Europe has always been at a crossroads and has always adapted and evolved (European Commission, 2017). Development depends not only on the EU and its internal set-up, but also on external events, as the world is interconnected and the EU is part of it (Melecký, 2018; Sucháček, 2014; Poledníková, 2013).

Current world order, today's world, today's economy, today's society are experiencing profound and complex changes. Globalisation is an ongoing process leading to continuous, gradual and increasing interaction on many aspects of human life and leading to growing interdependence among all entities and all parts of our planet. It is not a new phenomenon. Globalisation has various factors and impacts on economic, environmental, demographic, social, technological, and cultural dimensions. Globalisation may bring several opportunities to the whole world via growth trade, i.e., in exchange of goods and services, exports of products, intercultural and educational exchange programmes, and a boost in tourism. Economic opportunities may emerge for producers, consumers, the workforce, and entrepreneurs, all of whom can exploit global markets. Localities well connected to global 'chain' networks will have the chance to explore more opportunities. However, globalisation may also lead to challenges in business relocations, job losses, unfair trade competition, pollution, an increase of migration and cultural homogenisation (Margaras, 2017). The globalisation impacts local, national, and international entities worldwide, and China and the European Union (EU) are no exception. Harnessing globalisation requires a holistic approach. Local, national, and global synergies will have to be instituted to address challenges stemming from the world economy's globalisation processes. Relevant initiatives will have to be done to empower all players to address these challenges successfully. Initiatives supporting trade openness and economic expansion are being undertaken, from the China's New Silk Road or Belt and Road Initiative (BRI), to the harmonisation of European trade and defence policies which is more than current and necessary in the context of today.

China's emergence or re-emergence as a world power has significantly changed the international political environment and its global governance view. It resulted in a shift in China's strategic narratives on world issues. Since the leadership under the Chinese President Xi Jinping took power in 2012, China has proposed a series of initiatives such as 'new type of great power relations' and 'one belt one road' which are the most famous. Both initiatives demonstrate China's increasing global ambition to be a norm/system shaper rather than a norm/system taker (Zeng, 2016; Zeng, Breslin, 2016). These processes resulted in the fact that China's strategic move has significant implications for the EU. The EU-China relationship is evolving, growing and changing as the EU and China grow and change. How does the EU fit into China's strategic narratives? How does China fit into the EU's strategic narratives? How are the perspectives of mutual relations (especially the New Silk Road) influenced and changed by the war in Ukraine? How does the war in Ukraine change the future orientation of the European integration process both for internal to external issues? By examining the relevant scholarly writings and professional studies as well as the latest serious media reports, i.e., by literature review method, the article aims to address these questions by examining scholarly writings and professional studies. Based on a comparative analysis of scientific literature, a comprehensive analysis of the EU-China relations is performed and today's context is taken into account. The Russian invasion of Ukraine threatened China's connection with Europe and also raised serious questions about the fate of China's New Silk Road project. For more than four decades of diplomatic and economic relations, the EU and China became mutually dependent economic partners, for whom, however, the war in Ukraine is a possible new threat.

2. Problem Formulation and Methodology

Knowledge production and especially distribution within the research and publishing activities are accelerating at a tremendous pace. This makes it hard to evaluate the collective evidence in a particular area of research. Research method in the form of the literature review is thus more relevant than ever before (Snyder, 2019, p. 333). The literature review describes and discusses, better said summarises published information in a particular subject area, and sometimes information in a specific subject area in a specific time. The literature review is a more or less systematic way of collecting and synthesising previous, former older and newer research in the particular subject area (Baumeister, Leary, 1997; Tranfield, Denyer, Smart, 2003). By integrating information, findings, results, methods, conclusion, limitations and perspectives from many empirical works, the literature review can address, respectively suggests research questions with a power that no single study (or researcher) has. Traditional and standard modes of describing and explaining the literature often lack thoroughness and are not undertaken systematically (Tranfield, Denyer, Smart, 2003). There already exist some guidelines for academic writing containing principles and approaches for conducting literature reviews that suggest different types of reviews, such as narrative or integrative reviews (Baumeister, Leary, 1997; Wong et al., 2013), systematic reviews, and meta-analysis of literature (Moher et al., 2009; Liberati et al., 2009; Davis et al., 2014) or integrative reviews (Torraco, 2005). Snyder (2019) divides among the literature review methodologies; systematic, semi-systematic and integrative ways.

Just as there is policy continuity from the Chinese 'going global' policy to the new Silk Road, so it is not possible to divide scholarly (and other) interpretations of the BRI. Since the 1990s, Western perceptions of China's rise have existed, following the primal motivations of business interests in advanced capitalist economies, on a spectrum between fear and greed – or configured, opportunity and threat (Pavlicevic, 2018). By now, it should be evident that when it comes to the BRI and its interpretations by scholars, complexity, disagreement and a degree of confusion reign at both the theoretical and empirical level. Is the initiative primarily economic or political, or both combined? To what extent are a 'belt' and a 'road' really under construction? How do the normative (ideational) and material aspects of the initiative interact, if at all? The task of developing an approach or framework to understand the BRI is a highly demanding one, and one that has so far mostly eluded theorists, or not even been attempted (Garlick, 2020). As Garlick (2020) explains in great detail, BRI has been the source of much interest and confusion, as established frameworks of analysis seek to understand China's intentions behind the policy. IR scholars have not successfully theorised China's international activity in the early 21st century because of a failure to satisfactorily encompass its complexity.

3. Globalised World and International Economic Relations

International economic relations are an important part of the world economy. The world economy is a whole socio-economic system formed by various elements (subjects), creating external economic relations by their interconnection. There is an international division of labour through these relationships, within which individual entities (e.g., companies, transnational corporations or entire states) specialise. Economic ties between subjects are not permanent, but variable, they can be closer or looser. Although economic ties create a unified world whole, the world economy comprises internally distinct components. Globalisation also contributes to this ongoing process. Subjects can realise the following forms of international economic relations: international trade in goods and services, global capital movements, international labour movements (international economic migration), the international movement of information and scientific and technical knowledge.

The instruments of support for international economic relations are based on the implemented trade, investment and migration policy of the state or integration grouping. The degree of liberalism-protectionism ratio in these policies depends on many factors. Both approaches bring advantages and disadvantages to the economy. The manifestation of the state's liberal approach to international economic relations is the involvement of the state in integration groups, such as free trade zones or higher degrees of economic integration, deregulation of capital markets, offering investment incentives, the abolition of work visas, restrictions on customs measures or an easy way to obtain a work permit.

The trade policies of many countries are not fully independent and are legally binding on higher authorities. The signatory states to the World Trade Organization (WTO) agreements have undertaken to respect their trade policy's contractual framework and significantly reduce the scope for influencing their external trade relations. Furthermore, states are limited by participating in integration units. The interdependence of political and economic spheres of activity results in a complex international political economy which needs to be understood for what it is, rather than what those who advocate utilising parsimonious theories to simplify reality would wish it to be (Cox, 1981, pp. 126-127).

4. Results and Discussion

American Ex-President Donald Trump's rise to power, his voting motto "Make America Great Again" followed-up by "America first" and the initiative of the President Xi Jinping "Belt and Road Initiative" (BRI), respectively "One Belt One Road" (OBOR), designed to revitalise the old Silk Road, are the key milestones demonstrating a radical shift in globalisation processes and world order. These initiatives have marked a turning point in world history, something that can be seen in the creation of the ideologies guided by national interests, e.g., BRI is the ideological pursuit of the Chinese dream as well as the strategy behind Trump's "America first" campaign followed the same topic, i.e., to revitalise the American dream. Finally, the EU, on the other hand, lacks a dream – a common current European dream, but the EU facing the crisis of confidence that has taken hold among the Member States, which resulted, e.g., in the United Kingdom's decision to leave the EU, i.e., Brexit means the withdrawal of one of the founders of the European peace ideal; among other developments (Janik, 2019). And what about the EU strategy? Political leadership also depends here. The previous European Commission 2014-2019, led by Jean-Paul Juncker, presented the Five Scenarios for Europe by 2025 in the White Paper on the Future of Europe, specifically Reflections and Scenarios for the EU27 by 2025 (European Commission, 2017). This approach represented a top-down integration solution. The current European Commission 2019-2024, led by Ursula von der Leyen, sees the determination of the future direction of the EU on the opposite principle, i.e., bottom-up based on mutual dialogue and employment of a wide range of stakeholders. This approach is taking shape in the so-called Conference on the Future of Europe (European Commission, 2019).

4.1 The EU-China Relations – General Context and Development

China, a country that commands respect, someone sees it as an ally. A country that produces thousands of types of products and exports them worldwide. Almost daily, a report in connection with China appears in the media. The EU-China relations cannot be understood as a classical bilateral relationship. In particular, it is essential to note a broad range of bilateral relationships between individual Member States of the EU on one side and China on the second side and avoid focusing only on the EU's interests. Generally, interest is primarily focused on the EU-China relations in a broad sense. Still, China's presence across the EU and individual countries has deepened what must be mentioned.

China's increasing involvement in Europe, against the background of its growing economic and political strength in the international domain, creates both risks and opportunities. From an economic viewpoint, the trade between China and Europe continues to grow and is matched by more significant Chinese investment in Europe, particularly in Central and Eastern Europe. Simultaneously, there are substantive political disputes between the sides, particularly concerning violations of human rights and China's status in the WTO. The West European countries fear that China's growing involvement will allow it to leverage its economic power to achieve political objectives.

The EU-China diplomatic relations were established officially in 1975. Mutual economic relations between these two actors dating back to 1978, when a Joint Trade Commission was set up. A few years later, the Commission's work was the first trade agreement between China and the European Community: the EU-China Agreement on Trade and Economic Cooperation. An important document was the Agreement on Trade and Economic Cooperation of 1985. This arrangement is renewed every five years and is monitored by the Joint Committee. Issues of a political nature, including respect for human rights, began to be addressed intensively in 1995, and three years later, the document Building an All-Inclusive Partnership was signed. With China's accession to the WTO in 2001, the number of meetings at various levels increased. The EU-China cooperation has also focused on supporting social and economic reforms. The EU's intentions for 2007-2013 were set out in the China Strategy Partner. Thus, the EU has expressed its interest in China's sustainable development and its successful transformation into a stable, prosperous and open country. The partnership has deepened and expanded cooperation in several areas. The EU and China became highly dependent on each other and adopted the EU-China 2020 Strategic Agenda for Cooperation in 2013. The agreement covers security, prosperity, sustainable development and exchange programs (EUEAS, 2013). However, the EU assessed the current conditions as unsatisfactory due to problems with the EU-China investment agreement. The EU's concerns also concern high-tech exports to China. The EU remains cautious in this regard (Chan, 2019).

As mentioned, EU-China relations are often determined by the relationship between China and individual EU Member States, see e.g., Halásková, Halásková (2014). The first candidate for the imaginary "Chinese gateway to Europe" was Poland. China entered into a strategic partnership in 2011, Hungary believes it has unique relations with China due to the strong Chinese diaspora in its territory. Both countries play an important role in China's New Silk Road Initiative, aiming to connect China with Western European countries (Turcsanyi, 2015). Results of the strategic partnership in Poland did not bring planned expectations (ČTK, 2016).

China is also building regional cooperation with eleven post-communist EU states and five Balkan countries called "16+1". The prime ministers of these countries met for the first time in 2012 (EuroZprávy.cz, ČTK 2018a). In July 2018, the last Summit of the 16+1 group took place in Sofia. Chinese Prime Minister Li Kichiang stated that China intends to open itself to the world further and allow foreign products to enter the Chinese market. It also wants to reduce tariffs on imported European goods and believes that China's development will benefit Europe and the world. The Chinese government supports European integration processes, as it needs support in the ongoing trade war with the USA (EuroZprávy.cz, ČTK 2018b). However, the ultimate non-communicable Chinese goal of the cooperation is Western European markets. There are fears that China wants to use Central and Eastern Europe to influence its interests in the EU from within (Pavlicevic 2016).

Beijing also tried to build its "gates to Europe" through Georgia, which became an essential partner in the New Silk Road project. Together with Ukraine and Moldova, Georgia signed an Association Agreement with the EU in 2014 (Zenkner, 2018), including an extensive and

comprehensive free trade area. China has therefore offered Georgia further opportunities to develop trade relations. China could get to Western European countries via Georgia. Georgia's threat is transforming into a transit country that will provide air, rail, sea, and road connections between Western European markets and China (Lain, 2015).

The Czech Republic was to become another "Chinese gateway to Europe". The visit of the Chinese President to Prague in 2016 promised a significant inflow of FDI into the Czech Republic. However, President Miloš Zeman's expectations have not yet been met; only a fraction of the promised investments has flowed into the Czech Republic to date. The Czech Republic has an excellent geographical location to serve as a base for Chinese companies in Europe. It is also a neighbouring country to Western European markets that China wants to reach (Turcsanyi, 2015).

The United Kingdom also seemed to be a suitable "gateway to Europe" for China. London is Europe's most important financial centre, making it an attractive location for Chinese banks and financial institutions (Ross, 2018). However, the United Kingdom left the EU in 2020.

However, the question remains what it means to be a "Chinese gateway to Europe", whether China should use only one gate or build another, and whether China needs gates to Europe at all (Turcsanyi, 2015). As Shadal Islam stated in its contribution in a discussion paper titled EU-China Relation (Friends of Europe, 2016), what about how ahead? In different ways, China and the EU are changing within – they are also changing the world outside. China's re-emergence has been the defining global story of the last decade. The deepening and widening of the EU have also changed the world. China's economic transformation and diplomatic coming of age will continue for years to come. And despite current troubles, the EU is also making its mark on the global stage. The EU-China relationship is the EU's most developed and dynamic relationship with an Asian country and an emerging power. But as in the past, there will be challenges ahead. The greatest challenge is to make their relationship more robust and resilient and to focus on long-term interests, not short-term friction. But China and the EU are bound by mutual curiosity and growing economic connections. In an unpredictable, divided and volatile world, such bonds are important and valuable.

The primary approach of the China's international trade strategy is to meet two goals – to meet the ever-increasing need for raw materials and primary resources, and to ensure access to foreign markets, not only in Europe and America but also in developing countries. China's interest is to maintain global stability (which is essential for pursuing its interests regarding business development and ensuring reliable access to energy resources) and build a network of reliable trading partners, led by the EU.

The New Silk Road presents both an opportunity and a threat. The option is to build a trade route that will help develop international trade, in the case of constant negotiations between the EU Member States and China resulting from mutual economic and diplomatic relations. On the other side, it is cited as a threat because of the possible promotion of Chinese interests in the EU and individual EU Member States' potential influence to achieve their goals. For more information about the EU-China relations see e.g., Staničková and Fojtíková (2021).

4.2 The EU-China Relations – the Context of Current Development

In recent years, Beijing has been working with its the New Silk Road projects to boost trade and increase investment and influence in most Asian countries, as well as on other continents. It will help build a network of railways, ports and other infrastructure. Last year alone, China is estimated to have invested \$ 59.5 billion in these projects and more than \$ 800 billion since the program began in 2013.

Many European countries and the United States perceive the project launched in 2013 as an unhealthy strengthening of the influence of the Chinese totalitarian regime and want to balance it with their own initiatives.

The Russian invasion of Ukraine threatened China's rail link with Europe, as most routes through Russia. The war in Ukraine means further paralysis of freight transport between Europe and China. The railways partially offset the problems of maritime transport during the pandemic. Now everything is changing and further disruption of transport flow, price increase and extension of transport deadlines are obvious. The EU's rail link with China will be significantly affected and will put further pressure on the capacity of the still paralyzed shipping industry. China is the EU's largest trading partner and the EU is second only to China. For Czechia, China is the country from which it imports the most after Germany. In 2021, Czech imports from China amounted to almost 767 billion CZK, and exports to 65 billion CZK.

The New Silk Road accelerated the development of rail freight transport between China and Europe in 2013. The COVID-19 pandemic was another huge stimulus to the growth in the volume of cargo transported and the total number of container trains dispatched. According to Chinese statistics, there were more than 15.000 of them last year, compared to just seventeen sets ten years ago. In 2021, a record 1.46 million containers (TEUs) could be transported by China-Europe Railway Express. The company's statistics also show that more than 50.000 sets have been shipped in ten years, transporting 4.55 million TEUs with a cost of \$ 240 billion. This cargo went to (from) 180 cities in 23 European countries. The vast majority of cargo is transported by a corridor leading through the Russian Federation. Whether it is trains sent to the eastern regions of China that leave China at the Manzhouli border crossing in Inner Mongolia Province, or trains from central and southern China that enter Mongolia through the Erenhot border crossing. Also, trains departing in the western areas, passing through Kazakhstan through the Alashanka or Khorgos crossings, will not be missed by Russia and Belarus. Only a small part of the connections will go to Ukraine – Hungary and beyond. After the outbreak of war, Ukraine is excluded from these routes and trains are diverted to other corridors.

The Russian Federation is the main rail freight corridor, along which 10,000 TEU containers are transported weekly from China to Europe. So far, the shipment is taking place, but the situation may change quickly due to the inclusion of Russian Railways (Rossijskije železnye dorogi) on the EU and US sanctions list. Although the sanctions do not yet apply to the company's own operations, but to its financial transactions, great uncertainty has already led many European companies to suspend rail services between the Asian and European continents.

It is assumed that part of the cargo can be transported through the southern corridor, transport through the Central Asian republics to Iran, Turkey, and also will be very lengthy and expensive. The cargo is therefore largely diverted to maritime transport at a time when this key transport chain has not yet dealt with the problems caused by the COVID-19 pandemic. Astronomical prices and long transport times thus most likely did not reach their maximum due to the closed airspace of Russia for aircraft registered in the EU or the USA. Further paralysis of the flow of supplies from China to Europe may come even in the late spring and summer months, when the southern and south-eastern regions of China are regularly plagued by extensive floods.

Therefore, it also raised serious questions about the fate of China's global Silk Road infrastructure project, the Voice of America (VOA) news agency wrote on its website. Even if the war ends soon, neither China nor Ukraine will be interested in continuing the New Silk

Road projects in Ukraine, analysts said. *"The projects of the new Silk Road in Ukraine are basically out of the game,"* said Jacob Mardell, who works on global infrastructure and Chinese foreign policy at the German Institute for Chinese Studies MERICS. *"Even China may not be interested in continuing to invest in a country with a severely damaged economy,"* he added. The project of the new Silk Road also includes rail transport by container trains between China and Europe. It is used mainly for Chinese exports, but a smaller amount of goods is also transported from Europe to Chinese cities via this network. The network has 73 routes and connects China with Kazakhstan, Russia, Belarus, Poland, Germany, the Czech Republic, France and Spain. According to official Chinese sources, freight trains running on these routes made 3.630 journeys in the first quarter of this year. Experts believe that the number of these rides will fall by half or more if European countries continue to isolate Russia. A large part of the routes lead through Russia.

"Given the imposition of sanctions on Russia, it is highly unlikely that Moscow will allow European goods to transit through its territory," said Dexter Robert, author of *Myth of Chinese Capitalism*. *"China will have to significantly reduce its enthusiasm for rail connections for the time being,"* said Mohammadbagher Forough of the German Institute for Global and Territorial Studies in Hamburg. According to him, Beijing will have to do without transit through Russia, Belarus and probably also Ukraine for more than a short time.

China can focus on the New Asia-West Silk Road corridor that connects it with Kazakhstan, Uzbekistan, Turkey and other countries, directing its exports through Central Asian countries, the Caspian Sea region, Iran and Turkey.

"The rail corridor through Turkey has limited capacity compared to the corridor through Russia," Mardell said. "In addition, it includes part of the journey by sea. Overall, it is more time consuming and expensive," he concluded.

Some critics of the New Silk Road project argue that the funding offered by Beijing is often disadvantageous, non-transparent, and some poorer countries, especially in Africa, are becoming dependent on China for debt. They also point to insufficient environmental or construction standards of some projects.

In addition, the risks for China increase with the length of the conflict. One of them is the dramatic rise in oil prices, which could make it impossible for its world's largest importer to reach its economic target for this year. Expensive raw materials can have an impact on both domestic consumption and the profits of Chinese producers, as well as the reduction in demand for Chinese exports due to the economic downturn in the West. Barclays has already estimated that the energy shock could cut up to half a percent of China's economic growth. In order for China to meet its 5.5 percent GDP growth plan, it will have to come up with additional stimuli.

In addition, there is talk that the government will have to make a profit for the refineries and regulate the prices of petroleum products for consumers. It is possible that Beijing may be able to obtain raw materials from its warring neighbor cheaper at a time of low interest in Russian oil, but this will probably not cover the increased cost of imports from elsewhere. In this context, Reuters wrote that Chinese refineries are paying for Russian supplies by alternative routes to avoid sanctions, but it is difficult for them.

The conflict itself is also a threat to Chinese exports. Due to problems with global supply chains, interest in moving goods from Asia by train increased last year. Although the key railway connection does not run through Ukraine, due to the development, the stability of Russia and Belarus cannot be guaranteed either. *"If the Ukrainian crisis stops or slows down freight rail transport between China and the EU, it will have an adverse effect on mutual trade,"* economist Tian Yun told Reuters.

In addition, the war thwarts further expansion of this line, which was supposed to be an important part of China's New Silk Road. Back at the Olympics, Polish President Andrzej Duda and his Chinese counterpart Si Jinping worked on how to turn Poland into an Asian gateway to Europe by rail. Now, however, Warsaw will be reluctant to support a project in which Moscow and Minsk play a major role.

The above information is drawn from currently published articles on relevant and reputable internet platforms, i.e., news from Novinky.cz (2022), e15.cz (2022), Moderní ekonomická diplomacie MZV ČR, tj. Export.cz (2022), Reflex.cz (2022).

5. Conclusion

In its current form, globalisation has given rise to a new, highly conflictual bipolar world that requires a redefinition of the world order. In the globalised world, neither the EU, China, nor the United States, is an isolated island paradise. New issues are coming to the fore, such as democracy, environment, human rights, and the rule of law have long been sources of stress, strain and tension in the EU-China relations. China has a significant position in today's world economy. It is the world's largest economy and the world's largest exporter. Its economic growth is several percentage points higher compared to other economies. However, it is necessary to take the Chinese government's statistics with some caution, because, according to several studies, the communist government overestimates macroeconomic indicators. Due to its political focus, lack of respect for human rights and civil liberties, and the threat it poses to cybersecurity, the Chinese economy does not appear to be an ideal ally of an integration group based on respect for democratic principles. The EU was, in part, built on a foundation of shared political values. Still, the EU Member States are often at odds over how these principles and values should constitute a central element of their respective relations with China. Under President Xi Jinping's leadership, China has become increasingly critical of Western political values and sought to position itself as a role model for other countries. In this context, treating political matters in relations with China only grows more relevant for the EU. Overall, there is a need for Europe to acknowledge and act on the plurality of interests and concerns concerning China. The EU Common coordination: more challenging than ever in the present context? Many of the profound transformations Europe is currently undergoing are inevitable and irreversible. Others are harder to predict and will come unexpectedly. Europe can either be carried by those events or it can seek to shape them. The EU must now decide.

Acknowledgements

The paper is supported by SGS project (SP2022/7) of the Faculty of Economics, VSB-TUO.

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European Territorial Identity in the Light of Covid-19

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Abstract

European territorial identity that constitutes an indispensable part of European integration has been increasingly challenged in last two decades. This has much to do with crises of various kinds. Financial, social, security or immigration crises tested European resilience with high intensity. Recently, they have been enriched by unprecedented covid-19 pandemic. It is commonly accepted that exclusive national identities as an inseparable part of European history and memory acted as one of trigger mechanisms of nationalism that brought much more harms than benefits. Not surprisingly, the shift towards over-arching European territorial identity has been treated as a desirable supplement of European integration. Since the process was rather natural, the conception of nested territorial identities best describes the situation on the road towards more united Europe. This paper debates seemingly arcane relationship between covid-19 pandemic and European territorial identity.

Keywords: borders, covid-19, European, identity, territorial

JEL Classification: B50, F50, N00, Y80

1. Introduction

There are no doubts on the importance of European identity in the framework of European integration. Taking into account an indubitable success in the sphere of economic and political integration, the question of European identity arises with even higher intensity.

In the long run, one can contemplate the growing importance of European identity. And last two decades witnessed also a rising importance of multiple territorial identities that can be briefly characterised as simultaneous identities to a variety of territorial communities. That is why it is intriguing how crises of various kinds that hit Europe, i.e. financial, social, security, immigration and most recently covid-19 crisis can possibly affect just European identity. Therefore, the main objective of this article is to analyse and evaluate possible impacts of covid-19 pandemic on European territorial identity.

Albeit there are distinct tendencies towards integration in the long run, European Union is still far from a homogeneous entity. Expressive socioeconomic differentiation enunciates that fact (see Staníčková and Melecký, 2014 or Hlaváček and Siviček, 2017). That is why European territorial identity should be perceived also as a seemingly hidden, yet relevant territorial intangible clue of the whole European Union.

2. On the Notion of Territorial Identity

For the purposes of our article we stress the notion of identity from a geographical/spatial perspective. For contemporary spatial sciences it is symptomatic that they concentrate primarily on material components of our space (see Lux and Horváth et al, 2017, Staníčková, 2013 or Melecký and Staníčková, 2014). They lean on an obvious fact that these material components of the space we live in can be quite easily measured. This concerns both quantitative and qualitative dimensions of territories concerned.

Contrary to the previous case, the intangible or immaterial approach towards space and issues interrelated is distinctively under-researched. In spite of this, last years witnessed an augmenting interest in intangible components of our space (see Ashworth and Kavaratzis, 2010, Paasi, 2003, Paasi, 2010, McQuail, 2004, Poledníková, 2019, Sucháček, Sed'a and Friedrich, 2013, Sucháček 2014 or Sucháček, 2015). It should be underlined both material and intangible aspects are closely related and territorial development of various ranks should be in reality based on the synthesis of afore mentioned approaches to the reality. Our notion of territorial identities goes in the vein of the latter.

Populations belonging to various territories are bound to them by means of interests, emotions and feelings. In that case it is possible to delimitate the territory in compliance with often hidden but existing layers of interests and emotional ties. Naturally, this concept is unable to hide its finality but when compared with cultural identity it is much more concrete as particular territories are defined by their borders. Indeed, mental maps are getting increasingly important (Tuan, 1975, Sucháček et al, 2016, Sucháček, 2016 or Urminský, 2018).

The above mentioned sense of belonging represents inherent, inborn characteristics of the population and leads to the natural forming of territories in the bottom-up way. Contrary to that, top-down approaches are typically artificially constructed and do not consider the weight of territorial identity. In other words, European territorial identity constitutes the right choice for the purposes of this article.

And, as indicated earlier, while “external” elements and activities, such as economic and political integration in spite of some shortcomings work quite well, “internal” connecting link that is embodied just by European territorial identity is in a way missing. Territorial identity should be perceived also as the quest for the meaning of the individual/group in relation to the self and the society from a geographical/territorial standpoint (Sucháček, 2004).

3. In Search of the Common European Denominator

Exclusive identities have been concomitant for the European history. It is far from surprising that they fostered nationalism. The general approach consisted in the conviction that territorial identities consist of merely one layer. Thus, according to that rule, individuals or communities identified themselves only as British, French, Spanish, Italians or Germans. Yet, they could not identify themselves as Europeans at the same time.

The introduction of over-arching European identity went hand in hand with motley process of European integration. European administration was conscious of the need of the support of common European identity. This opened the room for multiple territorial identities since stimulation of European identity implies the respect to the other identities.

Multiple territorial identities can be geographically characterised as so-called “nested identities”. This means one can be a Berliner, but also a German and a European. Which of these territorial identities is prevailing is dependent upon a particular context. As already

indicated, in comparison with cultural identity, territorial identity represents a more concrete context as it relies on largely exact nature of the borders.

Within European context, there is apparent need of the consciousness of European culture and identity. Speaking in territorial framework, the identity is mentioned at the level of the whole European Union. Further on, there exists a need to consider existing national identities of the member states. Nonetheless, there is sufficient room also for identities at regional and urban levels. Thus, various spatial ranks of identity are concomitant for the European Union (Sucháček, 2004).

In the following text, just two examples of intended formation of European identity are mentioned. Naturally, this list is far from exhaustive.

As mentioned by Jacques Santer, European identity is necessary for the European Union to avoid “fragmentation, chaos and conflict of every kind (military, social, economic and political) and to help achieve cohesion, solidarity, subsidiarity, concert and cooperation. Practically all potential sources of European identity are welcome: political and ideological beliefs, economic theory, culture, history, geography, ethics, common destiny, etc. But they all have to be effective. European identity has to crystallize.” (Santer, 1995).

A Charter of European Identity is probably one of the most salient attempts to draw on the European identity: “...and on the basis of practical and credible policies, we hold the following items to be essential to the growth, within the framework of the European Union, of a European identity:

- a succinct and easily understandable constitution of the European Union setting out its federal structure. A binding catalogue of common fundamental and human rights and guaranteed social rights. The constitution would be presented to the citizens for ratification;
- further extension of citizenship rights;
- a common economic, social and environmental policy whose overall aim must be to provide work for all and to protect our planet against further environmental pollution;
- a common cultural and education policy to foster a sense of European identity in the European Union and its member states. Promoting unity in diversity and common values for all citizens;
- being a European is not a question of birth, but of education;
- the promotion of multi-lingualism. All Europeans should learn foreign languages as early as possible. European citizens must be able to understand each other;
- a declaration of the political goals to which the European Union aspires. Without damaging its many-sided heritage the European Union must follow common policies in world affairs.

Freedom, peace, the dignity of mankind, equality and social justice are our greatest goods. To protect and further develop these aims, Europe needs a morally acceptable political structure and policies which strengthen the sense of common purpose while establishing the credibility of the European Union and making its citizens proud to be Europeans. When that point has been reached, then a stronger, more European identity will also exist.” (Charter of European Identity, 1995).

Naturally, European territorial identity has been promoted by various forms including both intended policies as well as spontaneous developments. As it will be presented in the next chapter, European identity found a striking and quite surprising ally in the form of globalisation (Sucháček, 2004).

4. Covid-19 as a Black Swan in a Globalising World

Previous subchapter dealt with selected intended aspects of the formation of European identity. They took place in a rather specific context framed by the European integration on the one hand and globalisation on the other. While the first process is directed largely by European administration, the latter is much more spontaneous. What these processes have in common is that they are intensely linked with European identity.

Concepts, such as time-space compression (Harvey, 1989) or time-space distancing (Giddens, 1984) are frequently utilised in order to depict the nature of globalisation. According to Harvey (1989), the world of the 1960 was one fiftieth of the size of the 16th century world. It is also claimed, the process of globalisation is not complete as it includes primarily the economy, but much less democratic decision-making (Soros, 1998).

Regarding the topic of this article, the attention should concentrate upon those elements of globalisation that affect the geographical dimension of identity. "Interconnectedness" is the key notion that describes the relations in the contemporary world. As already stated, places seemingly become "closer" to each other since time and space tend to compress for the sake of the advances of technology and mass media. At the same time, the most remote spots can be rather easily reached and the distance seems to be no hindrance. Regular intercontinental flights or the internet epitomise these developments.




Sucháček (2004) states that as an individual becomes increasingly entangled within myriads of complicated relations and networks and finds him or herself submerged in a great amount of information, he or she is exposed to the widest spectrum of opinions and viewpoints, often contradictory and moreover typically barely reconcilable. The intensity, quantity and complexity of social, economic, cultural and other factors and relations in daily reality have a tangible influence on human identities from a geographical perspective.

It is easy to agree with Bauer (1997) that "We witnessed more economic, social, cultural and technological changes during last 50 years than during the whole previous history". In the history, the overall number of already mentioned "disturbing forces" coming from outer milieu was quite limited. This is palpable mainly in comparison with contemporary dynamism. This implies that drawing on the individual's territorial identity used to be less difficult than is the case nowadays. Undoubtedly, there was higher likelihood that people will relatively easily identify themselves with their jobs, social relations as well as a certain territory.

As Sucháček (2004) points out, world was quite unchangeable, the pace of life rather slow and the development somewhat sluggish. Put succinctly, the situation differed substantially from contemporary global circulations that are of both material and intangible characters. Not surprisingly, concrete individual identities of that time can generally be described as coherent and stable. From territorial perspective, there existed mostly exclusive identities. Individuals as well as wider communities identified themselves primarily with nation states.

In other words, there existed the room for nationalism with all negative consequences. With the globalisation ascent approximately from 1960-ies the concept of identity has undergone some significant transformations. Identity can no more be fixed and this contradicts with the way identity was perceived before the globalisation drive. Recent discussions about the concept of identity emphasise that in contemporary conditions, most people experience multiple territorial identities. Which of these is predominant at any moment in time depends on the context in which an individual is acting and thinking, but each identity exists alongside the others (Sucháček, 2004).

Table 1: Borders and their Characteristics

Period	Depiction of the Borders	Mobility of Persons, Goods, Energy and Information	Shape and Character of the Border
<i>History</i>	Vaguely delimited, high penetrability, partly guarded, partly overlapping borders due to the inaccurate delimitation, physical geography matters	Low intensity of mobility	
<i>Nation State</i>	Exactly delimited, low penetrability, strictly guarded, shape of borders given by administrative-political decisions and international relations	Medium and large intensity of mobility, however borders acting as barriers and filters of spatial interactions	
<i>Present Tendencies and the Future</i>	Exactly delimited borders, high penetrability, lower protection, there is still the possibility to protect the borders any time, partly overlapping borders due to the intense spatial interactions	Great intensity of mobility, borders do not stymie spatial interactions and flows in border areas	

Source: Sucháček (2011)

The number of above-mentioned situations is growing, as there is increasing intensity, quantity and complexity of social, economic and other relations in everyday reality. Subsequently, individuals find themselves within the European context in various situations more and more. Before the emergence of crises of various kinds, it has been found out that people increasingly feel as “Europeans” (Sucháček, 2004). Concurrently, one can contemplate an impressive appearance of multiple territorial identities.

This is even more important in view of the fact that European space has been recently challenged by plenty of crises of financial, social, security or immigration character as well as Brexit. Currently, they have been enriched by unprecedented covid-19 pandemic. Since covid-19 pandemic is still not over, it is perhaps a bit premature to assess its impacts. While there appeared some studies depicting tangible territorial impacts of covid-19 pandemic (see e.g. ESPON, 2021), there are still large gaps related to the empirical evidence of the impact of covid-19 on European territorial identity. Nonetheless, in relation to European territorial identity, one can contemplate two basic processes within covid-19 times:

- Reduction of travelling and physical interacting in wider contexts that acted as a propulsive factor of the rise in European territorial identity (see also Sucháček, 2004) on the one hand and
- Much more intense usage of virtual spaces via information technologies on the other hand that replaced previous physical interactions and that can be treated as neutral or even mildly encouraging factor of the augmentation of European territorial identity.

As indicated, covid-19 should be treated as a crisis of a special kind as it substantially slowed down the pace of the mobility of people and goods, travelling and other relevant symptoms of globalising tendencies. Covid-19 and its impacts can be comprehended as a braking factor of globalising trends. In many cases, it meant the return to the pre-globalisation period as a strict renewal of formerly formal borders took place (see table 1). And since borders are not inherent to the space, we are entitled to talk about the re-appearance of the artefact as one of consequences of covid-19 pandemic or regression in the frame of the natural evolution of borders.

Slowing down the pace of life and constrained traveling reduced the amount of contexts, in which we can identify ourselves as Europeans. There are some successes in fight against the pandemic. European Medicines Agency (EMA) can serve as an example that could possibly rise European pride and identity again. Nonetheless some pre-globalisation symptoms appeared too, such as rise of nationalism and presumably also exclusive territorial identities.

There are no doubts on the importance of Eurobarometer’s research on territorial identities in coming years. These researches might have far-reaching theoretical as well as policy implications as covid-19 pandemic triggered far-reaching mechanisms and changes in everyday lifestyle that might affect European territorial identity in both positive and negative ways. Which of these tendencies is prevailing is the question of investigations in coming years. Arguably, sequential growth in European territorial identity the continent witnessed some 15 years ago is over as a consequence of not only covid-19 but also previous and mutually intertwining financial, social, security or immigration crises.

5. Conclusion

One can be barely conclusive about possible impacts of covid-19 pandemic on European territorial identity. First, the pandemic is not over yet, second, solid empirical evidence on that is missing so far. Before the series of crises of various kinds that substantially hit European continent, globalisation could be contemplated as a surprising stimulus of the growth in European territorial identity. Covid-19 brought regressive or neutral developments in this respect. The travelling and physical mobility in general have been subdued in a substantial manner as a consequence of covid-19 pandemic; on the other hand, massive usage of virtual spaces might partially bring a vivification of the consciousness of European territorial identity, nonetheless the question remains to what extent these virtual perceptions materialise in the real world.

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The European Green Deal in the EU Energy Sector

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Abstract

Climate change and environmental degradation became an existential threat to European Union. To overcome these challenges European Commission proposed the European Green Deal (EGD). In EGD great attention is paid to the EU energy sector transformation, as the backbone of the economy. The EGD aims to transform the EU into a modern, resource-efficient, and competitive Green Economy. Understanding the energy sector transformation challenges is assured by the successful implementation of the assumptions presented in EGD and depends on the cooperation between EU countries. This paper aims to identify challenges for the EU energy sector and to recommend practical solutions to business management in the EGD context. The adopted method is the qualitative research of the EU energy sector presented in the SWOT analysis. This inductive approach allowed to formulate theoretical and managerial implications as a contribution to the business management science. In this paper, the new promising research avenues of European integration in the energy sector context were also indicated.

Keywords: Business Management, European Cooperation, SWOT Analysis, Energy Sector, Sustainability

JEL Classification: L16, M14, O13, Q01

1. Introduction

The EU energy sector transformation is inevitable but the slow implementation of this process leads towards climate disasters and crises. Climate change and progress in environmental degradation are a real and inescapable threat to European Union which subsequently establish new strategies dedicated to solving these issues. These problems were also a reason to formulate the Paris Agreements (UN Climate Change [online], 2015) developed into *European Green Deal* (EGD) established in 2019 and documents gathered in project *Fit for 55* (European Council [online], 2021). The EGD is the first comprehensive set of policy initiatives elaborated by the European Commission. These documents are developing theoretical assumptions, establish goals and measures, but do not provide practical solutions for the business. The EGD assumptions aim to transform the EU into a modern, resource-efficient, competitive economy (European Commission [online], 2021). The EGD presents three operational goals related to the Sustainable Development idea in the EU (Drastichová, 2014): 1) zero greenhouse gas emissions to be achieved in 2050 (nett values); 2) decoupling economic growth from resources consumption; 3) ensured equal living standards in all EU regions. The ultimate aim of the EGD is to achieve EU stop climate changes by 2050 and secure the EU economy (Deloitte [online], 2021). In EGD great attention is paid to the EU energy sector transformation, as the backbone of the economy. In the EU the majority of the electric energy producers are state-owned companies. Therefore, the EU energy sector is driven by the combination of different dominant

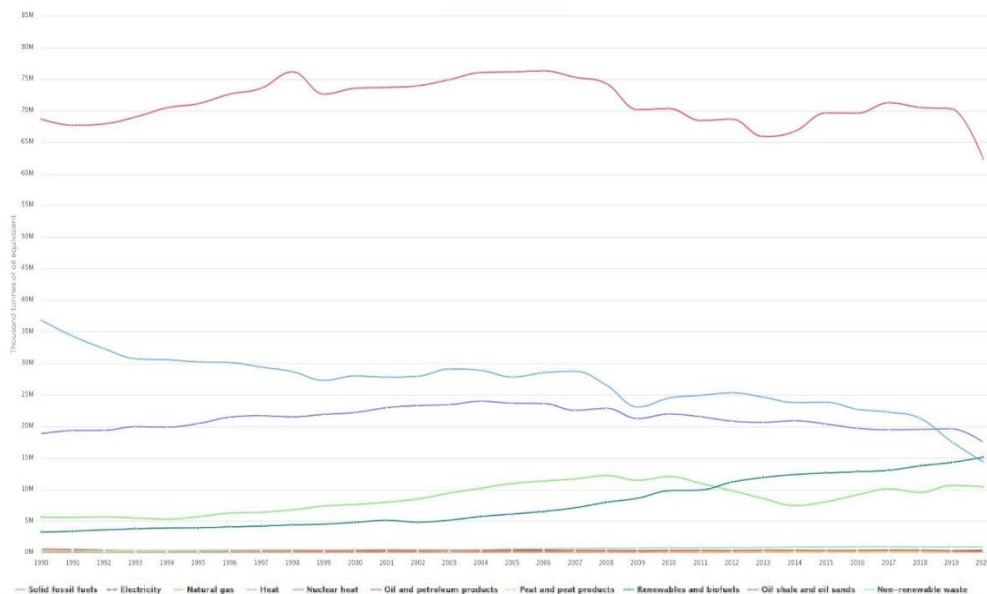
energy sources and country characteristic strategies. Then, in the energy sector changes are caused due to political and legal conditions and regulations. One of the more precise documents is the *Fit for 55* these 13 EU legal acts aim to reduce greenhouse gas emissions by 55% compared to 1990 and assume: 1) reduction of CO₂ emissions by 55% by 2030; 2) increase to 40% of energy from renewable sources by 2030; and 3) a restriction in fuel cars sale from 2035. These assumptions stay following the EGD goals. Implementing the actions specified in the EGD is expected to bring the following benefits: shape sustainable economic growth, reduce the use of fossil fuels and increase the use of renewable energy sources. These changes will intensify the use of new technologies (Bytniewski et al., 2020) and the development of new infrastructure in the EU energy sector (Karpenko et al., 2020). The EGD programs relates also to the energy sector of heating and cogeneration systems and energy taxation (European Council [online], 2021).

This paper aims to identify challenges for the EU energy sector and to recommend practical solutions to business management in the EGD context. This research solves the problem of identifying Strengths, Weaknesses, Opportunities, and Threats (SWOT) in the implementation of the EGD in the EU energy sector. A holistic perspective of electric energy producers regarding the SWOT of “the EU energy sector is utilized as a baseline to diagnose the current situation in the year 2020 and to sketch future action lines towards sustainable energy development” (Eurostat, [online] 2022). We examine the resources, technologies, and trends that affect the situation of companies in the energy sector. This inductive approach allowed to formulate theoretical and managerial implications as a contribution to the business management science. This article is structured as follows. After already presented Introduction, in the section Problem Formulation and Methodology we presented the theoretical background, the research problem statement along with the description of methodologies and data analysis. Finally, we explained the results and the SWOT analysis findings. We described the conclusions and future avenues of research with research limitations and practical implications.

2. Problem Formulation and Methodology

The main problem is to identify challenges for the EU energy sector and to recommend practical solutions to business management in the EGD context. Although there are formulated goals and indicators of the European energy sector transformation, there are major issues raised by the EGD. The main identified challenges for the EU energy sector are: 1) improvement in the overall efficiency of the main processes in thermal power plants; 2) “de-linking emissions from the economic activity”; 3) gaining independence from the fossil fuels; 4) “increase in the share of renewable energy”; 4) “exploration of all possibilities for combined heat and power” (European Environment Agency, [online] 2020). In 2020 fossil fuels were still in use as the primary energy source for electricity production in the EU (European Environment Agency, [online] 2020). The EU undertakes measures to develop alternative energy sources. In the face of recent growth rates in wind and solar power generation in a few EU countries, renewable energy sources supply still too little to electricity production in the EU energy sector (Eurostat, [online] 2022). The main renewable energy source in the EU is hydropower. The recommended use of combined heat and power, although remarkable progress in a small number of EU countries, stands low in comparison to the EGD targets. The nuclear heat as a source of energy in 2020 was 13,2% when renewable sources were only 18,1%, still, the majority of were fossil fuels 78,7% in energy generation. The usage of renewable energy sources is not even comparable to the fossil fuels consumption level – Figure 1.

Figure 1: The Dynamics of the Energy Sources Usage in Energy Generation in EU (1990-2020)



Source: (Eurostat, [online] 2022).

The EU energy sector is a subject of the SWOT analysis to investigate the use of new, renewable energy sources and non-renewable, traditional energy sources. The SWOT analysis was used also to compare and evaluate the involvement of EU companies operating in the energy sector in achieving the goals established in EGD. Using this analysis tool, the internal and external factors determining the involvement in the EGD were analysed. “The two main components of SWOT analysis are the indicators of the internal situation described by existing Strengths and Weaknesses and the indicators of the external environment described by existing Opportunities and Threats” (Markovska et al., 2009; Warwas et al., 2021; Phadermrod et al., 2019). The SWOT table is also divided into the positive left side (Strengths and Opportunities) and negative right part Weaknesses and Threats. It helps to identify internal and external factors that are determinants and risks of the analysed situation (Suliková et al., 2015). In this study, the list of the SWOT elements is presented in a participatory viewpoint (bottom-up direction). “This is also complemented with a study of the existing relevant strategic and planning documents” (Warwas et al., 2021) combined with regulations and statistics documents (top-down approach). The outcomes of the SWOT are respectively wide understanding of the EU energy sector realities and procedures, and a set of usual strategic solutions (Bouzarovski, 2020). The authors of this paper decided to use underestimated SWOT method to present challenges for the EU energy sector and to recommend practical solutions to business management in the EGD context. The choice of this method is based on fact that the SWOT is fundamental in the strategic decision-making process. This analysis consists of more than simple pros and cons and is used in the brainstorming process. The SWOT analysis in the energy sector it easier to identify potential action items and areas for growth in an unstable business environment. “The last is properly developed applying the following guidelines for drawing recommendations and indicating implications for the theory and practice: 1) build on Strengths; 2) eliminate Weaknesses; 3) exploit Opportunities and 4) mitigate the effect of Threats” (Phadermrod et al., 2019; Sulich and Grudzinski, 2019). Therefore, this paper answers the following research questions: 1) on which stage of the

transition process is the energy sector in the EU? 2) what are key challenges and chances for the development for the electric energy producers and 3) what kind of action they should take to become the green leaders?

