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EUROPEAN STUDIES IN POLAND – THEORIES AND METHODOLOGY

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Abstract: *The main objective of this article is to attempt to determine the current phase of development of European studies in Poland. The said studies are treated as a new, emerging academic discipline in statu nascendi, hence, their characterisation seems like a significantly difficult task. The authors present a brief genesis of the studies in Poland and highlight various viewpoints of the leading Polish researchers on the discipline's research field. The controversies as regards the academic status of European studies emphasised in the Polish literature on the subject have subsequently been presented, including discussions as to whether the studies meet the criteria of a separate discipline at all, and if so, whether it is of a more interdisciplinary or multidisciplinary nature. Highlighting such a broad background enables the authors to proceed with the presentation of the main theories having, according to Polish researchers, the most relevant application in the research on European Studies. The article ends with a synthetic conclusion encompassing a general characterisation of European studies, as well as the confidence in their subsequent dynamic development in Poland.*

Keywords: European Studies in Poland, methodology of European Studies, theories of European Studies.

Introduction

The presentation, analysis, and evaluation of such a broad issue as the state of research of a scientific discipline in a given country is, without doubt, a particularly complex task. The complexity refers to both the selection of relevant materials in terms of content, as well as the application of an adequate methodology allowing the authors to study the issues raised in the

bast possible manner. As for the first difficulty, one of the main problems is the selection of the issues to be studied, which always poses some challenges, mainly due to the volume limitations imposed upon articles published in scientific journals. For this prosaic reason, and simply due to the lack of space, a number of significant and interesting issues have not been addressed in this paper. This applies, for example, to comparing the state of research in Poland with research conducted abroad, in particular with well-developed European studies in Western countries. Moreover, this issue, due to its importance and complexity, would require a separate study.

In terms of the second of the foregoing difficulties, namely selecting the right methodology, it should be highlighted that contrary to the current tendency in the social sciences, there is no need to use complex theoretical structures in every scientific article. When conducting an analysis of a specific, complex social, political, economic or cultural issue, it is undeniably prudent to consistently apply a specific approach based on theories, e.g., normativism, realism or constructivism. This allows for the use of intentionally selected research techniques and methods, as well as drawing more structured research conclusions. (When presenting individual research schools in the field of European studies in Poland in this article, it has been specified which approaches, techniques, and methods they apply).

The research objective of the article, however, is to determine the current state of research in the field of European studies in Poland. Therefore, it is sufficient to apply traditional research methods, such as: historical, comparative, institutional-legal or, to a certain extent, the prognostic method. (It can be said that Desk Research has been applied here, also referred to as secondary research or secondary data analysis). In this situation, it is also difficult to formulate clear-cut hypotheses or research questions at the very beginning. The descriptive narrative used here imposes the application of not so much the deductive method (leading to a drawing of conclusions based on an analysis of previous assumptions), but more of the inductive method, allowing one to come to conclusions based solely on an analysis of collected material.

Moving on to the presentation of this material, it should be stated that European studies in a broad sense – treated as both a research object and an academic subject – have enjoyed a relatively long history and extensive achievements in Poland. Studies as regards various European issues (including in particular their history, geography, and culture) have been

conducted by Polish tertiary institutions as early as the mid-war period, and, to some extent, also post-World War II. The studies, however, began to flourish following the political transformation initiated in 1989. At that time, a number of academic centres emerged focused primarily on different issues related to European integration, with one of the first and most active entity being the Centre for Europe established at the University of Warsaw.

To begin with, it should be highlighted that European studies in Poland - as in a number of other countries - is a discipline *in statu nascendi*, and is therefore young, emerging, and yet to be officially recognised as a separate academic discipline (Barburska, 2018, pp. 35-48). This generates serious problems as regards fundamental issues, starting with the name itself. There are numerous terms in Polish literature on the subject: in addition to European studies, there is the Polish term *europeistyka* which poses some difficulty when attempting to translate it into English, as well as other names: Europeistic studies, Europeistic research, Europeistic field, European research, studies on European integration, and studies on the European Union. In view of the foregoing, and in order to simplify things, the name 'European studies' will be applied consistently in this article and will also be treated - despite all reservations - as a specific and, although not *de jure*, but *de facto* functioning academic discipline (all the more so since, as of 2003, it has been an officially accepted field of study at Polish universities).

1. European studies research field

As far as the general definition of the research area of European studies is concerned, there is something of a consensus among Polish researchers that they belong to the general category of area studies. The said studies cover a wide range of phenomena and processes across Europe that can be researched with the application of various academic disciplines. This also encompasses research on the comprehensive integration processes which have taken place on the European continent following World War II, covering practically all areas of political, economic, and social life, manifested to the fullest by the functioning of the European Communities/European Union (Czaputowicz, 2018, pp. 12-13; Wojtaszczyk and Jakubowski, 2010, pp. 7).

The consensus, however, ends when one has to present a generally outlined research field in a more detailed manner, and the opinions of individual researchers can vary in a more pronounced way. According to Janusz Ruszkowski, European studies have "an ever-changing research subject, which in a broad sense is Europe, but in a narrower perspective, integration processes on the continent, in which the European Union appears as the prime dominant" (Ruszkowski, 2014, p. 56). Dariusz Niedźwiecki perceives it in a similar manner since, according to him, European studies appear in three varieties: as the study of the European Union, as the study of European integration (i.e., it covers a much broader scope than just the phenomena and processes taking place within the EU) and as the study of Europe - although it entails a number of problems with determining the scope of such a broadly understood research field (Niedźwiecki, 2014, p. 316).

The authors of the article, constituting a research team of the Centre for Europe at the University of Warsaw, present a rather broad approach. Underpinned by a number of years of academic and teaching achievements and experience, the team has developed an original formula of European studies, which are based on a broad holistic approach that takes into account all vital aspects of the functioning of the European Union, as well as the entire integration processes taking place in Europe (hence not only within the EU, but also outside it, e.g., within the Council of Europe). In addition, various determinants influencing the shape and course of these processes have also been incorporated to a great extent, the research of which is part of the broad formula of European studies treated as area studies. Therefore, historical, civilization, political, economic, legal, social, sociological, anthropological, cultural, and international aspects have been taken into consideration, with emphasis on the final three aspects being a specific distinguishing feature of these studies. The research methods and techniques of various disciplines (exceeding the scope of social sciences) have clearly been applied here, and the studies at the Centre for Europe revolve around four "pillars": political science, law, economics, and sociology related to cultural studies (Milczarek, 2014; Milczarek D., Adamczyk A., Zajączkowski K. (eds.), 2013, Nowak A.Z., and Milczarek D. (eds), 2006).

However, in other academic circles in Poland, different views and approaches have been formulated. For example, according to Ryszard Zięba, the unresolved question is whether European studies constitute a political science discipline limited to Europe, or are rather an

independent direction of study focused on European integration (Zięba, 2010, p. 42). The latter approach is quite widely accepted - Konstanty A. Wojtaszczyk and Wojciech Jakubowski believe that "European studies strictly refer to the European Union, generally to political, legal, and economic issues" (Wojtaszczyk, Jakubowski, 2010, p. 7). According to Kamil Ławniczak, studies on the EU construed in such a way are divided into two broad sections: one devoted to the study of various determinants of the largely understood processes of European integration, and the other, dealing solely with the functioning of the policies and the political system of the European Union treated as a *sui generis* system (Ławniczak, 2014, p. 199).

Jacek Czaputowicz shares the foregoing opinion since, according to him, European studies based on social sciences (i.e., on such disciplines as political science, international relations, economics, law, and sociology) have far too broad a formula. He therefore introduces a rather uncertain distinction between studies on European integration and even narrower studies on the European Union (EU studies). It is only the latter that he calls European studies in the strictest sense, which apply only the methodology of political science. The researcher, however, shows a certain inconsistency. He uses the following terms: "integration studies" and "European studies" interchangeably, and supplements the foregoing disciplines participating in these studies with history and anthropology, namely reaches for the field of humanities (Czaputowicz, 2018, p. 12-13).