3. Problem Solution

The key to solving indicated in the previous point problem associated with challenges in the EU energy sector is to provide a translation of the EGD legislative documents into the business practice of the EU energy sector (Eurostat, [online] 2022). The integrated and holistic approach of all member states represented by their governments cooperating in the successful implementation of the assumptions presented in EGD is most important. The SWOT analysis can be a problem solution in understanding the energy sector transformation challenges. Used SWOT analysis (Table 1) aimed to identify these challenges for the EU energy sector and to recommend practical solutions to business management in the EGD context.

The electric energy producers in the EU are business competitors under pressure from the politicians, customers (high electric energy demand), and limited resources. Ecological solutions in the energy sector improve only partially the situation in a short time, but in the long-term, they increase the anthropopressure.

Table 1a: The EU Energy Sector Strengths and Weaknesses as Part of SWOT Analysis

Strengths	Weaknesses
<ol style="list-style-type: none"> 1. The efficient and healthy macroeconomic environment in the energy sector and development of a network of cooperates; 2. The growing business ecosystems in the energy sector are based on the dispersed renewable energy producers (Razzkova, 2020); 3. Developed financial market associated with the EU energy sector; 4. General high technological readiness for transition from fossil fuels to renewables; 5. Substantial electric grid capacity; 6. Well-developed electricity infrastructure; 7. Research and Development possibilities in energy storage development of the other related infrastructures (car batteries charging infrastructure); 8. EU support for the organizations' transformation declared in documents and programs aimed to develop energy sector transition; 9. Expected high demand in the energy sector (especially in electricity); 10. Financial support provided by the EU structures for the renewable energy-related investments (Niemczyk et al., 2022); Reduction of subsidies for investments related to fossil fuels and gas (European Council [online], 2021). 	<ol style="list-style-type: none"> 1. The disproportion between energy sources types (renewables vs. non-renewable energy sources); 2. Generalized statistics for whole countries pointing to the selected problem (McKinsey and Company, [online] 2020); 3. Economic development differences between countries and various geographical conditions, which influence the usage of renewable energy technology; 4. Lack of technologies, systems, and procedures for managing and recycling end-of-use products (i.e.: recycling of damaged wind turbines) and technologies used in electricity generation (Yeletsky, 2020); 5. Transfer of emissions and emission quota on the market; 6. The negative influence of the EU energy sector on the natural environment, as the production and consumption of energy, generates 75% of emissions (European Council [online], 2021); 7. Difficulties in managing organizations related to the translation of the goals and assumptions of GED into the strategies and operational activities (Deloitte [online], 2020); 8. No relation between environmental costs and energy producers' performance.

Source: Authors' elaboration based on the indicated sources

Table 1b: The EU Energy Sector Strengths and Weaknesses as Part of SWOT Analysis

Opportunities	Threats
<ol style="list-style-type: none"> 1. Energetic independence for EU countries and their regions; 2. Decoupling the economic growth from fossil fuels; 3. Favour in renewable energy technologies generation; 4. Possible diversification of energy sources supply (energy mix); 5. Savings and investments related to EGD (European Council [online], 2021); 6. Development of renewable energy sources due to EGD legislation and goals (Deloitte [online], 2020); 7. Improving energy efficiency; 8. Reducing emissions towards global responsibility; 9. Creating new markets for energy by-products in the circular economy. (Deloitte [online], 2020); 10. Taxation of energy and elimination of reduced rates and exemptions for fossil fuels (European Council [online], 2021); 11. Raise in awareness of consumers and stakeholders; 12. Reducing energy use in the EU through energy savings (European Council [online], 2021). 	<ol style="list-style-type: none"> 1. Overlapping goals and measures described in multiple programmes strategies without real action; 2. Growing EU funds dependency; 3. Subsidized energy prices; 4. Weak public opinion pressure for the required changes; 5. Lack of awareness of renewable technology effects; 6. Implementing the EGD programs is associated with high costs incurred by the EU societies (European Council [online], 2021); 7. The growing resource intensity of economic development, high level of waste, no closed circulation of resources and materials; 8. Established regulations changes destabilize in the energy sector transformation; 9. Focus on information marketing and energy producers' image.

Source: Authors' elaboration based on the indicated sources

4. Conclusion

The EU energy sector transformation has crucial importance for energy producers who are interested in natural environment protection. The results of the SWOT analysis point to the progressive adoption of EGD standards as the most important challenge in the EU energy sector. The most important problems of developing the EU energy sector and related this European integration are combined with the energy resources and unfavourable energy mix, low electricity prices, a high degree of inefficiency in renewable energy production and use, well as insufficient institutional and human capacities related to green transformation. The dominant strategic perspective among the energy producers in the resource-based approach is implementing their strategies with elements of "innovative solutions towards decarbonization and climate neutrality" (Niemczyk et al., 2022). The savings in wasted resources and energy black-out avoidance are possible when the energy producers (prosumers) are diversified and dispersed. Energy producers have the technological capabilities that can impose specific standards and change the state of the environment. The effects depend on whether companies from the energy industry support the idea of sustainable development and engage in innovative technological projects (Eurostat, [online] 2022).

The performed SWOT analysis managerial implication proposed in this paper is a set of solutions towards sustainable energy development in the EU combined with the comprehensive energy strategy built upon sustainability principles. There is a need for intensified release of electricity prices from fossil fuels, structural changes in the industry combined with decarbonization, increase in energy efficiency, and recycling. These can be achieved through European Commissions projects and funding, the integrated policy of environmental standards which are raising human capacity and building awareness (Raszkova, 2020).

The SWOT analysis answered the research questions: 1) the EU is still at the beginning of the transition process in the energy sector 2) key challenges are related to the translation of theoretical assumptions of the EGD to the practical solutions. The chances for the development of electric energy producers revolve around the cooperation and research and development of new recycling technologies 3) to become the green leader energy producers should invest in technical and commercial skills in renewable energy among future employees and raise consumer's awareness. The energy producers have to put pressure on the policy-makers for stable legislation and secured climate policy. They should cooperate with public opinion for greater support for the energy transition which lacks the process approach (business language).

The EU energy sector is slowly transferring from fossil fuels towards renewables (Figure 1). The progress is small than 1% per year in renewable energy sources utilization. As this energy sector transformation of EGD gains momentum, new business ecosystems are forming and technologies are developed and shared. These improvements aim to spread renewables usage, “develop new energy carriers, improve energy efficiency, reduce emissions and create new markets for carbon and other by-products as part of an increasingly Circular Economy” (Sulich and Grudzinski, 2019). The energy transformation is harboured in long perspective planning and trends in the EU, “which is likely to make it capable of withstanding the current and upcoming economic downturn (negative climate changes)” (European Environment Agency, [online] 2020). The European integration and idea of being energetically diversified but united can help to overcome any political disturbances and pressures on the EU. Renewable energy sources promise not only to secure the future but also to provide the energetic independence of the European countries. The EGD should not divide European societies but unite them in a struggle for securing their economic future and efforts towards sustainability.

The planned future research directions are related to the deployment of the new and integrated method. The development of the presented in this paper qualitative study assumes the usage of the Delphi method. The next step of the future research is the numerical SWOT analysis to explore challenges for the EU energy sector and to recommend practical solutions to business management in the EGD context. A possible future research avenue is the analysis of the connection between EGD and eco-innovations developed in the business ecosystems in the EU.

Acknowledgements

The paper was is financed by the National Science Centre in Poland under the programme “Business Ecosystem of the Environmental Goods and Services Sector in Poland” implemented in 2020–2022 project number 2019/33/N/HS4/02957 total funding amount 120 900,00 PLN.

The project is financed by the Ministry of Science and Higher Education in Poland under the programme “Regional Initiative of Excellence” 2019–2022 project number 015/RID/2018/19 total funding amount 10 721 040,00 PLN.

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European Integration Starts at a Local Level: Taking Informal Institutions into Account in Strategic Planning

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Abstract

The process of European integration starts at a local level. Even rural municipalities strive for their development through the process of strategic planning, but in the context of European integration, the importance of informal institutions (e.g. trust, customs, interpersonal relations, rules of social interaction, etc.) is often overlooked, although they are key to shaping and strengthening local communities which are crucial for the resilience of a municipality. The aim of this paper is to identify the white spaces in the process of strategic planning, consisting of the absence of support for institutions. The paper focuses on analysing strategic plans with respect to the importance of institutions. The analysis is carried out using the example of the strategic plans of rural municipalities in three coal regions of the Czech Republic where European integration has triggered even more intense transformations than in other regions and where the impact of European integration at a local level is even more tangible, and thus the importance of informal institutions is even more crucial.

Keywords: European integration, European values, informal institutions, local development, strategic planning

JEL Classification: H70, O21, P16, R58

1. Introduction

The topic of European integration is most often associated with politically significant issues such as the Green Deal, migration, digital transformation, etc., as noted, for example, by Balabanov and Lendzhova (2018). However, there is one topic that dominates all others and without which European integration cannot be successful - the relationship of citizens to the territory in which they live, work, solve their everyday problems and with which they associate their future. This identity starts from the bottom, at a local level. In recent decades, in the context of globalisation and the virtualisation of the world, we have seen an increasingly weak local and regional identity, and in many countries, due to low anchorage, low identification of citizens with the values of the European Union. At the same time, identity anchors people and makes them more responsible towards their environment and social surroundings. Only a confident, responsible and locally rooted citizen is able to participate in the creation of communities - local, national and European. In other words, without local integration, it is impossible to think of European integration. Luděk Niedermayer, a Member of the European Parliament, has articulated this relationship: "The fact that we feel like Czechs, Moravians, Silesians or belong to another group, that we are proud of our town or village, does not prevent us from feeling like Europeans. On the contrary, it is natural for me, as is the desire to help us to learn not only to live side by side, but also to help each other and to solve big things together."

And also, and this is very important, to be proud of what we can do together." (Má Evropa, 2022).

An integrated Europe needs active citizens. The first natural element for activating citizens is their local identity, their interest in their community and building it into a European family. That is why in our contribution we want to focus on an important tool to systematically deepen local integration, namely through a well-designed strategic planning process for municipal development. Because by contributing to the development of my municipality, I am contributing to the development of the European Union.

However, researchers show that strategic planning does not produce the desired effects. In many cases, strategic plans are drawn up only with the motivation to anchor projects in a conceptual document that can be subsidised from EU funds. The strategic plan then becomes a tool for drawing on EU subsidies and the subsidy obtained is the goal of all efforts. This, of course, raises questions about the effectiveness, economy and efficiency of the EU funds invested in this way. However, the logic should be exactly the opposite: the strategy should set out the development objectives of the local community and the EU subsidies should be the eventual means of achieving them. Such perversely conceived strategic plans are particularly prevalent in the newer EU Member States and in those regions where a larger amount of EU funds is allocated, specifically, for example, in the so-called coal regions.

If we conceive regional and local development as a scientific discipline only, there is a risk of missing the original meaning, which is to strive for an increase in the quality of life of people in different types of settlements. Therefore, the first part of this article focuses on the basic framing of the concept of regional and local development and asks what its key purpose is. Given that one of the main tools of regional and local development is strategic planning and management of the development of cities, municipalities and regions, the second section is devoted to reflecting on the current prevailing experience of applying methods, techniques and approaches to the strategic planning process. The municipalities which are the subject of development must be seen not as administrative units, but as communities of people living in them. Institutional arrangements are closely linked to the development of communities. The third chapter introduces the methodology of the research carried out and the fourth chapter offers the findings of the research aimed at analysing the strategic development plans of small municipalities with regard to the importance of informal institutions, which provides a starting point for reflection on issues which should be given greater consideration in the strategic planning process.

2. The Local Context of Development Within a Diverse Europe

Regional and local development is an applied field, the aim of which is to identify appropriate tools and practices and their practical application in order to increase the quality of life of inhabitants in different types of settlements. Such an application is translated into regional policy instruments, each region having different initial conditions, different needs, different institutional capacities, different contexts, which also change over time. For this reason, it is not desirable to apply a one-size-fits-all solution. This fact is also reflected in the motto of the European Union: 'united in diversity'. This is where one of the main weaknesses of the current practical concept of regional development comes into play, as each discipline seeks to find optimum and therefore 'only right' solutions.

There is a wealth of research and scholarly articles on the topic of quality of life. For example, Heřmanová (2012) offers a comprehensive overview of approaches to quality of life. Pike, Rodríguez-Pose and Tomaney (2007) talk about relativisation by context, i.e. that the local context decides what is desirable for one location and cannot be applied as desirable across the

board. Quality of life as such does not exist and only becomes meaningful when the specific environment in which the category is pursued is defined. It is therefore important to look at how people in particular places perceive priorities, what they judge to be appropriate for the development of their own locality. It is then clear that there cannot be a one-size-fits-all model, as the assessment of quality of life is largely subjective.

The example of EU-funded projects highlights an important shortcoming which undermines the development of shared European values: if development activities do not match what local citizens consider valuable, they cannot be considered effective. Yet it is common to see positive evaluations of development activities on the grounds suggesting that the project objectives have been achieved because the required indicators have been met. However, even such a 'successful' project may be at odds with what residents perceive as valuable, what they consider to be contributing to their quality of life. This brings us to the question of how to plan development activities. A comprehensive strategic planning process serves as the main tool for such planning. In this respect, it is quite crucial which projects are selected for implementation, how the development direction of the municipality is planned and how the local community is involved in debates about the future. Thus, if the strategy is oriented only by the 'offer' of European subsidies, the local interests of citizens are not reflected, community values are not promoted, and society is further disintegrated both locally and ultimately at a European level. European resources invested in this way do not contribute to the desired integration of Europe.

The European Union has a long-term vision and a common development strategy. These give a certain contextual stability. On the other hand, key elements from European strategies cannot be blindly adopted into local concepts as empty phrases. The fact that a particular country and its regions are members of the EU in itself brings new topics, new challenges and new perspectives to a local level. This leads to the transformation of the municipality and the question is how the local community will react to this newly illuminated reality, whether it will accept the new, therefore common European themes as its own, whether it will develop them, support them or whether it will be resistant to them. All this is reflected to some extent in the strategic development plan.

3. Forming a Local Community in Search of Shared Values Through Informal Institutions

Reisinger (2009) argues that in the community concept, citizens are not the objects ("spectators") of the process, but rather its subjects ("actors"). Sýkora, Miškovský and Vyhnančková (2019) identify several features which commonly appear in standard, stereotypically processed development plans, among which the neglect of the perception of the community as a community of persons dominates, leading to identity fragmentation. The legislation itself (in the Czech Republic, e.g., the Law on Municipalities) speaks of municipalities as communities of citizens. Jíra (2018) states that it is necessary to distinguish between the concepts of society and community. Society refers to an association of people where there may not be a direct relationship with each other; ties are impersonal, abstract or general. In contrast, a community is characterised by a direct mutual relationship between the persons who make up the community. It is therefore not just a collection of individuals, but a union of people internally connected. This division had already been addressed in the 19th century by Tönnies (2005), who contrasts the concepts of *Gesellschaft* and *Gemeinschaft*. In today's modern world, communities are generally not formed because citizens do not share anything in common. Pike, Rodríguez-Pose and Tomaney (2007) suggest that it is shared values that determine how different social groups in different places define, understand and interpret what is considered development. And it is here that we come to the role of

communities, which can be worked with systematically in this context, as opposed to a collection of unrelated individuals.

Building shared values within local communities is intrinsically important, but the urgency of this task is also underlined by the current challenges facing the European Union today. This is particularly the case with migration, where one of the key challenges must be to integrate migrants into local communities so that they form functional, coherent communities with the original inhabitants of the settlements. Similar challenges are also posed by another topical issue in Europe, which may be the risk of energy poverty resulting from the impact of the Green Deal on certain groups.

An internally interconnected community is therefore what allows for a unified world view, especially if we are striving for an internally integrated Europe. The community makes it possible to define a common assessment of the surrounding reality (and therefore to define shared values). So, in such a situation where a municipality is disintegrated into a collection of individuals who do not form a community, how can the municipal leadership plan and implement development which, as mentioned above, can only ever be interpreted in the light of the relatively subjective assessment of the local population? The key is to re-identify and resurrect local communities, and to bring these communities into play – not in a mechanical way which the various commonly applied participatory techniques are, but by making communities the drivers, the core of a set of activities which comprehensively shape the process of strategic planning and development management. Thus, in strategic planning, considerable effort should be devoted to both the identification of the community and its deeper understanding and subsequent activation of the community so that it becomes the centre of the development of the municipality or region. The starting point is the promotion of local activities by citizens and local institutions involved in local decision-making, which is replicated at regional, national and European levels and is therefore the basis of European identity.

According to Jira (2018), value is what motivates our wants and decision-making. Even this simple definition implies that strategic planning, the main task of which is to set priorities and development goals for a community of citizens, must be informed by knowledge of values. It is necessary to look for values which are shared and therefore common to the whole community. The Mayor of Litomyšl, Daniel Brýdl, for example, said of shared values in the context of a united Europe: "I am a great supporter of the EU as the guardian of values such as the rule of law, democracy, freedom, cooperation and responsibility. For me, the general European values are conservative...and they have not changed in the last century..." (Má Evropa, 2022).

Prudky et al. (2016) state that values are closely tied to goals and therefore recognising accepted and shared values is essential to understanding the content of social activities. Thus, if strategic planning is seen as a process at the end of which the developmental goals of a municipality are to be set, and if strategic management is the systematic implementation of coherent development activities to meet these goals, then consistent work with values is central, but so far neglected in this context.

Identity is understood as a sense of belonging to a particular community, and it is built from below, starting with a local identity that is lived in its everyday life. Through it, other levels of identity can be formed - regional, national or European. European identity is the consciousness of common European values. It is constantly being created through a dynamic process of interaction. Each individual should therefore have the opportunity to enter into interactions in his or her own community, thereby deepening his or her local identity and gradually building his or her national and European identity through this anchoring and sharing of values. Local

identity can be built to a large extent on a common history, which is rather complicated in the case of European identity, where it is necessary to build on a common future (see e.g. Bretherton and Vogler, 1999). We shape the future through strategic planning, thereby relating not only to our own community, but of course reflecting the European context. Císař (2003) underlines that democracy requires a culturally defined community of people who share a common destiny and decide their future together.

While the above text explains the importance of community and the identification of shared values, many authors (e.g. Prudký et al., 2016 or Heřmanová, 2012) admit that these values are a category which is vague and difficult to grasp. If we would like to enrich strategic development plans within the dimension of community values, it is desirable to do this through the identification and development of informal institutions. Institutions, according to North (1990), are defined as the rules of the game in society, i.e. the constraints set by people which shape human interaction, with formal institutions being codified rules or organisations and informal institutions being non-codified customs, traditions, social norms, relationships and informal networks, culture, religion or, for example, identity, which are necessary for the creation of trust. Informal institutions are created through repeated interaction within a community and social capital is created as a result of this interaction (Fukuyama, 2000). Approaches which do not take into account local or regional institutions result in a range of development strategies which are often imitated. This situation has been described by Chien (2008) as an isomorphic approach to development. The poor success of strategies conceived in this way is illustrated by Mohl and Hagen (2010) in the low level of convergence of regions in the European Union. Rodríguez-Pose (2013) argues that institutions matter as much, if not more, than traditional factors in development.

Informal institutions have been understood differently by many authors because of their breadth of meaning. The categorisation and operationalisation of informal institutions is extensively addressed, for example, by (Sýkora, Raška, Koutský, in review). Their research shows that informal institutions are often cited in literature in the form of specific examples, with the following informal institutions being the most frequently cited: (1) *customs and traditions*, (2) *social conventions and behaviour*, (3) *culture and education*, (4) *trust*, and (5) *political culture*.

4. Research Methodology and Design

In order to meet the research objectives, research on strategic planning in selected municipalities of structurally disturbed regions was conducted in 2019. The research focuses on whether the existing strategic development plans of the municipalities apply the principles described above, which state that the role of local communities and their values is crucial for the development of the municipality, in addition to traditional factors, and whether they take into account or even actively work with informal institutions. The analysis was carried out on a sample of municipalities with a population of up to 3,000 (as of 31st December 2018) from the Ústí nad Labem, Karlovy Vary and Moravian-Silesian regions. A list of municipalities was drawn up to determine whether they have a prepared strategic (or other similar) development plan, at least in the scope of the analytical and design part, on the official website of the municipality. In these districts, one municipality was selected for each district - out of 16 districts in two of them (Cheb and Ostrava-city districts) no municipality was identified with the specified criteria. Since the research was concerned with whether and how strategic plans work with informal institutions, a total of 14 strategic plans were subjected to research. Table 1 summarises the selected municipalities.

Table 1: Overview of Municipalities With an Analysed Strategic Development Plan

Municipality	District	Region
Bochov	<i>Karlovy Vary</i>	Karlovy Vary Region
Staré Sedlo	<i>Sokolov</i>	
Dvorce	<i>Bruntál</i>	
Dolní Životice	<i>Opava</i>	Moravian-Silesian Region
Stonava	<i>Karviná</i>	
Mořkov	<i>Nový Jičín</i>	
Bukovec	<i>Frydek-Místek</i>	
Bečov	<i>Most</i>	
Blatno	<i>Louny</i>	Ústí nad Labem Region
Hrob	<i>Teplice</i>	
Panenský Týnec	<i>Louny</i>	
Tisá	<i>Ústí nad Labem</i>	
Jílové	<i>Děčín</i>	
Libochovany	<i>Litoměřice</i>	

Source: own elaboration

The availability of strategic plans varies from one district to another. The size composition of the municipalities in a given district has an obvious influence, as does the membership of a micro-region and voluntary association of municipalities or other similar entities. From the initial analysis of the strategic documents it was clear that some of them were produced by the same preparer (in several cases a series of similarities were repeated). It was already clear from this initial analysis that strategic plans are often prepared by an external body. A number of strategic documents showed a relatively high level of technical elaboration, containing all the traditional 'mandatory' components. Many of them included references to public consultations or questionnaire surveys. This shows that the drafter of the strategic plan has taken the community approach into account to some extent. However, these references indicate that this was precisely the mechanical approach mentioned and that the local community was not an active co-creator or even driver of the strategy.

All 14 strategic plans were subjected to a critical discursive analysis, the essence of which was to identify whether and to what extent the analytical part of the strategic plan contains information useful for the development of the above-mentioned informal institutions.

The hypothesis described in the research section shows that many strategic plans are processed in a stereotypical way, they contain (especially within the analytical part) similar information which could be used for a deeper understanding of informal institutions, but because of their mere mechanical stereotyping they do not deal with the issue in more detail. For this reason, the first part of the analysis was concerned with identifying the extent to which the following information ('development factors'), which have potential for further work with informal institutions, are repeated in the sample of strategic plans.

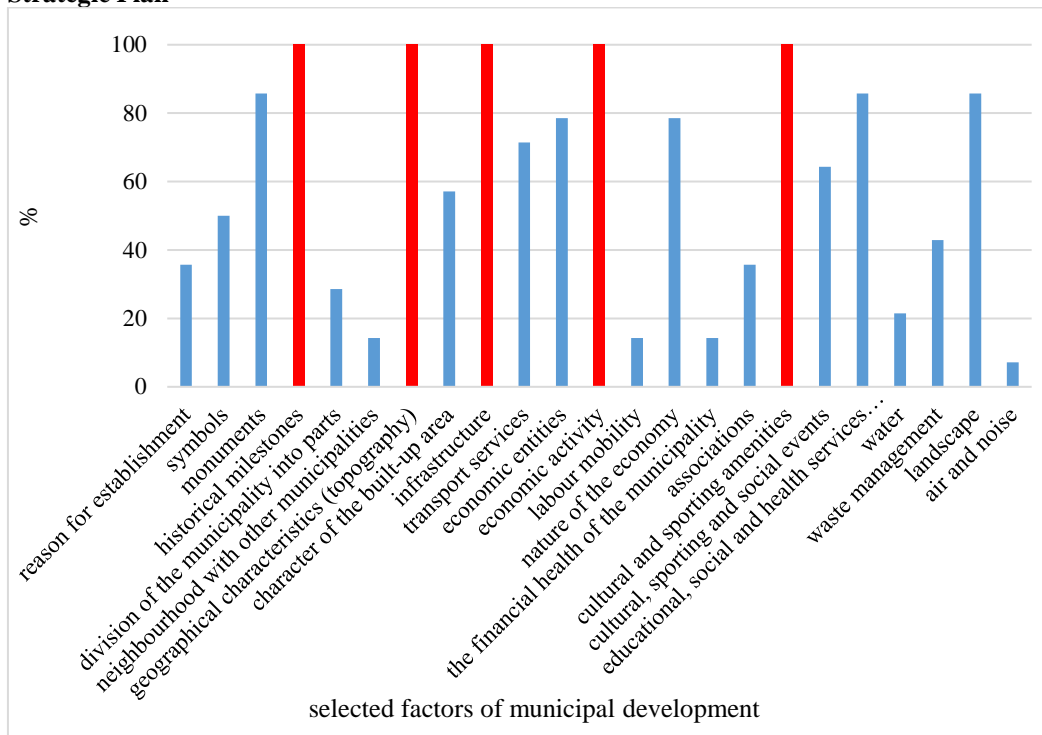
For the purposes of this research, the informal institutions chosen were those which appear most frequently in the relevant scholarly literature (see Sýkora, Raška, and Koutský, in review): (1) *customs and traditions*, (2) *social conventions and behaviour*, (3) *culture and education*, (4) *trust*, and (5) *political culture*.

By possibly linking the key factors of development defined and key informal institutions, the authors point out the shortcomings in the way the analytical part of the strategic plan was prepared. Therefore, the following chapter offers some questions which could help the developers of strategic plans and the municipalities themselves to work better with them and to design them in a way which develops informal institutions and therefore leads to the consolidation of the local community.

5. Analysis of Strategic Plans and Their Link to Informal Institutions

In the analysis, 14 strategic plans of the selected municipalities were compared with each other. In many of the plans, several basic factors are repeated regarding the history, location of the municipality, infrastructure, economy, civil society and environment. Figure 1 shows the different factors and their percentage occurrence in the analysed strategic plans.

Figure 1: Percentage of Municipalities Which Mention Selected Factors in Their Strategic Plan



Source: own elaboration

The chart above shows that there are five development factors that all communities address: (1) historical milestones, (2) geographic characteristics, (3) infrastructure, (4) economic activity, and (5) cultural and sporting amenities. On the basis of the analysis, the authors decided to demonstrate in Table 2 the possible degree of influence of the key factors of the municipality's development on the key informal institutions, provided that the strategic plan would analyse these factors in detail and not remain with simple statements.

Table 2: Intensity of the Influence of Key Factors of Community Development on Informal Institutions

Key factors for the development of the municipality	Selected informal institutions				
	<i>Customs and traditions</i>	<i>Social conventions and behaviour</i>	<i>Culture and education</i>	<i>Trust</i>	<i>Political culture</i>
Historical milestones	XXX	XX	XXX	X	X
Geographical characteristics	XX	X	XX	XX	X
Infrastructure	X	XX	X	X	X
Economic activity	XX	XXX	XXX	XX	XXX
Cultural and social amenities	XX	XXX	XXX	XX	XX

Source: own processing

XXX - intensive influence

X - least intense influence

The following text presents an indicative overview of the type of questions which should guide strategic planners to analyse the key factors of development in more depth in order to contribute to the development of the key informal institutions.

All the selected strategic plans mention **historical milestones**. These are passages about when the village was founded or, for example, when it was first mentioned in writing. In addition to mentions of the early days of the village, the characteristics of the village are also often mentioned - e.g. tin mining, agriculture, guarding trade routes or ore or coal deposits. None of the strategic plans offer this information in the context of its further use to strengthen the local community. Therefore, questions need to be asked about how to further engage with these facts in the context of informal institutions, i.e. how do historical milestones translate into local customs and traditions, how do they manifest themselves in local culture, how do they contribute to trust and social conventions? Strategic planners should therefore try to find answers to the questions: are traditional events which commemorate the reason for the founding of the village supported? Are there locally specific activities and customs which refer to the original reason for the founding of the village? Are there entities operating in the village which actively commemorate the original reason for the founding of the village? Do the activities associated with the founding of the village have an impact on local culture and education? This section also offers work with youth, in teaching, project-based learning, etc. to strengthen local identity.

Municipalities also mention the **geographical characteristics** of the municipality and what surrounds the municipality in the context of physical geography. In this section, however, only general references are made in all the plans to mountain ranges, lowlands or river names which are within or immediately surrounding the municipality. Furthermore, municipalities do not work with this information. In the context of linking to informal institutions of customs and traditions, planners should ask more detailed questions: are some traditions tied closely to the geographical characteristics of the village? Are there entities in the village which build on geographic characteristics and contribute to the maintenance of traditions (e.g. shepherds)?

With regard to social conventions and decorum, the question arises as to what influence geographical location has on morality and decorum within the village (e.g. mutual solidarity in the event of natural disasters).

Each municipality also describes **infrastructure** (transport and technical): no factual information is given, but often only data such as numbers of roads and train lines or cycle paths are mentioned. This information can then be further used with informal institutions, as Table 2 indicates. For customs and traditions, it is again about how transport infrastructure can be used to develop community life within the village. Several questions arise here: Is there any specific infrastructure in the village to which local traditions are attached (e.g. the regular anniversary of the construction of a bridge)? How does the village work with historic roads and trails? Do they serve as themed trails (e.g., microbrewery beer trail, nature trails...)? If these are informal institutions of the social convention and behavioural type, then the question arises about the implementation of the roads themselves: is the road designed to prevent (or, on the contrary, lead to) breaking the rules (e.g. difficult accessibility, few pedestrian crossings)? To what extent does the transport infrastructure ensure safe access to schools? In the case of technical infrastructure, using water supply as an example, it is useful to consider e.g. how considerate residents are, in a summer drought situation, with water management and recreational use, etc.

Another commonly mentioned developmental factor is **economic activity** within the community. In this section, for each strategic plan, only basic analyses of the number of unemployed were identified and other important information which represents the hidden potential of the community is missing. However, there are many deeper issues in the economic area that can contribute to the formation of the local community through informal institutions, for example, with relation to customs and traditions: Can the prosperity of local economic actors be supported by local traditions (e.g. local products, markets, services, historical personalities and brands...)? In the context of social conventions and good behaviour, questions are raised as to whether the structure of employment and unemployment influences specific behaviours and whether the municipality takes any steps to mitigate or eliminate these phenomena (working for the municipality, offering jobs in technical services or temporary jobs, etc.).

In the case of **cultural and social amenities**, the vast majority is just a pure list of all the individual cultural events or facilities which serve cultural or sporting activities. Undoubtedly, this topic has a link to informal institutions of customs and traditions, where it is suggested to look deeper into whether these infrastructures meet the needs of traditional events, whether the events organised refer to local traditions, local historical figures that can strengthen local identity etc. In the context of the question of political culture, the question is whether these spaces can be used to cultivate a political environment, for example in the form of student parliaments or local referendums.

The above analysis confirmed the hypothesis that the preparation of strategic plans is too mechanical. Using the example of the documents analysed, it is shown that strategic plans offer a hitherto largely untapped potential for a deeper understanding of the community through informal institutions. However, to tap this potential, it is imperative to ask deeper questions with respect to key informal institutions which have a major influence on the development of the local community and which can therefore be positively influenced by the strategic plan. In this way, it is possible to influence the values of the community, which will be more integrated internally and therefore lead to a more responsible citizenship at local, national and European levels.

6. Conclusion

Being anchored in a community enhances a person's identity and the sharing of values which are a prerequisite for European integration. The formation of a local community is closely linked to the strategic planning of the development of the municipality – that is, to the common search for shared values of citizens united in a community. Strategic development plans often serve only as an argument for obtaining European subsidies, but do not contribute to the development of active citizenship. This is because they are too descriptive and do little to build a cohesive local community. This would be greatly helped if strategic plans consistently addressed informal institutions, which are important soft factors in the development of settlements, as renowned regionalists have pointed out. A number of similar studies have reached similar conclusions, e.g. Barca et al (2012), Chien (2008), Pike et al. (2010) and Taylor (2013). The absence of this element is particularly pronounced in structurally disturbed regions, where the pressure to obtain subsidies is significantly higher than in other regions and therefore the incentives to undertake strategic plans are skewed.

For this reason, an analysis of strategic plans in 14 small municipalities (up to 3,000 inhabitants) in the so-called coal regions of the Czech Republic was carried out. The analysis focused on whether the development factors of the municipality identified by the strategic plans are analysed in sufficient detail and with regard to their potential to shape active citizenship. The conducted analysis confirmed the hypothesis that many strategic plans are processed in a stereotypical way, they contain (especially in the analytical part) similar information which could be used for the formation of key informal institutions, but due to their mere mechanical stereotyping they do not deal with the issue in more detail. This is a prerequisite not only for improving the strategic development planning process, but especially for deepening the integration of local communities, also with regard to the very topical issue of integrating migrants into the full life of the community while promoting shared European values.

By confronting key developmental factors and selected informal institutions, the authors open a discussion on how to more effectively approach strategic analysis in the context of the development of informal institutions which can lead to the strengthening of local communities. Future research should be directed towards finding out how to better grasp such an abstract category as informal institutions. In their future research, the authors will focus on operationalizing informal institutions in order to practically capture them in the strategic planning process. A grounding in planning culture theory seems appropriate.

Acknowledgements

This article was supported by the Internal Grant UJEP-SGS-2019-45-011-2 Agency of Jan Evangelista Purkyně University in Ústí nad Labem in the Czech Republic.

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Social Tipping Points & Asylum Seekers: Fragility in the EU's Remote Island Areas

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Abstract

In this paper, we examine the applicability of the tipping point framework in the field of asylum seekers. The aim of this paper is twofold. Firstly, we aim to provide a general assessment of the literature regarding tipping points in environmental and social sciences, with potential overlaps to asylum seekers. Secondly, since the literature regarding migrants and asylum seekers, respectively, is almost non-existent, we construct a theoretical framework putting together the social tipping point framework and asylum seekers. Our hypothetical framework of fragile community, stemming from a fragile state concept, describes isolated EU remote island areas struggling with increasing asylum seekers inflows. The theoretical framework is subsequently applied to two case studies, one on Greek island of Lesbos – Moria, and one on Italy's Lampedusa. We conclude that the central states failed in both fragile communities. However, as compared to Moria, Lampedusa did not experience the social tipping point due to a greater involvement of other stakeholders, who had the capacities of averting the community from the tipping point and subsequent collapse.

Keywords: *asylum seeker, Lampedusa, Lesbos, migration, tipping point*

JEL Classification: *F22, F50, F68*

1. Introduction

Since the early 2000s, the use of the tipping point framework in literature has quickly spread. Nonetheless, despite being widely used, it remains a relatively vague concept for the academic use, especially in social sciences. As a methodological framework, the tipping point has its origins in natural sciences, namely in chemistry and mathematics, before being rediscovered by environmental and social scholars. Poincaré (1885) was the first to claim that there is a point in the function of the system when a small change of a parameter causes a sudden qualitative change in the dynamical system's behaviour, leading to the emergence of a new solution with different properties. In other words, tipping points depict a situation, where once a certain threshold is passed, the dynamics of the change accelerates and causes a paradigmatic shift from one state to a completely new, qualitatively different state (Scheffer et al., 2009).

As we have already indicated, the concept of tipping points is used relatively broadly in natural as well as social sciences. This paper intends to contribute to the existing literature on the subject by applying the tipping point framework in the field of asylum seekers. The aim of this paper is twofold. Firstly, we provide a general literature review on the concept of tipping points, both in natural sciences as well as in social sciences, to excerpt the main takeaways for the usage of the tipping point framework in the field of asylum seekers. Secondly, we construct a theoretical framework of fragile communities in the EU's remote island areas for potential

implementation of the social tipping points in the field of asylum seekers. This paper attempts to answer the question: Where and how do social tipping points emerge with regards to asylum seekers in the EU?

The remainder of the paper is organized as follows. In section 2, we briefly review the literature on tipping points first in natural, be it environmental or earth system sciences, and second in social sciences, as well as we provide a brief comparison of the two approaches to that concept. In this section, we attempt to link the social tipping points (STP) to the issue of asylum seekers, respectively. In section 3, fragile community concept is introduced, as a slight alternation to the traditional fragile state concept, referring to EU's remote island areas. Subsequently, after we construct a theoretical asylum seekers' STP model working with the fragile community concept and EU's remote island areas, we apply the concept to two case studies: Moria on the Greek island of Lesbos and Italian Lampedusa. Section 4 summarizes and concludes the present paper with the main findings and policy implications.

2. Review of Literature on Tipping Points

The contemporary public discourse frequently discusses topics of the fragility of environment, ranging from Amazon rainforest to Arctic permafrost, pointing out to possibly irreversible human-made damages to the environment. As a result of this, the earth system sciences and ecology literature are relatively ample in dealing with multi-stability systems and non-convexities, as a proxy for the tipping points (e.g., Dasgupta and Mäler, 2003). Scholars studying social-ecological systems adopted the concept of the tipping points in different variances, ranging from social-ecological regime shifts (Lade et al., 2013) to tipping points in social-ecological systems (Broderstad and Eythórsson, 2014) and social-ecological tipping points (Serrao-Neumann et al., 2016). Majority of these papers deal with the environmental sustainability and strategies to avoid fatal ecological disasters.

Significant part of the field employs the tipping point framework to determine the threshold of carbon dioxide concentration in the atmosphere, which cannot be crossed without irreversible damage. Lemoine and Traeger (2014) managed to identify the existence of precise carbon dioxide concentration threshold triggering the tipping point. Chavas et al. (2016) built their analysis on a threshold quantile autoregressive model to characterize anomalies in atmospheric carbon dioxide concentrations. Their results indicate local instability in carbon dioxide, ipso facto an existence of tipping points in carbon dioxide concentration dynamic. In their 2016 paper, Lemoine and Traeger (2016) examine the greenhouse gas emission from the policymakers' perspective. They model rational agents deciding on greenhouse gas emissions against Knightian uncertainty, processing the unexperienced chance of irreversibly tipping the planet into a less favourable climate system.

Very often environmental scholars deal with the tipping points in context of the ice sheet dynamics in the Arctic zone. Lindsay and Zhang (2005), observing the satellite pictures of summer Arctic Sea ice, notice record lows for the ice thickness in the years 2002-2005. They argue that during the late 1980s and early 1990s, the mankind could have passed the tipping point during which the ice-ocean system began to enter a new era of thinning ice and increasing summer open water. Holland et al. (2006) employ seven projections from the Community Climate System Model and find out that drastic reductions in ice extent trends will lead to near ice-free conditions by 2040. However, they argue that observations are still too imprecise to assess whether the tipping point has already been reached.

Looking at the usage of tipping points in the environmental studies and ecology, we can claim that the framework is referred to in majority of the papers as non-linear irreversible change in

system dynamics. Experts from German Advisory Council on Global Change perceive the tipping point as an irreversible system-changing process once a critical threshold is crossed. Afterwards, the changes are near impossible to bring under control again (Schubert et al., 2008). German experts also cite the Arctic ice sheet, which could start to melt away uncontrollably if global warming exceeds a critical threshold, or the Amazon rainforest, which could be irretrievably eradicated. Furthermore, we observe that the environmental tipping point thresholds are usually relatively precisely quantified, with environmental scholars providing relatively exact numbers, as opposed to social sciences (e.g., Winton, 2006).

Even though the tipping point framework is widely used in scholarly works related to the environmental studies, in the last couple of decades, more and more social scientists have started to incorporate this approach in the study of non-linear social changes as well. The usage of the tipping points in social sciences ranges from political science to sociology and economics. Social scientists very often adopt the term “social tipping points” (hereafter STP), to set their approach apart from environmentalists and climatologists (Skrimshire, 2008). STP is a point at which “the system shifts abruptly from one state to another” (Scheffer et al., 2009, p. 53). In social sciences, social shifts that are investigated by sociologists, political scientists, or economists, deal with transition of a social system from state *A* to state *B*, while the two are qualitatively different.

Grodzins (1957) and Schelling (1971) are among the first to pioneer the tipping point approach in social sciences, investigating metropolitan segregation and concentration of the Blacks in the United States. In his model, Schelling (1971) notices that it takes only a marginal increase in the number of residents with different ethnic background to incentivize the flight of other ethnic groups from the neighbourhood. Couple of years later, Granovetter (1978) investigates group motives to take on a collective action. He argues that the key concept is that of “threshold”, described as the number or proportion of others who must make one decision before a given actor does so.

When it comes to the tipping points and social sciences, they are used mostly in the field of economics (Schelling, 1978). It has been increasingly observed in economics that incremental changes, under specific circumstances, can trigger abrupt systemic shift, both at the micro or macro level. At the micro level, Sims et al. (2016) use the example of price crossing a certain threshold triggering adoption of a new technology or entry/exit in/from a market. At the macro level, the tipping points usually arise when different behaviours start reinforcing once a threshold is exceeded. The “domino effect” metaphor might be suitable in the aggregate level context. As an example, we can use the bankruptcy of Lehman Brothers on 15 September 2008, bringing about the Global Financial Crisis (Ivashina and Scharfstein, 2010). Relatively precise determination of the tipping point threshold can be found in fiscal policy, focusing on finding a threshold in public debt sustainability. Reinhart and Rogoff’s (2010) paper, drawing from evidence from 44 developed and developing economies, find out that a threshold of 90% central government debt to GDP is a threshold of sustainability for the real economy. Even though the authors did not use the term themselves, Pozen (2010) labels Reinhart and Rogoff’s threshold a tipping point. Contrary to other social science approaches, the tipping point in this case is relatively precisely quantifiable.

Reviewing the literature on the tipping points in environmental and social sciences, we managed to identify a couple of differences, three structural differences to be precise: threshold accuracy, (ir)reversibility and outcomes. In the case of environmental sciences, models of tipping points are constructed relatively rigidly, with precisely quantified thresholds (e.g., Winton, 2006). Once the threshold is crossed in environmental systems, the change gets out of control indicating that the process is irreversible. Once the Arctic ice melts down and the

Amazon forests get deforested, there is no coming back from this qualitative system change. On the contrary, social scientists do not assume that STP are irreversible (Scheffer et al., 2001). Democracies can easily shift back to non-democratic state, and the economy almost always bounces back from the recession. Furthermore, the STP do not necessarily have to lead to a negative outcome as compared with the environmental tipping points. STP are more loosely defined, so the tipping points thresholds between two qualitatively different systemic states are imprecise, and often just qualitatively described. There are few exceptions though, even in social sciences, most notably in economics and finance (Reinhart and Rogoff, 2010). Another important difference is pointed out by Grimm and Schneider (2011), who claim that it is much more difficult to define the time dimension of a sudden social shift, in comparison to delimiting the threshold for the carbon-dioxide concentration for instance. They mention the cases of the collapse of the Communist Czechoslovak regime in November 1989 or the genocide in Rwanda in April 1994 as no one was able to foresee these sudden systemic changes.

Now the question arises, what is the intersect between the tipping point framework and asylum seekers. When it comes to the migration, the literature on the tipping points and migration is almost non-existing. Usually, the migration is just a side-effect of global warming, environmental disruption or other socio-political upheavals in the articles dealing with the tipping points.

Climate change may potentially trigger social transformations, such as migration or violent conflicts. Missirian and Schlenker (2017), for instance, investigate how the impact of weather variations in 103 countries could translate into asylum application to the EU. The paper concludes that temperature deviated from the moderate optimum around 20°C increase asylum seekers' application in nonlinear fashion, with both hotter and colder temperatures increasing migration flows. Extrapolating these trends into the future, asylum applications by the end of the century are expected to increase, on average, by 28% (98,000 asylum application per year) under scenario 4.5 and by 188% (660,000 additional application per year) under 8.5 scenario in climate models of the NASA NEX-GDDP. Schubert et al. (2008) suppose that the collapse of the Amazon rainforest could fundamentally alter agricultural production in Latin America, incurring incalculable economic costs and triggering large-scale migration.

The bottom line is that migration and asylum seekers happen to be mentioned just as a side-effect of the environmental tipping points in the reviewed articles. According to Perry World House (2019), however, environmental, and social tipping points are two independent processes and, in some cases, the STPs may even precede climate tipping points (e.g., Sudan). Thereby, one can argue that the migrant STP do not have to be linked solely to the environmental issues, and as we could see in 2014 and 2015, they could erupt spontaneously on their own, as a result of numerous factors.