Generally speaking, Polish literature on the subject is dominated by an approach that treats European studies in a broad and holistic manner. Even the above-cited Konstanty A. Wojtaszczyk and Wojciech Jakubowski (who think these studies mainly deal with EU study) find it useful to "outline a pan-European framework for discourse over Europe". In their opinion, "a pan-European perspective would be the most effective in identifying the social, economic, political and cultural dilemmas of Europe, demonstrating its specificity and distinctiveness, and showing its global context" (Wojtaszczyk and Jakubowski, 2010, p. 9).

As part of such a holistic approach, issues related to broadly understood European civilization and culture are of vital importance. (It is worth pointing out that researchers from the Centre for Europe of the University of Warsaw also share such an approach). For example, according to Andrzej Chodubski, one of the main objectives of European studies is to delve into

the phenomena and processes of cultural and civilization changes taking place in Europe (Chodubski, 2012, pp. 17-19). Dariusz Niedźwiecki (Niedźwiecki, 2014) and Franciszek Gołembski also believe that it is culture that underpins the construction of a new European order in the form of the European Union (Gołembski, 2010). It is also possible - as evidenced by Zbigniew Czachór - to evaluate the phenomenon of the EU in a unique way from the point of view of the mutual influence of European integration as well as philosophy and literature in Europe (Czachór, 2019). Such an approach within European studies allows for the expansion of their research field on *inter alia* significant and interesting issues related to the shaping of a European identity (Šejvl, 2019; Łukaszewicz, 2018).

The foregoing considerations allow us to conclude that in the Polish research and teaching practice, a discipline called European studies exists and functions. Irrespective of the controversies that arise in that regard, it also seems the most practicable to treat the studies in a broad and holistic manner (with terminological issues being of secondary importance here).

2. The academic status of European studies

Establishing the academic status of European studies remains, however, an important predicament. Four main approaches as regards this issue can be enumerated in Polish literature on the subject:

1. totally negating the existence of European studies as a separate discipline;

2. recognising the studies as part of political sciences and/or international relations studies;

3. treating them as an interdisciplinary or multidisciplinary discipline derived from the achievements of other disciplines;

4. recognising European studies as a separate, emerging academic discipline.

Ad 1. Proponents of the approach that denies the existence of European studies as a separate discipline have raised various arguments. Among other things, they point out to the fact that even though the studies - as we have tried to demonstrate above - meet the condition to have a separate research area, the condition, however being *sine qua non*, is insufficient to recognise it as a new academic discipline. It stems mainly from the fact that - as Andrzej Chodubski

emphasises - according to a number of researchers, European studies have yet to develop "their own research methodology, which defines a discipline's individuality, including its identity" (Chodubski, 2012, p. 7). What is more, according to some authors, such as Anna Visvizi, such development of a separate methodological workshop would be even unnecessary since "it would resemble the process of discovering the circle" (Visvizi, 2014, p. 176). At the same time, however, it should be highlighted that there are more and more voices pointing to the gradual development of research methods applicable to these studies only, which slowly makes the thesis as regards the lack of individual cognitive instruments for European studies - as Janusz Ruszkowski put it –"become anachronistic" (Ruszkowski, 2012, p. 16).

Ad 2. On the other hand, a certain group of Polish researchers present views proclaiming the actual identity of these studies with political science or international relations studies (Wierzchowska, 2010; Zięba, 2010). According to Jacek Czaputowicz, "European studies in the strict sense apply the methodology of political science" (Czaputowicz, 2018, p. 13), and according to Paweł Stawarz, European studies simply "study a fragment of a wide area of international relations" (Stawarz, 2014, p. 385). Such an approach, however, seems too rigorous and unfounded. As it clearly stems from these considerations, what we encounter here is a much greater range of possible research solutions, not limited only to using the achievements of these two disciplines.

Ad 3. There are many indications that the viewpoint that European studies benefit from the achievements of various disciplines is the most justified. Even the above-quoted Jacek Czaputowicz, who recognises the great role of political science in this respect, acknowledges it. The researcher also acknowledges that European studies additionally take advantage of the achievements of international relations and public policy studies (Czaputowicz, 2018, p. 29). The issue, however, can be perceived in a much broader way - for example, according to Andrzej Chodubski, it should also incorporate law, sociology, economics, and disciplines in the field of humanities, such as history and cultural studies (Chodubski, 2012, p. 27). On the other hand, Konstanty Adam Wojtaszczyk and Wojciech Jakubowski propose adding demography, geography, psychology, and ecology to this catalogue (Wojtaszczyk and Jakubowski, 2012, p. 13). Dariusz Milczarek (Milczarek, 2014) and other researchers also have a broad perspective on the issue (Tomaszewski, 2010, p. 232).

The foregoing brings us to an important research question, namely: is the nature of European studies interdisciplinary or multidisciplinary? (Gagatek, 2012; Gagatek, 2014). Admittedly, these studies meet the interdisciplinarity criterion, as they benefit from the research achievements of at least two disciplines. At the same time, however, they are unable to achieve a high degree of homogeneity with respect to their research field, and they lack the full synthesis of research methods. In view of the foregoing, European studies are of rather multidisciplinary nature, the belief shared also by Jacek Czaputowicz. This means that "different disciplines apply their own methods to analyse a single research area", engage in a mutual dialogue and recognise their differences, but there is no need for a synthesis in this case. At the same time, the researcher suggests applying other, highly sophisticated categories, such as, e.g., transdisciplinarity, intradisciplinarity or analytical eclecticism (Czaputowicz, 2014, pp.14-17).

Other approaches are also possible. For example, according to Anna Visvizi, although European studies are "inherently multidisciplinary", their specificity forces us to go beyond this limiting framework and to base these studies, in her opinion, on a broader formula of interdisciplinarity (Visvizi, 2014, p. 178). A similar view is taken by a number of other researchers, such as Katarzyna Żukrowska, who also treat these studies as "explicitly interdisciplinary" (Żukrowska, 2014, pp. 135-136). Konstanty Adam Wojtaszczyk and Wojciech Jakubowski go even further and categorically claim that "the study of European processes must proceed in an interdisciplinary manner" (Wojtaszczyk and Jakubowski, 2012, p. 11). At the same time, one should additionally take into account the vital fact that since European studies benefit from the achievements of other interdisciplinary disciplines (such as political science or international relations studies), we are dealing here with somewhat of a "double" or even a "multi-level" interdisciplinarity.

Ad 4. The key question remains whether European Studies can be treated as a separate, though only emerging, academic discipline. When resolving this issue, the said disputes about the interdisciplinarity or multidisciplinarity of these studies seem of relatively lesser importance (but certainly utmost care should be applied to maintain precision in methodological and terminological arrangements). As it transpires from the foregoing considerations, the most important thing is to recognise that European studies are *de facto* a separate academic discipline – and what is crucial and what should once again be emphasised a discipline *in spe* and *in statu*

nascendi. It can therefore be said that European studies are still "in the process of searching for their own identity" (Wojtaszczyk, Jakubowski, 2010, p. 8), and at the present stage of their development, the related "methodological challenges are still being shaped" (Chodubski, 2012, p.17).

All this means that the formation and consolidation of a new discipline may take decades and requires the development of a separate network of concepts, theories, and principles of research (including one's own research methods and techniques), as well as a relevant institutional framework. As Dariusz Niedźwiecki explains, in order to become an independent discipline, European studies must meet three basic criteria, i.e., know: what to research (i.e., have their own research subject), how to research (have their own methodology) and speak their own "language", i.e., develop their own theories, methods, concepts, etc. (Niedźwiecki, 2014, p. 314).

3. The theories applied in European studies

Outlining the research field and then defining the scientific status of European studies creates an appropriate conceptual network allowing for the characterisation of the current development stage of this discipline in Poland to be continued. As part of the said characterisation, it should also be indicated which theoretical approaches, according to Polish researchers, can be applied in European studies.