3. Fragile Communities, EU's Remote Islands & Asylum Seekers

To utilize the STP framework in the context of migrants and asylum seekers, there is a need to come up with a new theoretical model for the STP with regards to asylum seekers. Inspired by Grimm and Schneider (2011), we present our take on the STPs and their overlaps to asylum seekers, focusing on cases where state failed or can fail in preventing the migrant tipping point. Fragile community concept is introduced, as a slight alternation to the traditional fragile state concept, referring to EU's remote island areas. After we construct a theoretical asylum seekers' STP model working with the fragile community concept and EU's remote island areas, we apply it to two case studies: Moria on the Greek island of Lesbos and Italian Lampedusa.

3.1 Problem Formulation

The World Bank (2018, p. 6) defines a fragile state as one “facing particularly severe development challenges, such as institutional capacity, poor governance, political instability, and frequently ongoing violence or the legacy effects of past severe conflict”. The World Bank includes into its list of fragile states countries with high levels of institutional and social fragility and countries affected by violent conflicts. The EU characterizes fragile states as weak or failing structures where the social contract is broken due to the state’s incapacity to deal with its basic functions, meets its obligations and responsibilities regarding service delivery, management of resources, rule of law, equitable access to power, security and safety of the populace and protection and promotion of citizens’ rights and freedoms (DEVE, 2013). The OECD (2020) characterizes state fragility as the “combination of exposure to risk and insufficient coping capacity of the state, systems and/or communities to manage, absorb or mitigate those risks”. Fragility can ultimately lead to negative outcomes including violence, poverty, inequality, displacement, and environmental degradation. The OECD’s definition is crucial for our purposes, since it is the only one that explicitly considers subnational or communal cases of the state failure. This is where we depart from the “traditional” approaches to state failure (Grimm and Schneider, 2011), and redirect our attention to cases where the central government fails just in some parts of its territory.

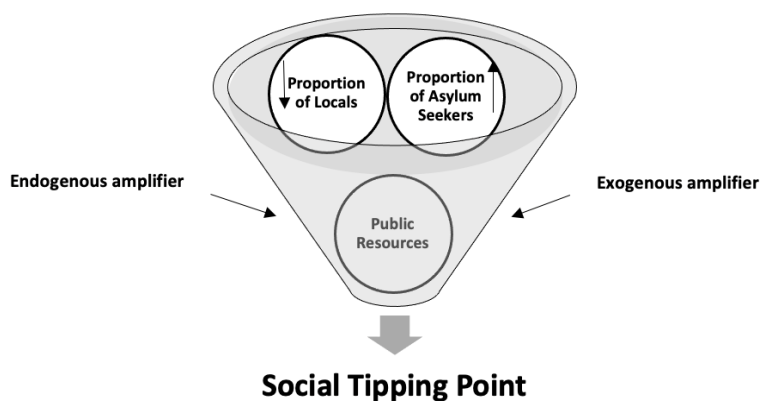
Normatively speaking, fragile or failed states are states not fulfilling three basic attributes of a state: effectiveness, authority, and legitimacy (Mata and Ziája, 2009). These states are unable to provide certain public goods (security, health care, education etc.), do not have full control over some of their territory and suffer from constant social and economic tensions, high crime rates and violence. Ultimately, the state functions in fragile or failed states tend to be outsourced to various privateers, warlords, and other clan leaders, replacing the state in its most vulgar Weberian sense. Naturally, we cannot speak of fragile or failed states in case of the EU countries. On the other hand, as we will point out, some of the EU’s remote regions hit hard by the 2014–2015 refugee and migration crisis evince certain patterns of the state failure, even though on the subnational level. To differentiate between “traditional” failed states (e.g., Somalia and Sudan) and the EU’s remote island areas with certain features of fragility, we adopt a concept of “fragile communities”, referring to the EU’s remote island areas.

There are certain EU countries thought, that became incapable of imposing all of their attributes of the state capacity on a whole of their territory. These countries suffer from what we call “fragile communities”, remote areas, predominantly islands on the Mediterranean and Aegean Sea, with features typical of state failure. In these areas, legally pertaining under a country’s jurisdiction, government ceased to fulfil its commitments and to provide public goods. As government stops fulfilling its roles in fragile communities in context of the sudden rise of asylum seekers, the local community can tip over into a brand-new state. What is more pertinent is that government ceasing to provide its role as the main provider of public goods disincentives stakeholders on other levels of governance, such as municipalities, transnational actors (EU, UNHCR, OSCE), NGOs or grassroots movements. Naturally, as the inflows of migrants and asylum seekers into the fragile communities keep augmenting, the vicious circle of self-reinforcing communal fragility keeps deteriorating, until the community tips over into a qualitatively new state.

Let us assume a hypothetical model. We have a fragile community on a remote island area of otherwise functioning state. The number of inhabitants on that island is relatively limited, in tens of thousands of people. Building on Schelling’s (1971) argument, we assume that it takes only an almost unnoticeable increase in the number of “others” to trigger a backlash from locals in the same area, in our case, in the local community. But contrary to Schelling, the

reason for this backlash is not solely ethnic, but also socioeconomic in our opinion. It was Bates (2008), who argued that the STP can be traced into socioeconomic cleavages. Now, we assume that an unexpected wave of migrants and asylum seekers hits this country, disproportionately affecting that island. Suddenly, thousands of asylum seekers and undocumented immigrants get stuck on the island, due to travel restrictions to the mainland, with limited possibility to return to their home countries. In a hypothetical fragile community, the proportion of asylum seekers starts augmenting in proportion to locals, thereby increasing conflict for public resources on this remote island with no possibility for escape (Fig. 1).

Figure 1: Asylum Seekers & STP in a Fragile Community



Source: Authors' own elaboration.

This situation can be compared to Grimm and Schneider's (2011) model of a social interaction between competing social groups, where the groups co-exist with each other based on an unfair social contract benefiting group *A* at the expense of group *B*. We transpose their model of fragile state into our context of the fragile community (Fig. 1), with two exceptions. Firstly, two competing groups in our hypothetical model are group *A* (local population) and group *B* (asylum seekers). Subsequently, as the hypothetical community equilibrium shifts due to sudden increase in the number of asylum seekers and more people start competing for the same resources, be it jobs, consumers goods or security, the overall utility of the community declines. Furthermore, these resources are in this fragile community already lacking. Ultimately, even though group *A*, consisting of locals, does profit from the status quo as compared to asylum seekers, its overall utility deteriorates as compared to the ex-ante equilibrium. This further increases the tensions. Secondly, the central government as a whole is not fragile, it is relatively well functioning in the context of mainland. The state is fragile solely in the remote areas, generating so called fragile communities. Thereafter, in compliance with Grimm and Schneider (2011), we assume that potential problems could stem from distributional conflict for a territory or access to public goods (health, security, hygiene, jobs etc.). Such public goods are relatively limited in a fragile community. In this hypothetical fragile community, the qualitative change of system can be accelerated by exogenous or endogenous shocks or what we call "amplifiers". These amplifiers shocks can be both positive and negative.

3.2 Case Studies: Moria Refugee Camp & Lampedusa

Moria Reception and Identification Centre, allegedly the largest refugee camp in Europe, was founded in January 2013 on the Greek remote island of Lesbos. The overcrowded Moria refugee camp is a place where Europe's ideals – solidarity, human rights, haven for victims of war and violence – dissolve in a tangle of bureaucracy, indifference, and lack of political will (Donadio, 2019). According to MSF's Luca Fontana, the Moria camp is the worst place he has seen in his life, even when compared to his experience with Ebola outbreaks and suffering in Central African Republic (Nye, 2018). Moria, reception centre enclosed by four-metres-high fences, "home" to almost 13,000 people, became an emblem of the asylum seeker tipping point, accumulating numerous economic, social and health problems for over half a decade.

Initially, the Moria reception centre was a place designed for 1,200 asylum-seekers. Afterwards, although its capacity was augmented by Syriza government to 3,200 places, these numbers were still quite deficient. Naturally, as the strain on Lesbos started to grow – Lesbos alone went from 1,417 arrivals in 2012; 3,233 in 2013 and 12,187 in 2014 to astonishing 512,327 arrivals in 2015 – Moria became a hub for asylum seekers trying to get to continental Europe (Psaropoulos, 2020). Due to its inflated capacity, Moria has never functioned as a typical detention centre, it remained a camp with monitored, although still free movement.

The situation in Moria started to deteriorate following the EU-Turkey Statement of March 2016, preventing asylum seekers to return to their country of origin or to move forward to mainland Europe. As a result of this agreement, the amount of asylum seekers on Greek Island started to build up uncontrollably. Furthermore, in 2019, new conservative government led by Kyriakos Mitsotakis was sworn in, promising the locals to streamline the asylum system to process applications within 28 days, including appeals, rather than the existing average of several months. Naturally, "older" applicants ended up waiting even longer, as the asylum process refocused on achieving its target speed with new arrivals. As the number of asylum seekers started to accumulate and the asylum process started to get lengthier, frustration grew as well, undermining the already unstable community (BBC, 2019).

However, situation on Greek islands was unenviable even before the migration crisis erupted in 2014 and 2015. Following the 2007-2008 global financial crisis and Greek sovereign debt crisis in three waves (2009; 2010-2012; 2015), the country was hit by one of the worst economic recessions in the post-war history. Especially the remote Greek islands such as Lesbos, almost entirely dependent on tourism, suffered enormously from the sudden stop of capital inflows into Greece and subsequent sovereign crisis (Papatheodorou and Arvanitis, 2014). High levels of unemployment in combination with rising numbers of asylum seekers and unrecorded migrant labourers, with no real chance of earning the living, led to the social unrests, rise of petty crime and protests from the locals.

Trapped on the remote island, economically vulnerable, list of potential problems accumulates. As the number of asylum seekers exceeds the camp capacity at least fivefold, with over 70 people per one toilet and no functioning sewage system, various health problems started to emerge. Very poor hygiene resulted in the spread of various diseases and skin conditions for children. Children suffering from malnutrition had to wait in 3+ hours long queues for their meals. If it was not enough, medical experts taking care of people in the camp have to deal with suicide attempts of the minors on the daily basis (Nye, 2018). Furthermore, number of people suffer from respiratory problems caused by tear gas used by the police to fight the crime in the camp. In fact, unemployment and economic frustration automatically breed lawlessness. Toward the end, the crime used to be one of the biggest problems in Moria. Murders, rapes cases and drug trafficking became a new normal, with ethnic conflicts erupting into bloody violence day-to-day. Afghans fighting Arabs, Sunni in constant conflict with Shia, Muslims

attacking Kurds, ethnic conflicts and sectarianism in the camp seemingly imitating real geopolitical conflicts prevailing in the Middle East. In addition, German intelligence even identified ISIS branches operating in Moria, creating their own communities based on Sharia law, and no-go zones, taking over large parts of the camp (BBC, 2020).

Greek mainland, unable to cope with its socioeconomic and security problems, gave up on Moria a long time ago. As the crime rate became unsustainable, various charities and NGOs started to leave in protest, criticizing the Greek government's idleness, leaving asylum seekers and locals in unenviable situation. The only people that helped the whole system at least seemingly functioning were local movements and volunteer groups. In 2019, Dunja Mijatovic, Council of Europe Commissioner for Human Rights warned that Moria is on the verge of collapse (Council of Europe, 2019). The unstable Moria community started to tip over in September, with the first positive Covid cases emerging in the camp (DW, 2020a). As doctors and armed forces attempted to isolate the positively tested into special zones, imposing necessary lockdowns, asylum seekers started rioting, destroying the camp infrastructure, ultimately setting the whole camp on fire. On September 8, 2020, the Moria camp with nearly 13,000 asylum seekers (including 1,000 unaccompanied minors), supposedly the largest refugee camp in the world, was burned down to the ground (MSF, 2020).

As is the case with all STP, it is difficult to determine which particular event triggered the change, when was the threshold crossed, and what could have been done otherwise, to avoid such a dark outcome. Nevertheless, we were able to identify following "points de rupture", contributing to the tipping point in this fragile community. Firstly, remote character of the Greek island Lesbos. Secondly, economic vulnerability of Greece due to the sovereign debt crisis, causing various social problems. Thirdly, unpreparedness and subsequent overcrowding of the people on Lesbos. Fourthly, unsatisfactory infrastructure and hygiene problems. Fifthly, complete idleness of the mainland Greek government and the EU, losing over their legal and security sovereignty resulting into uncontrolled and unsustainable violence. As was already indicated, the central Greek government and the EU deliberately gave up on Moria, reinforcing its fragile status. Lastly, unexpected negative external shock in a form of Covid-19 pandemic.

The minuscule Italian island of Lampedusa in the Mediterranean between Africa and Sicily, closer to Tunisia than Italy, is the closest European shore to the coast of Libya, constituting the main gateway for migrants and asylum seekers into mainland Europe from Africa. Not only does the island constitute the closest point for migrants and asylum seekers when crossing the Mediterranean, Italian authorities themselves had always used the island as a way of controlling the flows of immigration into Italy (Kushner, 2016). Nowadays, Lampedusa belongs to one of the arrival centres (hotspots) located in Sicilian region (Szabo, 2020). Naturally, the arrivals of large number of migrants and asylum seekers had a significant impact on Lampedusa's community consisting of about 6,000 residents, especially compared to the numbers of migrants and asylum seekers crossing this remote island area on a relatively frequent basis. According to the Ministry of the Interior (2021), the number of arrivals evolved over time from 11,749 in 2007 to 21,160 in 2015, during the most intense migration crisis in the EU.

Lampedusa became notorious for migrants and asylum seekers ending up in wreck and death due to the poor conditions of the boats, unpredictable open-sea weather, and shortages of drinkable water. Thousands of immigrants and asylum seekers sank trapped inside old boats, died of being poisoned by petrol fumes, suffocated by their fellow travellers, or died of thirst (Melotti et al., 2017). On October 3, 2013, 366 Somalians, Eritreans and Ghanaians had lost their lives a few hundred metres from the island of Lampedusa, in what became known as the worst maritime disaster in the Mediterranean since the WWII (Dines et al., 2014). But only

until the tragedy of 2015. In April 2015, a boat carrying over 800 migrants sank leaving just 28 survivors (Kingsley et al., 2015). In 2015, of over a million migrants attempting to reach Europe across the Mediterranean, 150,000 arrived in Italy from North Africa (UNHCR, 2015).

Already in 2013, over 14,000 migrants were processed through Lampedusa, arriving mainly from Eritrea. Only after the asylum procedures were wrapped up, people were either relocated by plane to other facilities in Sicily and mainland Italy or deported back to Africa. Lampedusa therefore became a border zone for immigrants and asylum seekers, a place, which had “essentially become detached from the rest of Italy”, an area considered to be outside Italian territory (Dines et al., 2014). During the early period of migratory inflows, the residents of Lampedusa showed an immense resilience and, in many cases, their hospitality (BBC, 2021). However, as the situation has changed in recent years due to the rise in the number of asylum seekers, even at historically generous Lampedusa new anti-migrant sentiments started emerging, promoted by the right-wing parties. On August 30, 2021, a large rickety fishing boat with approximately 400 migrants reached Lampedusa, prompting the tension as well as protests among locals. This, unprecedentedly high arrival of migrants contributed to severe overcrowding of migration reception centre. Built to welcome about 200 people, the hotspot hosted as many as 1,000 asylum seekers in summer 2020 (D'Ignoti, 2020) and thousands new in fall 2020 and spring 2021. The discontent voiced by the locals was triggered by unsustainable situation arising from mass migrant arrivals in Lampedusa and the central government's inaction regarding management of new arrivals of migrants and asylum seekers. Lampedusa mayor Totò Martello expressed astonishment that a fishing boat with about 400 migrants was not noticed by military vessels or aircraft. Like Moria, all this tension was amplified by the Covid-19 pandemic and potential arrival of infected immigrants.

As in the case of Moria, we can identify several culminating points worsening the situation in this fragile community. It is very convenient to compare these two cases as both represent fragile communities, however, Lampedusa did not experience the tipping point yet. According to our theoretical model, fragile community in Lampedusa did not sink into the place of limitless crime and violence, despair, and socioeconomic deprivation due to limited resources, even though the number of asylum seekers competing for the public goods in Lampedusa kept rising. One argument might be that the fragility of this community was less severe than in Moria. The asylum seekers are processed relatively quickly in Lampedusa, moving forwards to Sicily and mainland Italy, or being repatriated back to the African shore. Most importantly, we notice a greater involvement of crucial stakeholders. The central Italy's government and the EU did not fulfil their expected role of providers of certain public goods, which is obvious. On the other hand, Lampedusa experienced more active involvement from the NGOs, local communities, and most importantly, its municipalities, which took up the role of provider of public goods instead of the Rome. This is in our estimates the primary differences between these two cases.

Otherwise, the factors contributing to the fragility and potential tipping points in Lampedusa are very similar to that of Moria. Firstly, remoteness of Lampedusa from Italian mainland and its geographical proximity to the African continent. Secondly, overcrowding of Lampedusa migrant centre as well as of the entire island, which has an area of approximately 20 square kilometres. Thirdly, insufficient involvement of the central government concerning unsustainable migratory situation on the island and weak government's (EU's) migration strategies. Fourthly, unexpected external determinant in a form of the global Covid-19 pandemic, which has resulted in a more difficult management of migratory flows.

4. Summary and Conclusion

The EU's experience with the unprecedented numbers of inflows of migrants and asylum seekers into Europe was almost fatal for the well-being and survival of the European integration. In this paper, we took a closer look at the concept of social tipping points (STP) and its potential viability with regards to asylum seekers. Before we could evaluate its usefulness in this regard, we had reviewed the literature employing the concept of tipping points in both environmental and social sciences, pointing out to certain methodological differences between the two. Since no relevant literature ever dealt with migrants or asylum seekers and STP, apart from works investigating societal side-effects of the environmental disruption, we opted for construction of a theoretical framework stemming from the fragile state concept.

Grimm and Schneider (2011) argue that social tipping points especially occur in fragile states. Even though we essentially agree with their conceptualization, as we have demonstrated, the STP can emerge even in advanced economies and stabilized democracies of the EU, when the state is fragile just in some parts of its territory. We call this a "fragile community", referring mostly to remote island areas of certain EU's member states. These remote island areas, such as Moria on the Greek island of Lesbos or Italy's Lampedusa, function as a gateway for asylum seekers trying to reach EU's shores. In fragile communities, the central state ceases to fulfil its role as a provider of the public goods. In case of the sudden increase of asylum seekers, more people get to compete for limited public goods, being entrapped in the fragile community. However, there are other stakeholders possibly being able to take up some of the state's functions, ranging from transnational actors to local movements. Basing our argument on two case studies of the fragile communities, we argue that the involvement of these different stakeholders might mitigate some of the features of the fragile community and avert the STP induced by asylum seekers inflows.

Let us summarize our findings comparing the case of Moria and Lampedusa (Table 1). Naturally, the central government is almost completely absent in both cases, that is the essential prerequisite for the fragile community. Same applies to what we labelled transnational actors, ranging from the UNHCR to the EU. Especially the EU's lacking involvement in these areas, with all its institutions like Europol, Eurojust and Frontex, could have been game-changing for these two fragile communities. On the other hand, one has to be aware of the fact that EU's member states decide on the EU's agenda, bouncing the ball back to national states. Thereby, these two are often intertwined.

Table 1: Factors of the Communal Fragility

	Central State	Transnational Actors	Municipalities	NGOs	Local Grassroot Movements
Moria (Lesbos)	-	-	-	+	+
Lampedusa	-	-	+	+	+

Note: (-) indicates that that a particular level of governance failed and (+) vice versa.

Source: Authors' own elaboration.

Looking at Table 1, the major, if not the only difference between Moria experiencing the STP and Lampedusa not experiencing the STP is the (effective) involvement of the municipalities and regional governance agencies. The role of regional governments might have been crucial in supplementing the state's role as a provider of public goods, decreasing the space for the fragile community and subsequently averting the STP. As rising number of asylum seekers

start competing for limited public resources in this fragile community, other stakeholders outside the state might be helpful in averting the STP. In case of Moria, missing central state and the EU in combination with weak municipalities and regional governments left enormous space for socioeconomic frustration, rise of the violence and ultimately the humanitarian catastrophe in the camp, as no one was able to supplement lacking resources and public goods. NGOs and local movements alone were unable to supplement their roles in this regard. On the other hand, municipalities and local governance agencies are relatively successful in replacing the central government and the EU as providers of public goods in Lampedusa, keeping the fragile community away from collapse and the STP, a situation when the community experiences sudden transition into a new state.

For the future research, the concept of social tipping points related to migration and asylum seekers can be expanded to other “fragile communities” or vulnerable regions in the EU, which will experience unprecedentedly high and unsustainable inflow of immigrants, refugees, and asylum seekers. The proposed theoretical framework, putting together the social tipping point framework and asylum seekers, may be modified or supplemented by additional attributes.

Acknowledgements

This paper was created within the MAGYC (*MigrAtion Governance and asYlum Crises*) project that has received funding from the European Commission’s Horizon 2020 Research and Innovation Programme under Grant agreement number 822806.

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Impact of Farm to Fork's Target "Reduction of the Use of Fertilizers" on Agricultural Production

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Abstract

To cope with the environmental challenges and climate change, the European Commission has launched as part of its Green Deal the Farm to Fork and Biodiversity Strategies. The implications of the proposed targets for agri-food system in the EU is still uncertain. One of the goals is to reduce the nutrition losses from fertilizers by 50%, which will result in the reduction of the use of fertilizers by at least 20% by 2030. The aim of the paper is to assess and discuss the impacts of this goal on agricultural production. The sales of fertilizers (particularly nitrogen) increased by 25% between 2010–2019 in the Czech Republic. The consumption increased by 22%, but it has decreasing trend since 2017. Using production functions, we estimate the effect of decreased usage of nitrogen on crop production.

Keywords: European Union's strategies, Farm to Fork strategy, Green Deal, production functions

JEL Classification: C10, D22, Q21

1. Introduction

Rising concerns about environment are gradually being addressed by the agricultural or environmental politics of the countries. "With the introduction of the Green Deal and in particular the Farm to Fork and Biodiversity Strategies, the European Commission (EC) has accelerated the ongoing transition towards sustainable food systems adding complexity to the analysis of the impact and trade-offs of policies, including the CAP." (Barreiro-Hurle et al., 2021). The Green Deal is the EU's latest growth strategy and action plan, which will meet the challenges concerning climate change and environmental degradation. The components of the Green Deal which are intended to prevent biodiversity loss, to reduce pollution level, and to improve food quality are: The Farm to Fork Strategy and Biodiversity Strategy. (Panka et al., 2021). The targets are concrete and ambitious and shall be achieved already up to year 2030.

The Farm to Fork strategy addresses soil pollution with 50 % reduction in use of chemical pesticides by 2030 and aims at 20 % reduction in fertilizer use plus a decrease of nutrient losses by at least 50%. The Biodiversity Strategy has the ambition to set a minimum of 30 % of the EU's land area as protected areas, limit urban sprawl, reduce the pesticides risk, bring back at least 10 % of agricultural area under high-diversity landscape features, put forward the 25 % of the EU's agricultural land as organically farmed, progress in the remediation of contaminated sites, reduce land degradation and plant more than three billion new trees. (Montanarella and Panagos, 2021)

The targeted “reduction in the use of agricultural inputs” was examined for example by Beckman, Ivanic and Jelliffe (2021). They examined the decrease of usage of fertilizers, pesticides, land, and antimicrobials). Their results indicated that reducing those inputs could lead to a reduction in the EU agricultural production by 12%. Also, the EU would be less competitiveness at the export markets. Besides, there would be “a negative impacts to consumer budgets and societal welfare.” (Beckman, Ivanic and Jelliffe, 2021).

The impact of chemical input use on Italian agriculture was examined by Cortignani, Buttinelli and Dono (2022). They evaluate various economic, environmental and social indicators calculated from Farm Accountancy Data Network data using AGRITALIM model. They found negative socio-economic and productive impacts overall in the national territory, but some territories, types of farming and smaller farms were more affected. Nevertheless, there was “an improvement in environmental sustainability of agricultural production in terms of lower use of chemical” (Cortignani, Buttinelli and Dono, 2022).

The study of Bremmer et al. (2021) focuses on assessment of the impacts of 4 scenarios on crop production. Particularly they model using AGMEMOD model 4 targets of Farm to Fork and Biodiversity Strategies; for our research are the more interesting the results of the second scenario: 50% reduction in nutrient losses and a 20% reduction in the use of fertilizers. Bremmer et al. (2021) found out that in this case the crop production declines below 15% and prices increase more – below 20%. Total negative impact on the value of production could be then almost 92 billion euros.

Beckman et al. (2021) also focused on targets specified in the Strategies that assume the reduction of agricultural input: reduction of pesticide use by 50 percent, reduction of fertilizer use by 20 percent, reduction of antimicrobial use for livestock by 50 percent, and removal of 10 percent of existing farmland from agricultural use. They found out that if the Strategies are adopted only in the EU, the production would decrease by 12% that would cause increase of prices by 17%. However, the gross farm income would decrease by 16%. The food costs would increase and Gross Domestic Product (GDP) decrease.

Besides, the transition towards a climate-neutral economy will have not only economic, but also social impacts and will lead towards loss of social welfare. According to the study of Henning and Witzke (2021), who used CAPRI-model, “the implementation of the F2F Strategy leads to corresponding public adjustment costs of approximately 42 billion Euro.” They also considered “the reduction of mineral fertilizer usage by 20%” target in their study. The findings show that there could be a significant decline in production and a respective price increase within the EU, with the reduction of the N-balances by 50% generating the strongest effects. The use of mineral fertilizer per hectare and pesticides per ha would be strongly reduced by -51%.

Barreiro-Hurle et al. (2021) analysed some targets of the Farm to Fork and Biodiversity Strategies using CAPRI-model. The target of “reduction in nutrient loads” was included only partially as only nitrogen was considered. They see the achievement of this goal as the consequence of reduction of nutrient losses by at least 50% while ensuring that there is no deterioration in soil fertility. They are not (unlike in our analysis below) reducing the nitrogen input directly. When current CAP proposal from year 2018 is considered, the results of their study show that environmental goals shall be achieved.

2. Problem Formulation and Methodology

The aim of the paper is to assess and discuss the impact of one target of Farm to Fork strategy on the agricultural production. We focus on the reduction of the use of fertilizers by at least 20% by year 2030. First, we study the development of the usage in the Czech Republic (CR), then we assess the impact of the reduction of nitrogen usage on yield of certain crops.

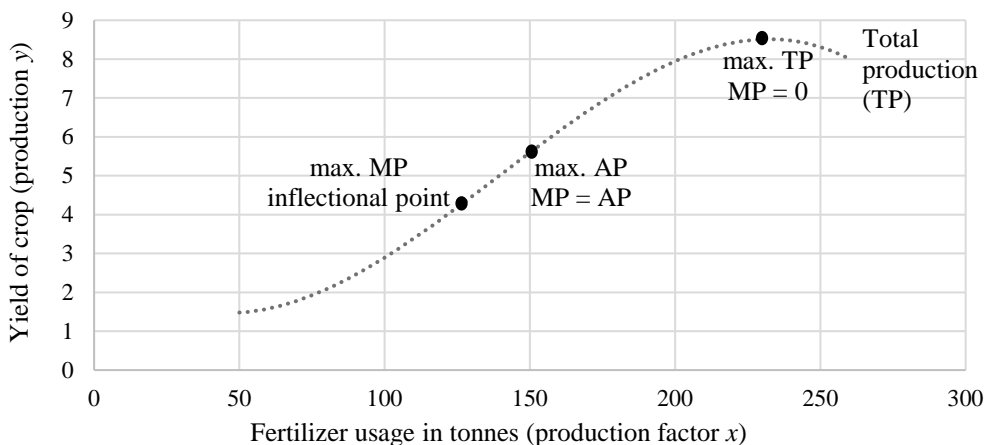
Data about the usage and sales of major inorganic fertilizers – nitrogen, phosphorus and potassium were taken from Eurostat. This information must be observed by the member states in order to examine the development of the achievement of the set goals.

There is a normative elaborated by Research Institute of Crop Production (RICP) that states the optimal level of fertilization to achieve certain level of yields. The table is available in Wollnerová, Kozlovská and Klír (2020). Using simple production functions (linear regression line), we can estimate the effect of decreased usage of nitrogen on crop production on the level of a particular crop.

The situation is illustrated at Figure 1 below. A typical neoclassical production function has progressive-degressive shape. According to the economic theory, we can expect that decrease of production factor (x) usage cause decrease of production (y) when we are in the rational range of production function. That range starts with the point where average production (AP) equals to marginal production (MP) and ends with maximum production (when the marginal production is equal to zero). Marginal production is defined as an increase of production (yield) when the production factor (fertilizer usage) changes by one. This will tell us about the magnitude of change and the magnitude of impact on yield.

In the rational stage of the production function, there is the highest labour productivity and the highest volume of production increase, even if marginal and average production decline. Profit maximization can be applied at this stage. Inflection point where the character of the function changes from progressive to degressive is in the maximum of marginal production. Hence, the rational stadium of the production function is in the degressive part of the function. We can therefore describe the relation between fertilizer usage and yield by degressive production function (Cobb-Douglas). Nevertheless, also linear function can be used.

Figure 1: Progressive-degressive Production Function



Source: Own elaboration (2022)

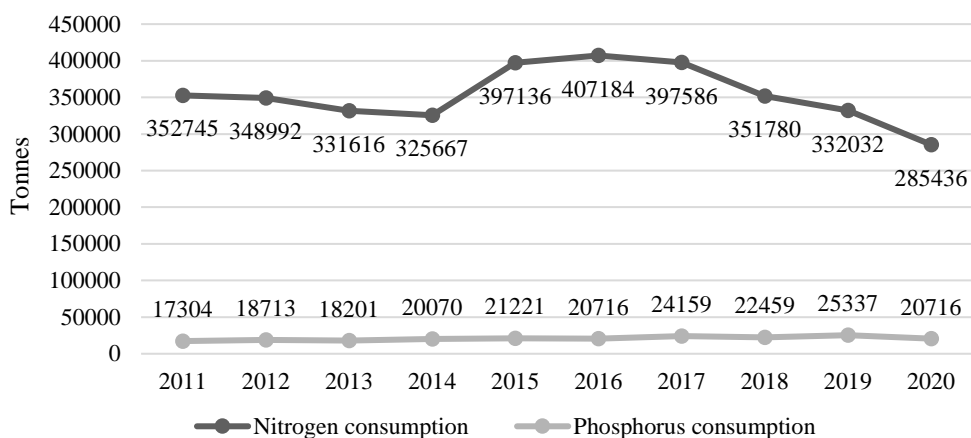
We can take a normative fertilizer usage in kg of nitrogen per ha to achieve particular yield. In practice, farmers choose between three yield levels – lower yield in less favoured areas for particular crop, normal / middle yield and higher yield in areas that are suitable for particular crop and according to this level, they use appropriate amount of fertilizer. There is no point to use more, as it is uneconomical. In our illustration, we choose middle yield level.

According to the expert guess in theoretical situation, if there was no nitrogen fertilization at all, the yield would be half. We do not know the real points on the production function, because real experiments must have been taken. There are some authors who examined the production function in the CR based on the real data. See for example an article of Voltr et al. (2010). In our article, we utilize normative. Therefore, we know only 2 points on the regression line $y = a + bx$, where y is production, x is a production function, a is constant and b is slope.

3. Problem Solution

The Farm to Fork strategy aims at reduction of nutrient losses by at least 50%, while ensuring no deterioration on soil fertility and reduction of fertilizer use by at least 20% by 2030. The aim of the paper is to assess and discuss the impact of this goal on agricultural production. Therefore, we first examine usage and sales of fertilizers. At Figure 2 it can be seen that the consumption of nitrogen (N) fertilizer in the Czech Republic increased by 22% during last decade, but has decreasing trend since 2017. The lowest value (285 436 t) was noted in year 2020. However, the influence on the consumption of N can have also the structure of planted crops because some require more nitrogen (e.g. rape seed) than the others (e.g. flax, mustard). Phosphorus consumption crossed over the 20 thousand tonnes in 2014 and is still above this level; it is more or less stable. The highest was in 2019. Data for potassium consumption are not available at Eurostat.

Figure 2: Consumption of Inorganic Fertilizers in the Czech Republic (2011–2020)



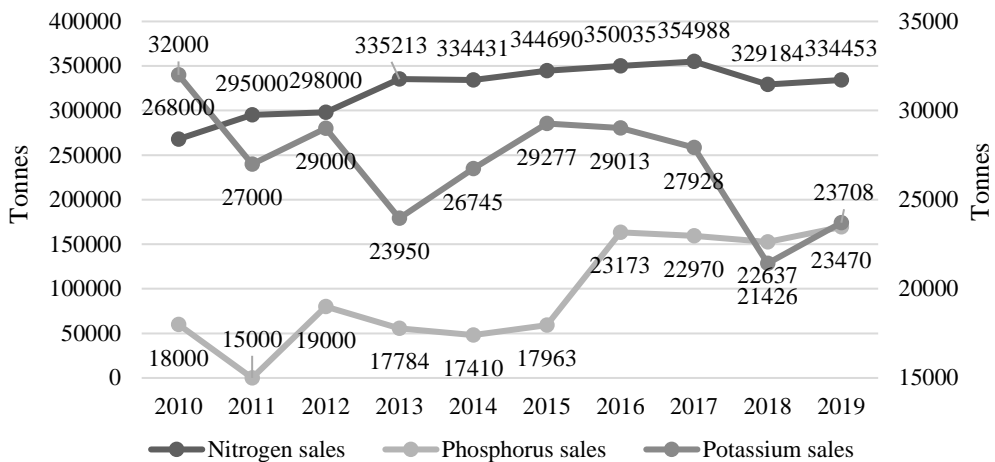
Source: Eurostat (2022a); Own elaboration (2022)

Regarding the sales of fertilizers (particularly nitrogen) it can be seen from Figure 3 that it increased by 25% between 2010–2019 in the CR. The highest was in 2017 reaching almost 355 thousand tonnes. Sales of phosphorous and potassium fertilizers are an order of magnitude lower. Phosphorus was at the level under 20 thousand tonnes until 2015. It increased since

that on 22–23 thousand tonnes. On the other hand, the sales of potassium decreased since 2015 with minimum level in 2018.

We can conclude that the consumption of inorganic fertilizers in the CR is either decreasing or is stabilized. There was an increase of sales in the past decade, but last two years (2018 and 2019) show lower values. We can therefore assume that further direct decrease might be difficult. The only way how to achieve such a strong decrease might be to change used technologies in plant production or farming practices. The best practices of inorganic fertilizers reduction focus mainly on nitrogen, as it is used in the highest volumes.

Figure 3: Sales of Inorganic Fertilizers in the Czech Republic (2010–2019)



Source: Eurostat (2022b); Own elaboration (2022)

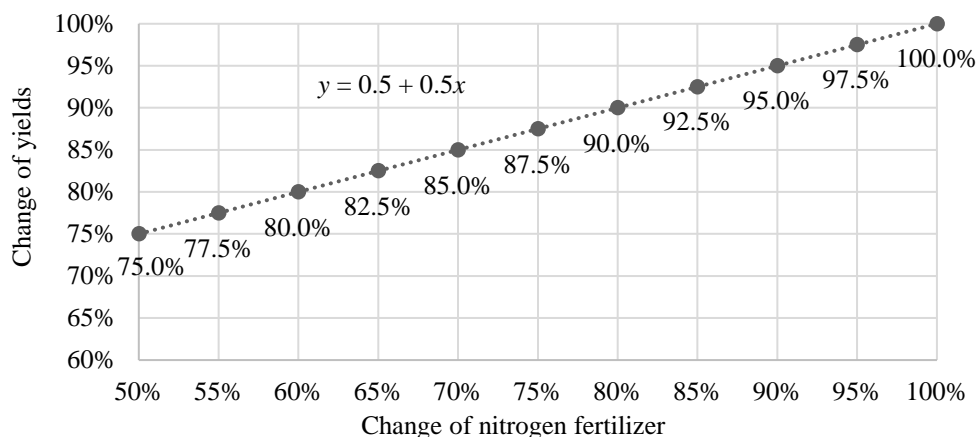
There are certain recommended levels of fertilizers usage. Normative elaborated by RICP states the optimal level of fertilization to achieve certain level of yields. Using production functions, we estimate the effect of decreased usage of nitrogen on crop production on the level of a particular crop. One point of the line is normative level of fertilization and corresponding yield. The second point is theoretical situation if there was no nitrogen at all.

Because of this feature of the regression line, its constant equals to the theoretical yield (half or the normative yield). The second coefficient of the regression line indicates the slope of the line and shows how the production would change if the production factor (nitrogen fertilizer) changed by one kg. Production elasticity (percentage change of production if the production factor changes by 1%) differs in each point of the regression line. Results of the regression for particular commodities are displayed in Table 1 in Appendix. There is displayed an equation of regression line, normative yield and yield after the decrease of nitrogen fertilization by 20%. For example, in case of winter non-food wheat, when the fertilization declines by 20%, yield would decrease from 8 t/ha on 7.2 t/ha.

With the elemental production functions, it is possible to examine the change – decrease – of fertilizer usage and its impact on the decrease of production (on average). From Figure 4 can be seen that if, for example, the nitrogen fertilizer decreases on 50% level, then the yields decrease on 75% of the original level. Decline of yields is the same for all commodities. However, the magnitude of decrease is not proportional. Decline of nitrogen fertilizer by 20% on 80% level does not mean that the yields would decrease also by 20%, but only by 10% on

the 90% level. The plants use the old soil strength (fertilizer from last year or from previous plants).

Figure 4: Decrease of Yields if the Nitrogen Fertilizer Decline on Certain Level



Source: Own elaboration (2022)

Of course, that fertilization is necessary, so the aim of the EC is not to decrease the usage directly, as rationally behaving farmers are using an optimal amount of nitrogen that is necessary to achieve desired yield. EC assumes that farmers will use certain technology that will help to reduce the fertilizers run-off and losses or increase its utilization by the plants.

Decrease of fertilizer use by 20% can be achieved implementing mitigation technologies and certain farm practices. Particularly in crop production, better timing of fertilization, nitrification inhibitors, precision farming and variable rate technology can help to reduce N₂O (NH₂, NO_x and NO₃) emissions. Increasing legume share on temporary grassland and abandoning the use of organic soils aim to reduce N₂O (besides CO₂). Also, low emission housing, covering of storage of manure and low ammonia application are efficient mitigation options. (Barreiro-Hurle et al., 2021).

Similarly, Beckman, Ivanic and Jelliffe (2021) see solution for nitrogen reduction in technological improvements in order to lessen the impacts of the Strategies' targets. "However, the necessary improvement in technology will require additional investment in research and development." (Beckman, Ivanic and Jelliffe, 2021). Also, the structure of the crops on the arable land can change the nitrogen balance in the soil. However, "the level of production activities and the use of mitigation technologies are constrained by various factors, including land availability, fertilisation requirements of the cropping systems versus organic nutrient availability; and feed requirements in terms of dry matter, net energy, protein, and fibre for each animal." (Barreiro-Hurle et al., 2021).

The most promising fields of innovation towards the transition in the agri-food sector were reviewed by Riccaboni et al. (2021) with reference to the value chain actors engaged in their implementation. Nevertheless, the implementation of new technologies is not without costs. "Political interventions are needed to incentivize farmers to adopt environmentally friendly agricultural practices and limit income losses." (Cortignani, Buttinelli and Dono, 2022). This was confirmed by Barreiro-Hurle et al. (2021): When "resources are allocated to support the adoption of technologies and farming practices with positive impacts on climate, the share of mitigation due to reductions in production drops below 50%." There are also certain legislative

aspects. Purnhagen et al. (2021) illustrate that achieving the Sustainable Development Goals benefits from the inclusion of recent innovations in biotechnology and in organic farming that requires a change in the law. “Otherwise, the planned increase of organic production in the F2F strategy may result in less sustainable, not more sustainable, food systems.” (Purnhagen et al., 2021). Finally, the strong focus on technical innovations must not mean that the EC would “neglect the social and structural aspects in transforming food systems” (Moschitz et al., 2021).

4. Conclusion

The aim of the paper was to assess and discuss the impact of Farm to Fork’s goal (the reduction of the use of fertilizers by at least 20% by 2030) on agricultural production. We focused particularly on the reduction of nitrogen. The consumption of nitrogen fertilizer in the CR increased by 22% in recent decade, but it has decreasing trend since 2017. The sale of it increased by 25% between 2010–2019. The decrease of fertilizer use would imply the decline in yields, *ceteris paribus*.

If we consider simple linear production functions with nitrogen fertilizer as only one production factor, we can conclude that decrease of fertilization by 20% will cause decrease of yields of selected crops by 10%. (We assume that with no fertilization at all, the yield would be half.)

However, in reality, production functions are not regression lines, but rather have degressive shape. The assumption of proportional decrease of yield with decline of fertilization is one of the limitations of our research. Also, the mitigation technologies and farm practices shall be considered in the model, because a decrease of fertilizer application by 20% should be a consequence of taken actions to reduce by 50% overall EU sales of antimicrobials for farmed animals, use and risk of chemical pesticides and reduce nutrient losses in the environment by 50%. (Barreiro-Hurle et al., 2021).

The challenge for future research is to apply progressive-degressive (or degressive) production function to assess the effect of nitrogen reduction on the yield of the crops and also to calculate the impact of this goal on agricultural at the level of the whole country.

Acknowledgements

This paper was created within the project of the Ministry of Agriculture of the Czech Republic, institutional support MZE-RO0918, Internal Research Project no. 1110/2022. The paper was also supported by long-term institutional support of research activities by the Faculty of Informatics and Statistics of Prague University of Economics and Business.

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Appendix

Table 1: Linear Production Functions for Commodities with Yield and Yield Change if Nitrogen Fertilization Decreases by 20%

Commodity	Yield (t/ha)		Production function
	Normative	Decrease	
Winter non-food wheat	8.0	7.20	$y = 4 + 0.020 x$
Winter non-food wheat	8.0	7.20	$y = 4 + 0.022 x$
Spring wheat	6.0	5.40	$y = 3 + 0.023 x$
Rye	6.5	5.85	$y = 3.25 + 0.024 x$
Winter barley	7.5	6.75	$y = 3.75 + 0.023 x$
Malting spring barley	6.8	6.12	$y = 3.4 + 0.027 x$
Spring feed barley	7.0	6.30	$y = 3.5 + 0.024 x$
Oat	5.0	4.50	$y = 2.5 + 0.020 x$
Triticale	6.5	5.85	$y = 3.25 + 0.022 x$
Corn for grain	10.5	9.45	$y = 5.25 + 0.024 x$
Silage corn	50.0	45.00	$y = 25 + 0.114 x$
Early potatoes	30.0	27.00	$y = 15 + 0.115 x$
Seedling potatoes	30.0	27.00	$y = 15 + 0.120 x$
Other potatoes	40.0	36.00	$y = 20 + 0.118 x$
Sugar beet	80.0	72.00	$y = 40 + 0.211 x$
Fodder beet	50.0	45.00	$y = 25 + 0.192 x$
Rape seed	4.0	3.60	$y = 2 + 0.009 x$
Sunflower	3.5	3.15	$y = 1.75 + 0.016 x$
Poppy seed	1.2	1.08	$y = 0.6 + 0.005 x$
Mustard	1.3	1.17	$y = 0.65 + 0.008 x$
Flax	2.0	1.80	$y = 1 + 0.012 x$

Source: Own elaboration (2021)

The Impact of Farm to Fork and Biodiversity Strategies on the European Union's Farms

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Abstract

Impact studies of the European Commission's Farm to Fork and Biodiversity Strategies try to assess the consequences for farmers' income, trade, economy, welfare, and the environment. There are large quantitative studies that are using model CAPRI (by Joint Research Centre and Keil University), AGMEMOD model (by Wageningen University and Research) and one behavioural study (by JRC). The aim is to compare those studies and the impacts on the situation of European Union's farms. There are many unknowns and the objectives interact with each other, so the magnitude of the impacts differs. All models are consistent that there will be price increase, because achieving environmental goals decrease the production. This will lead to increased income of the farms but decreased social welfare and endangers food security. However, the environmental goals should be met. The question is if it is not too costly.

Keywords: Biodiversity Strategy, European Commission, Farm to Fork Strategy, impact study

JEL Classification: Q28, Q21, Q57

1. Introduction

As many scientists and activists warn, the issues of global warming and climate change must be resolved in near future. Some steps have been already taken or are planned to be implemented. "Increased environmental responsibility will be an inevitable consequence of the growing environmental global problem and will lead to increased investment in clean technologies." (Cihelková, 2020). The solutions must be brought world-wide and implemented globally, but so far there are only few large countries (groups of countries) which are the leaders of the change.

In the European Union, the European Commission (EC) has recently introduced a strategy aiming on better environment and climate-neutral continent – Green Deal (COM(2019)640 – EC(2019)). To achieve those goals, EC wants to redesign the food systems which today account for nearly one-third of global GHG emissions, consume large amounts of natural resources, resulting in biodiversity loss and negative health impacts and do not allow fair economic returns and livelihoods for all actors, in particular for primary producers. In the framework of Green Deal strategy, the European Commission introduced two important strategies Farm to Fork (F2F) and Biodiversity strategy (BD) in May 2020. Both affect the agricultural and food-processing sector; their main aim is sustainable food production, consumption, processing and distribution, and decreasing of food loss and waste. Their implementation is supported by a revamped Common Agricultural Policy (CAP). Current CAP

reform stresses the environmental aspects of the food production to mitigate the climate change and ensure sustainability and incorporates the objectives of the F2F and BD strategies.

The goals of the strategies are very concrete and quantified:

- reduction of the use and risk of chemical pesticides by 50% by 2030 and reduction of the use of more hazardous pesticides by 50% by 2030;
- reduction of nutrient losses by at least 50%, while ensuring no deterioration on soil fertility and reduction of fertilizer use by at least 20% by 2030;
- boost the development of EU organic farming area with the aim to achieve 25% of total farmland under organic farming by 2030;
- reduction of the sales of antimicrobials for farmed animals and in aquaculture by 50% by 2030, reduction of use of antimicrobials in livestock and aquaculture by 50%;
- at least 10% of agricultural land contain landscape features with high diversity.

The achievement of the goals is controversial, because it can be done only with large costs for agricultural producers and can affect the functioning and viability of agricultural sector. Therefore, many impact studies have been elaborated to assess the impacts. It took quite a long time and the assessment was not always complex and comprehensive which was a subject of the criticism from many stakeholder organizations. For example the members of the European Farmers European Agri-Cooperatives (Copa-Cogeca, 2011) declared that “Individual studies on the different objectives of the strategy are not sufficient” and that “A comprehensive impact assessment would have been the appropriate way to engage in a concrete discussion on the substance of the Farm to Fork strategy.” (Copa-Cogeca, 2011).

However, modelling the impacts of F2F and BD strategies is complicated. There are many unknowns and the objectives interact with each other, sometimes there are synergies in achieving the goals, sometimes the objectives are in opposition. Some studies are simulating all the impacts at once, some of them only one at a time and other studies are aimed only at achieving of one goal only. “The strategy's call for a *shift to healthy, sustainable diets* needs a comprehensive approach, involving all relevant stakeholders, such as processors, retailers and consumers to identify the most suitable leverage points and support changes in consumption patterns and habits.” (Moschitz, 2021)

Usually only certain scenarios are pre-defined and simulated in the studies. The aim of the paper is to compare the studies that are assessing the impacts and estimate possible influence of the F2F and BD strategies on the situation of EU's farms.

2. Problem Formulation and Methodology

In this article we focus on the comparison of economic consequences for farms – the yields, income of farmers, trade etc. However, “The European Commission acknowledges that the transition towards a climate-neutral economy will have economic and social justice impacts.” (Fleming and Mauger, 2021). Those were assessed by various studies that came to different results. Therefore, we compare them and analyse the impacts on the EU farms and farmers. There are large quantitative studies that are using model CAPRI (elaborated by Joint Research Centre (JRC) and Keil University), one using AGMEMOD model (from Wageningen University and Research) and one qualitative - behavioural study (JRC).

2.1 Methodology

First large impact study was elaborated by Joint Research Centre (Barreiro-Hurle et al., 2021) and uses CAPRI (Common Agricultural Policy Regionalised Impact) model which is a

regionalised partial equilibrium model focused on the agricultural sector including environmental and land-use effects induced by farm production. The analysis includes 4 goals: a reduction of the risk and use of pesticides, a reduction of nutrient surplus, an increase of area under organic farming, and an increase of area for high-diversity landscape features. The impacts are modelled under three scenarios: 1) status quo – no change in the CAP compared to 2014–2020; 2) changed CAP post 2020 targeting these objectives without Next Generation EU funding; 3) changed CAP with Next Generation EU funding.

Second study elaborated by University of Kiel (Henning and Witzke, 2011) also uses CAPRI model. “To include international trade flows and corresponding agricultural price effects, the CAPRI sector model is linked to an international trading model.” (Henning and Witzke, 2011). There were following conditions assumed: 1) decrease of the domestic demand for meat products by 20% at constant prices of the baseline scenario in the EU, 2) complete ban of soy imports into the EU, 3) decrease of China's economic growth, 4) integration of agriculture into the European CO₂-permit trading system at an exogenous permit price of 100 Euro/t CO₂ eq. and 5) assuming constant export and import prices for the EU.

A study from Wageningen university and Research (Bremmer et al., 2021) assesses the potential impacts of five targets of the F2F and BD strategies in 4 scenarios: 1) 50% reduction in the overall use and risks of pesticides and a 50% reduction in the use of more hazardous pesticides, 2) 50% reduction in nutrient losses and a 20% reduction in the use of fertilizers, 3) at least 25% of the agricultural land under organic production, 4) scenarios 1 and 2 combined with at least 10% of the agricultural land under high-diversity landscape features. The study concerns several annual crops (wheat, rapeseed, maize, sugar beet and tomatoes) and some perennial crops (apples, olives, grapes, citrus and hops). First, there were 25 case studies done at the farm level in selected EU's states. Second, the AGMEMOD model, a partial equilibrium model comprising key agricultural sectors, with a representation of EU policy and Member State level detail and some targeted equilibrium displacement models have been applied to calculate the market impacts (e.g. new balance in produced volume, adjusted price level, and the net effects on trade).

JRC behavioural study considers farmer reactions on new policy “because the achievement of higher environmental and climate performance from agriculture will partly depend on farmers' behaviour, in particular their enrolment in voluntary schemes” (Dessart et al., 2021). Six hundred farmers from Germany, Spain and Poland took part in a behavioural experiment. Participants were given a certain number of tokens that represented their net farm income, which included both their profit from agricultural products and their direct payments. All participants had to make a mandatory contribution of a certain number of tokens (5, 40, 90) to the environment, with no compensations. Participants' task was to decide how many of the remaining tokens they would voluntarily give to the environment. (Dessart et al., 2021).

3. Problem Solution

JRC study conclude that “reaching these four targets under the current CAP implementation achieves significant environmental benefits in the form of reductions in greenhouse gases and ammonia emissions as well as in gross nutrient surplus, though the extent in terms of positive environmental and economic benefits is not fully quantified.” (Barreiro-Hurle et al., 2021). On the other hand, the impacts on production, trade and prices are negative.

Despite that the acreage of the land would increase (by 3%) in baseline scenario, it will bring the decrease of production in the cereals sector by 15%, in meat production by 14 %, and in vegetables and permanent crops sector by 14 % (despite that the acreage of vegetables and

permanent crops will increase slightly, by 0,1%). The decrease of production of cereals is caused (beside other factors) by decrease of yields by 11%.

This will result in decreased supply of cereals (by 15%), meat (by 14 %), vegetables and permanent crops (by 12%) and hence increased import and decreased export. Also, the income of various sectors will decrease (cereals by 26%, vegetable and permanent crops by 5%). There is an increase of meat prices expected. In scenario 2 and 3 it could be by 10%. This can be explained by the combination of shrinking animal herds and relatively inelastic food demand. (Barreiro-Hurle et al., 2021).

The environmental effects of the scenarios are mainly driven by the reduction of nitrogen loads. In scenario 1, there could be the decrease of non-CO₂ and CO₂ emissions by 20.3% expected, while in scenario 2 and 3 it is higher – by 28.4% and 28.9%, respectively. However, in this case, more than half of emissions is ‘leaked’ to the rest of the world (i.e. emissions increase in non-EU regions) that is not desirable, as the strategies shall bring the positive effects world-wide. Despite that, the authors conclude that (taking into account the limitation of the analysis and assumptions made and that only four targets have been modelled) “modelling results indicate that reaching these four targets under the current CAP implementation achieves significant environmental benefits in the form of reductions in greenhouse gases and ammonia emissions as well as in gross nutrient surplus, though the extent in terms of positive environmental and economic benefits is not fully quantified.” (Barreiro-Hurle et al., 2021).

Also study by Henning and Witzke (2011) acknowledge that “the F2F measures significantly increase the ecosystem services of all EU member states”, while the strongest effects would be generated by the reduction of the N-balance.

It also predicts the decrease of production (by 21,4% of cereals, 20% of beef meat, 20 % in oilseed sector and 6,3% in dairy production). This reduced supply will push for prices of cereals (they will increase by 12,5%), meat (price of beef will increase by 58%, of pork by 48%), oilseed (increase by 18%), milk (by 36%) and vegetables (by 15%). As a consequence, the EU consumers could lose their welfare in height 70 billion euros (157 euros / inhabitant).

On the other hand, the income of farmers would increase by 35 billion euros. Increasing agricultural income through the implementation of the F2F Strategy can be explained by very inelastic demand for agricultural products and low reactivity of agricultural trading. A decline in production leads to a disproportionate price increase resulting in an overall increase in the added value of European agriculture, despite the decline in production. (Henning and Witzke, 2011)

A study elaborated by Bremmer et al. (2021) from Wageningen University and Research identified decrease in wheat production by 7% and increase in price by 2%, while in maize, sugar beet and hops sectors, the production and price impacts were limited in scenario 1 – reduction of pesticide use. In other scenarios the prices increase more (below 20% in scenario 2 – reduction of fertiliser use, below 13% in scenario 3 – expansion of organic farming area) – in scenario 4 (combined targets of scenario 1 and 2 + 10% set aside) the main impact is on olives, wine and hops, while the increase of wheat price is mild (3%). Production declines in all scenarios (scenario 2 – by below 15%, in scenario 3 by below 10%. The main impact is in scenario, when the production declines of 0-30% per crop.

Negative impact on the value of production was the highest also in the 4th scenario – at least 140 billion euros. In scenario 2, it is almost 92 billion and in scenario 1 64 billion euros. The lowest negative impact will have expansion of organic area (scenario 3) – only 56 billion euros.

The study of Bremmer et al. (2021) focuses on crop production and is not assessing the effects on the animal production sector as well as consumer behaviour (changing diets, reduction of food waste). Also, the achievement of the environmental goals is not analysed.

Modelling the economic and welfare impacts is one side of the problem. The scope of the adoption of F2F and BD strategies also depends on the willingness of the farmers to implement needed measures. Certain measures are taken voluntarily as their benefits are reflected in economic situation of the farm.

When the mandatory contribution to the environment increased from 5 tokens to 40 tokens, participants reduced their voluntary contribution by approximately the same amount on average, leaving the total contribution in total unchanged. "A small enhancement in conditionality may result in farmers enrolling less in voluntary schemes, leaving the total adoption of environmentally friendly practices unchanged." (Dessart et al., 2021) However, the authors presume that this effect could be only short term. Farmers may adopt environmentally friendly practices in the long-term.

When the difference was larger (when mandatory contribution to the environment was 90 tokens), farmers again reduced their voluntary contribution, but the total contribution still increased substantially. "A major enhancement in conditionality may increase the total adoption of environmentally friendly practices." (Dessart et al., 2021)

On the other hand, when farm income decreased from 300 to 265 tokens (because of a decrease in direct payments), voluntary contribution was reduced, but less than proportionally. Implication is that "budget shift from BISS to eco-schemes may reduce total adoption of environmentally friendly practices if farmers are not fully compensated." (Dessart et al., 2021)

In all scenarios the decrease of production is expected. However, it strongly depends on the type of production. Impact on cereals will be negative as same as on oil and meat sectors, on the other hand, maize, sugar beet and hops could be relatively unaffected (according to Bremmer et al., 2021). While yield impacts (at market level) for arable crops are comparable to those of JRC study, Wageningen study shows that yield loss impacts for perennial crops tend to be higher than those of the JRC study. (Bremmer et al., 2021). Also, research of Kim, Drunen and Boogers (2020) shows that yields will be significantly lower (10-40%) for seven staple crops (in 7 EU's member states) if a large portfolio of substances were to be removed.

The decline in agricultural production in the EU was also calculated by Beckman et al. (2020) from United States Department of Agriculture (USDA). They show that its decrease would range from 7 percent (global adoption) to 12 percent (EU-only).

On the other hand, prices of agricultural products will increase. This shall be reflected in the higher income of the agricultural producers. Nevertheless, sometimes the increase of prices does not have to be reflected in the income of the farmers, as it is compensated by increased production costs and decreased yields. Besides, as find out by Beckman et al. (2020) "the decline in agricultural production would tighten the EU food supply, resulting in price increases that impact consumer budgets."

The supply of the majority of products will decrease that will cause higher import and lower export and, in some cases, leads even to negative net trade balance. Some studies also calculated decrease of the social welfare. The height of decline in social welfare will vary according to the scenario - which measures are implemented and to what extent. Besides, the spill-over of the effects to other parts of the world is a problem. As stated by European Crop Protection Association (ECPA) (2020), "the mitigation of climate and biodiversity crises need

to be seen in a global perspective, where the EU does not export the problems, while at the same time putting food security at risk.”

There are still many unknowns. Foltynowicz (2020) demonstrated unexpected impact of a coronavirus pandemic on the implementation of Green Deal strategy. There is a place to improve the capacity of agro-economic models to capture the targets more precisely and more complexly. In their meta-study they compared two studies – one performed by USDA (U. S. Department of Agriculture) and second by INRA (Institut national de la recherche agronomique). Hence, the results of the models have to be taken with caution as they cannot include all important factors and variables.

From the behavioural study we can conclude that success of environmental measures will depend also on the willing of farmers to implement them. If the requirements are too strict, the farmers would be less willing to invest into environmental friendly practices. Also, Bremmer et al. (2021) warns that “the objectives to reduce pesticide use and nutrient emissions could be perceived as a disincentive to shift to organic production.”

4. Conclusion

The European Union has stated very ambitious and demanding goals to be achieved by 2030 in their Farm to Fork and Biodiversity strategies: reduction of the chemical pesticides by 50% and more hazardous pesticides by 50%; reduction of nutrient losses by at least 50% and of fertilizers by at least 20%; organic farming area to achieve 25% of total farmland; reduction of antimicrobials sales and use by 50%; at least 10% of agricultural land contain landscape features with high diversity. The aim of the paper was to compare the studies that are accessing the impacts of implementation of these goals with focus on the situation of European Union’s farms.

Results of all examined researches show a decline in EU production and variations in prices and income for selected agricultural products. However, the degree of impact is different. Sometimes even increased prices (due to lower supply of the products on the domestic market) do not compensate increased costs and the farmer’s income from the commodity decreases. In many products, the EU could become net importer instead of net exporter, or its position of net exporter is weakened. There will be also certain impact on the social welfare (increased prices will lower it) and food security (potential endangering). However, the environmental goals shall be met to some extent.

Presumed negative impacts of the Farm to Fork and Biodiversity Strategies “can be lowered by approximately one-fifth when a CAP implementation in line with the 2018 Legal Proposal and targeted to accelerate the transition to a more sustainable agriculture is assumed.” (Barreiro-Hurle et al., 2021). CAP is a powerful tool that can increase the positive performance of the agricultural sector in environmental terms and help to mitigate negative economic consequences for the farmers. Nevertheless, the subsidies and their efficiency must be also evaluated as farmers’ motivation can be negatively influenced by them (see e.g. research of Pechrová, 2014). We can conclude that reasonable support that will cover the increased costs for farmers to meet the requirements of Farm to fork and Biodiversity Strategies is necessary.

The challenge for future research is to elaborate own model (based on production functions and Economic Accounts for Agriculture) and to conduct the simulations of the impacts of the European Union’s strategies on the agriculture of the Czech Republic. The impact shall be assessed on the level of particular commodities and also on the level of the whole agricultural sector.

Acknowledgements

This paper was created within the project of the Ministry of Agriculture of the Czech Republic, institutional support MZE-RO0918, Internal Research Project no. 1110/2022. The paper was also supported by long-term institutional support of research activities by the Faculty of Informatics and Statistics of Prague University of Economics and Business.

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Energy Balance of the European Union Members in the Context of the Approval of the European Green Deal

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Abstract

At the end of 2019, the European Union approved the document "The European Green Deal". It contains a number of very important decisions with an implementation period up to 2050. The agreement deepens and concretizes the strategy of sustainable development and especially its environmental pillar. However, it will have major implications, especially in the economic field, where it will affect a number of important things. We have chosen energy issues for our analysis, as the key objectives of the agreement have included the supply of clean, affordable and secure energy, including accelerating the shift to sustainable and smart mobility.

The research has focused on electricity generation in the world, Europe, the European Union and their Member States since 1985. The study focuses not only on total electricity generation and consumption, but also on electricity generation by type of power plant. The method and possibilities of electricity generation in the Member States of the European Union are being criticized precisely with the adoption of The European Green Deal.

Keywords: *electricity generation, European Union, The European Green Deal, type of power plant*

JEL Classification: *O13, O25, Q01, Q42*

1. Introduction

In response to the risks of climate change and in support of the concept of sustainable development, the European Commission presented at the end of 2019 a Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions its citizens (The European Green Deal), abbreviated name The Green Agreement for Europe (European Commission, 2019). This new strategy has two objectives:

- a) Transform the EU into a fair and prosperous society with a modern and competitive and resource-efficient economy that will produce no greenhouse gas emissions by 2050.
- b) to protect, preserve and strengthen the EU's natural capital and to protect the health and well-being of its citizens from environmental risks and impacts.

The European Union has come up with a comprehensive strategy to ensure the transformation of the European economy and society towards sustainability future.

The Green Deal is based on three main pillars:

- a) no greenhouse gas emissions in 2050,
- b) decoupling economic growth from resource consumption,
- c) “leave no one behind” (just transition).

The most frequently mentioned is the reduction of greenhouse gas emissions, which should lead to so-called climate neutrality. Following this ambition, the European Union has adopted a sub-target of reducing greenhouse gas emissions by 55% by 2030 compared to 1990.

Among the many other goals (green building, sustainable and intelligent mobility (Kos-Łabedowicz, 2018), zero pollution, protection of ecosystems and biodiversity) to fulfil the Green Deal's strategy we will address the issue of transition to clean, affordable and secure energy in our analysis.

Legislative proposals on the transition to clean energy (Sulich, Sołoducho-Pelc, 2021) include, for example, a revision of the emissions trading scheme, raising targets for the use of renewables or regulating the deployment of charging stations for electric vehicles and hydrogen filling stations. Achieving the climate goals for 2030 and 2050 is fundamentally linked to further decarbonisation of the energy system. Experts have shown that up to $\frac{3}{4}$ greenhouse gases in the European Union come from energy production and use. Against this background, it is often emphasized that the path to renewables should be accompanied by rapid coal decommissioning and gas decarbonisation. However, there is currently a major gap between the new strategy and ensuring the availability and security of energy supply (Karpenko, Izha, Rachynskiyi, 2020) for consumers and businesses in the EU. The European Commission has a key role to play in this strategic task, including amending energy regulations and enforcing them. All EU Member States are more or less being pushed to switch to clean energy. The transition to climate neutrality is so complex and complex that it will affect virtually all citizens of the European Union. These efforts are largely based on the UN concept of sustainable development and its goals (United Nations, 2015). Four of the total number of seventeen goals have the closest to energy issues:

- seventh objective (available and clean energy),
- the eighth objective (decent work and economic growth),
- ninth objective (industry, innovation and infrastructure,
- twelfth objective (responsible production and consumption).

The economies of the most developed countries in the world have long been the largest consumers of energy resources (Stutz, Warf, 2012). Although the last decade has been marked by stagnant electricity production in developed countries, it cannot be assumed in the long run that this situation could last for a longer period of time. Add to this the fact that most of the world's economies are underdeveloped, we must expect even higher demand for energy resources at least in the next few decades.

In addition to economics, economic geography (Bagchi-Sen, Smith, 2017) today focuses mainly on the greening of industry and the policy of greening industrial change. Industrial companies focus part of their research on:

- the implications of changes in global production networks for economic development, technological innovation and environmental performance,
- capital, technology and information flows, and
- dynamics of economic globalization.

2. Fuel and Energy Balance of the World

Energy is consumed by different sectors of the economy: households (i.e. energy consumed in citizen's dwellings), transport (e.g. rail, road, domestic aviation or inland shipping), industry, services (including commercial and public services) and agriculture. In the most developed countries of the world, the share of those employed in industry in the total number of economically active inhabitants reaches 25 to 45%. In terms of employment, industrial activity ranks second in the system of three sectors (agriculture, industry and services) after the activities of the so-called non-manufacturing sector, but its impact not only on the economic development of human society (Šotkovský, 2018) can still be considered a key sector. It is not just a wide range of activities from the mining industry, through the manufacturing industry, production and distribution of electricity, gas, heat and air conditioning, water supply and activities related to wastewater, waste and remediation to the construction industry. A number of other things increase the importance of industrial activity, such as:

- use, invention, and especially the production of state-of-the-art technologies,
- securing a large number of human activities by supplying the electricity produced,
- supplying a number of key products to both industry and agricultural activities and tertiary activities.

It was the development of the so-called secondary, i.e. the second sector of the national economy, that significantly helped to raise people's living standards. The process of industrialization in its beginnings brought a large supply of job opportunities and the associated higher financial income. But also, the gradual expansion and use of electricity since the end of the 19th century. So you can talk about 140 years of history of electricity production and consumption. The first power plants were hydroelectric power plants (1882, New York, 1883, Lausanne). But thermal power plants only started supplying electricity a few years later. This started a long phase of ever-increasing demand for energy resources. The most important are oil, coal, natural gas, nuclear, water and renewables (Rutkowska, Pakulska, Popławski, 2020). In the first fifty years of electricity generation, wood was also an important energy source. The development of consumption and the composition of energy resources is documented in Table 1.

Table 8: Shares of Global Primary Energy since 1900 (%)

Primary energy consumption	Year									
	1900	1950	1960	1970	1980	1990	2000	2010	2015	2020
Oil	3	31	38	49	49	40	40	34	33	31
Coal	77	46	40	31	28	27	22	30	29	27
Natural gas	1	10	14	19	20	21	25	22	24	25
Nuclear energy	0	-	0	0	1	5	6	5	4	4
Hydroelectricity	2	2	2	2	2	6	6	6	7	7
Wood (+ others)	17	11	6	-	-	-	-	-	-	-
Renewables	-	-	-	-	-	1	1	3	3	6
Total	100	100	100	100	100	100	100	100	100	100
Total (billions toe)	0,75	2,54	4,20	4,98	6,64	8,13	9,31	12,12	13,10	13,89

Source: own elaboration based on BP Statistical Review of World Energy data

The calculation of the fuel energy balance (i.e. the share of primary energy sources in total consumption or energy production) is based on the conversion of units of measure of individual energy raw materials and other sources per unit ton of oil equivalent (toe). The fuel and energy balance thus expresses the basic links in the structure of obtaining primary energy and their

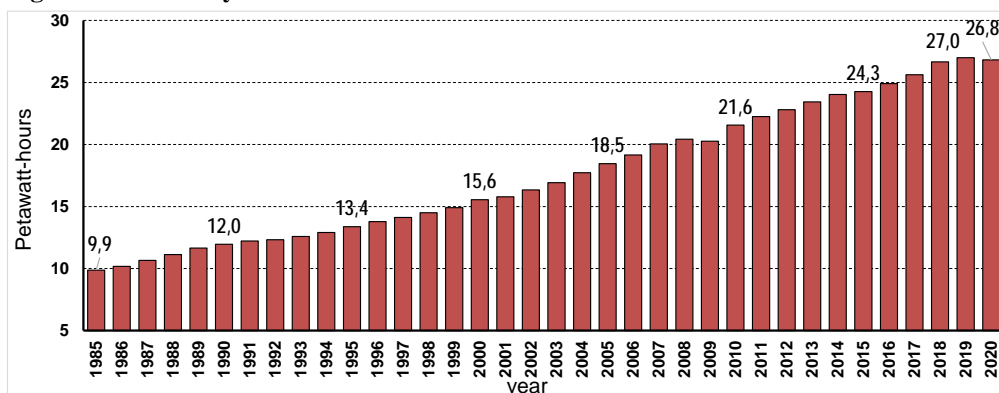
strategic changes over time. The long-term development of the use of energy raw materials shows:

- a significant decrease in coal consumption until 1970 and its subsequent stagnation,
- elimination of the use of wood as an energy source,
- a significant increase in the share of oil by 1980,
- slower but long-term growth in the share of natural gas, which is today the third most important energy raw material,
- stagnation of the share of hydropower and nuclear energy over the last 30 years,
- slow increase in the share of renewable resources,
- creation of two groups according to the energy demand for resources, when the strategic group consists of oil, coal and natural gas and the second "alternative" group consists of nuclear and hydropower together with renewable resources.

Oil has become the main energy source since the second half of the 1960s. However, coal use remains relatively high, although its share of global energy production is declining. A more significant increase in the weight of natural gas and nuclear energy stopped at the end of the 20th century. This issue is largely influenced by efforts to promote renewable energy sources, especially solar and wind energy. From the point of view of the distribution of fuel energy sources and the areas of their conversion into electricity and its consumption, a more significant disproportion can be seen today, especially for oil and natural gas. It is thus quite clear that the geopolitical importance of key fuel and energy resources is not only significant, but also strong in the long run, with the fact that it is not possible to consider a sharp reduction in their share in the coming years. Today, the three basic sources (oil, coal, natural gas) account for more than 80% of world energy production, which has actually lasted for more than a hundred years. Today, it is almost 20% less than in the early 1970s, when these energy raw materials completely controlled all energy production. Nevertheless, little has changed their importance in energy policy over the last 50 years. The share of the second group of energy sources (nuclear and hydropower together with renewable sources) accounts for less than 20% of world energy production.

3. World Electricity Production

In the long run, the main part of the interest in the energy field belongs to the production of electricity. This is a key sector not only for economic development. Today, when the war between Ukraine and Russia is torn by Europe, it is clear that this is also a crucial moment for maintaining the security framework of each state. Electricity production has been growing steadily since the beginning of its production at the end of the 19th century. In 1970, the value of electricity production was less than 5 PWh. Fifteen years later, it was almost 10 PWh, and today this value is around 27 PWh (Figure 1). Its production has multiplied fivefold in the last fifty years. Moreover, the dynamics of its growth since at least 1985 is much more intense than the growth of the world's population. For comparison, its production has increased by 170% over the last 35 years. At the same time, the world's population increased by less than 60% over the same period. We are thus recording a threefold growth rate in electricity generation compared to world population growth. This, too, clearly documents the deepening process of the world's industrialization. It is, of course, logical that the countries that have begun to develop the second sector since the 1980s are contributing to this growth. They are often assigned to the group of newly industrialized countries (China, India, South Korea, Indonesia, Thailand, Malaysia, Philippines, Mexico, Brazil, Argentina, Saudi Arabia, United Arab Emirates, etc.).

Figure 6: Electricity Generation of the World from 1985

Source: own elaboration based on BP Statistical Review of World Energy data

Inequality is much more significant in terms of the distribution of world electricity production or consumption. Asia consumes 54% of the world's annual electricity production, North America 20% and Europe 18% (Table 2). Africa remains by far the least industrialized, accounting for only three percent of annual world production. In the last forty years, Asia is by far the most industrialized continent. After all, only its electricity production increased from 0.6 PWh in 1970 to 14.4 PWh in 2020 (an increase of more than 2,000%!). For comparison, production in Europe increased from 2.1 PWh to almost 5 PWh in 2020, when electricity production in Europe has stagnated in the same ten years as in North America (around 5.4 PWh). This trend was also reflected in the decline of Europe in the ranking of electricity generation on the continents in third place behind Asia and North America, when in 1990 Europe dominated.

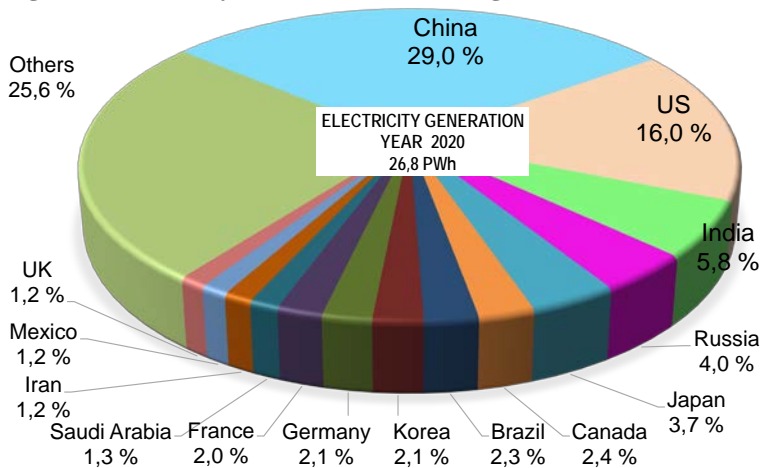
Table 9: World Electricity Generation by Continent in 1970 to 2020

continent	PWh	%	PWh	%	PWh	%	PWh	%	PWh	%	PWh	%
	1970		1985		1990		2000		2010		2020	
Africa	0,087	1,8	0,259	2,6	0,319	2,7	0,440	2,8	0,672	3,1	0,844	3,1
Asia	0,603	12,3	1,946	19,7	2,772	23,2	4,745	30,5	9,222	42,7	14,404	53,7
Europe	2,140	43,6	3,902	39,5	4,337	36,3	4,440	28,6	4,968	23,0	4,739	17,7
South America	0,108	2,2	0,361	3,7	0,451	3,8	0,715	4,6	1,024	4,7	1,148	4,3
Oceania	0,072	1,5	0,152	1,5	0,188	1,6	0,256	1,6	0,296	1,4	0,309	1,2
North America	1,898	38,7	3,259	33,0	3,888	32,5	4,953	31,9	5,393	25,0	5,379	20,1
Total world	4,908	100,0	9,880	100,0	11,955	100,0	15,548	100,0	21,574	100,0	26,823	100,0

Source: own elaboration based on BP Statistical Review of World Energy data

The share of the ten countries with the largest electricity production in the world in total electricity production reached almost 70%, the share of the twenty countries with the largest electricity production even exceeds 80%. There are a total of six European countries in this group. The share of Europe, including Russia, in electricity production is 18%, their 15 countries with the highest production reach a share of over 15%. European electricity generation affects 740 million European citizens, including all Russian residents.

Figure 7: Electricity Generation of the Largest Producers in 2020

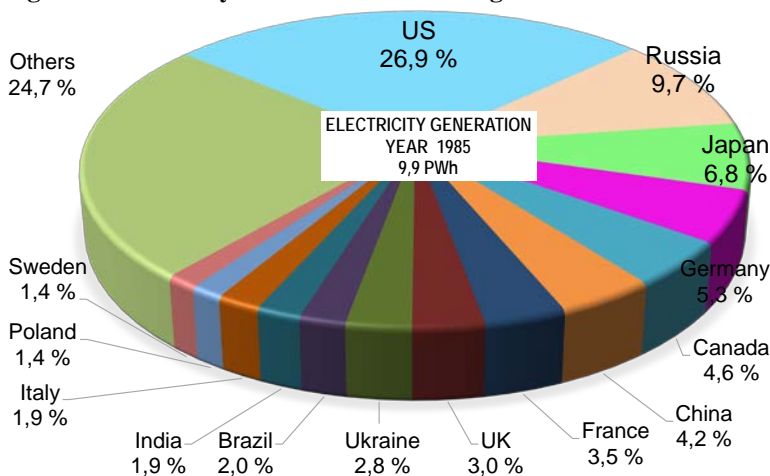


Source: own elaboration based on BP Statistical Review of World Energy data

The share of the European population in the world population is slightly below 9%. The share of the world's top ten electricity producers (China, USA, India, Russia, Japan, Canada, Germany, South Korea, Brazil and France) reaches 69% of world production (Figure 2). Half of the world's population lives in these ten countries.

Today, China is the largest producer of electricity with a share of 29%. At the same time, in 1985, China was in sixth place with a share of 4.2% (Figure 3) and the United States had a dominant position with a weight of almost 27%. Over the past 35 years, not only has global electricity production increased almost threefold, but there have also been more significant changes in the ranking of the largest electricity producers.

Figure 8: Electricity Generation of the Largest Producers in 1985



Source: own elaboration based on BP Statistical Review of World Energy data

It is clear that the industrialization of the world is continuing. The demand for electricity is growing. In addition, the weight of both trends is amplified by the efforts to promote the goals

of sustainable development at the global level and the efforts to fulfil the obligations arising from the Green Agreement of the states of the European Union. These moments point to a further increase in electricity demand.

Table 10: Electricity Generation by Continent and Type of Power Plant since 1980

Continent	Electricity generation by fuel (%)													
	1980				2005				2020					
	thermal	water	nuclear	others	thermal	water	nuclear	others	thermal	water	nuclear	renewable	others	
Africa	68,2	31,8	0,0	0,0	80,7	16,6	2,3	0,4	75,6	16,9	1,8	5,0	0,7	
Asia	72,7	19,8	7,3	0,3	77,8	13,0	8,4	0,8	71,6	13,5	4,6	9,3	0,9	
Europe	72,3	18,4	8,8	0,4	54,4	15,4	26,6	3,6	40,7	17,0	22,2	18,4	1,7	
South Amerika	25,3	72,8	0,8	1,1	21,8	73,5	2,0	2,7	30,1	53,3	2,2	14,4	0,0	
Oceania	69,8	28,5	0,0	1,6	83,4	14,2	0,0	2,4	71,2	13,3	0,0	15,4	0,1	
North Amerika	69,2	20,0	10,4	0,3	66,4	13,6	17,6	2,5	56,1	13,6	17,6	12,4	0,3	
Total World	69,6	21,5	8,5	0,4	66,0	16,7	15,1	2,1	61,3	16,0	10,1	11,7	0,9	

Source: own elaboration based on BP Statistical Review of World Energy data

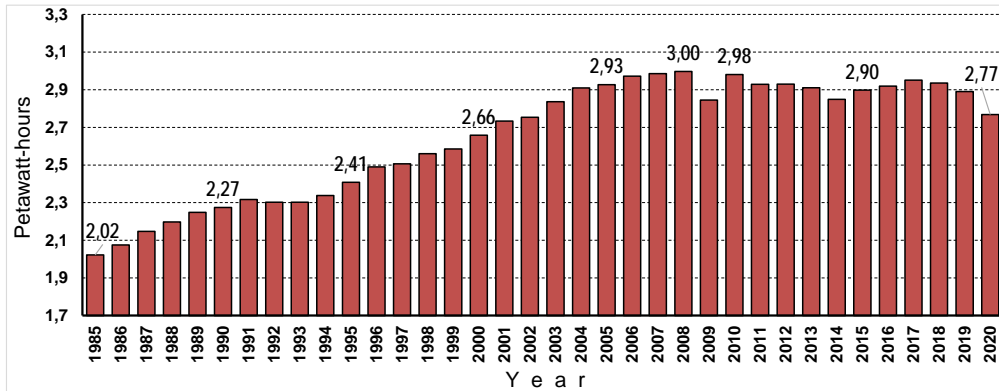
From the point of view of technological electricity production, it is quite obvious that thermal power plants have the largest production (Table 3). In 2020, they accounted for more than 61 percent of the world's electricity generation. Second place went to hydroelectric power plants with sixteen percent. Renewable resources accounted for less than 12 percent. In addition, the most populous continents, which are Asia and Africa, provide their electricity production mainly from thermal power plants. Their share exceeds 70%, and so does Oceania. For the most economically developed continents, Europe and North America, thermal power plants also have the largest share in electricity generation, and nuclear power plants are the second most important type.

4. Energy Balance of European Union Countries

Europe has a completely different structure of primary energy production compared to global production. Fossil fuels (oil, coal, natural gas) account for 83% of world primary energy production. At the same time, fossil fuels account for only 26% of the European Union. On the contrary, the EU's share of renewables in primary energy is significant, reaching 41%. Its share of nuclear energy is also high at almost 31%. At the global level, nuclear energy accounts for only 4 percent. We can say that the share of renewables in primary energy consumption has increased significantly over the last few years (Yeletsy, 2020).

The European Union's share of the current global volume of electricity production is just over 10%. Even 35 years ago, its share was doubled. Some around 2.8 PWh were produced in the European Union in 2020 (Figure 4). The EU had the largest production in 2008, when its production volume approached 3.0 PWh. Over the last 12 years, the volume of electricity produced in the European Union has fallen by almost 8% and in Europe as a whole by 7%. In the same period, world electricity production increased by almost one third, i.e. from 20.4 PWh to 26.8 PWh. Asia accounted for the largest share of global electricity generation with almost 77 percent and South America with 20 percent. In the last 12 years, there has been a decline in electricity production, essentially only in Europe, when we can talk about stagnation in North America. And within Europe, the decline mainly affected the states of the European Union.

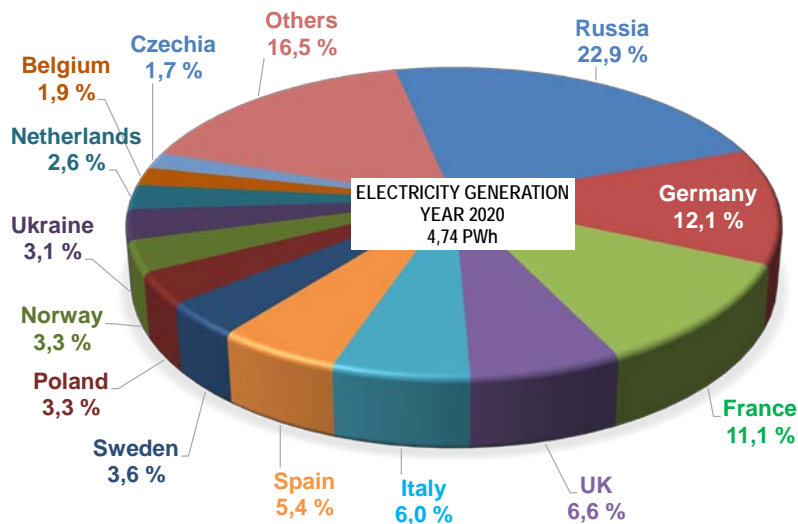
Figure 9: Electricity Generation in the European Union since 1985



Source: own elaboration based on BP Statistical Review of World Energy data

The European Union's largest producers of electricity are the seven EU countries: Germany, France, Italy, Spain, Sweden, Poland and the Netherlands. The total electricity production of this seven exceeds the value of 2.0 PWh, which is 71% of the electricity production of the entire European Union. The Czech Republic ranks ninth after Belgium, which is the eighth largest electricity producer in the European Union (Figure 5). The European Union's nine largest electricity producers account for 48 percent of total European production.

Figure 10: Europe's Largest Electricity Producers in 2020



Source: own elaboration based on BP Statistical Review of World Energy data

5. Conclusion

The thirty largest electricity producers account for 87% of world production. Inequalities in electricity generation are greater than inequalities caused by the size of the state or even the population. And these inequalities are deepening in the long run, which is certainly against the goal of 10 SDGs aimed at less inequalities. The 30 largest electricity producers account for

87% of world production. Inequalities in electricity generation are greater than inequalities caused by the size of the state or even the population. And these inequalities are deepening in the long run, which is certainly against the goal of 10 SDGs aimed at less inequalities.

There has been a slight decrease in electricity production in the European Union over the last twelve years. But this decline cannot be seen as a trend in terms of meeting Objective 12 of the UN Sustainable Development Goals, which focuses on responsible production and consumption, and Goal 7, which addresses affordable and clean energy issues. This stagnation seems much more likely:

- rising energy prices, especially electricity due to growing global demand against the background of the expanding industrialization process of less developed regions,
- the growing geopolitical importance of key energy raw materials in a world that is still plagued by a number of serious territorial conflicts, with an impact on the price area,
- lower technological efficiency of renewables than was often generally assumed,
- the deteriorating global economic situation, which reduces the initially optimistic state policy on the promotion of renewable resources.
- the pandemic of COVID-19 which also led to huge economic loss (e.g. global GDP is estimated to have fallen by over 3.5% in the year 2020) - the largest peacetime recession since the Great Depression 2008.

Given that most electricity is currently generated on a global level in fossil fuel-fired thermal power plants, the very rapid transition to electromobility (Túry, 2020) in transport is a very borderline decision. The future development of the energy balance is likely to be different, especially regionally. In the group of economically very developed countries, the options of the energy mix will be further preferred in accordance with the possibility of using new technologies. Political decision-making will play an important role in exploiting the potential of new technologies. Whether with the help of objective moments (environmental aspect, safety approach, affordability, etc.) or subjective moments (value orientation, personal influences, perception of sustainable development). The second group will consist of underdeveloped countries, where the necessary phase of industrial development has often not taken place. It is estimated that around 60% of the world's population lives in this part of the world. Because their low not only economic development does not allow the use of state-of-the-art technologies in the short term to obtain the necessary energy resources, these countries will exert strong pressure to produce electricity from the most efficient and economically available technologies. At the moment, these are mainly thermal power plants. Over the last 40 years, their share of world production has decreased by only 8% from 69.9% to 61.3%. China has clearly become the largest producer of electricity in this period, which today accounts for almost 30% of the world's electricity. And this huge amount is produced mainly in thermal power plants (67%). The other ten leading electricity producers in the world even have a share of over 80% of thermal power plants.

Above all, the current war in Ukraine means that one of the largest electricity producers in the world (29th place, 149 PWh in 2020) will fall significantly in electricity production. Today, it ranks 50th in the world in terms of electricity production per capita. At the same time, the Czechia ranks 20th in the world with more than twice the value of electricity production per capita compared to Ukraine in 2020. Monitoring energy demand, especially electricity, in the context of technological, environmental and economic opportunities, remains important. theme of economic development.

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The Attitudes to Vaccination Against COVID-19 in the European Union: Drivers and Obstacles

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Abstract

The COVID-19 emerging in the beginning of second decade of 21st century continues to gravely impact health, economic and societal life worldwide. The uncontrolled spread of the pandemic, followed by the efforts of EU27 Governments and the European Commission, to promote or even impose the vaccination, however, seems to become divisive, due to increasingly limited full-value access of non-vaccinated citizens to work, healthcare, economic and societal life across the EU. The main aim of the paper is twofold: (1) to outline the level of heterogeneity of attitudes of citizens of EU Member States to vaccination against COVID-19; (2) to identify the main motives why the citizens in respective EU Member States are either in favour or against this specific vaccination. The survey distinguishes between attitudes of (national/EU) citizens in the EU14, EU13 and V4 countries, applying an original categorization. We use secondary sources from the European Commission (Eurobarometer) as well as complementary information from the national and EU level.

Keywords: COVID-19; European Union; EU Member States; Vaccination

JEL Classification: E02, F02, F53

1. Introduction

Since 2019 are the EU27 countries and the whole world facing a global spread of COVID-19 virus, on 11 March 2021 declared by the WHO a global pandemic (Nebekay, 2020). This has had and continues to have an extremely grave and damaging impacts on health and economy of respective countries inside as well as outside the EU. At the same time, politicians as well as a part of scientist are coming with various initiatives that would ensure vaccination of maximum (based on persuasion or on various voluntary incentives, for instance financial remuneration) or even all citizens (binding vaccination) of their countries (for example Austrian case). Especially the second approach is challenged with various initiatives refusing or even opposing vaccination against COVID-19. The sudden spread of the pandemic, followed by the reaction by governments both on supranational and national level, to enforce or even impose the vaccination as “the only solution”, however, seems to become societally sensitive, making more or less visible barrier between the “responsible citizens” and the rest (non-vaccinated) of citizens with increasingly limited full-value access of non-vaccinated citizens to work, healthcare, economic and societal life across the EU. The main aim of the paper is twofold: (1) to outline the level of heterogeneity of attitudes of citizens of EU Member States to vaccination against COVID-19; (2) to identify the main motives why the citizens in respective EU Member States are either in favour or against this specific vaccination. The

survey distinguishes between attitudes of (national/EU) citizens in the EU14, EU13 and V4 countries, applying an original categorization. We use secondary sources from the European Commission (Eurobarometer) as well as other relevant information from the national and EU level.