The task, however, is hindered by the fact that yet again we have to deal with a great diversity of opinions, which is understood in view of the number of possible approaches that have already been highlighted. What is more, even selecting one dedicated research perspective will not solve the problem since – as Janusz Ruszkowski aptly observes, "no single theory in European studies (…) is able to explain all aspects of an analysed case" (Ruszkowski, 2012a, p. 29). It means that choosing any theoretical approach is more or less subjective and dependent on the individual preferences of a researcher.

Amongst the various approaches to the issue, it is worth presenting the views of Janusz Ruszkowski, who claims that the dichotomy between - as he calls it - families of theories "focused on the one hand on intergovernmental theories and on the other hand on supranational

theories" becomes increasingly more important in research conducted as part of European studies. Both of the said families of theories "differ fundamentally, similarly to the classic dispute between idealism and realism in international relations." The dichotomy has dozens of decades of historical tradition, but still "seems to be fundamental in the early 2000s" (Ruszkowski, 2012, p. 10).

Therefore, on the one hand, we are dealing with a family of intergovernmental theories focused on state actors. The most important example being intergovernmentalism (especially as perceived by Andrew Moravcsik), but the family also includes, *inter alia*, neoliberal institutionalism, constructivism, and communication theory. On the other hand, there is a family of supranational theories focused on non-state actors. Janusz Ruszkowski lists federalism (as the key "starting theory") and neo-functionalism (represented especially by Ernst B. Haas), as well as constitutionalism and historical institutionalism amongst the most significant of the said theories (Ruszkowski, 2012a, p. 32).

Such an approach and the classification applied as part thereof are, however, not generally accepted by Polish researchers. A contrary opinion on this issue is presented by Jacek Czaputowicz, who claims that when it comes to the main theories applicable in European studies, the existence of the dichotomy between the intergovernmental and supranational approach was relevant only until the mid-1990s, "and since then the dividing line runs, as is the case in the theories of international relations, between a rationalist and constructivist position" (Czaputowicz, 2010, p. 247). Identical or comparable approaches have also been presented by other authors, e.g., Ryszard Zięba, who distinguishes between two main research approaches: positivist and constructivist (Zięba, 2010, pp. 42-44) or Roman Trzaskowski, who discourses about the rationalist-constructivist dichotomy (Trzaskowski, 2005, p. 80).

Besides the existence of otherwise natural differences of views between individual researchers, an additional difficulty in examining individual theories in European studies is posed by the fact that we encounter shifts in opinions made by the same author. The prime example being Jacek Czaputowicz, already quoted hereinbefore, and the evolution of his views. In his earlier works, he believed that European studies benefited from the achievements of only two disciplines: international relations studies and political science. As part of the first he listed

federalism, neo-functionalism, intergovernmental liberalism and three forms of new institutionalism, and as part of the latter: comparative politics, multi-level governance, and policy networks (Czaputowicz, 2010, p. 248).

In his latest works, however, the author applies a somewhat different classification. He nevertheless still mentions international relations and political science as the main disciplines applied in European studies, but incorporates public policy studies as well. What is more, within these disciplines he uses a different classification of theories related thereto: within international relations studies he lists functionalism and neofunctionalism, transactionism, three intergovernmental approaches as well as constructivism, within political science - federalism, comparative politics and three types of institutionalism, and within public policy studies - multi-level governance, governance theories, and policy networks (Czaputowicz, 2018, p. 29).

There are also other classifications of the main theories in European studies presented in the Polish literature on the subject. From the vantage point of political science, Paweł J. Borkowski introduces a division into theories of contemporary neofunctionalism, liberal intergovernmentalism, radical democratic federalism, and multi-level governance (Borkowski, 2007, p. 189). Artur Nowak-Far enumerates federalism, neofunctionalism, liberal intergovernmentalism, community theory and institutional theories in his research as regards the relations between political science and economic sciences with reference to European studies (Nowak-Far, 2014, pp. 116-121). From the point of view of legal sciences, however, Konstanty A. Wojtaszczyk distinguishes neofunctionalism, liberal intergovernmentalism, new institutionalism, political networks, and social constructivism (Wojtaszczyk, 2014, p. 97).

In order to mitigate the essentially unsolvable classification disputes in this respect, Janusz Ruszkowski proposed a different approach (Ruszkowski, 2012a, pp. 29-31). The idea was not only to present theories derived from specific scientific disciplines or research trends, but also to highlight the issue in a more systemic way. The researcher, therefore, proposes a modification to the traditional division distinguishing the so-called grand theories, including neofunctionalism, intergovernmentalism, constructivism, constitutionalism, and federalism. These theories “attempt to comprehensively explain the fundamental issues of integration”, but at the same time are “petrified systems”, far too broad with tendencies to overlook nuances

which fail to keep up with the dynamically changing reality of Europe. (According to the author's figurative term, their application resembles shooting "at a mosquito from a cannon"). Even the attempts to revitalise grand theories by creating their newer versions which lead to the emergence of, for instance, not only neo-functionalism but even neo-neo-functionalism, fail to eliminate the deficiencies.

In this situation, Janusz Ruszkowski proposes the application of the theory of a new trend, i.e., "specialist theoretical approaches, even segmented, which will help to explain individual processes, activities or systems identified within the EU". To the specialist theories he includes, *inter alia*, the theory of multi-level governance (MLG), which has even more specialised variations in the form of the Multi-Level Membership (MLM) and Multi-Level Constitutionalism (MLC) theory (Ruszkowski, 2014, p. 46). The author also indicates a number of more or less partial concepts, such as theories of Europeanisation and europeanism, supranationality, Principal-Agent Theory (PAT), customs unions, comitology, optimal currency area (OCA) etc. (Ruszkowski, 2012a, pp. 32-34).

This type of approach definitely has its advantages, but also its limitations. As it seems, its application may lead to excessive fragmentation and overly-detailed research within European studies, which, by definition, should have a very broad, holistic dimension.

Conclusion

As it stems from the analysis of the foregoing research approach by Janusz Ruszkowski, one can have various reservations as regards the concepts and classifications presented in this article. Certainly, researchers' rights to present their own perspectives should be fully respected, but one must also recognise the shortcomings of individual approaches. It applies in particular to the general research effectiveness of individual concepts and theories in the study of a complex reality. This refers not only to researchers in Poland, but also in other countries. Everywhere in the world of science, and in particular in social sciences and humanities, the forewarning formulated by Dariusz Milczarek many years ago may apply: "In relation to some overly complicated or sublime theoretical approaches, one may have reservations as to whether

they are suitable to study the complex conditions of reality, the more so when they sin by over-exposing only one or several selected elements of the analysis" (Milczarek, 2003, p. 19).

It should also be taken into account that a number of the concepts and theories discussed herein are applied not only in academic research, but also in the empirical sphere. This refers, *inter alia*, to the idea of federalism, which can be construed in various ways, not only as a theoretical concept, but above all as a specific political and ideological programme (Sienko 2021). Some concepts closely related to the functioning of the European Union as an international actor, and thus also to European studies, may have a practical application as instruments of the EU's foreign policy. The said refers to, for example, the abovementioned concept of Europeanisation, i.e., the multidimensional influence that the European Union exerts on its external environment, a good example of which is the Eastern Partnership or the Mediterranean Partnership (Barburska, 2020). The same refers to another similar concept applied, as highlighted above, in European studies, namely the idea of Europeanism (Śliwiński, 2020). All of the said issues present the scale of difficulties faced not only by Polish researchers attempting to use European studies to study the complicated reality prevailing in Europe.

The opinion of Janusz Ruszkowski, previously quoted in this article, may serve as a specific conclusion to the foregoing considerations. According to Ruszkowski, European studies, both in terms of methodology and practice, have three main features. They can be absorptive, namely, "they are able absorb and adapt theories and methods from other academic disciplines", they are flexible, meaning - they can "respond to the constantly changing research subject" that is Europe and integration processes taking place within the European Union in a broad sense, and, finally, they are open to solutions recommended by other disciplines, but at the same time they are not constrained by their "theoretical and methodological corset" (Ruszkowski, 2014, p. 56).

Due to the said advantages, European studies conducted in Poland have not only already gained significant achievements, but also have good prospects for the future. Although they are yet to be officially recognised as an academic discipline under Polish conditions, it is reasonable to hope that it will happen in the most foreseeable future.

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THE IMPACT OF THE IMPLEMENTATION OF THE EUROPEAN UNION STRUCTURAL FUNDS IN THE SLOVAK REPUBLIC IN COMPARISON WITH V4 COUNTRIES

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Abstract: *The European Union's Structural Funds are a key instrument for reducing the disparities between its regions. The Slovak Republic, as well as other countries of the V4, has been eligible to implement these funds since joining the EU in 2004. This paper focuses on the implementation of the Structural Funds in the V4 countries in the 2007-2013 programming period. We have searched this programming period as it was the first period since the accession of countries to the EU in which they benefited from this support throughout its whole duration. The ability to spend EU funds effectively has a major impact on the economies of countries, as these resources make up the bulk of public investment. In this paper, we were working with secondary data using standard scientific methods of quantitative research as well as descriptive statistics. The results of our research have shown that the level of effectiveness of the implementation of EU allocated funds varies in the V4 countries in 2007 – 2013, while the effectiveness of some key indicators in the Slovak Republic was the worst among the V4 countries. We have also found that in terms of selected key socio-economic indicators in the period under review, such as unemployment rate, the Slovak Republic has improved least within the V4 countries.*

Keywords: Public administration, EU, structural funds, V4 countries, operational program, Slovak Republic.

Introduction

Structural and cohesion policy is one of the key areas of the European Union (EU) policies, to which a special attention is given. There are significant differences between more than 250 regions of the EU, mainly in the population living standard, despite the EU is one of the most flourishing areas and economies in the world. One of basic pillars of the EU is the convergence principle, whose objective is a gradual equalization of the living standard in individual regions. Regional policy and cohesion policy of the EU (Casula, 2021) is the main source of investments in Europe (Crescenzi, Giua, 2020). It enables to use more than 35% of the EU budget, which comes mainly from wealthier member states, in disadvantaged regions and helps maintain regional competitiveness. The main principle of regional (cohesion policy) policy of the EU is a financial solidarity toward less developed regions, as well as toward social groups. Developed regions perceive different needs, mainly in the field of the competitiveness and employment rate growth. An important milestone for the development of regional policy in the EU was the enlargement of the Union in 2004 and 2007, when 12 new member states entered the Union. Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia became members on 1 May 2004 (Szeiner et al., 2020), while part of the same wave of enlargement was the accession of Bulgaria and Romania in 2007.

The Visegrad Group (V4) is a group of four Central-Europe countries – Slovakia, Czech Republic, Hungary and Poland. These countries share common history, cultural and religious background (Visegrad Declaration, 1991). After 1989, these countries had joined the process of the integration into European institutions and joined the EU in 2004. Later, these countries had joined common activities of foreign policies, mainly in the field of security and democracy support. The entry into the EU in 2004 can be considered as a fundamental breakpoint not only in the cooperation of V4 countries, but also in the development of individual member states. After joining the EU in 2004, one of the main goals of V4 countries was to catch up with old member states in the level of economic development. The rate of the economy growth can be measured by various methods, but most commonly used method is an evaluation of selected social-economic parameters, such as GDP per capita, GDP annual growth, or an employment/unemployment rate. By joining the EU in 2004, V4 countries have become authorized entities for drawing the

structural funds of the EU (Ferry, Mcmaster, 2005) determined for the help by overcoming the inequalities between economically stronger and weaker regions within the EU. Financial resources from the EU funds represent a predominant percentage of public investment in the V4 countries, which in Slovakia is almost 80 percent. In this context, it is extremely important how countries manage spending these resources effectively. In practice, however, several determinants cause that the level of implementation (Casula, 2021) effectiveness (Moreno, 2020) of assigned financial sources of the EU in individual countries is different, as well as the impact on social-economic indicators. In turn, efficiency in the using of EU funds may, to a certain extent, mean that several key socio-economic indicators differ significantly from one country to another. It is that, among other things, what we wanted to point out in this contribution.

Methodology

The aim of this paper is to evaluate the impact of the implementation of structural funds of the EU in the programming period 2007 - 2013 in V4 countries through selected indicators influencing the development of countries, including the population in the period under review, which was set for years 2007 – 2015. Programming period 2007 - 2013 started on January 1st, 2007 and ended on December 31st, 2013. However, the projects were realized also in next two years on the basis of the rule "n + 2", according to the Article 31, sec. 2 of the Council Regulation (EC) No 1260/1999 of 21 June 1999 laying down general provisions on the Structural Funds (in this case 2013 + 2, i.e. until the end of 2015). The objectives of this paper were:

- to compare selected indicators in the V4 countries related to the implementation of the programming period 2007-2015 with a focus on GDP growth, GDP per capita, GDP rate per capita in the parity of a purchasing power and allocation of funds per country;
- to compare EU funds in the V4 countries in terms of total and contracted funds; contracted and disbursed funds and also the drawing of funds in the period under review;
- to determine the effectiveness of the use of funds in the V4 countries in the period under review based on the ratio of contracted and drawn funds;

- to find out the development of selected socio-economic indicators in the v4 countries in comparison with the eu28 average in the period under review when the eu structural funds of the programming period 2007-2013 were implemented.

For our research, we set the following research questions:

- How have selected indicators in the V4 countries been changed in relation to the implementation of the 2007-2015 programming period, focusing on GDP growth, GDP per capita, GDP per capita in purchasing power parity and the allocation of funds to the country?
- How have the individual countries in the V4 countries been successful in implementing eu funds in terms of overall and contracted resources; contracted and disbursed funds as well as in the drawing of funds in the period under review?
- how were the individual v4 countries effective in terms of using of eu funds in the period under review on the basis of contracted and drawn funds?
- what was the development of selected socio-economic indicators like (employment and unemployment rate; people at risk of poverty and social exclusion) in the period under review in the v4 countries in comparison with the eu28 average when the implementation of the eu structural funds in the programming period 2007-2013 took place?

In this paper, we were working with secondary quantitative data. We have used standard scientific methods, mainly analysis, synthesis, comparison, induction, deduction. Another key method that has been used was the descriptive statistics, and for better visualization, we used a graphical presentation of the identified results (Rimarčík, 2007; Chajdiak, 2010). The paper, by its focus, brings results that have been absent in the researched area so far. We consider the processing in this context of the V4 countries to be original.

Regional and structural policy of the European Union

Regional policy can be understood as a control by state and territorial institutions, of which extent is directed toward the creation of suitable conditions for dynamic and multilateral development of regions with maximal utilization of their geographical, human and economic

potential (Rajčáková 2005). If necessary, regional policy fulfills the role of a supplement to the internal market, economic and monetary union (Balko et al., 2004). According to Bachtler (2001), *"the primary objective of European regional policy shall be the support of cohesion across the Union… however, it is important to realize that regional policy includes also other goals: it prepares a European strategies framework for regional development, supports the integration, helps by catastrophes, etc."* According to the theory, regional policy on a national level represents a partial and sectional economic policy, which can be interpreted as a "*coordination policy of all tools in certain area*" (Buček, 2001). Following authors have dealt in their works with the theoretical-methodological anchoring and general questions of regional policy functioning: Gorzelak, Kukliński (1992), Maier, Tödtling (1998), Armstrong, Taylor (2000) or Wokoun et al. (2008); in the conditions of domestic issues for example Samson et al. (2001), Rajčáková (2005), Ivanička, Ivaničková (2007), Ištok (2010) or Buček, Rehák, Tvrdoň (2010). The assessment of the impacts of EU regional policy based on the utilization of resources from structural funds and the research of convergent or divergent processes in regional structure of the EU was dealt by, for example, Cini (2003), Flores (2008), Basile, Castellani, Zanfei, (2008), Di Caro, Fratesi, (2022) or Busillo et al. (2010). The functioning of regional policy in 1990s in Slovakia – in the first years of its existence – was researched for example by Búšik (1998), Tvrdoň et al. (2002), Matlovič and Matlovičová (2011), Marišová et al. (2021), Fiala, Krutílek, Pitrová (2018) or Wokoun, Mates, Kadeřábková, (2011). Authors Ferry, Mcmaster (2005) who deal with comparing the impact of EU funds in Poland and the Czech Republic.