2. Problem Formulation and Methodology

There are authors pointing to actual problems of the European Union from various points of view (Horeháj and Šuplata, 2018), some of them focusing on various aspects of COVID-19 pandemics: some of them perceive pandemic as a security risk (Pawera and Veselý, 2021; Pawera, 2021), those who underline specific economic impacts of the pandemic (Troster and Kublblock, 2020), or focus on the impact on the family or school issues (Bonal and González, 2020; González and Bonal, 2021). There has already been conducted some research that focuses on attitudes against COVID-19 vaccination (Motoki, Saito and Takano, 2021), or even focused in particular on attitudes of the citizens of European Union on this specific issue (Šuplata and Lacová, 2021). As found by this research: the average number of respondents from EU13 responding they would never get vaccinated against COVID-19 is double in comparison to average of EU14 countries. However, there still seems to be a gap in taking a closer look on prevailing motives why the citizens in the EU27 are in favour or against vaccination against COVID-19. This paper aims to extend the survey by Šuplata and Lacová (2021) titled: *(Compulsory) vaccination against Covid-19 in the European Union as a way to „freedom“, peace and trust? Attitudes of citizens of EU27 member states*, examining 1) general attitudes of EU27 Member States towards vaccination; 2) attitudes of EU27 citizens towards management of vaccination strategy from the side of their national government; 3) attitudes of EU27 towards management of vaccination strategy from the side of EU institutions; 4) attitudes of EU citizens towards compulsory vaccination against COVID-19. The aim of this paper is to extend the attitudes of EU27 Member States by taking a closer look on the main motives why the citizens in the respective EU Member States are either in favour (drivers) or against (obstacles) vaccination against COVID-19. The paper is organised as follows: In section 3 the research focuses on 14 questions. Seven of them (sub-section 3.1) are focused on examining main motives in favour of vaccination against COVID-19 (drivers), whereas the next seven questions (sub-section 3.2) examine main motives against vaccination against COVID-19 (obstacles). In the next step, in 14 separate tables, we chronologically ordered the EU27 Member States from those with the highest number of responses of their citizens stating that it is either « very important » or « important » (in the table appears as “number 1 + number 2”, in the same order, followed by the aggregate sum of both numbers) answer to the lowest number of responses of the citizens of respective EU27 Member States to the same questions. The tables 2-15 are vertically divided into two part. The first part (marked by the first shadow of grey colour) shows the answers in the EU14 Member States. The second part of the table (black and white) reveals the answers in the EU13 Member States. In the second part of the table we also separately (marked by the third shadow of grey colour) highlighted four *Visegrád* countries (V4) – Czech Republic, Hungary, Poland and Slovakia. The table at its very end includes the average of answers in the EU27 (marked by black colour and white letters). Below the tables average answers separately for EU14, EU13 and V4 countries are calculated. In the final section of the paper (Conclusion) we chronologically order the questions according to the average EU27 results – from the highest to the lowest, followed by the order of motives responding in favour or against vaccination against COVID-19 in EU14, EU13 and V4 (in table 1 in Appendix).

Table 1: Three Groups of EU27 Member States: EU14 (EU Accession Before 2004); EU13 (EU Accession After 2004) and V4 Countries

1. GROUP OF EU COUNTRIES	2. GROUP OF EU COUNTRIES	3. GROUP OF EU COUNTRIES
<i>Name: „EU14“</i>	<i>Name: „EU13“</i>	<i>Name: „V4“</i>
Countries of Western Europe that became EU Member States before 2004 (former EU15 group, without the UK, leaving the EU after Brexit)	Countries of Central and Eastern Europe who became EU Member States in three consecutive enlargements after 1 May 2004	Countries of <i>Visegrád</i> (V4) that at the same time belong to 2nd group of countries (EU13)
Belgium (BE); Denmark (DK); Germany (DE); Ireland (IE); Greece (EL); Spain (ES); France (FR); Italy (IT); The Netherlands (NL); Austria (AT); Portugal (PT) Finland (FI) a Sweden (SE).	Bulgaria (BG); Czech Republic (CZ); Estonia (EE); Croatia (HR); Cyprus (CY); Lithuania (LV); Latvia (LT); Hungary (HU); Malta (MT); Poland (PL); Romania (RO); Slovenia (SI); Slovakia (SK).	Czech Republic (CZ), Poland (PL), Hungary (HU), Slovakia (SK).

Source: Šuplata and Lacová (2021) and own elaboration (2021).

The research is based on secondary data analysis. We divided the research into several partial parts with intention to select from the quantity of data and information to select the key data that would allow us to clarify the researched issue. By an application of synthesis, we examined the researched issue not only in respective EU 27 Member States, but also in three separate groups of states: EU14; EU13 and *Visegrád* 4 (V4) countries. We used the method of induction for formulation general conclusions. The method of deduction was used at formulation of partial summary of researched topic. We used scientific and other available relevant literature, secondary sources obtained from the European Commission between 26 – 26 May 2021 (Flash Eurobarometer, 494, 2021). These were abstracted, processed, analysed, summarised, calculated and interpreted. Like in the above-mentioned research (Šuplata and Lacová, 2021) the selected research question and data concerning the researched issue were, except hierarchical ordering, divided into three separate groups of Member States, belonging into the EU (see table 1).

3. Problem Solution

In the first part of this section, we look at responses to seven motives in favour of vaccination against COVID-19. In the second part of this section we will take a look at seven motives against vaccination against COVID-19. In the next stage we will order the questions according to the percentage of positive answers (“very important” or “important” each question received).

3.1 Seven Main Motives “In Favour” of COVID-19 Vaccination (Drivers)

In the next stage the survey analyses seven questions in favour of COVID-19 vaccines and in the following stage seven motives in favour of COVID-19 vaccines that were asked citizens in EU27 Member States. As shown in table 2, 95% of citizens of EU27 say it is either “very important” or “important” that: « The COVID-19 vaccines will put an end to the pandemic ». The number of respondents saying this motive was “very important” or “important” to them was highest in Portugal, Ireland, Spain, Italy, Netherlands (from EU14) and in Romania, Czech

Republic, Croatia and Malta (EU13). The lowest in Luxemburg, Finland, Austria, Greece, Denmark, Belgium (EU14) and Lithuania, Poland and Slovenia (EU13).

Table 2: Motive 1.1. - The COVID-19 vaccines will put an end to the pandemic

PT	IE	ES	IT	NL	SE	FR	DE	BE	DK	EL	AT	FI	LU
74+24	80+17	81+16	70+27	74+23	81+15	54+41	72+23	68+28	75+19	66+28	72+22	67+27	70+22
98	97	97	97	97	96	95	95	94	94	94	94	94	92
RO	CZ	HR	MT	EE	CY	BG	LT	HU	SK	SI	PL	LV	EU27
76+21	70+26	66+30	75+21	69+26	70+25	61+33	70+24	62+31	64+29	54+34	46+39	31+48	68+27
97	96	96	96	95	95	94	94	93	93	88	85	79	95

Average EU14 = 95,28; Average EU13 = 92,38; V4 countries average = 91,75

Key: respondents stating this motive as “very important” + “important” = the aggregate result

Source: own calculations and elaboration (2021), based on available data from the European Commission (2021)

As shown in the table 3, 91% of citizens of EU27 say it is either “very important” or “important” that « the COVID-19 vaccine will protect me from getting COVID-19 ». The number of respondents saying this motive was “very important” or “important” to them was highest in Italy, Portugal, Ireland, Greece, Spain, Netherlands (from EU14) and in Croatia, Romania, Bulgaria, Cyprus, Malta and Slovakia (EU13). The lowest in Germany, France, Luxembourg (EU14) and Lithuania, Poland, Slovenia and Hungary (EU13).

Table 3: Motive 1.2. - The COVID-19 vaccine will protect me from getting COVID-19

IT	PT	IE	EL	ES	NL	AT	DK	FI	SE	BE	LU	FR	DE
64+32	64+32	75+19	63+31	72+22	61+33	65+27	66+25	63+28	65+25	54+32	49+32	36+44	70+24
96	96	94	94	94	94	92	91	91	90	86	81	80	74
HR	RO	BG	CY	MT	SK	EE	LT	CZ	HU	SI	PL	LV	EU27
62+33	70+25	57+36	64+29	68+25	63+30	60+32	65+27	64+27	50+36	49+37	39+42	28+46	60+31
95	95	93	93	93	93	92	92	91	86	86	81	74	91

Average EU14 = 89,5; Average EU13 = 89,53; V4 countries average = 87,75

Key: respondents stating this motive as “very important” + “important” = the aggregate result

Source: own calculations and elaboration (2021), based on available data from the European Commission (2021)

As revealed by the table 4, 94% of citizens of EU27 say it is either “very important” or “important” that « The COVID-19 vaccine will protect my relatives and others from COVID-19 ». The number of respondents saying this motive was “very important” or “important” to them was highest in Spain, Portugal, Ireland, Italy, Netherlands, Sweden (from EU14) and in Estonia, Croatia, Malta and Romania (EU13). The lowest in Luxembourg, France, Belgium (EU14) and Lithuania, Poland, Slovenia and Hungary (EU13).

As shown in the table 5, 81% of citizens of EU27 say it is either “very important” or “important” that « The COVID-19 vaccine will make it possible for me to resume a more normal professional life ». The number of respondents saying this motive was “very important” or “important” to them was highest in Greece, Ireland and Portugal (from EU14) and in Cyprus, Romania, Croatia and Slovakia (EU13). The lowest in Germany, France, Luxembourg and Denmark (EU14) and Lithuania, Poland and Estonia (EU13).

Table 4: Motive 1.3. - The COVID-19 vaccine will protect my relatives and others from COVID-19

ES	PT	IE	IT	NL	SE	EL	AT	DK	DE	FI	BE	FR	LU
81+17	72+25	81+15	69+27	71+25	80+16	70+24	70+24	74+19	71+22	69+24	65+27	49+41	61+28
98	97	96	96	96	96	94	94	93	93	93	92	90	89
EE	HR	MT	RO	BG	CY	SK	CZ	LT	HU	SI	PL	LV	EU27
64+32	68+28	81+15	77+19	66+29	74+21	70+24	70+23	71+21	56+34	58+32	41+44	30+44	67+27
96	96	96	96	95	95	94	93	92	90	90	85	74	94

Average EU14 = 94,08; Average EU13 = 91,6; V4 countries average = 90,5

Key: respondents stating this motive as “very important” + “important” = the aggregate result

Source: own calculations and elaboration, based on available data from the European Commission, 2021

Table 5: Motive 1.4. - The COVID-19 vaccine will make it possible for me to resume a more normal professional life

EL	IE	PT	NL	IT	ES	SE	BE	AT	DK	LU	FR	DE	FI
59+32	65+25	54+35	55+33	52+34	59+25	54+25	47+31	53+24	50+26	51+25	38+36	45+27	39+30
91	90	89	88	86	84	79	78	77	76	76	74	72	69
CY	RO	HR	SK	CZ	MT	SI	BG	LT	HU	EE	PL	LV	EU27
71+24	70+22	61+30	61+30	63+26	61+28	50+38	56+31	56+26	46+36	48+30	37+41	26+46	50+31
95	92	91	91	89	89	88	87	82	82	78	78	72	81

Average EU14 = 80,64; Average EU13 = 85,69; V4 countries average = 85

Key: respondents stating this motive as “very important” + “important” = the aggregate result

Source: own calculations and elaboration (2021), based on available data from the European Commission (2021)

As revealed by the table 6, 83% of citizens of EU27 say it is either “very important” or “important” that « The COVID-19 vaccine will make it possible for me to travel». The number of respondents saying this motive was “very important” or “important” to them was highest in Greece, Spain and Italy (from EU14) and in Romania, Cyprus, Croatia and Poland (EU13). The lowest in Finland, Denmark, Netherland and Belgium (EU14) and Lithuania, Estonia and Hungary (EU13).

Table 6: Motive 1.5. - The COVID-19 vaccine will make it possible for me to travel

EL	ES	IT	PT	IE	LU	AT	FR	SE	DE	BE	NL	DK	FI
57+32	57+31	52+36	46+40	54+31	57+28	54+28	41+39	46+33	47+31	42+35	43+34	44+29	39+31
88	88	88	86	85	85	82	80	79	78	77	77	73	70
RO	CY	HR	PL	MT	LT	SK	CZ	SI	BG	HU	EE	LV	EU27
71+23	66+26	49+37	47+39	58+27	56+29	52+33	53+31	48+35	50+32	43+35	43+31	36+38	49+34
94	92	86	86	85	85	85	84	83	82	78	74	74	83

Average EU14 = 81,14; Average EU13 = 83,69; V4 countries average = 83,25

Key: respondents stating this motive as “very important” + “important” = the aggregate result

Source: own calculations and elaboration (2021), based on available data from the European Commission (2021)

As shown in the table 7, 94% of citizens of EU27 say it is either “very important” or “important” that « The COVID-19 vaccine will make it possible to meet my family and friends ». The number of respondents saying this motive was “very important” or “important” to them was highest in Portugal, Ireland, Italy and Spain (from EU14) and in Croatia, Malta and Romania (EU13). The lowest in Finland, Denmark, Sweden, Austria, Netherlands, Luxemburg and France (EU14) and Lithuania, Poland and Slovenia (EU13).

Table 7: Motive 1.6. - The COVID-19 vaccine will make it possible to meet my family and friends

PT	IE	IT	ES	BE	DE	EL	FR	LU	NL	AT	SE	DK	FI
70+28	75+22	63+33	75+21	67+27	67+27	65+29	60+33	72+21	65+28	67+26	70+23	67+25	58+30
98	97	96	96	94	94	94	93	93	93	93	93	92	88
HR	MT	RO	SK	CZ	CY	BG	HU	LT	EE	SI	PL	LV	EU27
62+32	73+22	77+18	69+25	67+26	69+24	61+31	61+31	65+26	61+28	51+35	46+39	35+48	65+29
95	95	95	94	93	93	92	92	91	89	86	85	83	94

Average EU14 = 87,92; Average EU13 = 98,15; V4 countries average = 91

Key: respondents stating this motive as “very important” + “important” = the aggregate result

Source: own calculations and elaboration (2021), based on available data from the European Commission (2021)

As revealed by the table 8, 86% of citizens of EU27 say it is either “very important” or “important” that « The COVID-19 vaccine will make it possible for me to go to places such as restaurants, cinemas and sport facilities ». The number of respondents saying this motive was “very important” or “important” to them was highest in Greece, Spain and Portugal (from EU14) and in Romania, Cyprus, Czech Republic and Malta (EU13). The lowest in Sweden, Finland and Luxembourg (EU14) and Lithuania, Hungary and Bulgaria (EU13).

Table 8: Motive 1.7. - The COVID-19 vaccine will make it possible for me to go to places such as restaurants, cinemas and sport facilities

EL	ES	PT	AT	FR	IT	NL	DE	IE	BE	DK	LU	FI	SE
56+35	56+34	50+40	54+35	46+41	52+35	49+37	52+33	52+33	47+37	47+36	48+34	37+40	43+34
91	90	90	89	87	87	86	85	85	84	83	82	77	77
RO	CY	CZ	MT	HR	PL	SK	EE	SI	LT	BG	HU	LV	EU27
62+29	62+27	51+35	53+33	44+41	43+42	46+39	42+39	41+39	39+38	38+37	35+37	29+42	50+36
91	89	86	86	85	85	85	81	80	78	75	72	71	86

Average EU14 = 85,21; Average EU13 = 81,84; V4 countries average = 82

Key: respondents stating this motive as “very important” + “important” = the aggregate result

Source: own calculations and elaboration (2021), based on available data from the European Commission (2021)

3.2 Seven Main Motives “Against” COVID-19 Vaccination (Obstacles)

As shown in the table 9, 40% of citizens of EU27 say it is either “very important” or “important” that « The COVID-19 pandemic will be over soon ». The number of respondents saying this motive was “very important” or “important” to them was highest in Italy, Portugal and Austria (from EU14) and in Romania, Croatia and Slovenia (EU13). The lowest in Denmark, Finland and Luxembourg (EU14) and Lithuania, Poland and Cyprus (EU13).

As revealed by the table 10, 52% of citizens of EU27 say it is either “very important” or “important” that « the risk of being infected with COVID-19 is very low or inexistent in my case ». The number of respondents saying this motive was “very important” or “important” to them was highest in Portugal, Austria and Netherlands (from EU14) and in Malta, Slovenia and Slovakia (EU13). The lowest in France, Belgium and Finland (EU14) and in Lithuania, Hungary and Cyprus (EU13).

Table 9: Motive 2.1. - I think, the COVID-19 pandemic will be over soon

IT	PT	AT	NL	EL	IE	SE	FR	DE	BE	ES	LU	FI	DK
21+40	33+28	24+35	24+31	24+29	26+24	13+31	15+28	18+25	12+30	20+21	21+18	14+24	13+24
61	61	59	55	53	50	44	43	43	42	41	39	38	37
RO	HR	SI	SK	CZ	HU	BG	EE	LT	MT	CY	PL	LV	EU27
37+27	20+44	27+33	22+36	22+35	22+34	21+34	20+32	23+28	30+18	25+22	14+21	12+21	20+29
64	64	60	58	57	56	55	52	51	48	47	35	33	49

Average EU14 = 50,64; Average EU13 = 52,31; V4 countries average = 51,5

Key: respondents stating this motive as “very important” + “important” = the aggregate result

Source: own calculations and elaboration (2021), based on available data from the European Commission (2021)

Table 10: Motive 2.2. - I think, the risk of being infected with COVID-19 is very low or inexistent in my case

PT	AT	NL	DE	IT	IE	ES	SE	LU	EL	DK	FI	BE	FR
27+32	29+37	27+38	25+36	23+37	27+32	13+45	16+38	30+23	20+32	19+29	19+29	13+32	16+25
69	66	65	61	60	59	58	54	53	52	48	48	45	41
MT	SI	SK	RO	LT	CZ	HR	PL	BG	EE	CY	HU	LV	EU27
31+38	23+40	22+40	26+34	21+38	24+33	17+40	14+22	20+34	15+39	22+31	21+27	19+22	20+32
69	63	62	60	59	57	57	56	54	54	53	48	41	52

Average EU14 = 55,64; Average EU13 = 56,38; V4 countries average = 55,75

Key: respondents stating this motive as “very important” + “important” = the aggregate result

Source: own calculations and elaboration (2021), based on available data from the European Commission (2021)

As shown in the table 11, 57% of citizens of EU27 say it is either “very important” or “important” that « the risk posed by COVID-19 in general is exaggerated ». The number of respondents saying this motive was “very important” or “important” to them was highest in Ireland, Greece and Luxembourg (from EU14) and in Cyprus, Latvia and Slovenia (EU13). The lowest in Finland, France and Italy (EU14) and in Bulgaria, Malta and Poland (EU13).

Table 11: Motive 2.3. - I think the risk posed by COVID-19 in general is exaggerated

IE	EL	LU	AT	DK	DE	NL	ES	BE	SE	PT	IT	FR	FI
35+32	35+32	40+25	34+29	24+36	33+26	31+24	30+24	17+36	19+34	14+38	21+29	19+26	17+20
67	67	65	63	60	59	55	54	53	53	52	50	45	37
CY	LT	SI	RO	CZ	EE	HR	HU	LV	SK	PL	MT	BG	EU27
42+33	35+38	38+33	36+32	32+35	28+39	30+35	28+37	37+27	33+31	33+30	28+29	19+32	28+29
75	73	71	68	67	67	65	65	64	64	63	57	51	57

Average EU14 = 55,71; Average EU13 = 65,38; V4 countries average = 64,75

Key: respondents stating this motive as “very important” + “important” = the aggregate result

Source: own calculations and elaboration (2021), based on available data from the European Commission (2021)

As revealed by the table 12, 82% of citizens of EU27 say it is either “very important” or “important” that they are « worried about the side effects of COVID-19 vaccines ». The number of respondents saying this motive was “very important” or “important” to them was highest in Netherland, Portugal and Italy (from EU14) and in Cyprus, Slovenia and Romania (EU13). The lowest in Finland, Sweden, Denmark and Belgium (EU14) and in Hungary, Poland and Malta (EU13).

As shown in the table 13, 85% of citizens of EU27 say it is either “very important” or “important” that « that COVID-19 vaccines have not been sufficiently tested yet ». The number of respondents saying this motive was “very important” or “important” to them was highest in Luxembourg, Greece and Portugal (from EU14) and in Slovenia, Cyprus and Croatia (EU13). The lowest in Finland, Denmark and Belgium (EU14) and in Poland, Hungary and Malta (EU13).

Table 12: Motive 2.4. - I am worried about the side effects of COVID-19 vaccines

NL	PT	IT	LU	AT	EL	ES	FR	DE	IE	BE	DK	SE	FI
65+28	67+24	55+34	72+16	63+24	67+19	59+27	55+28	62+19	47+27	51+22	41+32	51+19	40+19
93	91	89	88	87	86	86	83	81	74	73	73	70	59
CY	SI	RO	HR	BG	LT	SK	CZ	EE	LV	MT	PL	HU	EU27
80+14	66+24	63+21	52+31	56+25	61+20	59+22	55+25	57+23	55+25	42+33	51+24	53+21	57+25
94	90	84	83	81	81	81	80	80	80	75	75	74	82

Average EU14 = 87,07; Average EU13 = 81,38; V4 countries average = 77,5

Key: respondents stating this motive as “very important” + “important” = the aggregate result

Source: own calculations and elaboration, based on available data from the European Commission, 2021

Table 13: Motive 2.5. - I think that COVID-19 vaccines have not been sufficiently tested yet

LU	EL	PT	IT	AT	IE	NL	FR	DE	SE	ES	BE	DK	FI
86+7	76+15	66+22	62+27	69+19	63+23	61+24	63+20	57+26	57+23	51+28	59+19	47+30	39+28
93	91	91	89	88	86	85	83	83	80	79	78	77	67
SI	CY	HR	RO	LT	LV	BG	EE	SK	CZ	MT	HU	PL	EU27
78+18	84+14	68+25	70+22	70+19	70+19	63+25	63+19	70+18	69+17	70+15	64+20	62+21	63+22
96	94	93	92	89	89	88	88	88	86	85	84	83	85

Average EU14 = 83,57; Average EU13 = 88,84; V4 countries average = 85,25

Key: respondents stating this motive as “very important” + “important” = the aggregate result

Source: own calculations and elaboration (2021), based on available data from the European Commission (2021)

As revealed by the table 14, 60% of citizens of EU27 say it is either “very important” or “important” that they « do not think that COVID-19 vaccines are effective ». The number of respondents saying this motive was “very important” or “important” to them was highest in Greece, Portugal and Ireland (from EU14) and in Slovenia, Romania and Croatia (EU13). The lowest in Finland, Germany and Denmark (EU14) and in Poland, Lithuania and Latvia (EU13).

Table 14: Motive 2.6. - I do not think that COVID-19 vaccines are effective

EL	PT	IE	FR	AT	SE	IT	NL	LU	BE	ES	DK	DE	FI
41+29	22+44	36+29	28+35	29+34	20+39	27+30	22+35	42+14	24+29	26+27	29+23	26+25	16+25
70	66	65	63	63	59	57	57	56	53	53	52	51	41
SI	RO	HR	CZ	HU	MT	SK	CY	EE	BG	LT	LV	PL	EU27
44+34	47+27	30+41	32+36	31+36	43+24	34+33	49+17	30+33	33+29	34+26	35+22	31+24	30+30
78	74	71	68	67	67	67	66	63	62	60	57	55	60

Average EU14 = 57,57; Average EU13 = 65,76; V4 countries average = 64,25

Key: respondents stating this motive as “very important” + “important”

Source: own calculations and elaboration (2021), based on available data from the European Commission (2021)

As shown in the table 15, 41% of citizens of EU27 say it is either “very important” or “important” that they are « against vaccines in general ». The number of respondents saying this motive was “very important” or “important” to them was highest in Ireland, Austria and Belgium (from EU14) and in Slovenia, Slovakia and Czech Republic (EU13). The lowest in Finland, Portugal and Spain (EU14) and in Hungary, Poland and Croatia (EU13).

Table 15: Motive 2.7. - I am against vaccines in general

IE	AT	BE	DE	EL	SE	IT	DK	FR	NL	LU	ES	PT	FI
26+24	23+23	21+23	21+22	25+15	18+21	17+22	16+20	21+15	19+16	20+14	12+19	10+17	10+15
50	46	44	43	40	39	39	36	36	35	34	31	27	25
SI	SK	CZ	BG	MT	CY	LV	LT	EE	RO	HR	PL	HU	EU27
33+22	29+22	24+26	32+16	27+20	25+21	30+15	22+23	21+23	27+16	19+21	25+14	16+21	22+19
55	51	50	48	47	46	45	45	44	43	40	39	37	41

Average EU14 = 37,5; Average EU13 = 45,38; V4 countries average = 44,25

Key: respondents stating this motive as “very important” + “important” = the aggregate result

Source: own calculations and elaboration (2021), based on available data from the European Commission (2021)

4. Conclusion

The survey found out that from the question asked the citizens in 27 EU Member States either a “very important” or “important” motive in favour of vaccination against COVID-19 is the conviction of 95% citizens of EU Member States that « the COVID vaccines will put an end to the pandemic »; followed by 94% of respondents who state that « vaccine will protect my relatives and others from COVID-19» and equally by 94% of respondents who think that « The COVID-19 vaccine will make it possible to meet my family and friends ». The third most either “very important” or “important” common motive shared by 91% of respondents is that « The COVID-19 vaccine will protect me from getting COVID-19 », followed by 86% of respondents who claim that is either “very important” or “important” that « The COVID-19 vaccine will make it possible for me to travel ». 83% of respondents say it is either “very important” or “important” that « The COVID-19 vaccine will make it possible for me to travel », followed by 81% of citizens from EU27 Member States who say « The COVID-19 vaccine will make it possible for me to resume a more normal professional life ». As regards the motive against vaccination against COVID-19, 85% of respondents say that it is either “very important” or “important” that « COVID-19 vaccines have not been sufficiently tested yet », followed by 82% of respondents who are « worried about the side effects of COVID-19 vaccines ». 60% of respondents do not believe that « COVID-19 vaccines are effective », followed by 57% of those who « think the risk posed by COVID-19 in general is exaggerated » and by those 52% of those who « think, the risk of being infected with COVID-19 is very low or inexistent in my case ». 40% of respondents say that it is either “very important” or “important” that « the COVID-19 pandemic will be over soon », followed by 41% of respondents who are « against vaccines in general ». Table 1 in Appendix, except the above-mentioned preference of responses in favour or against vaccination against COVID-19 by EU27 (in column A) shows order of preference of responses in favour or against vaccination against COVID-19 in EU14 countries (column B); EU14 countries (column C) and V4 countries (column D). This partial results of the survey might serve as a basis not only for further research focused on views of EU27 citizens, but also as a support in search of the potential appropriate policy making on both the EU (Cini and Šuplata, 2017; Melecký and Staničková, 2020) as well as on the national level. This might, however, require to make an additional analysis of the researched issue, might include taking a more profound and analytical

look on the drivers and obstacles of vaccination against COVID-19, ideally conducted directly in the respective EU27 Member States.

Acknowledgements

This paper was created within the project KEGA (Slovak Republic) *Diversification of the content and didactic forms of education of economic courses in Slovak language and in world languages*. Project registration number 040UMB-4/2021.

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Appendix

Table 1: Order of Preference of Motives in Favour or Against Vaccination Against COVID-19 in EU27(A), EU14(B), EU13(C) and V4 Countries(D)

Motives in favour of COVID-19 vaccination (drivers)	A	B	C	D
The COVID-19 vaccines will put an end to the pandemic	1	1	2	1
The COVID-19 vaccine will protect my relatives and others from COVID-19	2	2	3	3
The COVID-19 vaccine will make it possible to meet my family and friends	2	4	1	2
The COVID-19 vaccine will protect me from getting COVID-19	3	3	4	4
The COVID-19 vaccine will make it possible for me to go to places such as restaurants, cinemas and sport facilities	4	5	7	7
The COVID-19 vaccine will make it possible for me to travel	5	6	6	6
The COVID-19 vaccine will make it possible for me to resume a more normal professional life	6	7	5	5
Motives against COVID-19 vaccination (obstacles)	A	B	C	D
I think that COVID-19 vaccines have not been sufficiently tested yet	1	2	1	1
I am worried about the side effects of COVID-19 vaccines;	2	1	2	2
I do not think that COVID-19 vaccines are effective;	3	3	3	4
I think the risk posed by COVID-19 in general is exaggerated ;	4	4	4	3
I think, the risk of being infected with COVID-19 is very low or inexistent in my case;	5	5	5	5
I think, the COVID-19 pandemic will be over soon;	6	6	6	6
I am against vaccines in general; 31	7	7	7	7

Key: A = EU27; B=EU14; C=EU13; D=V4 countries; 1-7 represents the order of preference in each of the responses in favour or against COVID-19 vaccination.

Source: Own elaboration

Tourism in EU during COVID-19

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Abstract

The question of if the pandemic of COVID-19 has influenced the international tourism is useless because this fact is unquestionable. The question is how much. Over the last two years, tourism and the international movement of tourists have been restricted in different levels, especially in 2020. Restrictions were applied by various governments to prevent the spread of the COVID-19 virus. In 2021, there was a significant turnaround with the use of vaccines against this disease, and a decision of the European Commission set more or less uniform rules for entering the EU member counties in the form of so called green covid passports. The aim of this article is to use secondary data analysis to demonstrate the relationship between the traffic rate of two selected countries and the rules applied in the country to prevent the spread of COVID-19 such as wearing masks, reducing crowding, etc. By using the results of this analysis to confirm the research question that less strict rules or greater benevolence to break them could become a slight competitive advantage and play a role in tourists' choice of destination.

Keywords: *competitive advantage, Covid-19, EU policy, restrictions, tourism*

JEL Classification: *M31, Z32, Z38*

1. Introduction

Without any doubts the pandemic of COVID-19 has impacted the international tourism. Over the last two years, tourism and the international movement of tourists was restricted in different levels, especially in 2020 the first year with the permanent presence of COVID-19 diseases. Those restrictions were applied by various governments with the aim to prevent the spread of the COVID-19. The year 2021 was crucial, because it is the year with significant turnaround with the use of vaccines against this disease, and a decision of the European Commission set, more or less, uniform rules for entering the EU member counties in the form of so called green covid passports.

To fight the spread of the COVID-19 disease the European Commission has adopted a number of recommendations and guidance on how to coordinate a single approach by Member States to facilitate travel for tourism purposes, while minimising the possibility of the spread of COVID-19, during the COVID-19 pandemic, i.e. from March 2020 to the present. The recommendations and guidelines concerned a uniform procedure for the entry of EU citizens into the territory of the Member States, through the organisation of safe travel at airports and borders of European Union and borders of member states followed by the recommendations for providers of accommodation and catering services (Brooks, 2020).

1.1 European Commission and COVID-19

When Covid-19 hit, the EU had two main governance frameworks through which it could organise its immediate response to the public health crisis. The first was the health security framework was set up by the 2013 Decision on Serious Cross Border Threats to Health (herein the Health Threats Decision), which establishes a set of structures for emergency planning, preparedness, and response. The second was the Civil Protection Mechanism (CPM), which facilitates cooperation between member states in the event of a disaster. Both performed as intended and expected in the first phase of the crisis but, reflecting the EU's limited health-related powers, their capacity and reach was inevitably insufficient (Brooks, 2020).

The EU strives to join efforts with its Member States to contain the spread of the virus. Significant border restrictions were implemented to serve that purpose, as EU leaders decided on imposing temporary restrictions on non-essential travel to the EU for 30 days. The European Commission, based on the scarce data concerning virus spread and development, had suggested a month-long restriction to help contain the outbreak and boost Europe's healthcare system to cope with an anticipated surge of patients. Several EU countries closed their borders in March. For example, Poland closed its borders to foreigners on 15 March 2020 (Goniewicz et al. 2020).

Tourism is also a key sector contributing to economic growth. We can conclude that tourism is one of the worst affected areas. Under various restrictive measures introduced by governments and national authorities, the number of foreign and domestic tourists has fallen (Lacko, et al. 2021). All these regulations and recommendations were approved in order to facilitate the movement for tourist, minimize the spread of COVID-19 and to declare one-on-one rules to give to all countries same conditions and not to give any competitive advantage, which would be based on different entry conditions. The reason was simple The European Commission was very well aware of the importance of tourism for the GDP of many economies of member countries, such as Italy, Spain, Portugal, France, Croatia, Greece, etc. Anyway to all the members state of EU was given the right to set conditions and rules to control the spread of COVID-19 on their territory. To understand better the issue of competitiveness in tourism it is advisable to deal with this topic in more detail. The term competitiveness is a well discussed research theme in various subject areas and research fields. Most of the research conducted on tourism destination competitiveness are based on the work of Porter, but prior to this, the issue of competitiveness was developed as a scientific discipline by Smith in the late 70's. Due to the reason that tourism is primarily a service driven industry, tourism researchers had to adjust definitions, develop new models and identify factors that would be applicable to the tourism industry (Cronjé, 2020).

2. Problem Formulation

Tourism is an important part of the European economy. Within the European Union, there are countries that are dependent on tourism and where tourism makes a significant contribution to the overall level of GDP.

Entities involved in tourism enter into interrelationships and ties, which may be of an economic or non-economic (for example political) nature. Tourism revenues form a significant part of national budget revenues. Tourism significantly affects the world economy within the economic benefits and GDP growth is the most important indicator The second basic indicator regarding the significance of tourism in the economy is its impact on employment. Employment in tourism sector accounts for a significant proportion, with tourism in the European Union being the most significant in Spain, Italy, France, Germany, and the United

Kingdom. The growing significance of tourism in EU economy as well as the development of new jobs, ranking the tourism industry among the most important sectors in international economics. On the other hand the important indicators of tourism are mainly the impact on the balance of payments of a country, the development of employment, including the possibility of creating new jobs, as well as the positive impact on economic and social development of particular regions (Kordoš, 2020).

In the past two years, especially during the summer seasons, when the pandemic situation in these countries was very similar, it was clear that some countries continued to apply strict rules and improved their demands for compliance, others were having more benevolent approach to the issue. Countries falling into the first category then very often reminded that the reason for the decrease in their number of visitors may be the fact that countries from the second category offer potential visitors a certain advantage, which may be crucial for their decision-making process when choosing a destination. The aim of the article is to analyse the relationship between the incoming tourism of two selected countries and the rules applied in those countries to prevent the spread of COVID-19 such as wearing masks, reducing crowding, etc.

2.1. Travel & Tourism Competitiveness

An important barometer in the field is the Travel & Tourism Competitiveness Report annually issued by the World Economic Forum. The purpose of this report is to measure the factors and policies that make attractive the development of travel and tourism industry in different countries. Cristea (2014) has mentioned that the main analysed variables are grouped into three categories as follows: legal framework; business environment and infrastructure; human, cultural and natural resources. Each of these three categories comprises itself a number of competitiveness pillars. All the factors presented are extremely important components in determining the competitiveness of a nation. Each piece has a well established place in the final puzzle. Excluding natural resources on which man is quite difficult to intervene, the remaining indicators depend only on the skills, competencies, orientations, and value systems of each country.

Because of the significant contribution of tourism to national economy various territorial units like countries, cities, regions, etc. compete attracting incoming tourists. This reason encourages to study, evaluate, and compare competitiveness of appropriate territories. The tourism destination competitiveness confirmed its importance and emphasized that it is related to the well-being of local people. Tourism destination competitiveness is associated with the area's ability to provide goods and services to tourists better than others do (Cibinskiene, 2013).

2.2. Methodology

The data will be obtained from the analysis of secondary sources basically statistical data relating to the number of visitors to selected countries. Furthermore, information from the official websites of the Ministry of Foreign Affairs and Health of those countries were analysed. Those websites were providing information on the measures in force to prevent the spread of COVID-19. The findings were supplemented by information obtained through controlled interview with a resident person living in one of the countries and with the findings that the author of the article gained through her own observations.

The results of the analysis will be used to confirm the research question that less strict rules or greater benevolence to break them could become a slight competitive advantage and could play a role in tourists' choice of destination.

To fulfil the aim of the article, the author has chosen two countries of the European Union. Both countries are showing similar characteristics in terms of tourist attractiveness, i.e., year-round destinations, with predominant tourism in the summer and with, more or less, the same motives for which they are visited, namely sun and beach tourism, cultural tourism and nature tourism.

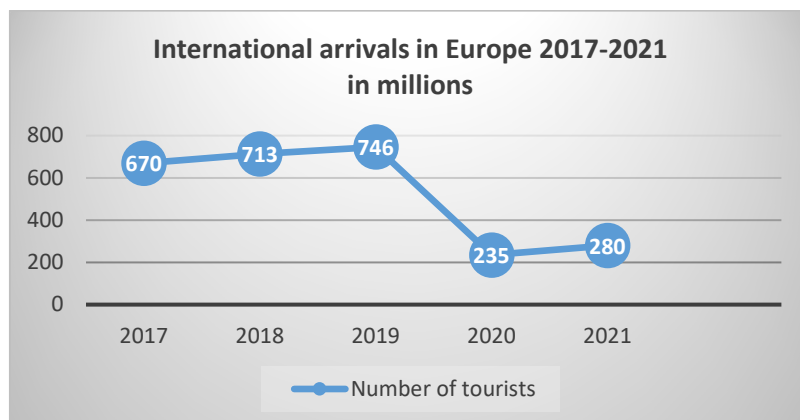
The selected countries are Croatia and Spain. Each country had different approach to the rules against the spread of COVID-19 during the summer months. Spain even in the summer months was very consistent in enforcing health and hygiene measures, including the wearing of protective masks even on the outdoor terraces of restaurants and beaches. And Croatia that formally required compliance with the anti-Covid-19 rules, but was more than a benevolent as for their enforcement.

For the needs of the research, data from the summer season of 2021 were analyzed. Specifically, the period since when the destinations of selected countries were open to foreign tourists until September 2021.

In the following subchapters, the author will first focus on presenting the impact of COVID-19 on tourism in the European Union as a whole and then focus on two selected countries, which will gradually present from a tourism perspective, and provide data related to selected statistics and try to relate the possible link between the decline / growth in the number of tourists and the application / enforcement of the anti-proliferation rules of COVID-19.

2.3 Tourism in Europe and COVID-19

The situation of tourist industry after the breakdown of COVID-19 disease, has changed dramatically as can be seen in Figure 1. Europe was continuing to be the most popular destination for international tourism since 2005. However, due to the COVID-19 pandemic, inbound tourist arrivals in Europe decreased by around 68 percent in 2020. Within this region, Southern and Mediterranean Europe was the most popular area for international tourism, recording over 300 million inbound arrivals prior to the pandemic, and around 88 million arrivals in 2020. Travel and tourism were among the industry's most hit by the health crisis, as countries worldwide restricted non-essential trips in order to minimize the spread of the COVID-19. The revenue of the global travel and tourism market shrunk in 2020, declining by nearly 60 percent over 2019. In this sense, the segments of cruises and package holidays reported ones of the highest drops in revenue in 2020. Comparing to financial crisis in 2008 or safety crisis after the year 2001 (Statistia, 2021).

Figure 11: International arrivals in Europe

Source: Statista (2021); Own elaboration (2021)

The 2021 was a watershed year for international tourism after 2020. Thanks to the possibility of vaccination against COVID-19, the approach of the European Commission and the goodwill of the Member States of the European Union, the conditions for visiting individual countries have been unified on the basis of the principle of vaccination, testing and past illness. This fact was behind a slight "reboot" of international European tourism. Although as recently as 2020 there were number of destinations that remained closed to international tourism, or that at best tightened the rules for the entry of foreigners into their territory. In addition, the presentation of the so-called green passport was supplemented by the obligation to fill in the so-called passenger locator list in almost all destinations. However, despite the unification of travel conditions, in 2021 there were significant differences in the measures taken by individual states to prevent the spread of COVID-19.

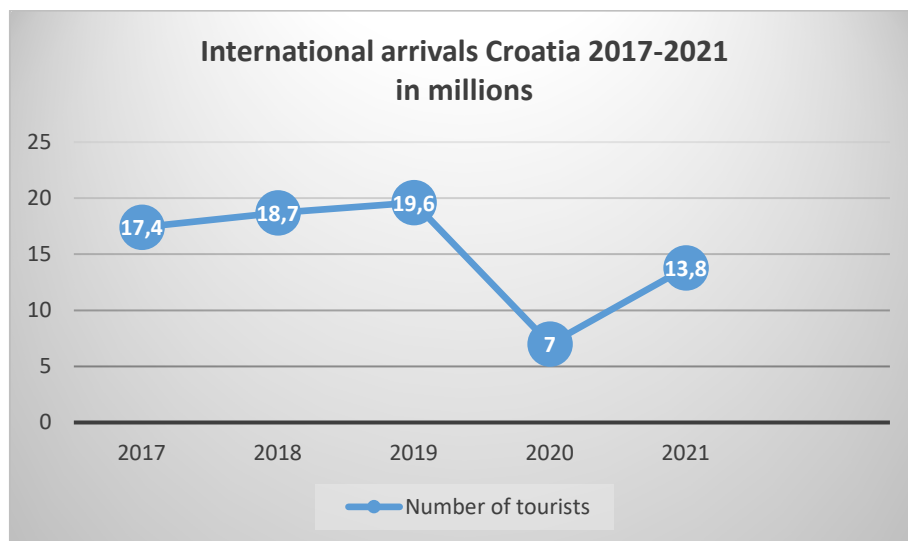
2.4 Tourism in Croatia and COVID-19

Today, Croatia is one of the most visited tourist destinations in the Mediterranean, with a total of 19.6 million tourists visiting in 2019 (DZS, 2018). As for tourist attractions Croatia can offer the tourism of beach and sun, cultural tourism, nature, gastronomy.

Tourism in Croatia is concentrated in the areas along the Adriatic coast and is strongly seasonal, peaking in July and August (EUROSTAT, 2020). Eight areas in the country have been designated national parks, with an additional eleven as nature parks (Parkihrvatske, 2021). Currently, there are ten sites in Croatia on the UNESCO List of World Heritage Sites (UNESCO, 2021).

Statistics of Croatia

Due to the impact of the coronavirus outbreak, tourist arrivals at accommodation establishments in Croatia dropped down to just seven million in 2020. Prior to the pandemic, tourism in Croatia had been steadily rising, peaking at 19.6 million arrivals in 2019 see Figure 2.

Figure 12: International arrivals Croatia

Source: Statista (2021); Own elaboration (2021)

From 2017 to 2019, Croatia experienced a steady year-on-year increase in foreign tourists of 7.5% compared to 2018 and 2017 and 4.8% year-on-year in 2019 and 2018. Croatia has never been closed to foreign tourists during the two years of the COVID-19 pandemic anyway facing an unprecedented decline in the number of foreign tourists in 2020, whose number fell by 64% year-on-year. However, in 2021, the situation stabilized and there was a year-on-year increase of arrivals, but there was no return to the numbers from before the COVID-19 pandemic. This fact is behind the sharp decrease in the number of international tourists (Statistia, 2021).

Conditions of entry

Croatia followed the European Commission's recommendation and required proof of completed vaccination, illness or COVID-19 test upon entry, with a negative result, together with a completed entry form.

Covid restrictions

Croatia has introduced COVID-19 countermeasures from July 1, 2021. For example, public events and gatherings of more than 100 people remained banned unless the event is attended only by individuals with an EU-approved digital vaccination certificate. There were restrictions as for opening hours of pubs and restaurants, only seated patrons may be served, and parties must not exceed 30 individuals. Night clubs, bars, and discos could operate at all hours, provided all attendees have a digital vaccination certificate. All businesses and establishments permitted to operate had to adhere to social distancing requirements. Facemasks remained mandatory indoors and in all outdoor spaces where social distance cannot be observed. Fines for violating those rules started at 50 euro to 300 euro for individual person (US Embassy, 2021).

2.5 Tourism in Spain and COVID-19

Spain is an established tourism market, not only in Europe —the region with the most tourist arrivals worldwide— but also globally. In 2019, Spain was the second most visited country

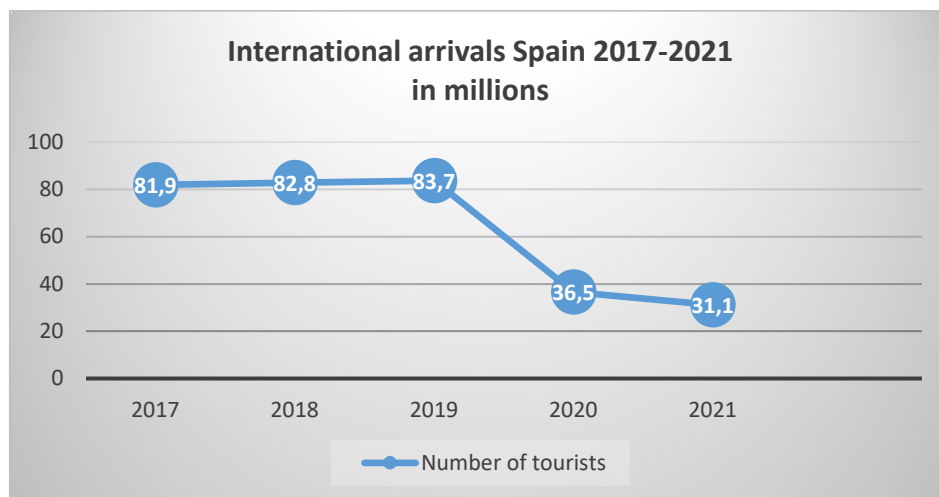
in the world, recording 83.7 million tourists which marked the seventh consecutive year of record-beating numbers (El país, 2019, Reuters 2019). Due to the coronavirus pandemic, in the first eleven months of year 2020 only 18.3 million tourists visited Spain. These dramatic figures were devastating for the tourism sector and were a reflection of what was the worst year for this industry in terms of income ever recorded (Lazaron, 2021).

The main motivation to visit Spain the tourism of beach and sun, cultural tourism, business tourism, natural and rural tourism.