The main task of structural policy of the EU is to strengthen the economic, social and territorial solidarity, also called as the cohesion in individual member states of the EU. The cohesion policy is focused mainly on the support of the economic growth of less developed regions, including the support of employment rate. Such regions are designated as structurally weak regions. Structural and cohesion policy is considered as one of the pillars of European regional policy. Cohesion and structural policy are a demonstration of solidarity of the EU with its less developed member states and their regions. The meaning of cohesion policy is the support of the country as a whole, directed toward the areas, which are creating the conditions for its better economic and social development (Barič, 2017). Concerning structural policy of the EU, there are many significant studies, such as

of Belka (2013) on Poland, Draghi (2015) on a structural reform of the EU, Dustmann et al. (2014) on Germany.

The impact of the implementation of EU structural funds in V4 countries in selected areas

At the beginning of operational programs implementation in the period 2007 – 2013, macroeconomic conditions in V4 countries were quite varied despite many common features of their economies. V4 countries have differed mainly in their economy development, labor market and the development of transportation infrastructure. These aspects have been reflected into the decisions regarding the selection of intervention priorities co-financed by the EU, and it has influenced the rate of growth of macroeconomic indicators in the period of 2007 – 2013 (Monfort, P., et al., 2021). However, a common denominator was a significant starting point for the economic development after these countries had joined the EU, as well as economic and social processes, which had an immediate effect on satisfying people´s needs. This development, as well as assumed impact of interventions from the realization of operational programs, can be analyzed by means of selected macroeconomic/social-economic indicators.

Since joining the EU, all new member states were successfully catching up with the European average of economic development. During the decade preceding the beginning of the implementation of programming period 2007 – 2013, mainly V4 countries were able to decrease the differences compared to more developed European countries, when their growth was faster than the rest of the EU countries. For the research and assessment of the effect of cohesion policy on macroeconomic indicators, it is necessary to know economic grounding points of V4 countries at the beginning of programming period 2007 - 2013. The key indicator for the division of regions is the Gross National Product per capita (GNP p.c.) level. GDP (nominal) p.c. does not, however, reflect differences in the cost of living and the inflation rates of the countries; therefore, using a basis of GDP per capita at purchasing power parity (PPP) may be more useful when comparing living standards between nations, while nominal GDP is more useful for comparing national economies on the international market (Hall, 2021). This is the subject to criticism based on the fact that GDP p.c. is unable to reflect the real socio-economic state of regions. Some groups (e.g., Beyond GDP) and organizations propose the creation of a set of alternative indicators that could

substitute the GDP and its derivates (European Commission - Beyond GDP). GDP is often used as a metric for international comparisons as well as a broad measure of economic progress. It is often considered to be the "world's most powerful statistical indicator of national development and progress" (Lepenies, 2016). For this reason, at first, we have looked on the GDP p.c. level in V4 countries in 2007. An average GDP rate p.c. of V4 countries in 2007 was still only on the level of approximately 65% of the EU-28 average (Eurostat, 2016a). From the point of view of economic development, in the period after joining the EU, V4 countries were very varied. In 2007, SR´s GDP level p.c. was 66.8% compared to the EU average, which within the V4 was the second highest value after Czech Republic, which was a dominant leader in this indicator with the value of 82.5%. Slovakia was followed by Hungary – 60.3%, and Poland fell behind more significantly with the value of 53.1%.

Table 1. GDP rate per capita in V4 countries compared to the EU-28 average in % in 2007 - 2015

	2007	2008	2009	2010	2011	2012	2013	2014	2015
EU - 28	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
CR	82.5	83.9	85.3	82.8	83.0	82.5	83.6	86.0	87.2
Hungary	60.3	62.7	64.2	64.8	66.0	65.7	67.2	68.2	69.0
Poland	53.1	55.4	59.2	62.5	65.1	66.8	67.0	67.4	68.6
SR	66.8	71.4	71.2	74.9	75.0	76.3	76.5	77.1	77.2
V4 - average	65.68	68.35	69.98	71.25	72.28	72.83	73.58	74.68	75.50

Source: own processing based on data of Eurostat (2016a)

Since 2007 until 2015, Slovakia has reached the increase in GDP rate per capita by 10.4%, which is the second-best result among the countries of V4 after Poland, which has achieved the increase of 15.5% in this period. Hungary´s increase was 8.7% and Czech Republic recorded an increase of 4.7%. This indicator is used for expressing the performance of economy and living standard of its citizens; however, it is a limited indicator, which does not take into account all attributes expressing the well-being of the population in the given country. The impact of

interventions can be further measured by many methods. The economies of V4 countries grew in 2007 - 2015 much faster than the EU average. Average growth in V4 countries in this period was 2.4% compared to only 0.72% in the whole EU (World Bank, 2015). From all countries of V4, the fastest growth in this period was recorded by Poland, when its real GDP per capita has increased from 50.8% to 68.6% of the EU average. Slovakia has recorded a rapid growth as well, since it has grown much faster than Hungary with the same originating position. The result could be seen in the fact that the GDP per capita in SR in 2015 was 77.2% of the EU average, when - from the point of view of the pace of GDP rate growth - the country caught the regional leader, which was Czech Republic.

The main challenge for the EU and its member states was to react flexibly to the actual economic crisis by means of redirecting of some interventions from structural funds in a way that it could help minimize all impacts of the crisis. As we can see on the Graph no. 1, the GDP growth significantly decreased in V4 countries in 2009, when the consequences of the crisis in Europe were the most perceptible, except Czech Republic, which was not that hit by the crisis, mainly thanks to the stable bank sector. While the biggest economic decline was recorded in Hungary, where the GDP growth in 2009 reached the level of -6.8%, the crisis had most significant year-on-year impact on Slovakia with the decrease of 10.7 percentage point. Slovakia was followed by Hungary with the year-on-year difference of 7.7 percentage point, then followed by the Czech Republic with the difference of 7.6 percentage point. The smallest impact of the crisis was recorded in Poland with the difference of 3.5 percentage point.

Graph 1. GDP growth of V4 countries in 2007 - 2015 in %

Source: World Bank, 2015

The GDP rate per capita compared to EU-28 average is strongly related to the indicator of purchasing power in the countries of V4. There are various key indicators, which can be analyzed in this regard, such as the development of gross salaries or the parity of purchasing power related to an average year salary. It is an important analytical tool in the OECD and is watched closely by policymakers seeking elements of comparison of the level of economic development of Member countries, and even of economic policy in the European Union regarding the allocation of structural funds (OECD, 2002). Annual growth rate of real GDP per capita is calculated as the percentage change in the real GDP per capita between two consecutive years. Real GDP per capita is calculated by dividing GDP at constant prices by the population of a country or area (Global SDG indicator Platform, 2018).

Purchasing power parity is a theory of exchange rate determination. It asserts (in the most common form) that the exchange rate change between two currencies over any period is determined by the change in the two countries' relative price levels (Dornbusch, 1985). For finding out a real purchase-effectiveness of citizens of V4 countries in a monitored period, it is not enough just to analyze average salaries through the parity of the purchasing power. We need to look also

at other indicators, which indicate the prices of goods and services, and what the people can buy for their salaries. A relevant indicator of purchase-effectiveness of the population is the indicator "real individual consumption". This indicator measures the material well-being of households in the standard of the parity of purchasing power. Therefore, we have analyzed real individual consumption of V4 countries via the GDP per capita indicator in the parity of the purchasing power in % compared to the EU-28 average in 2007 – 2015 (Tab. 2). This indicator reflects the performance of the economy and living standard of its citizens. However, it does not consider the price and salary levels in the economy, but it still has some relevant value, since in general it is true that a higher GDP per capita is linked with higher performance of the economy, so the people have better lives with higher living standard.