Statistics of Spain

As in the case of Croatia, also in Spain from 2017 to 2019 there was a steady year-on-year increase in foreign tourists, by 1% compared to 2018 and 2017 and by 1.1% year-on-year in 2019 and 2018, see Figure 3. In 2020, Spain closed its borders to foreign tourists for the period from March to June, this fact is the reason for the decrease of more than 67% compared to 2019. However, even 2021 did not bring any improvement, despite the introduction of a unified policy to support tourism during the COVID-19 pandemic through the so-called green passports, and there was a renewed year-on-year decrease of almost 15% (Statista, 2021).

Figure 13: International arrivals Spain



Source: Statista (2021); Own elaboration (2021)

Conditions of entry

As well as Croatia also Spain followed the European Commission's recommendation and required proof of completed vaccination, illness or COVID-19 test upon entry, with a negative result, together with a completed entry form.

Covid restrictions

Wearing mask was recommended in public areas where was not possible to keep social distancing. Wearing masks was obligatory in all indoor areas, even in the terraces of restaurants and bars, with the exception of the moment when consumption takes place, in public transport. Wearing mas was mandatory also in the beach. All restrictions were strictly required with the fines starting on 100 euros reaching up to 500 euros (BOE, 2021).

3. Problem Solution

The dramatic decline in international arrivals within the European Union corresponds to the overall epidemiological situation. The two countries monitored show a decrease in visitors from abroad in both years, when Europe was hit by the COVID-19 pandemic, ie in 2020 and 2021. However, there is a positive effect of using an effective weapon against the spread of COVID-19 - vaccination on the overall renewal of tourism in the European Union and the attendance of two selected countries.

Table 1: Summary of marketing research in millions of tourists

	2019	2020	2021
EU	746	235	280
Croatia	19,6	7	13,8
Spain	83,7	36,5	31,1

Source: Statista (2021); Own elaboration (2021)

What follows is that countries that have closed their borders to prevent the spread of the COVID-19 disease in their countries have had more significant declines in the arrival of foreign tourists, as happened in Spain. For Croatia, which remained open throughout the COVID-19 pandemic in 2020 and 2021, the decline was not so significant. This phenomenon is also observable in other EU countries such as Italy, Portugal, where the development of the number of tourists was similar to the development in Spain. On the other hand, there was Greece or Bulgaria, where the development was similar to Croatian one.

Remarkable is the development of the number of foreign tourists in 2021. Based on statistical data, given the research question, it can be concluded that the weak or insufficiently enforced restrictions that a country applies to prevent the spread of the COVID-19 virus can give a competitive advantage, at the moment when a tourist chooses a destination for his holiday

In the case of Spain, there has been a declining number of foreign tourists in 2021. This fact can be attributed to the fact that throughout the COVID-19 pandemic, Spain presents itself as a country with very strict anti-COVID-19 rules and a high degree of their enforceability on the part of state authorities, which was also confirmed by the method of observation during a long-term stay in the summer of 2021 by the author of the article herself. The same happened in Italy or Portugal.

Croatia was the only one of the selected countries to report a year-on-year increase in 2021. According to the findings directly from Croatia, which the author of the article obtained from a person living in Croatia for a long time. The rules against the spread of COVID-19 in Croatia were similar to those in other European countries, but in general there was a very high level of benevolence on the part of state authorities to violate them, especially during the summer tourist season like in case of Greece or Bulgaria.

The impression of the author of the article can also be supported by the presented results of various questionnaire surveys related to the willingness or unwillingness of tourists to comply with the rules of the destination against the spread of COVID-19

For example (Guardian, 2021) has presented following results of survey. Most UK holidaymakers would cancel a holiday if they had to wear a mask in public on a trip. Two-thirds of people (65%) would cancel if masks were mandatory at all times. The 43% would still cancel if only compulsory inside, while 70% would scrap the holiday if they had to quarantine on return. Considering this fact and results of secondary data analysis it can be stated that Tourists do not countries that are very strict in covid-19 requirements (Spanish

case), because they are already tired of all restrictions and are preferring holiday with less restrictions they are having in their home country, and most probably they will choose a country where some restrictions are valid, but there are not so hard as in their home country or the authorities are more benevolent in violating them

Rules making masks mandatory in indoor places such as shops and hotels would put off most tourists from Denmark, Sweden, and Germany. This is hardly surprising, for the Nordics are among those Europeans least likely to wear masks.

4. Conclusion

The professional public rightly asks that tourism, that tourism, resp. tourist destinations apply the same rules not only when entering the country, but so that the level of enforcement of the rules against the spread of COVID-19 is at the same or at least similar level in all countries. This is the only way to ensure that some tourist destinations do not gain a competitive advantage by offering tourists what is most important to them when deciding on their holiday destination, and that is a change of environment, including the opportunity to take a break from strict COVID-19 rules. their home countries.

After analyzing the secondary data, which was the initial methodology for achieving the stated goal of this article, it is possible to answer the determined research question as follows. It can be concluded that the more lenient rules that individual countries have adopted to prevent the spread of COVID-19, or the greater benevolence of non-compliance authorities, may have become a slight competitive advantage, as a factor influencing potential visitors during their decision-making process as for their holiday.

The results of the research and the subsequent confirmation of the research question are slightly limited by the low number of countries that have been selected to carry out the research. To verify the results of the research question, it would be appropriate to extend the comparative analysis of the relationship between measures against the spread of COVID-19 and the number of visitors from selected destinations to other countries, such as Italy, Hungary, Portugal, Greece, etc. The subject of further research could also be a comparison of data from current research with data from tourist destinations outside the European Union.

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Determinants of the Millennial's Financial Education: European Experience

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Abstract

Many young people in European countries are starting their independent economic lives increasingly late, while spending most of their time at school and university. Thus, schools and universities are an ideal place for educational programmes at preparing young Europeans for real life. And we have seen great growth of such programmes in Europe and Russia in recent years. But effectiveness of such educational programmes is often low because young people lack experience and interest in consumer finance. This paper attempts to summarise the experience of European research on the impact of financial education on financial behaviour. It also demonstrates an approach that has been tested at the Moscow State University in 2021. This approach measures the impact of financial education on financial behaviour in the choice of financial products provided by banks remotely and brings the educational programme closer to the real experience of young people, universal to all European countries with developed financial markets and public interest in digital currencies.

Keywords: *European experience, financial behaviour, financial education, financial literacy, millennials*

JEL Classification: *D14, G20, G40, G53, L84*

1. Introduction

The OECD approach defines financial literacy as "a combination of financial awareness, knowledge, skills, attitudes and behaviours necessary to make sound financial decisions and ultimately achieve individual financial well-being" (OECD [online], 2020). The survey methodology for measuring financial literacy evaluates it on three dimensions (knowledge, behaviour, attitudes) and gives utmost weight (9 out of 21) to behaviour (OECD/INFE [online], 2020). At the same time, behaviour is the most difficult component to measure by surveys (see among others (Fernandes et al., 2014), (Stolper and Walter, 2017)). Despite the positive link between financial literacy and financial behaviour (e.g. (Klapper et al., 2013)), the real impact of financial education on financial behaviour measured by many studies is significantly lower than the similar impact on financial knowledge, and in some cases statistically insignificant, especially for young people (see review of studies in (Kaiser and Menkhoff, 2017), (Kaiser and Menkhoff, 2020) and (Kaiser et al., 2021)).

To improve the effectiveness of financial education for young people, attempts are being made to go beyond the usual classroom instruction and use game-based, behavioural and online learning technologies (Sohn et al., 2012). An approach that brings the learning process closer to life and allows students to make decisions like those they would have to make outside the

institution seems particularly promising (Drever et al., 2015). This paper describes a pedagogical approach in which the assessment of financial behaviour and knowledge is embedded in the structure of learning. It employs a specially programmed website of a fictional financial institution (*Econombank*), and the students' achievements in learning and behaviour throughout the course is measured by a fictional digital currency - *econs*.

The remainder of the paper is structured as follows. Section 2 is a review of the literature on the impact of financial education on financial behaviour, including relevant research in Europe. Section 3 describes the structure and content of the proposed pedagogical approach that brings learning and assessment closer to real life. Section 4 contains conclusion and recommendations for using the proposed approach.

2. Exploring the Impact of Financial Education on Financial Behaviour

The first studies showing the positive impact of financial education on people's well-being appeared quite a long time ago (reviewed in (Lusardi, 2003)). However, truly rigorous studies with randomised controlled trials (RCTs) allowing to trace, if not a causal relationship, at least a correlation between financial education and increased people's financial literacy and improved financial behaviour started to appear in large numbers only in the last few years. The first meta-study (Fernandes et al., 2014) analysed the performance of only 13 RCTs, while the recent review (Kaiser et al., 2021) already includes 76 papers.

Most studies examine the impact of financial education not only on knowledge (usually measured as a raw score on a financial knowledge test or an indicator of scoring above a defined threshold or indicator of solving an item correctly), but also on behaviour related to different areas of financial services. The 3 most comprehensive meta-studies ((Kaiser and Menkhoff, 2017), (Kaiser and Menkhoff, 2020) and (Kaiser et al., 2021)) use the same classification for 6 types of targeted financial behaviour (Borrowing & debt management, Budgeting & planning, Saving & retirement saving, Insurance & risk mitigation, Remittance and Bank account behaviour). The authors distinguish between 1-2 to 16-20 different outcome indicators within each type (researchers usually evaluate several indicators in one study, which allows us to talk about different estimates within studies). Judging by the number of such indicators, it is most difficult (or of little interest to researchers) to study behaviour in the field of Insurance & risk mitigation, and most easy (or interesting) – in the field of Saving & retirement saving. The statistical effect of financial learning detected by the authors for different types of targeting behaviour also varies from strong for Budgeting & planning to almost zero for Remittance and Bank account behaviour.

It is worth noting that most of the indicators do represent some characteristics of actual human behaviour, e.g. reduction in informal borrowing or any formal insurance. However, some indicators are self-reported attitudes towards certain norms or practices: positive sentiment towards budgeting; self-rating of adherence to budget or positive sentiment towards investing in (retirement-) funds (formulation by (Kaiser and Menkhoff, 2017)). Clearly, indicators of the latter type are much easier to measure than those of the former, but their correlation with real people's behaviour is questionable. The studies that target behavioural indicators observed during a specific task or treatment (e.g., amount saved in an allocation task or amount allocated to delayed payment date in an experimental elicitation task) could be viewed as a compromise between what is easier to measure and what corresponds to people's actual behaviour. However, here, as with other specifically chosen behavioural indicators, there is the issue of a researchers' paternalistic approach and its two disadvantages (Ambuehl et al., 2016). Firstly, the behaviour that corresponds to the researcher's values and not the one that can be optimal in the real situation is considered correct. And secondly, behaviour change is considered

successful, even if it is the result of thoughtless assimilation of certain norms under social or psychological pressure. In (Ambuehl et al., 2016) it was shown that simple heuristic rules rather than meaningful problem analysis have the greatest impact on financial behaviour. It is also supported by results for financial education in schools, summarised in a meta-study (Kaiser and Menkhoff, 2020), according to which the effect size of financial education treatments as a function of treatment intensity is larger and longer for knowledge than for behaviour. This raises the question of whether there are any rules that are effective in the largest number of financial decision-making situations and, if so, whether learning from these rules is possible.

These issues are particularly relevant for educating young people. On the one hand, financial education for young people is usually allocated somewhat more time than standard financial literacy programmes for adults and the ability to absorb new information is higher at a young age (Kaiser and Menkhoff, 2020). On the other hand, young people's social experience is insufficient to perceive the information they receive as relevant for immediate problems ((Kaiser and Menkhoff, 2017), (Miller et al., 2015)). However, classical RCTs for programmes that need to be implemented in schools or universities for any length of time are often difficult due to the inability to truly randomise participants.

2.1 Relevant Research in Europe

The rapidly growing literature on the impact of financial education on financial literacy and financial behaviour has overwhelmingly focused on the US (Angel, 2018) and developing countries in Asia, South America and Africa. For example, in a meta-study (Kaiser et al., 2021) covering 677 estimates, only 7% come from Europe, while the US, India and South American countries account for 27%, 18% and 13% respectively. Of the 13 European studies of interest in Europe, 7 were conducted in Italy (Becchetti and Pisani, 2012), (Billari et al., 2017), (Romagnoli and Trifilidis, 2013), (Becchetti et al., 2013), (Brugiavini et al., 2015), (Fort et al., 2016), (Migheli and Moscarola, 2017)), 1 more in Austria (Angel, 2018), Bosnia and Herzegovina (Bruhn and Zia, 2013), Finland (Kalmi, 2018), Netherlands (Kalwij et al., 2017), Germany (Lührmann et al., 2018) and Spain (Bover et al., 2018). However, the first 3 Italian studies from the list above focus exclusively on the impact on financial literacy, while the papers [16] and [20] deal with the behaviour of children aged 8-9 and 10, so are not of practical interest for current study.

(Becchetti et al., 2013) is one of the first European works in a randomised trial format, the authors of which tried to measure the behaviour of a large group of Italian schoolchildren from Rome and Milan with test questions and tasks about a hypothetical 4-year investment strategy choice. Sufficiently rigorous statistical analysis, however, showed the resulting dynamics to be statistically insignificant.

One of the most interesting results from (Brugiavini et al., 2015) is the increase in subjective knowledge gain scores of students at an Italian university after watching a 20-minute video lecture on basic financial concepts, outperforming objective measures of knowledge gain. The objective knowledge gains were measured by the researchers using the same questions that were used to measure the input level of knowledge (to the order of answers and the magnitude of some numerical values). This design was likely to overestimate real knowledge gains, making subjective knowledge gains even more distant from the objective level. The authors therefore rightly warn against the dangers of short courses in financial education, which can increase the overconfidence of young people and expose them to a higher risk of making rash financial decisions.

Angel in (Angel, 2018) examines the effectiveness of learning outside the teacher-student setup, comparing the effects of using a mobile budgeting app, a web research exercise and watching a documentary movie on household bankruptcy in Austria and finding no statistically significant changes in financial behaviour. The author concludes on the importance of student-teacher interaction, the experiences and feedback that students could get from playing realistic game situations in the classroom.

The paper (Bruhn and Zia, 2013) stands out in that it examines in a RCT format the financial performance of young business borrowers after a comprehensive business and financial education programme based on detailed data from the financial institution that lends money to these businessmen. Interestingly, this group statistically significantly improved their performance on the indicator that their financial education was focused on (capital investment among young businesses) but showed no significant difference in the main business outcomes (profitability and survival of the business). This result may serve to illustrate the paternalistic approach in which the outcome promoted by training is not the same as the outcome that is meaningful in real life.

(Kalmi, 2018) measures changes in students' financial knowledge and their self-reported savings behaviour for a large sample of Finnish pupils participating in a financial literacy education programme sponsored by one Finnish bank. The main results are that there are positive effects of financial education on financial knowledge, but no significant effects on savings behaviour. The author notes, however, that at this age, saving is rarely significant, and for most pupils spending these sums would be a utility-maximising decision. However, there is a correlation between increased knowledge and enhanced savings behaviour, which suggests that quality financial education can lead to positive changes in financial behaviour in the future.

The work (Lührmann et al., 2018) investigates the impact of a short course (5 modules of 90 minutes each) for 13–15-year-old German schoolchildren on incentivized intertemporal choices. The authors have done a great job in adapting the methodology (Andreoni et al., 2013) for pupils. But it seems that having to make 7 x 3 choices on rules that are not familiar to pupils hardly makes it possible to speak about the closeness of the task to real life. Not coincidentally, one of the results obtained by the authors is no significant change in allowance money, spending and saving in response to participation in the program.

(Bover et al., 2018) is a randomised evaluation of the effectiveness of a large-scale educational programme "Finance for All" for 15-year-old Spanish pupils, run by the BdE (the Spanish Central Bank) and the CNMV (the Spanish equivalent to the Security Exchange Commission). Overall, the programme proved to be quite successful, but we would like to draw attention to the poor choice of one of the targeting indicators - having a bank account or charge card used as an indicator of saving behaviour. The survey revealed that only 6 percent of students did not have any savings at the start of the programme, so progress on this indicator was statistically almost indistinguishable from zero.

Summing up this part of the paper we would like to note the validity of the remark of the authors of the (Ambuehl et al., 2016) that research on pedagogical design requires deep study of more focused interventions to achieve a detailed understanding of the mechanisms through which such interventions influence behaviour.

3. Bringing Learning and Assessment Closer to Real Life

The design of this quasi-experimental study was developed in early 2021 to test the possibility of forming a new behavioural pattern (analysing all relevant information before choosing a financial product or service). The authors of the paper (along with two other colleagues from the Faculty of Economics at Moscow State University) were to deliver approximately the same financial literacy course (90-minute lectures only) in the spring semester to three groups of students from different faculties. The differences were in the number of classes for each group (12, 14 and 16) due to timetable specifics and the format (due to coronavirus restrictions two groups studied entirely in distance format, one in mixed format). It was not possible to arrange randomisation of elective enrolments, but an entry and exit behavioural survey was conducted in a further seven groups used as quasi-controls. Students in these groups did not attend the financial literacy course.

3.1 The Training Course as a Real-Life Experience

The course evaluation system is formulated in fictional digital currency *econs*, which, according to the legend communicated to the students, are issued and held in their accounts by a fictional bank *Econombank* specially created for this purpose by the authors. Students receive *econs* to deposit for answering financial literacy tests, as well as for playing a game to determine their level of risk appetite.

After each lesson, students receive additional *econs* to their account, earned as a result of correct answers to the test at the end of each lesson, as well as income according to the terms of the selected account (the terms of the least profitable account imply a negative income and the option to pay - with the loss of some *econs*) - to transfer funds to an account with different terms). Before choosing a financial product, students take a final test in the last session. This is a test of their output knowledge and an opportunity to earn *econs*, the full amount of which, according to the conditions, must be invested in the chosen investment product. The conditions in the last behavioural study are formulated in such a way that if a financial product is chosen correctly, the amount invested is doubled, and if incorrectly, it is reset to zero.

3.2 Financially Literate Behaviour and How to Measure It

When selecting the indicators of financially literate behaviour, we applied the principles of verifiability of the real behaviour (according to this criterion, the skills to pay obligations and to save were rejected) and universality, that is, the representation of the skill(s) in all topics of the course.

Table 1. Behavioural Indicator “Information Analysis Skill”, Its Components and Metrics

Behavioural components	Treatment metrics
Seeking all relevant information about the alternatives and making an informed choice	Click on the terms and conditions pages of all products, time of reading
Resistance to advertised disadvantageous options	Not clicking on the advertisement or returning to the other options after reading the contract of the advertised product
Assessing risks and understanding the terms of the contract	Answer to the question after choosing a product: how much you can be guaranteed to gain from the chosen financial product
Ability to choose the best option after analysing the information	Making the right choice

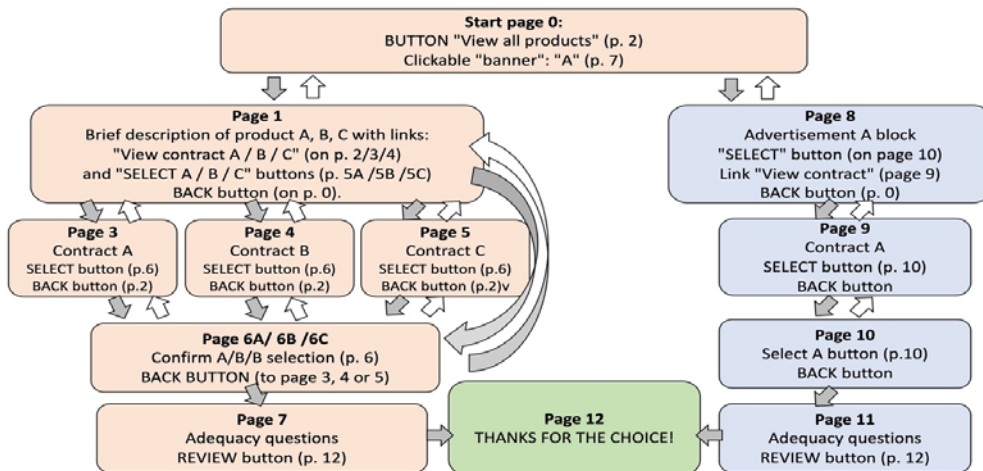
Source: Own elaboration (2021)

Based on this the *information analysis* skill was chosen as the main indicator of financially literate behaviour, since it is a basic skill for making all financial decisions, whether it be insurance or pensions, loans or savings, employment or protecting consumers' rights (although in (Kaiser and Menkhoff, 2017) the similar behavioural indicator “seeking information before making financial decisions” is assigned only to the Budgeting behaviour category). This skill was decomposed into more particular and more specific components (behavioural patterns), which can be unambiguously and objectively assessed within the framework of a behavioural experiment (see Table 1).

3.3 Experimental Design

To evaluate the change in selected behavioural patterns, the following quasi-experimental design was developed.

Input ‘experiment’. At the first lesson, students must choose a current bank account, where the points that they receive during the course are accumulated with the possibility of getting an interest income. The choice is proposed to be made on a specially created website of a fictional bank, which imitates the real banks websites. The bank's web page offers three options, one of which is advertised on a banner. Information on each account is presented both in a short form (short advertising description which is seen on the same page) and in the form of an agreement with the detailed terms of the account, to see which one should click the link (the choice architecture of the web site is shown in Fig. 1). The brief description refers to “weekly accruals up to X% per week”, and only in contracts one can find out about commissions that reduce the profitability of the account. The alternatives are formed in such a way that the most “profitable” at first glance account turns out to be the most disadvantageous. To find out which account is really the most profitable, one needs to read all 3 contracts.

Figure 1: The Architecture of Choice on the Bank's Website

Source: Own elaboration (2021)

Output 'experiment'. At the last lesson of a course, students undergo an experiment aimed at testing the same information analysis skill, the same behavioural patterns, using the same metrics. Here students must choose an investment product where they invest all the points they have earned during the course. The task is to choose a product with the highest guaranteed profitability, in this case the students double their points, otherwise they lose all the points. To understand which investment account is really the most profitable, one needs to read the detailed conditions of all products. As in the input experiment, the short descriptions of investment products provide some yield values creating an illusion of information sufficiency for making the right decision. One of the products is also advertised on a banner, promising an incredible income. The detailed conditions of the investment products are drawn up in such a way as to disperse attention (graphs, information on a profitability in past periods), whereas the key information on the guaranteed profitability is formulated in several consecutive sentences, which is more complicated compared to the banking account contracts in the input experiment, where the texts of contracts are identical except for the size of commissions. Thus, the choice situation is realistic and at the same time it is analogous to the input experiment, with the only difference in the type of products and more complex content. Some increase in complexity is necessary to avoid repetition of the learned situation in the input experiment.

The treatment is a course on financial literacy itself. At each lesson a lecturer emphasises the importance of the target behavioural patterns (in the frame of the topic), accompanying it with examples both orally and visually, in the presentation slides (at least 5 times).

3.4 Results' Evaluation

The student's behaviour is considered financially literate if he not only chooses a financial product with the best conditions (component No. 4), but also reads all three contracts before (component No. 1) and understands their conditions (component No. 3). Choosing the "right" product is not enough to assess financial literacy, since it can be chosen unconsciously, "by a wild guess", or following the advice of a more literate friend. For this reason, additional behavioural indicators (1 and 3) are added, as well as a question to track whether students understood the terms of the contract and risk level of the product. We also use web analytics tools, allowing us to track clicks on the web pages and the time spent on each web page. Additionally, resistance to deceptive advertising was tested (component No. 2).

3.5 Motivation of the Participants

The motivation is another challenging point in the study design. To make students choose deliberately first we integrated their performance in input and output experiments into the assessment system: in both cases the choice influences directly the amount of points students earn and therefore their course grade. Also, at the beginning we announce to reward three students who score maximum with valuable prizes (this motivates students to show the best result at each stage and participate in each stage). Finally, a weekly track on “income” is, in our opinion, a powerful motivation: starting from the first lesson, each student receives information about the earned “income”, that is, the number of *econs* accrued or deducted from the account in accordance with the terms of the contract.

4. Conclusion

As we know, general education is an important mechanism of culture’s transmission (Ardielli, 2020). In this paper we have tried to explore in more detail the link between financial education and financial culture. We consider our research as a contribution to the solution of the question whether it is possible to influence not only the “knowledge” component, but also the “behaviour” component in the process of taking a course in financial literacy for young people. It has additional value for there is little research about this group and there is no data based on classroom experiments using financial services simulators in the Russian Federation.

The detection of changes in behaviour using the financial services simulator and immediately after the course is due to the low involvement of young people in financial activities, which makes it difficult to track the effect in real life, as well as the need to minimise the impact of other influence factors that increase over time.

In our case, the objective obstacles for conducting a perfect experiment were as follows:

- Features of the curriculum of the university, which make it impossible to randomise students. Financial literacy was taught to those who chose the course; therefore, it was not possible to teach only randomly selected students.
- Remote format of lectures and behavioural research. It is more difficult to control the independence of students' answers and product choice, as well as to be sure that the treatment group listened attentively to the lectures and was really treated.
- Features of the web analytics software with which the students' behaviour (their paths on the fictional bank website) were registered. During the study, it turned out that the originally used web analytics software deletes records after 2 weeks, thus some input data was lost which made the comparison impossible.

However, we hope that the study design description and the revealed problems will help researchers in studying the issue.

We plan to continue our work. Now, it is impossible to completely solve the problem of randomization and distance learning. But we have made several changes to the learning process and study design to obtain more reliable results:

- For greater involvement into the learning process, we apply modern methods of distance learning, including games.
- To reduce the motivation to cheat, we do not include the points gained during the experiments into the assessment system, which means that the course grade is not influenced by the performance in the experiments; however we still reward the best students with valuable prizes.
- We apply the web analytics software that saves results.

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Concept of Smart City: Smart Public Goods in Czech Republic

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Abstract

The paper aims to define public goods in the context of the concept of Smart City and to state which Smart public goods can be found in the public space of the Czech Republic. Smart City is a concept of a developed City based on sustainable economic development and quality of life based on the efficient use of human and social capital and modern information and communication technologies. From this point of view, Smart public goods can be considered a key element in the application of the Smart City concept to the real public space of cities and municipalities. These Smart public goods have specific characteristics and create additional added value that distinguishes them from standard public goods. The intention of this rather overview article is to try to name and categorize these goods in the Czech Republic and define their innovative and user benefits, which distinguishes them from standard public goods provided by the public sector in our municipalities and cities.

Keywords: Czech Republic, Public sector, Public space, Smart City, Smart public goods

JEL Classification: H41, O31, P53

1. Introduction

The municipality (municipality, city) is undoubtedly the most important public space on the territory of any state, in which most of the public goods provided by the public sector are concentrated, with the aim to improve the quality of life of its citizens and to increase the level of individual and social existence. Public goods and their specific nature are also one of the supporting elements of the Smart City concept, whereby a given city can be considered intelligent - smart if it uses a participatory governance model (Vitálišová et al., 2021), invests in the development of human resources, social capital, traditional and modern infrastructure, thus achieving sustainable economic growth, high quality of life and efficient use of natural resources (Caragliu, Del Bo and Nijkamp, 2011, Kršeková and Pakšiová, 2014 or Mahizhnan, 1999). A smart city is a city - a municipality that is extremely concerned about the quality of life and where citizens are actively involved in the governance of public affairs (Dominici 2012; Borseková, Vaňová, Vitálišová, 2016), i.e. they decide, among other things, precisely on the need and choice of specific public goods. Based on current knowledge and approaches of theory and practice, we consider smart cities to be the most efficient cities that are constantly looking for new opportunities for "sustainability and resilience" (Vaňová, 2021, p. 135).

The present paper attempts to synthesize two sub-areas of economic theory and practice, which are (1) public goods traditionally included in the sphere of public economics and (2) the Smart City concept, which integrates elements of the concepts of smart and innovative cities, circular economy, sharing economy, Industry 4.0 (see also Lom et al., 2016), and the concept of sustainable development, the underlying purpose of which is to deepen the well-being and satisfaction of citizens while preserving cultural, historical and social traditions and connections (Turečková and Nevima, 2019 or Staníčková and Melecký, 2014 or Vrabková and Bečica, 2021). Thus, public goods create precisely the type of goods and services most often provided by the public sector that can possess the attributes that define the essence of the Smart City concept and thus extend the functionality and effectiveness of the standard public good by an additional, user-friendly, dimension.

The paper offers innovative solutions on two levels. Firstly, it is the intention to define the term itself - the concept of Smart public good(s) with reference to the reflection of the Smart City concept and at the same time summarizes the most frequently provided "smart" public goods in the Czech Republic. These individual goods are briefly characterized with regard to their functionality and effectiveness in relation to additional benefits for citizens, which they offer by their "smart" nature beyond the standard public goods traditionally available in the public space of Czech cities and municipalities.

2. Definition of Smart Public Goods, Methodology and Data

As already mentioned above, in order to determine which public goods we consider "smart", we must first define the public good and then modify and expand this definition with reference to the attribute "smart", which narrows the concept of public good by the specific characteristics inherent in the Smart public good.

The essence of the second stated aim is to find the most common Smart public goods in the public space of the Czech Republic and to characterize them with regard to their added utility value for the inhabitants and visitors of our cities and municipalities.

2.1 Smart Public Goods

At the outset, it should be noted that the very definition of public goods is not always unambiguous, although it has been a widely used term in public economics and its practical application in real economic and social life since the founders of classical political economy (D. Hume, A. Smith or J. S. Mill). Debates can be conducted regarding the definition of public goods themselves (broader and narrower concepts), then on the specific link to the public sector, and finally, the characterization of two key properties of public goods (non-diminishability and non-excludability) and their content and temporal relativity may appear as a problem. With reference to the above, we will offer our concept of public goods, which reflects the scientific approach and combines it with the experience that many years of professional practice have brought us: „public good is a product or service that is available to all those who subjectively want or objectively need it, in a rational quantity immediately or in sufficient numbers over a longer time horizon“ (see also Turečková, Nevima and Varadzin, 2022; Mikušová Meričková, B. et al., 2017).

The systematic examination of public goods on the basis of contemporary standard economics is associated with the name of P. A. Samuelson, who in his classic work Economics listed the properties of public goods (non-rivalry and non-excludability), by which he primarily defined them (Samuelson, P. A. and W. P. Nordhaus, 2010). For example, Mankiw (1999) states a third property of public goods and that is the zero marginal cost of each additional consumer's consumption. Currently, public goods are understood as those which, by the consumption of one subject, do not exclude another subject from consumption, and their consumption does not

reduce the benefit of such a good to anyone. Their impact on all members of society is the same, and therefore there are zero marginal costs. Public goods are thus characterized by two key properties: (1) non-excludability (non-rivalry) and (2) non-diminishability (indivisibility). These goods are the so-called "pure" public goods, where outside this category we further distinguish mixed or club goods (see Sandler, 1998 or Varadzin, 2017). Let us add that most public goods are financed by public budgets, are "offered" in public space and benefit the whole society (Vavrek and Bečica, 2020). They are also consumed automatically or facultatively. In practice, the degree of excludability and rivalry varies for different public goods (Varadzin, 2016 or Buchholz and Sandler, 2021). Returning to our definition of public goods, the condition of non-excludability is reflected in "available to all" and non-diminishability in "a rational amount ... or a sufficient number ...".

As our paper deals with Smart public goods, it is also necessary to define the characteristics of a public good that predestine it to be "smart". As already mentioned, the most frequent emphasis today is the association of the term "smart" with the city (in the context of public space, municipality), i.e. within the concept of Smart City (Bárta et al., 2015 or Gil-Garcia, Pardo and Nam, 2015). This concept started to develop in the late 1980s and has gradually received significant success (Anthopoulos and Vakali, 2012) as well as modifications (Nevima et al., 2018). Thus, attaching the term "smart" to any word emphasizes a thoughtful and innovative approach, which is generally characterized by the use of highly sophisticated analytical methods, procedures, communication and techniques for designing goals, procedures and planning, and refers to the whole field of transferring smart solutions into tangible and intangible innovations (Nevima et al., 2018 or Angelidou, 2014).

In the context of public goods, we will consider as "smart" such a public good that, apart from its classical and generally expected function, will offer "something extra", which is reflected in technological and technical innovations, offers added value in the field of ecology, sustainability or utility and/or has properties supporting the creation of additional positive externalities (Stejskal et al., 2018, Turečková, Nevima and Varadzin, 2022) including the ethical dimension (MacGregor Pelikánová et al., 2021). In other words, these Smart public goods have specific characteristics and utility-user functions, thus creating additional added value that distinguishes them from conventional public goods. Thus, the adjective Smart in the context of public goods refers to the fact that the product or service has an additional - new dimension that adds to the existing public good with "additional externalities, innovative and functional aspects offered and consumed in a responsible way and with a positive impact on society". By combining the above, Smart public goods (when economically acquired and offered in the desired way) contribute to the quality of life of residents while increasing the satisfaction of non-residents and visitors.

2.2 Methodology and Data

From a methodological point of view, the present paper is based on a combination of a traditional description of the current state of knowledge combined with a deductive approach, especially in defining Smart public goods, see above. Here it was a synergy of partial knowledge and theory from the public sector, public goods and smart features (properties, characteristics) based on the Smart City concept. The theoretical background is based on research of scientific and professional sources. The definition of Smart public goods itself is original and is the result of a mutual synthesis of the essence of public goods and the adjective "smart" in its general form, but with the reference to key characteristics and defined assumptions based on the Smart City concept.

As for the data set for the list of Smart public goods in the Czech Republic (see below), it was created on the basis of a positive approach by analysing a considerable amount of publicly

available information, which was searched on the Internet or in the press and supplemented by the authors' own experience and knowledge. For this reason, in most cases, it is not possible to cite specific sources of information for individual Smart public goods. It is not the authors' intention in this paper to evaluate the effectiveness of Smart public goods.

3. Smart Public Goods in the Czech Republic

The first Smart City in the Czech Republic is considered to be the city of Písek, which was followed by other municipalities such as Prague, Brno, Ostrava, Pardubice, Jihlava, Olomouc, Kolín, Litoměřice, Písek, Třinec, Tábor, Chomutov, Mladá Boleslav, Prostějov, Opava, Přerov or Příbram, Hradec Králové, Třebíč, Bruntál or Hrušovany nad Jevišovkou (Union of Towns and Municipalities of the Czech Republic, 2020). These municipalities have already fully or to a limited extent linked their Smart strategies with regional innovation strategies based on the National Research and Innovation Strategy (ÚV ČR, 2018). These municipalities are usually more involved in the provision of Smart public goods, which is based on their nature, but a number of Smart public goods can be also found outside such conceptually involved cities (e.g. Smart Czech Republic, 2020). The most commonly used Smart public goods include: (1) smart benches; (2) various types of information boards; (3) parking systems and transport including multifunctional charging stations; (4) litter bins and containers including waste collection systems; (5) public lighting; (6) security cameras and embedded sensors measuring air quality, temperature, noise, etc.; (7) public portals, public Wi-Fi, mobile radio, etc.; and (8) smart cards. We will briefly introduce these individual selected smart public goods, we will state the standard - traditional public goods, thus emphasising their added value and benefits for their users, which by their very nature should be positive, whether in terms of time savings, financial costs, increased comfort in the actual use of the goods or with reference to the acceptance of social or environmental responsibility. Let us add that it is common to find these sub-smart public goods together, i.e. a smart bin and an information board next to a smart bench.

Figure 1: Smart Public Bench in Prague and “Standard” Bench in Luhačovice



Source: smartprague.eu; own (2021)

Smart public benches differ from the standard ones in additional features, renewable energy use, material, design and price. Apart from the ability to sit down, i.e. the basic seating function, smart benches usually have innovative features such as solar panels and a battery that can charge a phone or laptop via USB, conventional power sockets, a hotspot for local Wi-Fi, are equipped with LED lighting (dimnable and motion-sensitive), can include a small weather station (measuring temperature, humidity, air pressure, etc.), a station for recording the noise level, specific sounds (gunshots, breaking glass, calls for help and other) or the concentration of airborne dust or CO₂. They may also have sensors to measure the use of public space and

the number of people, built-in LCDs for advertising or other information (e.g. via QR codes), and may include bike racks for cyclists, air compressors, or chargers to recharge them. Some benches also have heat-regulated seats or a wireless charging system. The smart benches are made energy independent through built-in solar panels and batteries that enable them to operate even on days without sunshine, they are made of durable materials, easy to maintain, environmentally friendly, fulfilling the principles of social responsibility, supporting the local design character and reflecting the urban aspects of the metropolis. It is often stated that smart benches are a 100% self-contained system that operates 24/7 in all weather conditions and situations. As a matter of interest, let us add that prices of smart benches range from 100 thousand CZK (4,000 EUR) upwards (the usual price is about 200 thousand CZK, i.e. 8,000 EUR). The price of standard benches ranges between 5,000 – 10,000 CZK (200 EUR – 400 EUR) (Turečková, Nevima and Varadzin, 2022).

Other public goods that, if it has innovative and interactive elements and thus it is different from the traditional information sign or board, can be called Smart information board. These boards provide up-to-date information for citizens and visitors in a number of areas - information about the municipality, opening and waiting times at offices, weather, timetables, traffic situation, parking options and closures, medical emergencies and health services, accommodation, dining or leisure options, cinemas or theatres programmes, cultural and sporting events of the city, etc. Everything is connected to the map display, either finding the optimal transport connection or directly contacting the place via QR code. The boards are usually powered by solar energy and illuminated by energy-saving lighting, they have a hotspot and a touchscreen and provide the possibility to charge a phone or another mobile device. These smart boards can be complemented by a camera system and/or sensors to detect noise, dust and other airborne contaminants.

There are many possibilities in the field of smart parking systems, the mode of transport as such and the possibility of recharging vehicles. Typically, parking systems will indicate by a light signal where free space is located and, together with a potential app, will guide the driver to that space by the shortest route. Free spaces are also provided to drivers in the form of information boards or web applications. The possibility of paying for parking online and the possibility to extend the parking fee "remotely" at any time is offered. At the same time, smart parking systems (in combination with a camera system and a number plate recognition system, which can also be combined with online payment for parking) facilitate the work of the municipal police, who have a faster and more efficient way of controlling or solving accidents. This also includes the construction of park-and-ride car parks in the peripheral areas of cities and municipalities. A number of cities and municipalities are moving towards sustainable transport or shared mobility, with efforts to promote and gradually switch to electric, hydrogen or hybrid vehicles, to build smart bus stops and to provide passengers with instant data on arrivals, departures, routes or public transport occupancy via information boards. Let us add that it is standard that these smart public transport vehicles have public Wi-Fi, air conditioning and indoor information boards and can often be paid for with a smart card (key fob), see below. There is the potential to incorporate air purifiers or charging devices. As far as multi-functional charging stations are concerned, they are either integrated into smart benches, information boards or other devices and form a separate element in the public space, or are in the form of solar charging stations for e-bikes and possibly other mobile devices. A pressure gauge, compressor and other smart elements - lighting, hotspot, sensors, information boards, etc. are often included.

Other Smart public goods include components of the waste collection system, in particular the bins and containers themselves, which have monitoring (ultrasonic) sensors that measure the fullness of these bins and containers connected to the waste collection system. These are

thus collected by the cleaning company when required. Internal compactors are also installed in these facilities to continuously compact the waste, thus allowing more of it to fit into the bin or container. This also includes the shape of the bins, the material used, the way in which the waste is placed (so that it cannot be removed again, to prevent odours coming out or accessibility for animals (flies, wasps, rats, etc.)). The intention is also to identify specific locations in the urban area that will be most suitable for the placement of bins or containers with a view to promoting waste separation. It can also be recommended in the context of public tidiness that the area around the smart bins be monitored by CCTV.

Figure 1: Smart Litter Bin in Olomouc and “Standard Full” Litter Bin in Žďár nad Sázavou



Source: olomoucka.drba.cz; own (2021)

Public lighting is another attribute of public space that can be categorised as Smart with respect to innovation. Firstly, public lighting is suitable for the integration of various detectors, sensors, amplifiers and cameras (see below), the use of special bulbs that are low-energy, have longevity and colour variations that do not dazzle drivers, illuminate only the desired space, do not confuse animals in their natural behaviour with their "glow", reduce light smog, or react to movement, and operate on the principle of dimming/lighting. The intensity of the radiation provided (automatically or remotely controlled) also responds to the weather and natural light levels. The poles can be equipped with solar panels and batteries, which allow the lighting to be used even in the event of a power failure.

Many of the previously mentioned smart goods in public space can integrate security features such as cameras, sensors and detectors. Through visual recording, security cameras provide current and past information about a given location and the events that have taken place there, but thanks to modern technology they can predict and warn of undesirable scenarios that may arise from human behaviour and situations. At the same time, they play the role of crime prevention. Another area is special sensors that detect the sound of a gunshot or a call for help and trigger an alarm. Similarly, sensors can be placed in car parks to react to the sound of breaking glass or crashing cars. The last type are sensors that measure air quality (levels of airborne dust, nitrogen dioxide concentrations, etc.), temperature, rainfall, amount of sunshine, ozone density or noise levels.

The standard nowadays, at least in municipal centres or public buildings, is publicly available Wi-Fi and "mobile radio" applications. The former allows residents and non-residents to connect to the internet free of charge, while the latter is a smart way for municipalities to communicate with citizens, mainly through mobile phones compatible directly with the Mobile Radio web application (mobilnirozhlas.cz, 2022). Through the mobile radio

application, information (in the form of SMS, e-mail or other forms of messages) is sent to logged-in users about power outages or repairs to water mains, cultural and sporting events, lost animals and people, changes in the opening times of public institutions, warnings about unusual weather events (floods, snow calamities, black ice), etc. Mobile radio is usually linked to the information provided by conventional municipal radio via amplifiers and information available on public portals and websites of the cities and municipalities. These allow many cities and municipalities in the Czech Republic to communicate with their citizens and visitors. This communication is not always one-sided - the municipality provides information to the citizen, but is based on a two-way relationship, where the citizen also uses the portals or applications to report local defects, the occurrence of illegal dumps, may report a finding or a loss (e.g. of a pet, wallet), comment on the participatory budget or upcoming public notices, etc.

The last type of relatively common Smart public goods are various smart cards (key fobs), which integrate a variety of functions, including public ones, and are an example of an innovative approach to the functioning of the urban unit and the lives of its citizens (chytraklicenka.cz, 2022). These are multi-purpose smart cards (co-)issued with the contribution of the respective municipality. These smart cards are not only pre-paid cards that also serve as standard payment cards, but also provide access to a number of public institutions (libraries, community centres, schools, school canteens, public sports facilities, etc.) and, together with the identification of their owner, they allow the use of various discounts not only in the public sphere (when paying in public transport, using car parks, local playgrounds or gyms, or when entering public events), but also in the private sphere (local businesses can offer discounts or other benefits to cardholders). For example, health data can be stored on smart cards (an electronic version of a personal health card). They can also allow owners to enter otherwise traffic-restricted areas of the city or allow them to park in specially designated areas.

4. Conclusion

This conference paper intended to present the issue of Smart public goods in theoretical terms and at the same time to introduce and characterize some Smart public goods that can be found most often in the public space of cities and municipalities in the Czech Republic. Common are smart benches, smart litter bins, various types of public lighting and monitoring sensors, innovations can be found in parking and public transport systems, in many places it is possible to draw information from smart boards and public Wi-Fi or receive it through mobile devices or by registering on local portals of specific municipalities. In many cities, smart cards (key fobs) serve as a single identification and payment document. These smart public goods increase user convenience, combine a greater number of otherwise separate functions or are environmentally friendly. The Smart public goods and their provision should be the backbone of the Smart City concept, which must, however, be limited by the requirement for cost-effectiveness in their acquisition and the public need to make real use of these public goods.

The authors also attempted to create a definition of Smart public goods, which they presented earlier in the paper. Thus, a Smart public good can be considered as a public good "that is available to all who subjectively want or objectively need it, in a rational quantity immediately or in sufficient numbers over a longer time horizon, and that has (compared to a standard public good) additional externalities, innovative and functional aspects offered and consumed in a responsible manner and with a positive impact on society".

By defining and identifying smart public goods in the public space of Czech municipalities, a practical area was defined for the potential analysis of the effectiveness of the existence of these public goods and, in general, the need to purchase these goods from public sources. Pilot parallel research on "smart benches" has shown the current significant economic inefficiency in the purchase, location and care of this type of public goods and the ongoing questionnaire survey suggests that the public does not know about the existence and usefulness of smart benches at all or does not need to use them.

Acknowledgements

This paper was supported by the project CZ.02.1.01/0.0/0.0/17_049/0008452 „SMART technologies to improve the quality of life in cities and regions" co-funded by the European Union.

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A Consumer Behaviour Study: Is the Country of Origin Important Factor in the European Union Beverage Market?

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Abstract

The paper deals with the topic of the country of origin impact on consumer purchase decision in the European Union beverage market. Its aim is to determine whether the indication of the country of origin influences consumer decision when buying beverages and whether there are differences in country of origin importance between beverage categories. Consumer preferences of country of origin in selected beverage categories and their attitudes to these countries were also examined. Theoretical background is devoted to impact of country of origin on consumer attitudes and their purchase decision making. In empirical part, the results of research study realised by questionnaire survey on the sample of 200 respondents are presented. Four beverage categories including wine, beer, coffee and tea were examined. The survey showed that the country of origin is important to consumers to some extent, but the importance of this factor varies across the categories of beverages under review. The country of origin plays the most important role for consumers when buying wine, followed by beer.