Table 2. GDP rate per capita in the parity of a purchasing power of V4 countries compared to EU-28 average in %

	2007	2008	2009	2010	2011	2012	2013	2014	2015
EU - 28	100	100	100	100	100	100	100	100	100
CR	82	84	85	83	83	82	84	86	87
Hungary	60	63	64	65	66	66	67	68	68
Poland	53	55	59	62	65	67	67	67	69
SR	67	71	71	74	74	76	76	77	77

Source: own processing based on data of Eurostat (2016b)

From the point of view of real individual consumption, Poland has recorded the most dynamic growth within V4 countries with the growth of 16%. Slovakia has recorded the second-best growth with the value of 10%, Hungary with the value of 8% and Czech Republic with the value of 5% - here we need to add that, despite the lowest dynamics, Czech Republic had the best starting point in 2007, which was at that time by almost 30% higher than for Poland. The mentioned fact, demonstrating the economic level of these countries, is related to the GDP rate per capita, where the Czech Republic was a dominant leader in the region of V4 countries during the monitored period.

In the programming period 2007 – 2013, the V4 countries had access to 130 billion EUR from the funds of the EU, which represented 17.35% of the annual GDP of the whole V4

region. The total amount of assigned financial resources from structural funds of the EU, as it is shown in the Tab. 3, differs between V4 countries. SR had the smallest allocation from all V4 countries, but in the indicator of assigned EU funds per capita, it had the third-worst place, since the lowest value was recorded in Poland. The allocation for Poland was higher than summed allocation of all other three V4 countries. Although Poland has the highest budget from the EU resources from V4 countries, in the ratio of EU funds per capita it is paradoxically the last among V4 countries. Averagely, V4 countries have received EU funds per capita in the amount of 2.234 EUR. In the ratio of the EU funds compared to the GDP, only Czech Republic is significantly under the average of all V4 countries, mainly because its GDP per capita in 2007 rapidly oversteps other V4 countries. Regarding assigned EU funds compared to the GDP, averagely achieved level in V4 countries was 21.38%.

Table 3. Selected indicators of V4 countries related to the population, GDP and EU resources

	CR	Hungary	Poland	SR	Total/average
Population (in mil.)	10.54	9.86	38.01	5.43	63,84/15.96
GDP in 2007 (in bill. EUR)	138.30	102.17	313.87	56.24	-/152.65
GDP in 2015 (in bill. EUR)	168.47	110.90	430.26	79.14	-/197.19
GDP per capita in 2007 (in EUR)	13.400	10.200	8.200	10.400	-/10.550
GDP per capita in 2015 (in EUR)	16.000	11.300	11.200	14.600	-/13.275
Allocated EU funds (in bill. EUR)	26.30	24.92	67.19	11.65	130.06/32.51
Allocated EU funds per capita (in EUR)	2.496	2.529	1.768	2.144	-/2.234
Allocated EU funds per GDP (in %)	19.02%	24.39%	21.41%	20.71%	-/21.38%
Number of operational programs	26	15	29	11	-

Source: own processing based on data of the EU (2015)

From the point of view of statistics regarding the utilization of structural funds of the EU in V4 countries in the programming period 2007 – 2013, the most important indicators are the amount of assigned, contractual and drawn financial resources. As we have already mentioned

above, Poland had the highest number of financial resources (67.19 billion EUR), followed by Czech Republic (26.30 billion EUR), Hungary (24.92 billion EUR) and the lowest amount was assigned to Slovakia (11.65 billion EUR).

Table 4. Information about EU structural funds implementation in V4 countries in the programming period 2007 – 2013

	CR	Hungary	Poland	SR	Total /average
EU funds (in bill. EUR)	26.30	24.92	67.19	11.65	130.06/-
Contracted grants (in bill. EUR)	27	29.2	66.9	14.2	137.3/-
Contraction rate (in %)	103%	117%	100%	122%	-/111%
Paid grants (in bill. EUR)	23.3	27.7	61.6	11.3	123.9/-
Payment rate (in %)	89%	111%	92%	97%	-/97.25%

Source: own processing based on data of the EU (2015)

As it is shown in the Tab. 4, the level of effectiveness of implementation of assigned financial resources of the EU differs among V4 countries. At the end of 2015, all V4 countries had achieved the level of contraction 100% or more from the allocated sum for the programming period. After 9 years of implementation, V4 countries achieved the contraction level of 111% on average, calculated from the budget delimited for the programming period. An average level of drawing at the end of 2015 in all V4 countries was 97% of their budget assigned for the programming period.

A very important indicator of a real level of effectiveness of EU structural funds implementation in individual countries of V4 in the programming period 2007 – 2013 is the difference between the ratio of contraction and the draw rate. The smaller the difference in these two indicators is, the more effective is considered the implementation of structural funds of the EU. By this indicator, it is necessary to emphasize the fact that, according to general rules of the EU, the member state is obliged to follow the rules of economic, effective and efficient manipulation with the financial resources of the EU by the performance of operational programs.

Additionally, the member state is obliged to follow budget rules according to the provisions of national legislation.

By the performance of operational programs in the programming period 2007 – 2013, there was often recorded controlling over the frame of disponible allocation (in SR, there was even the over-contraction on the level of 122% for the whole NSRF), which causes certain risks in the area of following the budget rules, because under the assumption that all contracted expenses in the projects would be drawn, the part of the allocation exceeding 100% assigned to the member state would have to be paid in full from the state budget, which would be in contradiction to the budget rules set by national legislation.

A significant difference between contraction and draw rate also indicates that projects were not drawn in full; that in realized projects, there was identified a high percentage of unauthorized expenses; that the part of expenses was used unauthorizedly or in the contradiction with the conditions set by contracts on providing the irrevocable financial contribution, of which consequence were project financial corrections and refunding the financial resources into the EU budget after performing the audits and controls, and after the identification of specific insufficiencies. For this reason, we have compared the economy of SR with the resources of the EU and compared the data with V4 countries from this point of view, while the difference between the contraction and draw rate is expressed as a gap.

Table 5. Gap between the contraction rate and payment rate in V4 countries in 2007 - 2013

	Contraction rate (in %)	Payment rate (in %)	A gap between the rates of contraction and payments (in %)
CR	103%	89%	14
Hungary	117%	111%	6
Poland	100%	92%	8
SR	122%	97%	25

Source: own processing based on data of the EU (2015)

As it is introduced in the Tab. 5, from the point of view of implementation effectiveness, Slovakia took the last place from V4 countries, when the gap between the contraction and draw rate reached the value of 25%. From the countries of V4, the most effective implementation of this indicator was recorded in Hungary (a gap of 6%), followed by Poland (a gap of 8%) and followed by Czech Republic (a gap of 14%).

Selected socio-economic indicators in V4 countries in 2007 – 2015 period

The situation on the labor market in the countries of V4 was quite specific during the monitored period. Besides the fact that in the past V4 countries were economically less developed, they had rather low unemployment rate, which significantly differed in individual countries. Between 2007 and 2013, the number of people in Europe who had been unemployed for more than a year doubled. At its peak, this sharp rise in long-term unemployment has affected around 12 million people across the EU (European Commission, 2019).

Unemployment is a situation in which a certain part of the working-age population does not participate in the work process. This phenomenon significantly contributes to the unfavorable development of public finances, but also reflects the possible underutilization of production capacities in the economy (Workie Tiruneh - Štefánik et al., 2014).

At the beginning of the programming period 2007 – 2013, from the point of view of a human capital and labor market, the V4 countries faced much more challenging position than other member states of the EU. According to the Eurostat, the unemployment rate in V4 countries was higher than in EU-28, while the employment rate was lower than in EU-28. If we looked at the starting year of 2007, an average unemployment of V4 countries was on the level of 8.14%, while the EU-28 average was only 7.2%. Slovakia was the worst in this parameter from this block, when the unemployment rate reached the value of 11.2%. However, in the Czech Republic and Hungary, the unemployment rate was lower than the EU average. Lowering of unemployment rate was supported by projects from structural funds of the EU financed from the source of the ESF, focused on the support of employment, from which the most effective were active measures on the labor market.

Table 6. Unemployment rate in V4 countries and EU-28 average in % in 2007 – 2015

	2007	2008	2009	2010	2011	2012	2013	2014	2015
EU - 28	7.2	7	9	9.6	9.7	10.5	10.9	10.2	9.4
CR	5.3	4.4	6.7	7.3	6.7	7	7	6.1	5.1
Hungary	7.4	7.8	10	11.2	11	11	10.2	7.7	6.8
Poland	9.6	7.1	8.1	9.7	9.7	10.1	10.3	9	7.5
SR	11.2	9.6	12.1	14.5	13.7	14	14.2	13.2	11.5
V4 - average	8.14	7.18	9.18	10.46	10.16	10.52	10.52	9.24	8.06

Source: own processing based on data of Eurostat (2015a)

Similarly, to the entire EU, also in V4 countries we could see the consequences of the economic crisis on the labor market as a whole. The implementation of structural funds of the EU contributed to the moderation of crisis impacts, which is proved also by the fact that the average unemployment rate in V4 countries reached the pre-crisis levels (8.06) only in 2015. Additionally, here we could see also a faster growth of GDP in V4 countries compared to the EU-28 average, on the contrary, in the case of V4 countries we have recorded the increase of the unemployment level in EU-28 to 9.4%, which is by 2.4% more than in 2008, when the crisis started. Thus, also thanks to faster economic growth, the V4 countries were able to cope better with the consequences of the economic crisis, from the point of view of economic growth, and compared to other member states of the EU. However, the introduced statement does not apply to Slovakia, which was hit by the crisis in full extent, and which as the only one of these countries recorded higher unemployment rate in 2015 (11.5%) compared to the starting point in 2007 (11.2%). In 2015, other V4 countries managed to achieve lower unemployment rate compared to the beginning of the monitored period.

One of the most important social-economic indicators is the employment rate. The significance of the employment rate in the society does not represent only the economic dimension for the country and financial security for families or individuals, but it represents also the basic entity from the point of view of social and psychological position of a human in the society. According to Keynes, full employment means the absence of involuntary unemployment (Keynes, 1937). If the point of full employment of resources is reached and effective demand continues to

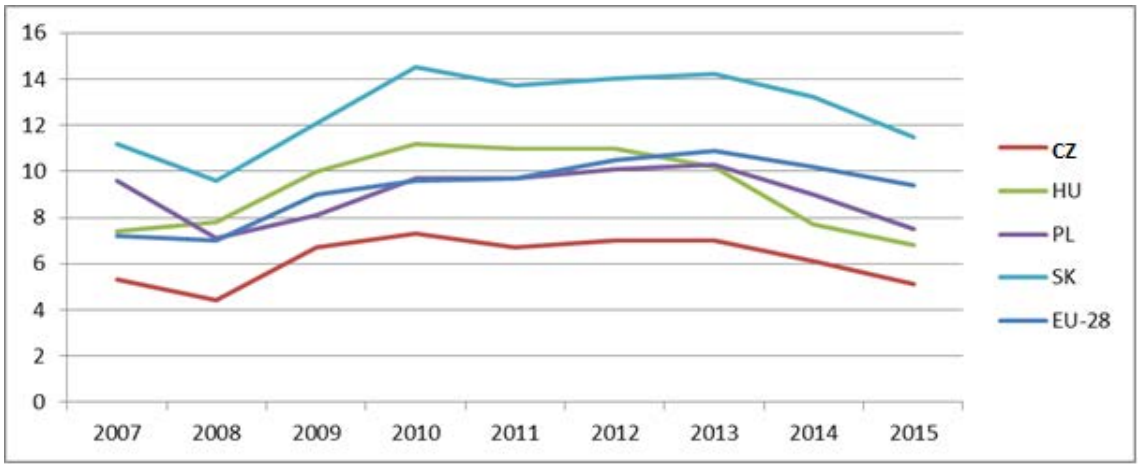
increase, prices will rise to equilibrate the demand for and the supply of goods and services (Meade, 1995). The gains from, and consequently the political support for, employment protection is larger the lower the rate of creative destruction (i.e., the lower the growth rate) and the larger the employee's bargaining power (Gilles, 2002). The prioritization of the issue of employment rate in the EU is expressed also by the fact that within the goals of the Europe 2020strategy, the first place is taken by the objective "The employment rate of the people aged 20-64 should be increased from current 69% to at least 75% until 2020" (European Union, 2010). Regarding the employment rate development, in the monitored period Slovakia recorded a slight increase in 2015 compared to the starting amount from 2007, when the total improvement had the amount of 0.5%. Other countries of V4 recorded more significant increase of the employment rate – the highest for Hungary (+6.6%), then Poland (+5.1%) and Czech Republic (+2.8%). The EU-28 employment rate level average remained on almost the same amount, with a slight increase by 0.3%.

Table 7. Unemployment rate of v4 countries and eu-28 average in % in 2007 – 2015

	2007	2008	2009	2010	2011	2012	2013	2014	2015
EU - 28	69.8	70.2	68.9	68.5	68.6	68.4	68.4	69.2	70.1
CR	72	72.4	70.9	70.4	70.9	71.5	72.5	73.5	74.8
Hungary	62.3	61.5	60.1	59.9	60.4	61.6	63	66.7	68.9
Poland	62.7	65	64.9	64.3	64.5	64.7	64.9	66.5	67.8
SR	67.2	68.8	66.4	64.6	65	65.1	65	65.9	67.7
V4 - average	66.05	66.925	65.575	64.8	65.2	65.725	66.35	68.15	69.8

Source: own processing based on data of Eurostat (2015b)

Figure 2. Unemployment of the V4 countries and EU average in 2007 - 2015 in %



Source: own processing based on data of Eurostat (2015a)

Another important indicator for the analysis of the effect of drawing the financial resources of the EU in the monitored period 2007 – 2015 is the people at risk of poverty or social exclusion. Decreasing the level of poverty and social exclusion, enabling socially excluded people to actively engage into the life of the society, support of the inclusion and fight against the discrimination, and the solution of specific circumstances of extremely vulnerable groups belong to main challenges for ensuring the social cohesion in Europe. This area was also significantly influenced by the economic crisis when, in 2008, almost 120 million of Europeans in the entire EU occurred in the area of risk of poverty and social exclusion (Eurostat, 2019). Social inclusion is a process that ensures that those at risk of poverty and social exclusion are given opportunities and the necessary resources to be able to participate fully in economic, social and cultural life and have the same standard of living and well-being that is considered to be commonplace in the society in which they live. It provides them with greater participation in decision-making, which affects their lives and access to fundamental rights. Reducing poverty and social exclusion is one of the main challenges for ensuring social cohesion in Europe. According to Gerbery and Jambazovic (2011), being socially excluded means unequal access to the five basic resources of society (education, employment, housing, social protection, health care), difficult access to the main social institutions responsible for distributing life chances and, last but not least, detachment from important areas of life that ensure integration in the community or society. According to Mareš and Sirovátka

(2008), socially excluded from society are those who, for reasons beyond their control, cannot participate in the normal activities of their fellow citizens. The implementation of specific operational programs financed from the ESF source focused on the fight against the poverty via employment rate support, mainly in the form of active labor market measures, has significantly contributed to the lowering the rate of the people at risk of poverty or social exclusion, and these projects have also contributed to the fulfillment of the objective no. 5 of the Strategy Europe 2020 – Social inclusion: to get at least 20 million citizens of the EU out of the risk of the poverty and social exclusion (EU, 2010).