Keywords: consumer attitudes, consumer purchase decision, country of origin, European Union beverage market, survey

JEL Classification: C83, D12, L66, M31

1. Introduction

Consumer purchase decision is influenced by many factors, such as brand, price, packaging, product design, quality characteristics of a product, environmental, ethical and health aspects etc. In global market where consumers are exposed to a wide range of foreign products, a key role plays the country of product origin (Velčovská and Valečková, 2018). For customers it is important to know where the product comes from to make informed decisions. Country of origin can signal a product quality, support faster decision making, facilitate purchase decision in the case of an unknown brand of a product, and serve as a competitive advantage against competitor products whose origin is not clear.

The paper is focused on the beverage market and the importance of country of origin in consumer purchase decision when buying beverages is examined. Four categories of beverages were selected as as commonly purchased, namely wine, beer, coffee and tea. The aim was to find out whether there are differences between them in terms of the importance of the country of origin. The theoretical background of the topic is followed by the research methodology and the presentation and discussion of the research results.

1.1 Country of Origin Effect

Country of origin effect is broadly understood to be the influence the “made in...” factor has on consumers’ perceptions of goods (Morton, Rivers and Healy, 2004). This phenomenon occurs when consumers infer that the characteristics of a country transfers onto a product or a brand (Holt et al., 2004; Pharr, 2005). Country of origin has a significant positive effect on purchase intention (De Nisco and Oduro, 2022; Khouaja, 2021). The influence of country of origin depends not only on country image, national stereotypes or consumer ethnocentrism, but also on brand knowledge and experience, product type and product involvement (Yang, Ramsaran and Wibowo, 2016). According to some studies, consumers tend to have a relative preference for or aversion against products originating from certain countries as they are influenced by the country image (Oberecker, Riefler and Diamantopoulos, 2008). The probability of purchasing the product made in a positively perceived country is much higher compared to competing products (Kalicharan, 2014). Zamazalová (2010) emphasizes that the only factor that could lead consumers to buy a product from a lesser-perceived country instead of a product from a country associated with high quality is price.

In the context of the European Union (EU), it is often possible to find a situation where the product is labelled "Made in EU", which provides consumers with relatively unclear information about the origin of such a product, given the diversity of the member States of the EU. "Made in EU" information is most often used by countries, which are often associated with lower quality expectations. By this "neutral" origin, they thus reduce the risk that consumers will be deterred from purchasing the product (Štrach, 2009).

Despite the positive perception of certain countries, some consumers are ethnocentric and favourably predisposed to products from their own country because they desire to support local or national economy, or a believe that domestic brands are more trustworthy and better meet their needs or tastes (Kalicharan, 2014; Yang, Ramsaran and Wibowo, 2016). Consumers with high level of ethnocentrism have a less favourable attitudes towards foreign brands. (Wanninayake and Chovancová, 2012). A higher level of consumer ethnocentrism is important in product evaluation among frequent purchasers (Yang, Ramsaran and Wibowo, 2021). Research on the relationship between consumer ethnocentrism and demographic characteristics shows that that men are more inclined to domestic products than women, and older people have a rather negative attitude towards foreign products. The younger generations and people with higher education tend to have a lower level of ethnocentrism and are more open to buying imported products (Chryssochoidis, Krystallis and Perreas, 2007; Veselá and Zich, 2015; Wanninayake and Chovancová 2012).

Product categories also play a central role in determining the country of origin effect (Andéhn et al., 2015; Josiassen et al., 2013), and the importance of the country of origin may vary across product categories. Some types of products are also associated with specific countries owing to their legacy, culture or lifestyle, which automatically leads to perceive them as premium, so consumers may prefer such products from these countries. Roth and Diamantopoulos (2009) refer to this effect as the Product - Country Image. The compliance of the product category with the image of the country is therefore an important element in the product evaluation process and in the subsequent purchase decision (Josiassen et al., 2013). Crouch, Orth and Lu (2016) argue that stereotypes that people usually have about individual countries of origin can discourage consumers from purchase if they do not match the product category.

Another interesting aspect is the relationship between the effect of the country of origin and the brand. The country of origin effect is more significant in situations where consumers are not familiar with the brand, where additional information is not available or difficult to obtain (Cristea, Capatina and Stoenescu, 2015).

2. Problem Formulation and Methodology

Previous studies examining the influence of country of origin on consumer decision-making are either outdated, focus on other product categories, examine only a specific generation of consumers, or were conducted in a specific country. Due to the lack of a study comparing the importance of country of origin for different beverage categories among Czech consumers, the following research was conducted. Its main objective was to identify the impact of country of origin on consumer purchase decision and to determine whether there are differences in the country of origin importance between the four selected beverage categories. For the research, beer, wine, coffee and tea were chosen as commonly purchased beverages on the Czech beverage market. Furthermore, the consumer attitudes towards selected EU countries as producers of beverages available on the Czech market and consumer preferences for countries of origin in individual beverage categories were also examined. Data were collected through a questionnaire survey based on a structured questionnaire.

2.1 Sample of Respondents

The sample consists of 200 respondents selected by quota sampling methods by gender and age structure of Czech population 20+ (Table 1). Structure of respondents according to education was also monitored. One quarter of respondents have a bellow secondary education, 45 % secondary education, 31 % respondents have completed university degree.

Table 1: Structure of Respondents (%)

Age category	% of Czech population		Number of respondents	
	Men	Women	Men	Women
20 - 34	12	11	24	22
35 - 44	10	9	20	18
45 - 54	9	9	18	18
55 - 64	8	8	16	16
65 and more	10	14	20	28
Total	49	51	98	102

Source: Own elaboration based on Czech Statistical Office [online] (2020)

2.2 Data Analysis Methods

Data analysis was performed using the IBM SPSS Statistics 27.0 and Microsoft Excel software. In addition to routine analyses, statistical tests were used to determine whether there are differences in consumer attitudes with regard to the type of beverage or socio-demographic characteristics.

Pearson Chi-square test at 0.05 level of significance was applied to test the differences between categorical variables. The hypothesis H_0 assumes that there are no statistically significant differences between variables, the hypothesis H_1 presumes dependency of variables.

Before the one-way ANOVA, the Cronbach's alpha was calculated to see if multiple-question Likert scale surveys are reliable. Cronbach's alpha is the most common measure of internal consistency (reliability), i.e. how closely related a set of items are as a group. A reliability coefficient of 0.70 or higher is considered acceptable and we can continue with ANOVA. The one-way analysis of variance ANOVA was used to determine whether there are any statistically significant differences between the means of three or more independent groups,

i.e. whether the means of the evaluation of the statements vary according to the type of beverage. The independent t-test for two samples allows to find whether there is a statistically significant difference between the means in two unrelated groups. The null hypothesis H_0 presumes that the means in the groups are equal, the alternative hypothesis H_1 presumes there are at least two group means that are statistically significantly different from each other.

3. Problem Solution

The results are structured into three sections: (1) the importance of the country of origin as a factor affecting the beverage purchases, (2) consumer attitudes to the beverage origin in purchase decision, and (3) attitudes towards EU countries as beverage producers.

3.1 The Importance of Country of Origin as a Factor Affecting the Beverage Purchases

The first part of the study was aimed at identification of the most important factors when purchasing beer, wine, coffee and tea. Respondents were asked to make order of seven factors including price, brand, beverage sensory characteristics and ingredients (i.e. quality characteristics), attractiveness of packaging, country of product origin (COO), advertisement (advert.), and certification of quality. Average order of factors with respect to type of beverage is presented in Table 2. Lower average means a higher importance of given factor.

Table 2: Importance of Factors Influencing the Beverage Purchases (Average Order)

Order	Beer	Wine	Coffee	Tea
1st	Brand (1.64)	Brand (2.42)	Brand (2.04)	Brand (2.06)
2nd	Price (2.97)	COO (2.73)	Price (2.70)	Price (2.72)
3rd	COO (3.18)	Price (3.31)	Quality char. (3.79)	Quality char. (3.48)
4th	Quality char. (3.65)	Quality char. (3.48)	COO (4.19)	COO (4.27)
5th	Packaging (5.34)	Certification (4.60)	Packaging (4.65)	Packaging (4.93)
6th	Advert. (5.44)	Packaging (5.20)	Advert. (5.22)	Advert. (5,15)
7th	Certification (5.73)	Advert. (6.27)	Certification (5.40)	Certification (5.39)

Source: Own elaboration based on data from IBM SPSS Statistics 27.0 (2022)

The country of origin was not ranked as the most important factor for any of the beverages. The highest ranking of the country of origin is for wine, lower importance has been revealed for coffee and tea. When buying beer, the country of origin is the third most important factor. The brand received the first ranking for all types of beverages, the second is the price, with the exception of wine.

Due to the fact that the brand and the country of product origin are often related, the extent to which the country of origin is important for the respondent in the case of an unknown beverage brand was examined. Respondents used 5-point scale, where value 1 means very important. In this situation, the country of origin is very or rather important for three-quarters of the respondents (41.5 % very important, 33.5 % rather important), and only 10 % of respondents consider the country of origin to be rather (6 %) or completely unimportant (4 %). 15 % of respondents have neutral attitude. The average level of importance is 1.96. This finding is consistent with the results presented by Cristea, Capatina and Stoenescu (2015), who found that the country of origin effect is more significant in situations where consumers are not familiar with the brand. The relationship between the importance of the country of origin when buying a beverage of an unknown brand and the gender, age and education of the respondents

was tested using the Pearson Chi-square test. Gender and age do not affect the perception of the importance of the country of origin (Sig. > 0.05), however the country of origin is more important for men (average importance 1.92) than women (2,01). It is least important for the age group 20-34 (average importance 2.13) and the most important for age category 55-64 (average importance 1.78). A statistically significant difference in the importance of the country of origin by education was found (Sig. = 0.016). The higher the education, the more important the country of origin is in the case of an unknown brand (average importance for respondents with university education is 1.74, with secondary education 1.93 and with bellow secondary education 2.31).

3.2 Consumer Attitudes to the Beverage Origin in Purchase Decision

Respondents' attitudes were measured using a battery of 5-point scales containing sixteen statements related to country of origin in selected categories of beverages. A value 1 express a "completely agree" attitude and a value 5 indicate a "completely disagree" attitude. The average values for each statement according to type of beverage are shown in Table 3.

Table 3: Agreement with the Statements (Average)

Statement	Beer	Wine	Coffee	Tea	Cronbach Alfa
When buying a drink, I always check the country of origin.	2.17	1.83	3.02	3.12	0.741
I always choose a drink made in the Czech Republic.	1.34	2.06	3.11	3.12	0.747
I like to try drinks from other countries.	3.48	2.44	2.14	2.31	0.769
I will buy a drink "Made in the EU" with confidence.	2.91	2.83	2.92	3.27	0.894

Source: Own elaboration based on data from IBM SPSS Statistics 27.0 (2022)

Respondents mostly agreed with the statement that they always choose beer made in the Czech Republic and they tend to check the country of beer origin. On the other hand, they don't like to try beer from other countries. For wine, the respondents check the country of origin when buying wine. They also tended to agree with the other wine-related statements. With regard to coffee and tea, the levels agreement with the statements were average. Respondents tended to agree only with the statement that they like to try coffee and tea from other countries. Respondents showed a high level of ethnocentrism when it came to beer. This corresponds with the results of Kalicharan (2014) and Yang, Ramsaran and Wibowo (2016), that consumers are favourably predisposed to products from their own country because domestic brands better meet their needs or tastes (Kalicharan, 2014; Yang, Ramsaran and Wibowo, 2016). For beer, the finding that consumers with high levels of ethnocentrism have less favorable attitudes towards foreign brands was also confirmed (Wanninayake and Chovancova, 2012).

Cronbach's alpha was counted for each set of statements. The reliability coefficients are higher than 0.70 in all cases (the last column in the Table 3), i.e. one-way ANOVA in MS Excel could be used to find out whether the means for each statement differ by type of beverage (Table 4). For all statements, p-value is less than significance level of 0.05 and F is higher than F crit, we reject the null hypothesis. The means are not equal, group means are statistically significantly different from each other, i.e. type of beverage affects the assessment of the statements.

Table 4: One-Way ANOVA: Agreement with the Statements by Type of Beverage

Between groups	Sum of squares	df	Mean square	F	p-value	F crit
When buying a drink, I always check the country of origin.	237.5774	3	79.19247	58.67201	3.18E-34	2.616261
I always choose a drink made in the Czech Republic.	444.1865	3	148.0622	132.4493	2.06E-69	2.616261
I like to try drinks from other countries.	215.2843	3	71.76142	71.72613	5.37E-41	2.616261
I will buy a drink "Made in the EU" with confidence.	22.35914	3	7.453046	4.320522	0.004941	2.616261

Source: Own elaboration based on data from MS Excel (2022)

To compare the differences between the means for each statement by gender, an independent samples t-test was performed. For all statements, the significance value was higher than 0.05, i.e. the means of men and women do not differ statistically significantly for individual statements, we accept the null hypothesis. Furthermore, a one-way ANOVA test was used to determine whether the means differ by of age or education of respondents. Differences were found for the five statements by age and for the seven statements by education (Table 5).

Table 5: One-Way ANOVA: Agreement with the Statements by Age and Education

Between groups	Sum of squares	df	Mean square	F	Sig.
I always choose coffee made in the Czech Republic. * age	22.646	4	5.662	3.959	0.004
I always choose tea made in the Czech Republic. * age	32.348	4	8.087	5.461	0.000
I like to try beer from other countries. * age	21.792	4	5.448	4.511	0.002
I like to try coffee from other countries. * age	11.812	4	2.953	3.573	0.008
I like to try tea from other countries. * age	28.282	4	7.071	8.388	0.000
When buying wine, I always check the country of origin. * education	7.927	2	3.963	6.404	0.002
When buying coffee, I always check the country of origin. * education	24.225	2	12.112	7.524	0.001
When buying tea, I always check the country of origin. * education	11.681	2	5.841	3.164	0.045
I always choose coffee made in the Czech Republic. * education	37.919	2	18.960	14.325	0.000
I always choose tea made in the Czech Republic. * education	26.513	2	13.256	8.849	0.000
I like to try coffee from other countries. * education	7.704	2	3.852	4.581	0.012
I will buy the coffee "Made in the EU" with confidence. * education	12.789	2	6.395	3.774	0.025

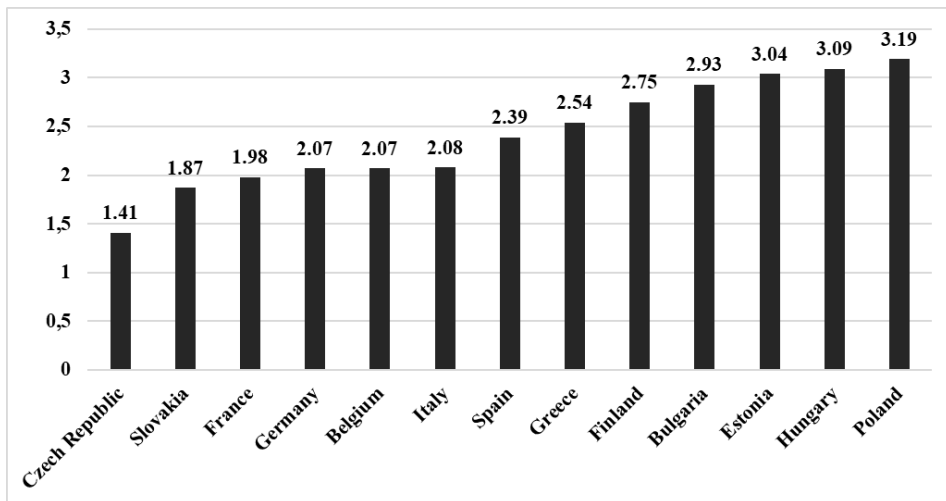
Source: Own elaboration based on data from IBM SPSS Statistics 27.0 (2022)

The older the respondents are, the more they choose coffee and tea produced in the Czech Republic and less likely they try beer, coffee and tea from other countries. Thus, a higher level of consumer ethnocentrism can be observed among older respondents. This is in line with the results of previous research studies that have shown that older people have a rather negative attitude towards foreign products (Chrysochoidis, Krystallis and Perreas, 2007; Veselá and Zich, 2015; Wanninayake and Chovancová 2012). The country of origin of wine, coffee and tea is more followed by respondents with higher education. The higher education, the less respondents agree with the statements that they choose coffee and tea produced in the Czech Republic and, on the contrary, the more they agree that they like to try coffee from other countries. With higher education respondents less agree with the statement that they will buy the coffee "Made in the EU" with confidence.

3.3 Attitudes towards EU Countries as Beverage Producers

In the first part of this research area, respondents evaluated their general attitudes towards selected EU countries on the 5-point scale where 1 means very positive attitude and 5 is very negative attitude. Due to a high number of EU members only approximately 50 % of them were chosen for the research study. The purpose was to include different types of EU countries, which may be related to the researched topic. As it is evident from Figure 1, the most positive attitudes were found for the Czech Republic, the second best-perceived EU country is Slovakia, the third position is for France. On the contrary, respondents have the most negative attitudes towards Poland, Hungary and Estonia. The t-test was performed to determine differences according to gender of respondents. Although men evaluated the EU countries slightly more favourably than women, no statistically significant differences were found.

Figure 1: Attitudes towards Selected EU Countries



Source: Own elaboration based on data from IBM SPSS Statistics 27.0 (2022)

The one-way ANOVA test, performed with the purpose to identify differences in means by age and education of respondents, shows statistically significant differences in attitudes to Poland (Sig. = 0.014) and France (Sig. = 0.043) according to education. As for the perception of Poland, then the higher the education, the more negative the attitude. On the other hand, for France, the higher the education, the more positive the attitude.

Following the general perception of EU countries, respondents were asked to indicate the most frequently associated, most preferred and also rejected countries in connection with the purchase of selected beverages. Due to the large number of named countries, only those mentioned by at least 3 % of respondents.

The most often associated country with beer is the Czech Republic (80 % of respondents) that is also the most preferred country (by 65.5 % respondents). The other associated countries were Germany (8.5 %) and Belgium (4.5 %). One tenth of respondents do not have the most preferred country and 51 % do not reject any country as the beer producer. The most often rejected beer producer is Poland (6.5 %) followed by Germany (5 %).

France was mentioned the most often as the EU country associated with wine (50 % of respondents), almost quarter of respondents (23 %) have associated with wine the Czech Republic, and Italy is the third most commonly associated country (11.5 %). Respondents also mentioned Portugal, Spain and Hungary (3 %). Although the Czech Republic was the second country that respondents most often associate with wine, it is the most preferred country when buying wine (37.5 %), followed by France (7.5 %) and Italy (4.5 %). About a fifth of respondents have no preferred country (18.5 %). As rejected countries were mentioned Hungary (3.4 %) and Poland (3.4 %), half of the respondents (48.5 %) do not such country.

For coffee, only Italy as the EU country were associated (16 %), much more often respondents mentioned non-EU countries, especially Brazil (26.5 %) and Colombia (18.5 %), and 3 % of respondents do not associate coffee with any particular country. The most preferred countries copy the most frequently associated countries, i.e. Italy as the EU country (6.9 %), Brazil (12.9 %) and Columbia (7.4 %) as the non-EU countries. Coffee from the Czech Republic prefer 5 % respondents. Almost half of coffee consumers (45.5 %) do not have a preferred country and three quarters of respondents (73.6 %) do not even have a rejected country. As a rejected country, only 6 % of respondents mentioned Poland.

With tea, 6 % of respondents do not associate any country, 57.7 % have no preferred country and 65.8 % do not reject any country as a tea producer. Most respondents do not associate EU countries with tea, only 3 % mentioned the Czech Republic. Of the European countries, only the United Kingdom appeared among the answers. The main tea-associated countries were China (23.5 %), India (12 %), Ceylon (9 %) and Japan (4.5 %). The same situation occurs when it comes to the most preferred countries. Only 4.5 % prefer the Czech Republic, 3.5 % prefer Great Britain, other preferences are given to non-European tea producers – China (5.5 %), India (4.5 %) and Ceylon (4.5 %). The most often rejected EU country is Poland (12.9 %).

The results confirm the product-country image effect and are consistent with the findings of earlier studies (Andéhn et al., 2015; Josiassen et al., 2013; Roth and Diamantopoulos, 2009) When choosing beverages, respondents prefer the countries that they most often associate with the beverage categories.

4. Conclusion

The survey showed that the country of origin is somewhat important to consumers when buying beer, wine, coffee and tea, but the importance of this factor varies across the beverage categories surveyed. The country of origin is most important when buying wine, followed by beer, and least important when buying coffee and tea. For all beverage categories surveyed, respondents are most oriented by brand, followed by price. The exception is wine where the country of origin is more important to consumers than the price. An examination of the importance of country of origin in specific situation of unknown brand showed that the country of origin is very or rather important for three-quarters of the respondents.

The analysis of attitudes towards selected EU countries revealed that the Czech Republic is the best-perceived EU country. On the other hand, the worst perceived country is Poland. The research also showed that Czech consumers strongly prefer domestic producers when buying beer, the Czech Republic was the most frequently associated and preferred country of origin for beer. Similar results, although not as clear as in the case of beer, were found for wine. France was the country most frequently associated with wine, but despite this, respondents prefer wines produced in the Czech Republic. In the case of tea and coffee, there was no preference for domestic products, probably due to the fact that the Czech Republic is not considered a traditional grower of raw materials for the production of these beverages. Non-EU countries were most often mentioned as associated or preferred countries of coffee or tea origin. More detail statistical analysis confirmed a higher levels of consumer ethnocentrism among older respondents. The country of origin is more followed by respondents with higher education, these respondents have also lower trust in information "Made in the EU". The findings are in line with previous studies mentioned in the introduction part as well as in the results discussion.

It is also important to note that the Covid-19 pandemic has brought about changes in consumer behaviour that have been reflected across markets and product categories, and therefore have also had an impact on the beverage category. Although the pandemic has not directly changed consumer preferences regarding the countries of origin of beverages, it has affected other related facts. A number of consumers have switched to online shopping, which has had an impact on relationships with beverage brands. An obvious constraint here was the availability of brands; due to supply issues, some foreign brands were not available on the Czech beverage market. In addition, people changed their habits during the Covid-19 pandemic and moved consumption from bars and restaurants to their homes, especially in the beer category. This has been particularly evident in beer consumption in the Czech Republic, which is characterised by a high share of draft beer in total consumption. As a result of the pandemic, there has been a record decline in beer sales and production by Czech breweries.

The limitations of the research lie in following facts. The study was conducted in the Czech Republic only. Four categories of beverages were included, but there are other categories that would be interesting to analyse. It could be also useful to conduct more extensive study and compare consumer attitudes in more EU countries and also to investigate the impact of the Covid-19 pandemic in more detail. Cluster analysis could be used with to create a consumer typology based on consumer attitudes to country of product origin.

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Network Analysis Towards Development of Interest Rates in the Countries of the European Union

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Abstract

Interest rates are one of the main monetary policy instruments by which the central bank can influence inflation. Due to the global COVID-19 pandemic, countries in the EU are facing a rapid rise in inflation. Each central bank of the EU countries, however, approaches this problem differently. The ECB itself is no exception to the euro area. The Eurostat data have been gathered to map relations between countries as a network connected by a set of nodes and edges. The nodes of the created networks represent EU countries with the help of relationships. Applied Quantitative Network Analysis metrics to calculate methodological competence strengths in Eurostat's interest rate dataset to identify groups of EU countries. Quantitative network analysis metrics were used to calculate the strengths of methodological competencies within the Eurostat interest rates dataset to identify groups of EU countries for collaboration. This paper analyses the current development of interest rates in the countries of the EU and the euro area and compares the differences between central banks in the approach to raising interest rates due to inflationary pressures using graph theory and the application of the R programming language.

Keywords: data visualization EU, interest rates, network analysis

JEL Classification: C18, C49, E31, E43

1. Introduction

It is common practice that central banks around the world must adopt an inflation-targeting framework. It assumes that inflation could be reduced by increasing interest rates (Fazal, 2021). The central banks of the European Union, including the European Central Bank, have been facing a major hurdle in the last two years, the pandemic COVID-19. The aforementioned pandemic stopped the rising inflation in 2020, which in February, the day before the outbreak of the pandemic, was a record 4.7% at that time [the highest value since 2011] the near future. Although each central bank has slightly different priorities and uses different instruments to achieve its stated objectives, this unexpected situation has affected the economic situation in each EU country without exception. However, each EU country had different "starting" economic conditions before the pandemic, and therefore the approach to combating rising inflation, which affected each country differently, is different. The increase in the prices of goods and services occurred in 2021 as the unfrozen economies (in lockdown) quickly began

to catch up. There was a phenomenon of greater demand than supply, and this is one of the main reasons for rising prices (Żuławiński, 2020).

The former CNB governor likened the central bank's operation to a car silencer: "The right monetary policy works like a car silencer. The shock absorber will not help you avoid obstacles or potholes, but it will help you overcome these obstacles as "painfully" as possible. Furthermore, this is the role of central banks. Damping in good and bad times (Hampl, 2015). Thanks to monetary policy and well-chosen steps and procedures, the central bank can, for example, suppress inflation, but it cannot end a period of a recession on its own.

Price stability is usually the main goal of central banks in advanced market economies. Inflation means a long-term rise in the price level, and thus a threat to the price stability of a given economy. Thus, inflation in these economies should be low and, above all, stable, so that price developments can be predicted as best as possible (Revenda, 2011). The situation described above is currently the exact opposite of what most EU economies have been experiencing in the last year and a half.

A wave of rising prices is sweeping across Europe. Rising prices in Europe are three main factors: lower supply due to disruption of the supply chain and pandemic restrictions disrupting the smooth operation of the economy, secondly, high demand because of a relatively fast rebound in economic activity, and thirdly, soaring energy prices. Food and housing, as well as every other element of the economic system and their growth, are a derivative of the increase in energy, fuel, and gas prices (Institute of Central Europe, 2022).

The Czech National Bank and several central banks in Central and South-Eastern Europe raised interest rates rapidly as a reaction to the rising inflation (Bartes, 2020). The Hungarians were the first to start in June 2021, the Czech national bank did the same also in June 2021. Poland and Romania also joined gradually. The Hungarian central bank (Magyar Nemzeti Bank, MNB) raised interest rates for the first time in June 2021, and at the end of the year it decided to make a total of seven increases, because of which the reference rate was raised from 0.60% to 2.40% (last increase on 15 December 2021). CBN, starting the process of raising interest rates in June 2021 from 0.25% to 4.5% (February 2022), which means that this value is the closest to the level of inflation among Central European countries, which was in January 2022 9,9%. The NBP started the march towards higher interest rates in October 2021, currently the reference rate is at the level of 2.75% (February 2022), which compared with the inflation for January 2022, which was 9.2%, is relatively low. The BNR (national bank of Romania) decided to raise interest rates just like Poland did in October 2021, but it started from a slightly higher level of 1.25% to 2.50% (February 2022) (Gołębiowska, 2022). At the end of 2021, a former member of the EU, Great Britain, also raised interest rates from 0.25% to 0.5%. However, most EU central banks, including the European Central Bank, unlike the CNB, keep their rates low, and even the ECB at zero (ECB, 2022). The ECB will end the pandemic emergency purchase programme at the end of March 2022, but ECB chief Christine Lagarde says a rate hike in the eurozone this year is highly unlikely. She considers the current inflationary pressures to be a short-term pandemic side effect, which stems from the sharp rise in energy prices and is generally on the supply side the same opinion has also the member of the executive board of the ECB Philip R. Lane (Lane, 2022).

The euro area had very low inflation before the pandemic began, and it is from this 'starting' position that the ECB's approach to inflation and rising interest rates stems from that of other EU countries. For sure it is good to mention that the ECB motivates its passivity in terms of interest rate manipulation with market analysis, based on which it believes that the rapid process of price increases will be short-lived and that everything will start to return to normal in mid-2022 as price pressures in the supply chain are expected to end, energy prices stabilised

and a pandemic situation. The ECB is concerned about stifling demand and deepening unemployment in the southern countries of the euro area, which is already high, and such could be the quick effects of raising interest rates. It is worth emphasizing that the ECB impacts the monetary policy of 19 countries, which have different levels of inflation and economic development, unemployment or debt levels, so it is difficult to achieve a positive effect for all members of the euro area with one change (Institute of Central Europe, 2022).

The main research problem is related to the lack of analysis of the current development of interest rates in the countries of the EU and the euro area by means other than using basic statistical tools or the Python programming language. Moreover, the presented studies concern time before the COVID-19 pandemic. The literature also did not pay attention to the differences in raising interest rates in central banks due to inflationary pressure. Graph theory is mostly used in various areas such as chemistry, biology, theory of games, modelling transport networks, activity networks, and so on, but there is no application of graph theory in economics (interest rates). The main contribution of this paper is to fill a research gap that is implementing network graphs on interest rate data. For this purpose, the authors analysed the current development of interest rates in the EU countries and in the euro area using graph theory and the application of the R programming language.

The following article is divided into 4 sections. The introduction describes basic theoretical terms in the context of monthly interest rates and other economic aspects. The next section is about the problem approach and used methods. The problem solution presents empirical results of correlation and network graphs. The network graphs were used for partial correlation and the LASSO algorithm (Fan, Feng, and Wu, 2019) were to explore more hindered relations between variables (countries). The third part also includes a comparison of network graphs with different parameters and algorithms. The last sections focus on the summary of theoretical, empirical parts of the article and the discussion on constraints and further work.

2. Problem Formulation and Methodology

We didn't find publications on the highlighted keywords during searching in Scopus and Web of Science databases. Interest rates were analysed using basic statistical tools. Regarding programming languages, they are predicted using python programming (Paul, 2021). Only one publication was found in which forecasted the values of the interest rates for the European country by a time series analysis using the R language for 2018. The search was Concentrated in four years 2014, 2015, 2016 and 2017 (Laayouni, 2019).

There is also a research gap in the field of interest rates and network analysis by graph theory. Graph theory is mostly used to study and model used in different applications in various areas. In literature includes the study of atoms and molecules, the construction of bonds in the field of chemistry, health science (Mohr, 2021), biology (Jones, 2022) and in the field of Operations Research. Graph theory is also used in the theory of games, modelling transport and activity networks (Guze, 2019).

Our study is the first to illustrate the current development of interest rates in the countries of the EU and the euro area with the use of graph theory and the R programming language. The article also compares the differences between central banks in the approach to raising interest rates due to inflationary pressures.

Only two publications were found combining graph theory with elements of interest rates. The authors developed the modified Peter and Clark (PC) algorithm to determine the causal nexus between inflation and monetary policy in the case of Pakistan from the period 1990 to 2018 (Fazal, 2021). The main topological features of the Argentine interbank money market were

examined applying graph theory, focussing on the unsecured overnight loans settled from 2003 to 2017 (Forte, 2020). The publications found cover short time and no publications related to the global COVID-19 pandemic.

Empirical studies concerning interest rates are usually based on a mixed methodology (qualitative and quantitative) and the most commonly used information sources are Eurostat databases and other national databases. This paper is focused on qualitative analysis using the R programming language. The problems in this article are as follows. The first problem is that the methodological approaches implied in this article are correlation matrix and network graph analysis (Fontainha and Martins, 2015). The next followed problem is to compare the differences between central banks in the approach to raising interest rates caused by inflationary pressures. The data available in the Eurostat database are more complete than for the other databases. Ameco database hadn't any monthly interest rates, but only annually. This is the main reason why Eurostat data are used in this paper. Figures that are included in this paper represent an undirected weighted graph. Circles and edges represent vertices. Furthermore, arrows represent edges. In other words, vertices (vertex) mean nodes, edges are also called links. For more clarification in this paper, nodes, edges and graph networks are used. Nodes represent considered countries that are in the EU and edges relations between them.

3. Problem Solution

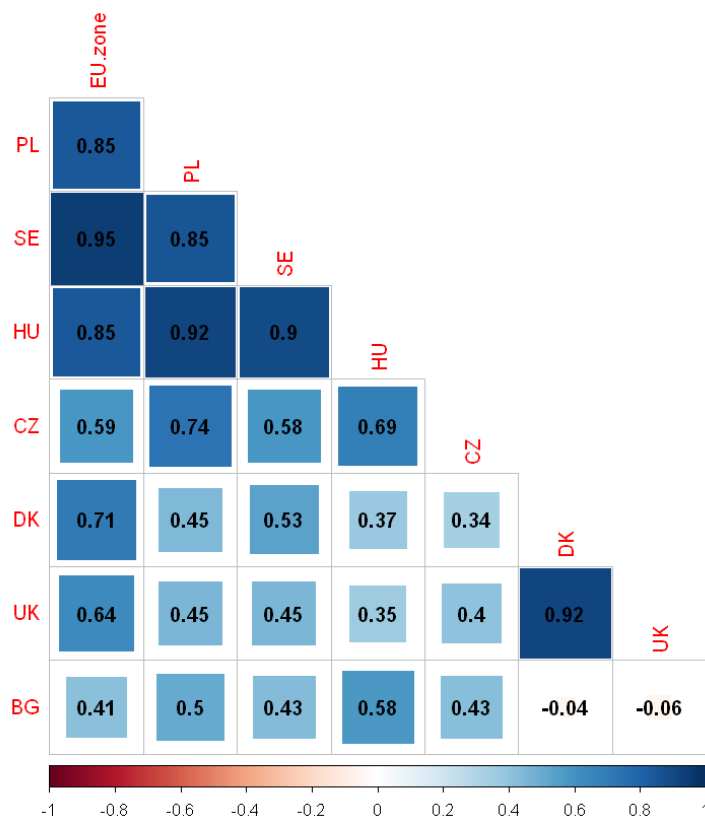
Graph theory is very useful to find an optimal way to perform certain tasks in the competitive fields of engineering, economics and war science (Durgaprasad, Snehadivya, and Srinivasu, 2017). The most important role of graph theory in computer applications is the development of graph algorithms. Many algorithms are used to solve problems that are modelled in the form of graphs. These algorithms are used to solve the graph-theoretical concepts, which are used to solve the computer science application problems.

Graph theory was started in the study of Leonhard Euler about the problem in Bridges of Königsberg (Sulich, Zema and Zema, 2020). Historically, networks have been studied extensively in graph theory, an area of mathematics. After many applications to several different topics over the last two decades, an extensive body of empirical and theoretical literature was developed too in economics and finance. A network in general is a system with nodes connected by linkages. A node can be, e.g., an individual, an industry, a firm, or even a geographical area. Exactly, different types of relationships have been represented as linkages. Indeed, the network has become such a prominent cross-disciplinary topic because it is strong helpful to model various data. Even when they are big data (Hernes and Sobieska-Karpińska, 2019). Simultaneously, network analysis provides the capacity to effectively estimate the main patterns of several complex systems (Engel, 2021).

The data were gathered from Eurostat- Interest rates monthly data (Eurostat [online], 2022). Figure 1 represents the traditional Pearson correlation of the included EU countries. The model of displaying relations with each country in a pair of interest rate variables is a network graph based on partial correlation. The collected database is from years 1995-2021 estimated monthly data. The data from Eurostat represents a yield curve (in other worlds the term structure of interest rates) represents the relationship between market remuneration (interest) rates and the remaining time to mature debt securities. The information content of a yield curve reflects the asset pricing process on financial markets. When buying and selling bonds, investors include their expectations of future inflation, real interest rates and their assessment of risks. An investor calculates the price of a bond by discounting the expected future cash

flows. The time frequency was set as the monthly interest rates. The indicator defined as day-to-day money market interest rates (average).

Figure 1: Pearson Correlation of EU Countries



Source: Authors' elaboration based on data (Eurostat [online] 2022)

To understand the following network graphs the short explanation is included. The basic idea of network graphs presented in the article are:

- nodes represent variables (countries),
- figures vary in colour, shape, size and label to indicate different statistics.

Edges represent relationships:

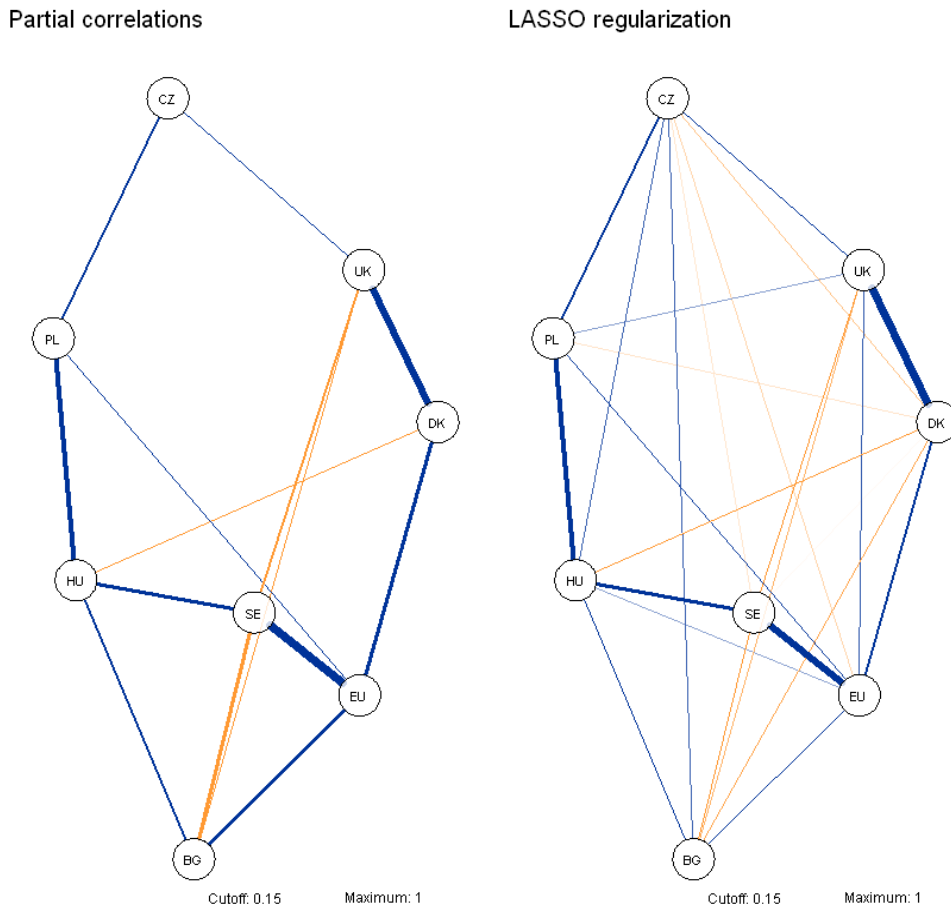
1. the blue edges indicate positive relationships,
2. orange edges indicate negative relationships,
3. the wider and more saturated line of the edge, the stronger the absolute relationship between variables (countries).

To indicate crucial nodes in the network the centrality has been calculated. In graph analytics, it is used to measure the importance (or in other words “centrality” as in how “central” a node is in the graph) of various nodes in a graph. Each node could be important from an angle depending on what is important in different perspectives. To execute centrality indices metrics are used. Centrality shows a node from a different perspective and further provides relevant analytical information about the graph and its nodes. Figure 2 represents the unregularized

partial correlation in the network graph. In the V4 group without Slovakia it was observed moderate relation between representative countries (Czechia, Poland and Hungary), also it's unrelated to the EU area.

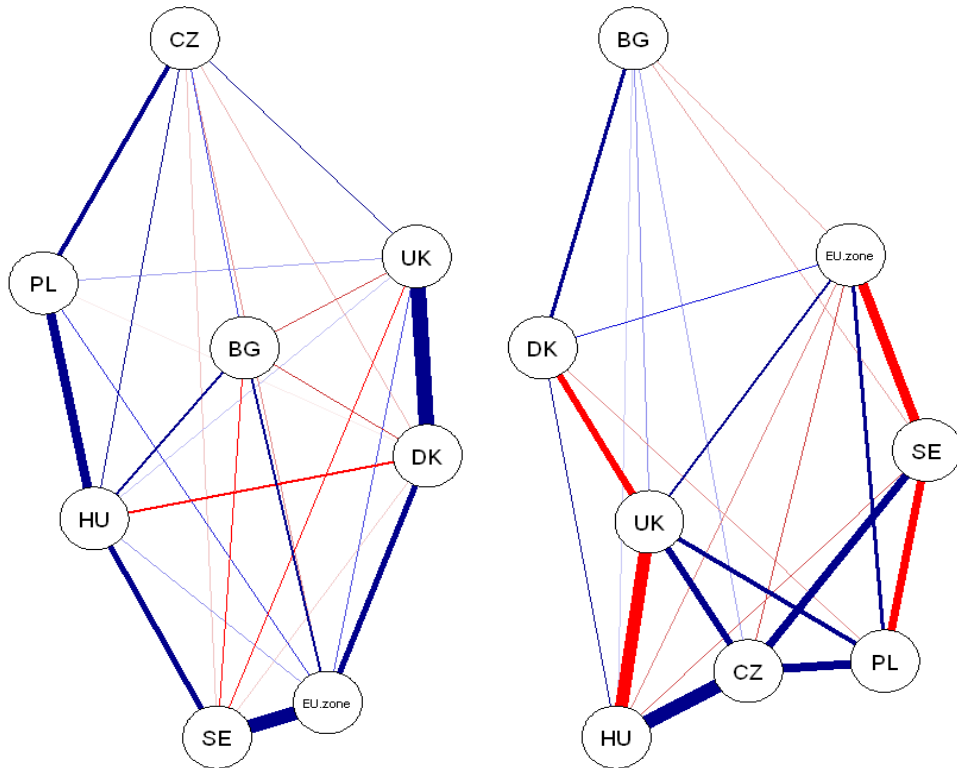
The lasso algorithm is an increasingly popular method for limiting the number of not genuine edges, furthermore as for obtaining more interpretable networks that better extrapolate to new samples-is to use statistical regularisation techniques. In essence, the lasso algorithm limits the sum of absolute partial correlation coefficients; as a result, all estimates shrink, and some become exactly zero. On the right side of figure 2 shows the use of lasso regularisation on the collected dataset from Eurostat. Each network graph was fitted with a cut-off parameter, which discards relations weaker than 0.15 correlation coefficient.

Figure 2: Network Graphs with Different Parameters



Source: Authors' elaboration based on data (Eurostat [online], 2022)

Figure 3 presents network graphs of EU countries. Each graph was calculated on a different data range. The range on the left is from 1995 up to 2019. The right graph varies from 2019 to 2021. Calculation of Spearman correlation between each result showed no correlation (coefficient -0.043). The results show that we cannot reject the null hypothesis. Over a long time, some countries have changed their monetary policies and monetary policy instruments. It is also possible that COVID-19 pandemic turbulent interest rates.

Figure 3: Regularized Partial Correlation Network in Different Years

Source: Authors' elaboration based on data (Eurostat [online] 2022)

4. Discussion and conclusions

This paper illustrated the current development of interest rates in the countries of the EU and the euro area and compares the differences between central banks in the approach to raising interest rates due to inflationary pressures by COVID-19 pandemic through graph theory and the application of the R programming language.

It is clear from the results that the V4 countries except Slovakia, which is a member of the euro area, approach inflationary pressures in the same way, by gradually raising interest rates and implementing a restrictive monetary policy. The European Central Bank, in contrast to the CNB, maintains rates low and even the ECB at zero (ECB, 2022). Such differences stand complicating the recovery in several ways. This can call for much more policy support in some countries. This concerns the public borrowing and fiscal policies, additionally the common monetary policy, which is ill-adapted to shocks reasoned by COVID-19.

While performing the empirical experiment, an increase in interest rates in the Czech Republic is exacerbated by the fact that even before the pandemic, the Czech economy was in a state of overheating and faced a tight labour market, where the number of unemployed is even less than the number of vacancies, thus creating upward pressure pay. A similar situation occurred and is occurring in Poland, there are an increasing number of jobs, and there is a shortage of workers, if not for workers from the east, we would have been in an economic recession a few years ago (Olender, 2021). The Czech economy is in a different position within the economic

cycle compared to the euro area. Even before the outbreak of the pandemic, the Czech economy showed signs of overheating, to which the CNB responded by raising interest rates in 2018–2020, while other central banks continued to maintain a loose monetary policy (CNB, 2022).

Other central banks in Central Europe, such as the Hungarian or Polish central banks, have already increased their interest rates. The Polish central bank management has long postulated that there is no need to respond to rising inflation, and this is only a temporary phenomenon. They have paved the way for supporting the economy through low interest rates, buying government bonds and weakening their currency. However, these steps led to high inflation in Poland, which struck the EU very strongly compared with the EU, and so they were forced to raise interest rates here, most recently on 9 February 2022 to 2.75% (NBP, 2021).

Due to high inflation, Hungary was the first EU country to raise interest rates for the first time in June 2021 from 0.60% to 0.90%. At the end of 2021, it even announced that from 1 January 2022, it would freeze interest rates on housing loans with a once floating rate to fixed 4.78%. The key interest rate in Hungary is now 2.90%. Thanks to a massive and quick vaccination campaign, Hungary moved quite quickly to the recovery of the economy, which thus started at a faster pace than, for example, in the Czech Republic. The easing of the economy has contributed to an improvement in economic conditions and a significant strengthening of consumer demand, which is pushing up prices. The forecasts anticipate continued growth in the Hungarian economy, which will further strengthen inflationary pressures (MNB, 2021).

Although central banks such as the ECB or the Fed do not raise interest rates for the time being, they are also tightening their monetary policy by gradually reducing asset purchases. In December 2021, the annual inflation rate in the euro area rose to record 5%, while in the European Union as a whole, it reached 5.3%. In the Czech Republic, inflation was 5.4 percent. In Poland, a high 8%. This was reported by the European Statistical Office Eurostat (Eurostat, 2022).

It is difficult to pinpoint how the inflation dynamics will develop after the COVID-19 pandemic due to the too short time. Pandemics are a collection of demand and supply shocks that drive inflation in opposite directions (Dariusz Karaś, 2020). Historically, pandemics have had a significant impact on economic activity long after the pandemic ended. While inflation has increased recently in some advanced economies, it is not yet clear whether the underlying trend of inflation has followed suit. The market is stabilising, but the economic pandemic may be felt for a few more years, while social changes may last much longer.

The main constraint is data that had few countries to analyse. The graphs contain much information on other countries and lack Slovakia to present the complete V4 group. Further work will focus on finding the right data and forecasting capabilities using for example, random forest algorithm or other methods that suit qualitative data analysis. The goal of the article was met despite the limitations occurred during study

Graph theory could be used to analyse other economic concepts (e.g. analysis of demand, supply for products, other financial instruments, changes in the money market). This will be done in future research. A very interesting research direction is also the use of other programming languages (e.g. python programming). You can also analyse a larger time range.

Acknowledgements

The project is financed by the Ministry of Science and Higher Education in Poland under the programme "Regional Initiative of Excellence" 2019 - 2022, project number 015/RID/2018/19, total funding amount 10,721,040.00 PLN.

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Analysis of the Interest of Students of the Republic of Serbia, as one of the Countries of the Western Balkans, Striving for Integration into the EU in Private Sector Business Activities

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Abstract

The deepening of the integration interests of the Republic of Serbia into the EU, as one of the important countries of the Western Balkans, conditions activities to create new conditions in the society and economy of Serbia. This also changes the situation in reducing some jobs in the public sector and the expansion or looking for new opportunities in private enterprise. Even in countries with underdeveloped labor markets, to which Serbia still belongs, the establishment of private enterprise often becomes a necessity. Our article aims to evaluate the original survey conducted among university students in Serbia, focused on their interest and motivation to start a private business after graduation, as well as whether the focus of their university studies meets the content and positively influences decisions in this direction.

Keywords: *business motivation, integration ambitions of the Republic of Serbia into the EU, private entrepreneurship, Serbian university students, the focus of university studies*

JEL Classification: *D83, I20, M13*

1. Introduction

Serbia's ambitions to accelerate the fulfilment of EU accession conditions also have a significant impact on the lives of young people as a future-looking generation (Dudic et al., 2018). New conditions are being created in society and the economy, including the sensitive issue of youth employment, in line with the EU's initiative to promote youth employment (Radeljic, 2014). Serbia, as a country with an underdeveloped labor market, with the reality of the demise of many companies in the public sector, the rise in unemployment, opens up considerable opportunities for the development of the private sector and thus the employment of young people in it.

Entrepreneurship should be a decision based on the determinants of the potential entrepreneur's business ambitions, such as his educational and professional ambitions, as well as personal and social characteristics and skills and any income from previous employment, including overall economic and entrepreneurial culture and environment (Rakićević et al., 2021).

Moreover, in countries with underdeveloped labor markets, including Serbia and most of the Western Balkans, setting up a private business is often a necessity today. In these countries, Schumpeter's so-called "entrepreneur's image" as a dynamic man willing to take risks has replaced the image of a man who must make a living by doing something and securing a household, and so in many cases, he is forced to engage in business activities which did not prevail in the previous period (Dacić, 2014). However, the ongoing transformation process, mass privatization, and restructuring of the sectors in these countries have created the

conditions and the need to understand the need to develop private enterprise. The reason was that a significant number of people lost their jobs as a result of privatization, restructuring, and the closure of state-owned enterprises. This created an environment for the expansion of the private sector, in which employees from closed-liquidated state-owned enterprises were given the opportunity to create new jobs for themselves, employ others, and thus increase employment. During the so-called transition period (i.e. the period needed for economic development in Serbia and other Western Balkan countries), the concept of opening up private companies grew (Zorkóciová, Petříková, 2018). In the founding phase, it was also necessary to create opportunities to support entrepreneurship, such as trade unions, and the development of entrepreneurship education in schools, which were gradually implemented and implemented in these countries, including Serbia.

Young individuals who enter the work process shortly after leaving school are considered to be the next generation of entrepreneurs. The International Labor Organization, as a member of the United Nations (UN), includes people aged 15 to 24. The World Bank identifies itself with the stated age range as the International Labor Organization, but unlike these two entities, Eurostat extends the definition of youth to people aged 15 to 29 (Eurostat, 2020). Given that our scientific status focuses on analyzing the problem of school graduates' involvement in private business in Serbia, given the specific characteristics of Serbia's external socio-business environment, which are characterized by unfavorable economic conditions and high unemployment rates, including late separation of young people from parents, in our opinion, the youth threshold in Serbia is slightly shifting beyond Eurostat - to 30 years.

Regarding the integration of subjects focused on business skills and techniques (creation of specialized departments of so-called business education) in university study programs, universities in Serbia have had the opportunity to analyze the effects of this process by gathering data among the graduates of these schools. Moreover, no substantial amount of research on the process has been executed, yet only partial surveys have been conducted.

According to their results, students studying management, for example, have shown the greatest ability and willingness to engage in private entrepreneurship, but almost half of them also stated that they prefer to avoid private entrepreneurship due to unforeseeable circumstances. The results of our original survey also showed that there is a different degree of students' entrepreneurial potential and that education focused on entrepreneurial activities and entrepreneurial skills are practiced at an insufficient level and thus does not motivate enough students to do business. This is also reflected in the fact that less than half of the students surveyed in the survey expressed a desire to start a business after graduation.

2. Problem Formulation and Methodology

The aim of our paper is based on the analysis of the original results of the survey conducted by the authors of this article among university students in Serbia, focused on their interest and motivation to start their own private business after graduation and whether the content and focus of their university studies initiate positive decisions in them. In this direction. With the analysis, we would like to point out those factories and facts that create higher education in Serbia, which on the one hand positively motivate students to private business, but on the other hand also shortcomings and negatives that act against motivation. In conclusion, to point out the importance of positive motivational processes for the education of the next young generation of successful entrepreneurs in this country.

We focused the survey on specific factors that should lead to positive decisions of young people - students to start their own business. At the same time, specific questions were formulated that focused on how the study provided students with enough necessary

information to effectively formulate goals and the overall concept of business strategy, as well as other knowledge and skills needed for a successful business start. As we have already mentioned, the survey aimed to find out and evaluate the range of respondents involved, what are the positives and negatives of the focus and content of their studies in the direction of gaining erudition, and also the motivation of private business. Students were also confronted in the survey with determinants related to and influencing the overall business environment in the country, but also with social conditions up to their privacy, such as their personal characteristics, attitudes and habits, family environment, and study conditions. Subsequently, the results of the survey were evaluated by mathematical-statistical methods using correlation analysis of dependencies according to the following formula (Investopedia, 2021):

(1)

$$r = \frac{\sum(X - \bar{X})(Y - \bar{Y})}{\sqrt{\sum(X - \bar{X})^2} \sqrt{\sum(Y - \bar{Y})^2}}$$

where:

r = Correlation coefficient

x,y = Measured values

To evaluate our original survey, we formulated the following two hypotheses:

Hypothesis 1: There is a statistically significant difference between respondents who have obtained and those who have not received an education focused on entrepreneurial activities, assuming positive-negative decisions to start a private business after graduation.

Hypothesis 2: There is a statistically significant difference in the evaluation of the implementation of business activities between the respondents who received and those who did not receive a business-oriented education. The survey provided data on whether respondents had received training focused on entrepreneurial activities during the standard content of teaching within the existing school system. The degree of education they received was not assessed, but only whether they received such education or not.

In our original survey, the dependent variable is measured using the following indicators:

- a) business potential - the intention to start a business
- b) business - realization of business activity.

The entrepreneurial potential is a variable that measures the intention of young students to start a business during or after graduation. The business variable examines whether respondents were actively involved in certain business activities at the time the survey was conducted. The survey was conducted in writing focusing on broader areas of business.

Model and Data

As part of our original survey, the formulation of the questions was divided into five main areas. In the first one, we have summarized the basic data of the respondents: gender, age, social environment, name of the faculty they attend, year of study. In the second phase, we have focused on questions concerning the survey of education respondents' opinions of the entrepreneurial activities part of the standard content of education. The third set of questions of the questionnaire concerned the survey of students' views on their self-evaluation, in terms of their abilities and skills associated with private entrepreneurship. The fourth part of the questions of the questionnaire addressed the identification of business aspirations and the ability to create business plans. We focused the last part of the questionnaire on the future of

students who plan to join a private business after graduation. The survey itself took place in the period October - December 2021 in the Republic of Serbia. The survey was conducted in writing in order to obtain as much valid data as possible.

Respondents were selected at random, the main condition was that they were university students. A hundred respondents actively participated in the survey. Twenty percent of the questionnaires collected were incomplete and therefore invalid and were therefore excluded from the analysis. Data processing and evaluation were performed via MS Excel.

3. Problem Solution

The fundamental identifying data of the survey respondents were classified into three main groups:

- a) biosocial features of respondents,
- b) respondents' social environment, and
- c) respondents' basic field of education.

The following table shows the findings of the respondents' characteristics:

Tab. 1: Distribution of Biosocial Features of Respondents

		Frequency	Percentage
Gender	Man	46	57.5
	Woman	34	42.5
Age	20	2	2.5
	21	19	23.75
	22	25	31.25
	23	20	25
	24	2	2.5
	25	6	7.5
	26	2	2.5
	27	2	2.5
	28	2	2.5

Source: Own elaboration (2021)

Based on the data presented in Table 1, we can state that more than half of the respondents are men (57%), while women are represented in a slightly lower percentage (43%).

The age range of the interviewed young people is in the range of 20 to 28 years. Most respondents are between the ages of 21 and 23, with a maximum of 22 (31.3%). According to them, respondents aged 23 (25%) and 21 (22.5%) follow. Respondents aged 25 (8.8%) and 20, 24, 26, 27, and 28, who are evenly represented (2.5%), recorded significantly lower participation in the survey. Serbian youth spend an average of about 12 years in formal education, compared to 17 years for their EU peers. In 2018, 70% of young people (15-24) in Serbia completed at least upper secondary school, compared to an average of 85% in the EU (ETF, 2020).

Tab. 2: Distribution of Respondents' Social Environment and Basic Field of Education

		Frequency	Percentage
Social environment	Countryside	51	63.75
	City	29	36.25
Fields of study	social sciences and humanities	17	21.25
	economics and management	21	26.25
	technical sciences	15	18.75
	natural science	11	13.75
	medicine	9	11.25
	artistic sciences	7	8.75

Source: Own elaboration (2021)

Data in Table 2 shows that the largest number of respondents come from rural areas of Serbia (63.8%), while slightly less than half (36.3%) come from urban areas. All respondents are students. According to the basic field of education, economics and management have the largest representation in terms of number (26.3%), followed by social sciences and humanities (21.3%), followed by technical sciences (18.8%), natural sciences (13.8%), medicine (11.3%) and arts (8.8%).

Evaluation of the Achieved Results of the Survey in the Level of Education Focused on Business Activities and the Achieved Business Potential

To evaluate the results of the survey at the level of education, focused on business activities and the potential business potential of respondents, in order to determine the probability of random distribution of variables, we performed an analysis of comparison tables (cross-table).

The survey provided data on whether respondents received education focused on business activities during the standard content of teaching, taught within the existing school system.

Table 3 shows the relationship between education focused on entrepreneurial activities (entrepreneurship education) during the standard content of teaching within the existing school system and the entrepreneurial potential of students. The entrepreneurial potential was assessed at three possible levels of response: *I will definitely start a business, I will probably start a business and I will not start a business.*

The survey confirmed that the respondents - students from universities and colleges in Serbia who have received a business education differ significantly from the group of respondents without acquiring the above knowledge.

Table 3: Correlation Table for the Variable Business Education and Potential - Intention to start your own Business

Entrepreneurship education					
			No	Yes	Sum
Potential	Definitely	Count	10	24	34
		Expected number	16.2	17.9	34
		% within the variable potential	29.4	70.6	100
	Probably	Count	6	7	13
		Expected number	6.2	6.8	13
		% within the variable potential	46.2	53.8	100
	I have no intention	Count	22	11	33
		Expected number	15.7	17.3	33
		% within the variable potential	66.7	33.3	100
	Sum	Count	38	42	80
		Expected number	38.0	42.0	80
		% within the variable potential	47.5	52.5	100

Source: Own elaboration (2021)

The data in Table 3 show that a significantly higher percentage of students who obtained a business education based on the standard content of school education and who also expressed the intention to start a business (70.6%) compared to those who do not have a business education or they did not get it (29.4%).

A notably larger difference was also confirmed between students who have completed a business education and at the same time plan to do business in the future (53.8%) compared to those who have not acquired a business education and believe that they can have the ability to start a business privately (46.2%). The share of students who have acquired a business education but do not plan to do business is lower (33.3%) than the share of students who have not acquired a business education and do not plan to run a business on their own (66.7%).

From these results, we can conclude that the acquisition of entrepreneurship education in the system of formal education at universities and colleges in Serbia, i.e. focusing the content on the acquisition of knowledge and skills of students in this direction can significantly affect the future behavior of young people after graduation to own business. Formal and non-formal education is offered to young people in Serbia and also offers such people a wide selection of online and offline courses and programs in business and management, which can further increase their erudition and strengthen their intentions and ambitions to engage in the private business sector. Thus, adult education can be one of the key factors in the successful and correct direction of their future business plans (Utama et al., 2016).

Next, the evaluation of the results of the survey conducted at the level of education focused on business activities in connection with the intention to conduct private business in Serbia evaluates the relationship between the level of education focused on business activities within the standard education system and the intensity of interest in starting a private business among

respondents. (Table 4) The intensity of interest in starting a private business was assessed at three levels: formal business involvement (self-employment: working in a company, non-governmental organizations, teaching, etc.), informal business involvement (self-employment: helping friends, parents at work ...) and without entrepreneurial activity (non-profit).

Table 4: Comparison Table for the Variable Education and Entrepreneurship - Private Entrepreneurial Activities

		Entrepreneurial activity			
			No	Yes	Sum
Entrepreneurship	Formally engagement	Count	10	26	36
		Expected number	17.1	18.9	36.0
		% within the variable potential	27.8	72.2	100.0
	Informally engagement	Count	12	11	23
		Expected number	10.9	12.1	23.0
		% within the variable potential	52.2	47.8	100.0
	No entrepreneurial activity	Count	16	5	21
		Expected number	10.0	11.0	21.0
		% within the variable potential	76.2	23.8	100.0
	Sum	Count	38	42	80
		Expected number	38.0	42.0	80.0
		% within the variable potential	47.5	52.5	100.0

Source: Own elaboration (2021)

The results shown in Table no. 4 shows that the opinions of a group of respondents who have received an education focused on entrepreneurial knowledge and skills differ significantly from the opinions and answers of a group of respondents without acquiring knowledge for entrepreneurship education. Between the groups of students - respondents to the survey, who received business education during the previous standard study, there is a significant difference in the implementation of business activities in the so-called formal business involvement (72.2%) compared to those who did not have a business education or did not obtain in the study (27.8%). The survey also pointed to a difference, although less significant, between respondents who received a business education and expressed business ambitions in an informal sense (47.8%) and those who did not receive a business education and did business in an informal business engagement (52.2%). In addition, large differences were confirmed between students who obtained a business education but did not intend to start a private business (23.8%), students who did not receive such education and started a business (52.2%), as well as those who did not get an education and did not start a business (76.2%).

4. Conclusion

Evaluation of a survey conducted among university students in the Republic of Serbia focused on their views conditioning and initiating the launch or involvement in private business pointed out the following facts. Private entrepreneurship knowledge and skills education, which is part

of the standard education system at the level of colleges and universities in Serbia, is an important factor in the creation of a new generation of young entrepreneurs. This is in line with the findings of the professional public evaluating the situation - authors who deal with a similar topic. This position is also supported by the conclusions and statements of the European institutions aimed at solving similar problems, which in their opinions advocate that formal education of the young generation is an important factor in business development and therefore curricula should be creatively designed to cover all levels of education in the standard education system. In this context, efforts should be made to design entrepreneurship education programs in a way that is acceptable to the current generation of young people, future entrepreneurs and also based on the external and internal conditions of the country or region (Ardielli, 2020). The new generation of future potential entrepreneurs in Serbia included in the survey we analyzed fell in the age range of 20 to 28 years. These are young people who belong to a generation we call millennials, born between 1990 and 2000. The literature (Mäkinen et al., 2018) states that generational differences are related to the assumption that different generations do not agree on values, beliefs, and how they perceive and understand social reality. We can state, as with previous generational differences, that the new generation of millennials is different from the generation of their parents and teachers, they are much more skilled in digital literacy, which the millennials have fully mastered because they were born in a culture where they learned to communicate fluently on the computer. , has become part of their daily lives. It provides a platform for a multifaceted discourse on how postmodern children live, learn and behave today. Author Mäkinen (2018) also points out that the expectations of millennials who have completed higher education are different from previous generations in terms of education, learning styles, work habits, values, use of new educational technologies, distance learning, etc. All this information and analysis should help to create new ways and also the content of the education of the young generation. It is, therefore, necessary to take them into account when designing a new platform for educating future entrepreneurs. Particular attention should also be paid to the training of teachers who will be involved in the educational activities. According to Koronios et al (2019), this area has not received the necessary attention, and very few professional and scientific studies have been created for the generation of millennials and for the creation of new programs of their education and teacher training, able to adapt and new ways and contents of the educational process. We agree that the development of the business environment and the possible involvement of young people is also influenced by several so-called personal and social factors, among which, however, access to education can also play an important role in the broadest context. The overall social situation in the country, the so-called social climate, and the associated business culture also significantly influence the development of business activities (Staničková, 2018). In this sense, in Serbia, some limiting factors can significantly influence the decision to start a business, such as the financial sector and the overall macroeconomic environment in the country. In addition to these barriers, other barriers may limit young people's intentions to enter the world of work and start their own business in the country. Some of them have been identified by a study, the partial results of which we present in this scientific article. Many young people in Serbia share business success in the private sector is closely linked to fraud, corruption, or clientelism. The lack and unavailability of relevant information, knowledge and support are considered further obstacles to starting a private sector in Serbia. The results of the presented survey showed that obtaining business education in the system of formal education of universities and colleges plays a fairly important role in shaping the intentions of students - young people to start a business. The results of our original survey show that respondents - students who have received education focused on knowledge and skills in the field of private entrepreneurship, within the standard content of study fields at universities and colleges, the intention to start a private business is much higher than students who they studied less or not at all to acquire knowledge and skills

in private business (Eesley, 2021). Although the extent to which entrepreneurship education in the formal education system shapes the entrepreneurial profile of the new generation of entrepreneurs in Serbia has not been established, we believe that special attention should be paid to creating an entrepreneurship education program that, of course in the context of the modern educational system of the given generation in the developed countries of Europe and the world (Baculáková, 2020).

Indeed, the above evaluation of the results of the original research by the authors provides a starting point for the ambition to continue it and thus deepen the knowledge in the researched issue, all the more so because one of the authors is a Serbian citizen - a doctoral student studying in Slovakia. He knows the socio-economic conditions in his country all the more and can adequately evaluate them. Further research should focus on more detailed information on how and which departments should be targeted in university studies, in order to acquire the necessary business knowledge and skills for the possibility of private entrepreneurship in Serbia, and thus on the optimal content of their study programs. The inquiry should be extended from the level of university students to wider levels of respondents, e.g. already existing private business entities resp. representatives of individual sectors and their evaluation of the possibilities of private sector development in Serbia, as well as responsible institutions that cover the educational process and whose competence is to make adequate changes in the study and its content, and of course the whole process should lead to further improvement Serbia to the EU and should therefore be coordinated throughout the process.

Acknowledgments

This paper was created within the research project of the Ministry of Education, Science, Research and Sport of the Slovak Republic VEGA No: 1/0777/20, 1/0270/22, and KEGA 003EU-4/2022.

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Who Are the Industrial Innovation Leaders in the EU?

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Abstract

An essential aspect of European integration is the cooperation of its member states on research projects. This form of cooperation has been taking place since the 1980s in the form of community Framework Programmes that support projects of international research teams. Our paper deals with an analysis of approx. 6000 projects funded under the second pillar of Horizon 2020 focused on industrial leadership. This priority seeks to build global leadership through research and innovation in enabling technologies across a range of existing and emerging industries and sectors. The aim of our paper is to identify the innovation leaders in the European industry. The research focuses on the comparison of EU member states in terms of their participation in the scheme, their role in projects and the support received.

Keywords: European Union, Framework Programme, innovation, industrial leader, research

JEL Classification: O25, O31, O33

1. Introduction

Research and innovation play a significant role in the future prosperity of the European Union (Halaskova et al., 2020). A rapidly changing world brings new challenges that countries must face if they are to be competitive and achieve long-term growth. In an era of globalised knowledge-based economies, countries must create the conditions for new knowledge creation and innovation cooperation (Prokop et al., 2021). Conducting research and development is expensive, and its results are uncertain. For this reason, national governments and EU institutions try to motivate enterprises to invest in R&D by providing them with support for research activities (Žitek and Olejniczak, 2020).

In both economic theory and political practice, there is a broad consensus that cooperation between innovation actors has a positive impact on innovation performance. Public-private partnerships, university-business contacts, business networks and clusters are needed to create and disseminate knowledge and increase the innovation performance of regions and countries (Grillo and Landabaso, 2011).

At the level of the European Union, the framework programmes, which were first proposed in the 1980s, focus on supporting research, innovation and cooperation. One of the tasks of these framework programmes is to create a European Research Area and thus increase the competitiveness of European research institutions and companies by bringing them together (Halaskova et al., 2020). Research and innovation policies implemented at the transnational level create a special type of European integration (Langfeldt et al., 2012). The EU framework research programmes initiate cooperation between innovation actors located in different parts of Europe and mediate the knowledge flows necessary for innovation (Varga and Sebestyén,

2017). The emergence of new industries is also a new challenge to be addressed. Innovation policy must create the right conditions for the evolution of these new processes (Zoričák et al., 2021). Support for progressive industries is also part of the European Horizon 2020 Framework Program (H2020).

In the last decade, it is possible to observe a trend that the EU framework programmes are not only focused on the competitiveness of the economy but also address global societal challenges and mission-oriented approaches (e.g., Klímová and Lelková, 2020). Furthermore, Izsak and Radošević (2017), describing the example of the global financial and economic crisis that began in 2008, point out that framework research programmes can help overcome such crises. This idea is very topical even today when EU countries will have to face the effects of a pandemic situation.

The last completed EU framework programme is Horizon 2020, implemented in 2014-2020. Because this program has only recently ended, only a few scientific studies on its results have been published. Børing et al. (2020) examined why some countries are more successful in obtaining funding and dealt with three basic characteristics of companies: size, industrial sector, and country. Their research showed that attention should be focused on increasing the participation of not-so-successful groups of small and medium-sized enterprises, as support can enable them to become world-leading companies and bring economic benefits to their countries. Ferrer-Serrano et al. (2021) addressed the participation of SMEs. According to their research, the highest collaborative density is established among large old member states such as Germany, France, Spain, Italy and the Netherlands. Of the smaller countries, Portugal and Croatia, in particular, were considered successful. The study by Enger (2018) focused on the participation of higher education institutions and argued that so-called closed clubs were created. This means that universities that have previously created networks are more likely to succeed in further project applications. Of course, this also affects the participation of individual countries.

2. Data and Methodology

The aim of our paper is to identify the innovation leaders in the European industry. For this purpose, we performed an analysis of projects supported within priority 2.1 of the Horizon 2020 - The Framework Programme for Research and Innovation.

The structure of the H2020 programme (see, e.g., European Commission, 2021) is based on five pillars, which are 1) Excellent Science, 2) Industrial Leadership, 3) Societal Challenges, 4) Spreading Excellence and Widening Participation, and 5) Science with and for Society. In addition, the nuclear research programme called Euratom is part of the H2020. Pillar 2 is intended primarily for innovation leaders who set the direction for the future development of European industry. Thus, projects of real innovation leaders are supported. The Industrial Leadership pillar is divided into three priorities, which are Leadership in Enabling and Industrial Technologies (2.1), Access to Risk Finance (2.2) and Innovation in SMEs (2.3). The subject of our research is priority 2.1, which is a key part of the second pillar of the programme.

We used individual data on specific projects that are placed in several databases published by the European Commission (2022). These are, in particular, the project database, the organization database and the legal basis database. For the purposes of our research, it was necessary to properly connect data from these databases, process them and select the essential information. First of all, it was crucial to select from 35,349 projects those that were at least partially implemented under priority 2.1. Individual projects can cover several priorities at

once. We identified 5,993 projects that met our criteria. These projects were subsequently analysed in more detail.

Projects supported under priority 2.1 can be assigned to some six basic activities. Details of these activities are given in Table 1. It shows that most projects (2671) were supported directly under priority 2.1 without further distinction. Within the activities, most projects concerned the field of information and communication technologies. However, as stated in the note, one project may cover more than one area and may even be included under other priorities and pillars. However, it was essential for our research that the project at least partially addressed priority 2.1.

Table 1: Supported Projects and Activities

Activity - code	Activity - title	Number of projects
2.1.	Leadership in Enabling and Industrial Technologies	2671
2.1.1.	Leadership in Enabling and Industrial Technologies - Information and Communication Technologies (ICT)	1986
2.1.2.	Leadership in Enabling and Industrial Technologies - Nanotechnologies	472
2.1.3.	Leadership in Enabling and Industrial Technologies - Advanced materials	255
2.1.4.	Leadership in Enabling and Industrial Technologies - Biotechnology	130
2.1.5.	Leadership in Enabling and Industrial Technologies - Advanced Manufacturing and Processing	473
2.1.6.	Leadership in Enabling and Industrial Technologies - Space	568
Total		6555

Note: 5993 projects were supported under priority 2.1. However, some projects were supported in more than one activity, so the total number in the table is higher.

Source: authors' own elaboration based on European Commission (2022)

Supported projects are usually solved by a consortium of participants led by a coordinator. The coordinator is the project's initiator and is responsible for its management. Thus, only the most innovative companies and research organizations can play the role of coordinator. When evaluating countries' innovation performance, it is necessary to take into account whether countries participate as coordinators or participants. However, even participation in the H2020 project is a prestigious matter in itself and confirms the innovativeness of the company/research entity. On average, 4.45 organizations were involved in each project. The largest project consisted of 114 participants. Many projects were implemented by only one participant. In this case, it was an SME project.

Participants outside the EU can also take part in the projects. However, our attention was focused primarily on the EU countries, representing the core of the programme. The programme was launched and implemented mainly when the United Kingdom was a part of the EU. Therefore, in our analysis, the United Kingdom is considered the EU member state. In order to better compare the results obtained, we also took into account the size of the countries in terms of population. Data about the number of inhabitants was drawn from the Eurostat database (2022).

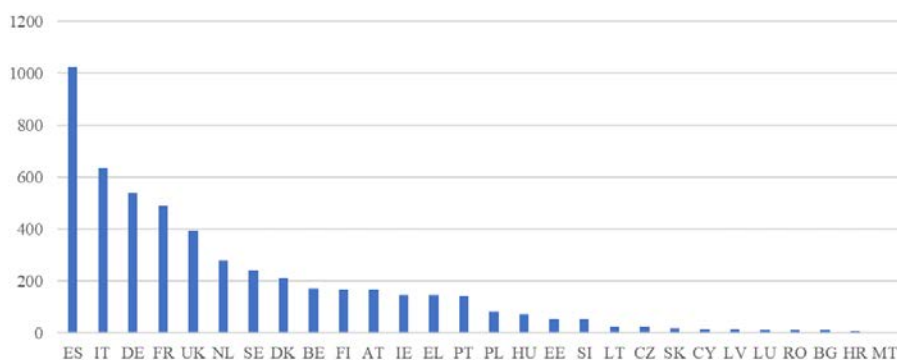
3. Results

For the above-mentioned reasons, we divided our research into two areas: 1) Country responsibility and 2) Country involvement. We were interested in supported projects, the number of participants, and allocated support in absolute and relative terms within each area. The basic idea is that countries that are innovation leaders participate in more projects (often in the role of coordinator) and receive more funding for research and innovation activities.

3.1 Country Responsibility

Figure 1 shows the number of projects coordinated by participants from individual EU countries. The first five ranks are occupied by the EU countries with the largest population. The largest number of projects (1024) was coordinated by Spanish entities. Countries such as the Netherlands (280), Sweden (240), Denmark (212), Belgium (170), Finland (169) and Austria (168) are ranked behind the largest countries.

Figure 1: Number of Coordinated Projects (Total Number)

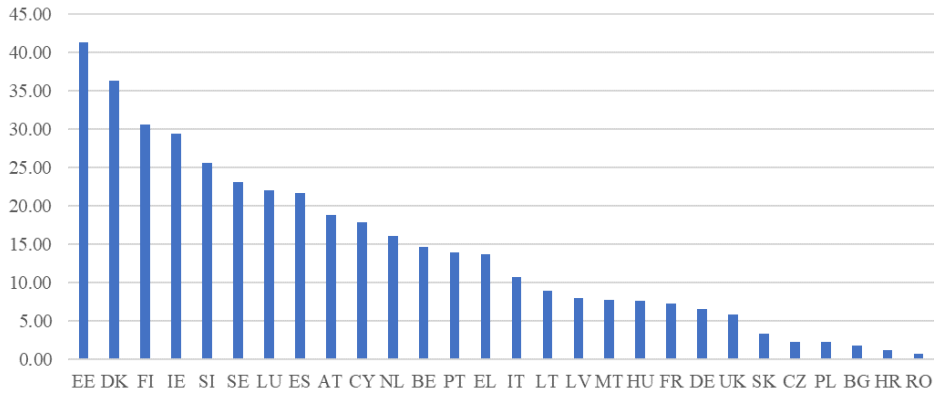


Note: The graph shows 5174 projects coordinated by entities from EU member states. Another 819 projects were coordinated by participants outside the EU.

Source: authors' own elaboration based on European Commission (2022)

In the next step, we recalculated the numbers of coordinated projects according to the population so that the results were better comparable (Figure 2). Surprisingly, Estonia (41 projects per million inhabitants) is first in this evaluation. It is followed by Denmark (36), Finland (31), Ireland (29), Slovenia (25) and Sweden (23). Luxembourg and Cyprus also ranked relatively well, but the statistical effect given by the small size of these countries plays a certain role here. Weak results were achieved by Romania (0.7), Croatia (1), Bulgaria (2), Poland (2), and the Czech Republic (2).

Figure 2: Number of Coordinated Projects (per 1 Million Inhabitants)

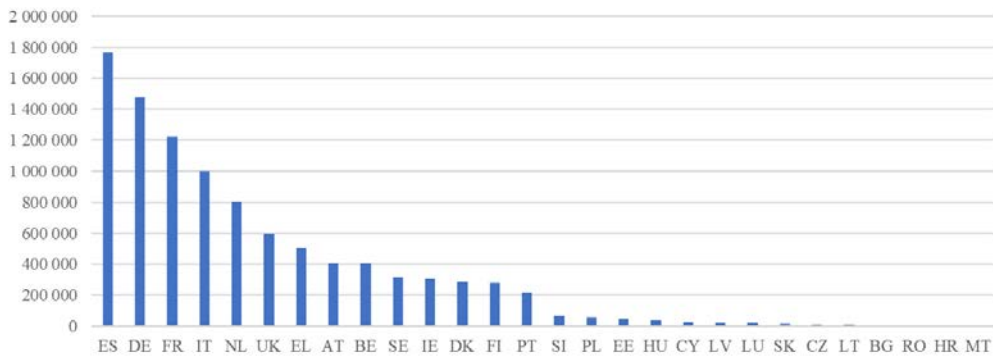


Note: The graph shows data for 5174 projects coordinated by entities from EU member states. Participants outside the EU coordinated another 819 projects.

Source: authors’ own elaboration based on European Commission (2022)

The subject of our research was also how much public finance were entrusted for management to coordinators from individual member countries (Figure 3). This is not just support for the coordinator itself but for its whole research team. In absolute terms, large countries again have the most significant responsibility for the funds entrusted, but the Netherlands has overtaken the United Kingdom. Unexpected is the position of Greece, which has overtaken even countries that are otherwise considered innovative leaders.

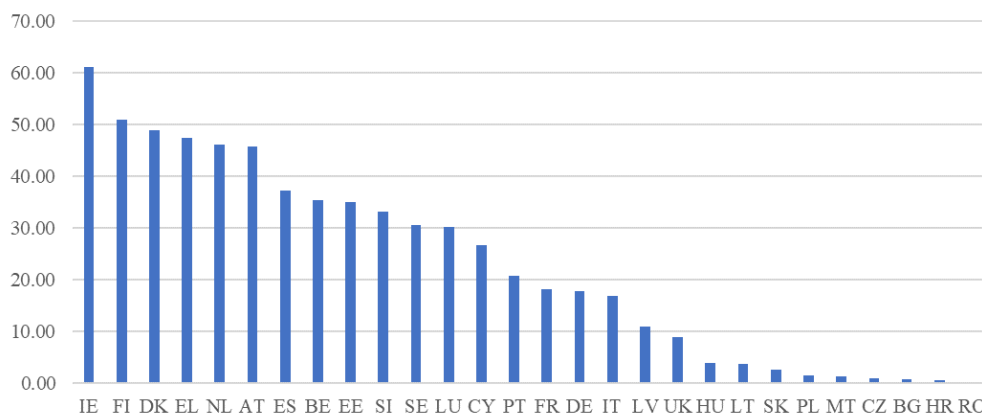
Figure 3: Support for Coordinated Projects (in Thousands of EUR)



Note: EU coordinators managed projects that received €9,918 million in support. Other projects worth €0.8 million were managed by coordinators from outside the EU.

Source: authors’ own elaboration based on European Commission (2022)

For better comparability of data, we also expressed the allocated public support for coordinated projects in relation to the population (Figure 4). In this point of view, Ireland, Finland, Denmark, Greece, the Netherlands and Austria can be considered innovation leaders.

Figure 4: Support for Coordinated Projects (in EUR per Capita)

Source: authors' own elaboration based on European Commission (2022)

3.2 Country Involvement

The country's innovation leadership is also evidenced by how many of its entities are involved in the H2020 program, whether in the role of coordinator or a regular participant. Table 1 shows the number of participations from each country. Each organization is counted as many times as it has participated in a project. For example, if the same company has participated in two projects, this is expressed as two participations. The largest countries are again placed at the top of our rankings. The table shows that countries (Belgium, Greece, Austria, Sweden), which are similarly large as the Czech Republic, indicate a higher number of participations in H2020 projects. In general, there is a big difference between old and new member countries.

Table 1: Number of Participations in Supported Projects

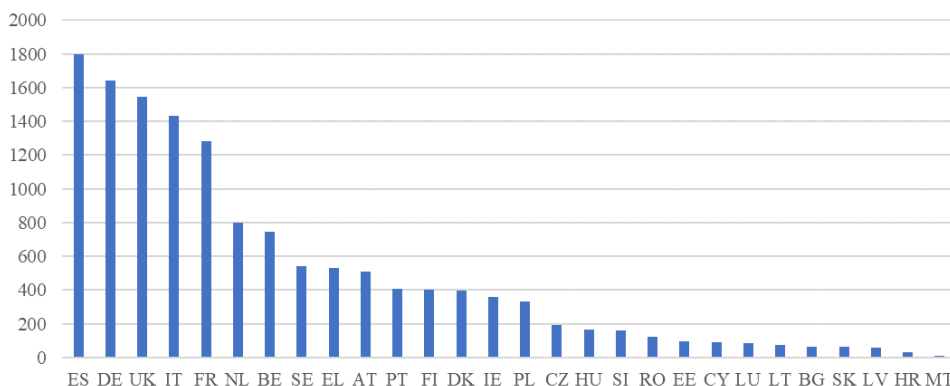
Country	Participants	Country	Participants	Country	Participants
DE	3621	FI	658	CY	102
ES	3593	PT	605	LU	99
IT	2974	DK	522	SK	87
FR	2570	IE	484	LT	79
UK	1924	PL	404	BG	78
NL	1445	CZ	282	LV	70
BE	1144	SI	223	HR	40
EL	940	HU	200	MT	15
AT	911	RO	151		
SE	812	EE	117	Total	24,150

Note: In addition to 24,150 participants from the EU, 2538 participants from other countries also took part in the projects.

Source: authors' own elaboration based on European Commission (2022)

Figure 5 shows how many projects each country has been involved in. The five most populous countries are again followed by a group of smaller countries such as the Netherlands, Belgium, Greece and Austria.

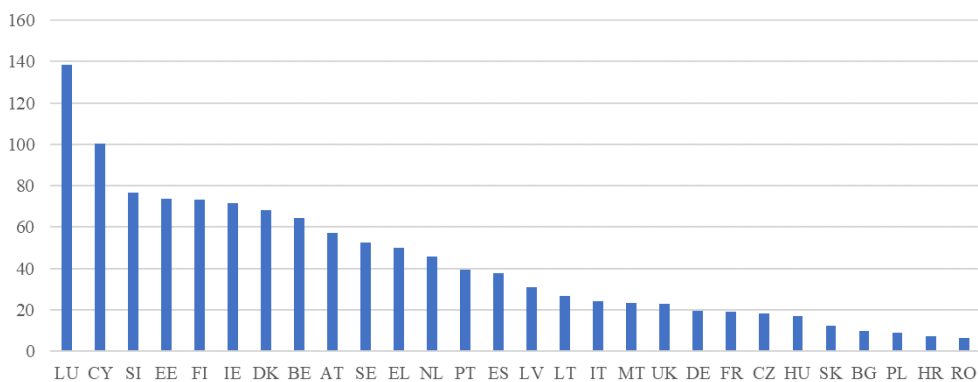
Figure 5: Number of Participated Projects (Total Number)



Source: authors’ own elaboration based on European Commission (2022)

Figure 6 shows similar data as Figure 5, but recalculated according to population. In this point of view, Luxembourg and Cyprus participated in the largest number of projects. Nevertheless, this is obviously due to the statistical effect of very small countries. These countries are followed by small progressive countries such as Slovenia, Estonia, Finland, Ireland and Denmark.

Figure 6: Number of Participated Projects (per 1 Million Inhabitants)



Source: authors’ own elaboration based on European Commission (2022)

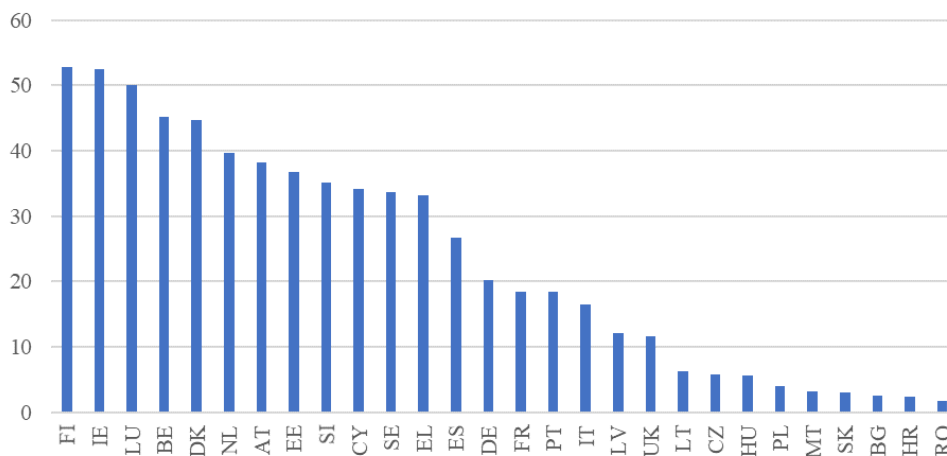
Table 2 shows the amount of public support that each country received. The ranking of the first countries is again very similar. However, the table also clearly shows which countries are only very weakly involved in the community research programme. We consider the position of Slovakia and Bulgaria (similar countries in size) to be poor. Romania's position, which is a relatively large country, is also weak.

Table 2: Allocated Support (in Thousands of EUR)

Country	EU contribution	Country	EU contribution	Country	EU contribution
DE	1,684,501	FI	291,916	LU	31,792
ES	1,264,075	IE	262,635	CY	30,652
FR	1,247,465	DK	261,473	LV	22,839
IT	973,012	PT	190,381	LT	17,675
UK	776,012	PL	150,716	BG	17,131
NL	694,473	SI	74,209	SK	16,870
BE	522,499	CZ	61,211	HR	9,753
EL	355,296	HU	53,845	MT	1,621
SE	349,803	EE	48,906		
AT	341,577	RO	33,796	Total	9 786 135

Source: authors' own elaboration based on European Commission (2022)

Figure 7 shows the amount of aid expressed in euros per capita. We consider this graph to be significant in terms of assessing the innovation position of individual countries. Based on it, we can consider Finland, Ireland, Belgium, Denmark, the Netherlands and Austria as innovation leaders. Among the new member states, Estonia and Slovenia can be considered innovation leaders. The differences between the Baltic states, i.e., Estonia on the one hand and Lithuania and Latvia on the other, is worth noting. We consider the results of the Visegrad Four countries to be very weak.

Figure 7: Allocated Support per Inhabitant (in EUR per Capita)

Source: authors' own elaboration based on European Commission (2022)

4. Conclusion

The paper sought to find innovation leaders in European industry based on the participation of EU member states in priority 2.1 of the H2020 framework programme. The analysis was carried out according to the responsibility of the countries and according to their involvement. The calculations were performed in absolute and relative values. Absolute values give a better indication of the overall strength and influence of a given country. From this point of view,

countries with a large population (Spain, Germany, Italy, France, the United Kingdom) can be considered the most important innovators. On the other hand, relative values allow for better comparison.

In terms of countries' responsibility for coordinated projects, we consider Finland, Denmark and Ireland to be the industrial innovation leaders. These countries, expressed in relative terms, coordinated a large number of projects and at the same time were responsible for a large amount of finance entrusted. In these countries, progressive industries are sufficiently represented, which is key to future competitiveness. In terms of country involvement, similar countries - Finland, Ireland, Belgium, Denmark, the Netherlands and Austria - can be considered industrial innovation leaders. However, it should also be noted that for some countries, the industry is not the main source of competitiveness. These countries are mainly Malta and Cyprus, for whose economies tourism is vital.

The analysis also confirmed the persisting differences between the old and new member states. The lagging of the new member states in participating in framework programmes is undoubtedly due to their lower economic maturity and lower innovation rate. Other influences are likely to play a role too. Older members have longer experience with project solutions and can better prepare them. Language barriers in the new member states cause an obstacle both for project design and for establishing cooperation in general.

Our research focused on the fundamental analysis of projects, coordinators, and participants in priority 2.1 of Horizon 2020. Further research should focus more detail on the entities involved and supported activities. Attention should be paid, for example, to the extent to which different size categories of companies, universities and research institutes are supported. Future research offers a space for a deeper analysis of supported activities, which will show whether the funded projects adequately respond to current challenges such as digitization, climate change, pandemics and international conflicts. In the next phase, research should also focus on the reasons why some countries do not participate sufficiently in the H2020 programme.

Acknowledgements

This paper was created within the Czech Science Foundation project *Towards a dynamic knowledge-based business model for open innovations*. Project registration number GA20-03037S.

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Authors	Collective of Authors
Editors	Michaela Staníčková, Lukáš Melecký
Department	Department of International Economic Relations (120)
Title	Proceedings of the 6 th International Conference on European Integration 2022
Place, Year, Edition	Ostrava, 2022, 1 st edition
Number of pages	820
Publisher	VSB – Technical University of Ostrava, Czech Republic
Press	A.D.M. reprografické studio Ostrava
Number of copies	20 (print), 130 (USB flash drive)
	Not for sale

ISBN 978-80-248-4604-0 (print)
ISBN 978-80-248-4605-7 (on-line)
ISSN 2571-029X (print)
ISSN 2788-0958 (on-line)

**VSB - Technical University of Ostrava
Faculty of Economics
Department of International Economic Relations**

VSB TECHNICAL UNIVERSITY OF OSTRAVA | FACULTY OF ECONOMICS | DEPARTMENT OF INTERNATIONAL ECONOMIC RELATIONS

**ISBN 978-80-248-4604-0 (print)
ISBN 978-80-248-4605-7 (on-line)**

**ISSN 2571-029X (print)
ISSN 2788-0958 (on-line)**