Table 8. People at risk of poverty or social exclusion in 2007 - 2015 in %

	2007	2008	2009	2010	2011	2012	2013	2014	2015
EU - 28	25.3	23.7	23.3	23.8	24.3	24.8	24.6	24.4	23.8
CR	15.8	15.3	14.0	14.4	15.3	15.4	14.6	14.8	14.0
Hungary	29.4	28.2	29.6	29.9	31.5	33.5	34.8	31.8	28.1
Poland	34.2	30.5	27.8	27.8	27.2	26.6	25.5	24.3	23.2
SR	21.4	20.6	19.6	20.6	20.6	20.5	19.8	18.4	18.4
V4 - average	25.2	23.7	22.8	23.2	23.7	24.0	23.7	22.3	20.9

Source: own processing based on data of Eurostat (2015c)

In the period under review, the most significant improvement in this indicator was recorded for Poland when, at the beginning of implementation of programming period in 2007, it was showing the value of 34.2% and in 2015 there was an amount of 23.2%, which is a decrease by 11%. Since 2007, when SR recorded the amount of 21.4% people at risk of poverty or social exclusion, the country managed to decrease this indicator by 3%to 2015, followed by the Czech Republic with the decrease by 1.8% and Hungary with the decrease by 1.3%.

Conclusion

For the economically weaker regions of the Union, the implementation of the EU Structural Funds represents a unique opportunity to reach the level of other regions or significantly accelerate the process of self-development. The implementation of the financial instruments of the EU structural and cohesion policy in the V4 countries in the programming period 2007-2013 significantly supported the economies of these countries. The programming period 2007 – 2013 was also the first period, in which V4 countries could draw the support of the Union after joining the EU in its entire duration, which was reflected on the number of contributions for individual states. It is necessary to realize that at that period, V4 countries were in the stage of realization of demanding structural reforms requiring high amounts of financial resources for their performing. It was the financial resources from the EU structural funds, which were supposed to serve as primary resources for financing these reforms, so the countries could draw hundreds of millions of EUR on infrastructural projects of highways, railroads, informatization, sewerage systems, industrial parks, health care and education infrastructure, reconstructions of villages and towns, as well as projects supporting the employment rate, social inclusion, education and social services. The extent of individual interventions from the structural funds in the programming period indicates that without the financial support provided by the Union, the states would not be able to realize a significant part of structural reforms, and thus it is questionable, whether V4 countries could achieve as high economic growth as was achieved in the monitored period, when their growth rate was higher than the rest of the EU from the point of view of an average GDP rate per capita. Moreover, this development was interrupted by the global economic crisis in 2008 and 2009, which had significantly slowed mentioned reforms and economic growth, while the structural funds of the EU helped V4 countries to moderate its impacts. In general, cohesion policy of the EU significantly accelerated the progress in social and economic development of V4 countries, despite the effectiveness of the use of its tools was different in individual countries.

In this paper, we were analyzing the impact of the implementation of EU structural funds in the programming period 2007 - 2013 in V4 countries through selected indicators influencing the development of countries, including the population in the period under review. We have also set four research questions. From the point of view of in GDP rate per capita, Slovakia had reached

the increase by 10.4%, which as the second-best result among the countries of V4 after Poland, which had achieved the increase of 15.5% in this period. Hungary´s increase was 8.7% and Czech Republic recorded an increase of 4.7%. From the point of view of GDP rate per capita in the parity of a purchasing power among V4 countries, Poland had recorded the most dynamic growth within V4 countries with the growth of 16%. Slovakia had recorded the second-best growth with the amount of 10%, Hungary with the amount of 8% and Czech Republic with the amount of 5%.

From the point of view of total and contracted funds; contracted and disbursed funds and the drawing of funds in the period under review, the highest contraction rate was recorded in Slovakia (122%), followed by Hungary (117%), Czech Republic (103%) and Poland (100%). Regarding the payment rate, Slovakia had recorded 97%, which was the second highest in V4 as the worst percentage was recorded in the Czech Republic (89%).

From the point of view of efficiency of the EU structural funds implementation, we have analyzed the gap between the contraction and draw rate in the V4 countries. Based on our research we have found out that the Slovak Republic had spent the EU funds the least efficiently among the V4 countries while recording the gap at the amount of 25%.

From the point of view of employment rate in the period under review, Slovakia recorded the worst balance among the V4 countries as the total improvement had the value of 0.5%. Other countries of V4 recorded more significant increase of the employment rate – the highest for Hungary (+6.6%), then Poland (+5.1%) and Czech Republic (+2.8%). From the point of view of unemployment rate, Slovakia also recorded the worst balance in the period under review, as the unemployment rate had grown by 0.3%, while other V4 countries while other countries had seen a decrease in this indicator. Regarding the people at risk of poverty or social exclusion indicator, Slovakia achieved the second-best improvement in comparison to Poland.

Therefore, we can reasonably speak about the impact of the effectiveness of the implementation of the EU structural funds on selected socio-economic indicators. Based on our research we can conclude that lower efficiency in the using of these funds as primary sources of public investment may have a negative impact on these indicators. Nowadays, the trend of the EU is directed toward decreasing the budget for cohesion policy, which relates to an effort of shrinking the number of financed priorities in individual member states. Therefore, according to our opinion, further analyses are needed to address the issue of the effectiveness of EU spending. In following

discussions, it is also necessary to speak about the prioritization of supported areas; otherwise, it will be difficult to achieve the effectiveness and meaningfulness of realized interventions regarding the implementation of EU structural funds in the future.

The results obtained can provide valuable information on the basis of which the government and experts in individual departments can adopt solutions to improve the situation in the implementation of EU structural funds in the V4 countries. Our results and findings can be beneficial for the creation of individual areas of national policies, with the aim of bringing innovative measures in view of the priorities of the V4 countries and their problems as well as their possibilities in drawing EU structural funds. In the future, we can compare the obtained results of the examined program period with other program periods and thereby determine the viability of EU structural funds. At the same time, the EU structural funds and the results obtained from previous periods will enable governments to respond appropriately to current crises and threats to society in the V4 countries.

The added value of our research lies primarily in pointing out and identifying, finding out the impact of the implementation of the EU structural funds in the V4 countries in the first program period, because the EU structural funds make it possible to respond quickly and flexibly to the various disparities of the V4 countries. It is the EU structural funds that have the greatest prerequisites for the V4 countries to continue to benefit economically, which we also declare with our findings.

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ASSESSING THE RESILIENCE OF UK'S ECONOMY AFTER THE COVID-19 PANDEMIC AND BREXIT

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Abstract: *The objective of the paper is to assess the resilience of UK's economy towards two economic shocks: the Covid-19 pandemic that hit the global economy in Q4 2019, in years 2020, 2021 and 2022 and the Brexit following the withdrawal of UK from the European Union on 31 January 2020. To assess the resilience of UK's economy, two sets of forecasts are generated: forecasts using historical data including the pandemic and the Brexit (from Q1 1998 to Q4 2021) and not including the pandemic and the Brexit (from Q1 1998 to Q3 2019). The computation of the difference of their averages is an indicator of the resilience of the economy during the pandemic, the greater the difference the greater the resilience. Eurozone is used as benchmark. By subtracting the average forecasted 2022-2050 Eurozone quarterly GDP growth rate (annualized) obtained with the Q1 1998-Q4 2021 data, +2.93%, by the one obtained with the Q1 1998-Q3 2019 data, +1.59%, the difference is +1.33%, whereas with UK the difference is -2.33% [-0.24% - (-2.09%)]. Thus, Eurozone shows a greater resilience (+1.33%) than the UK (-2.33%) based on 2022-2050 forecasts. In addition, the authors pointed out that the average of the 2022-2050 quarterly (annualized) growth rate forecasts of the Eurozone is expected to be +2.93% with the 1998-2021 data whereas it is expected to be only -2.09% for UK The Eurozone economy shows better prospects than the UK economy.*

Keywords: GDP, spectrala analysis; wavelet analysis; forecasting; UK economy; Eurozone economies.

1. Introduction

This paper presents UK's 2050 GDP forecasts before (up to 2019) and during the pandemic and the Brexit (up to 2021) by using spectral analysis. The objective of the paper is to assess the resilience of UK's economy towards these two shocks with its 2050 projections. These projections are benchmarked to the 2050 GDP forecasts of the Eurozone (19 countries). The Eurozone is the monetary union of 19 out of 28 European Union member states, all of which have adopted the Euro as their single currency and sole legal tender. The monetary authority of the Eurozone is the Eurosystem. Eurozone members are Austria, Belgium, Finland, France,

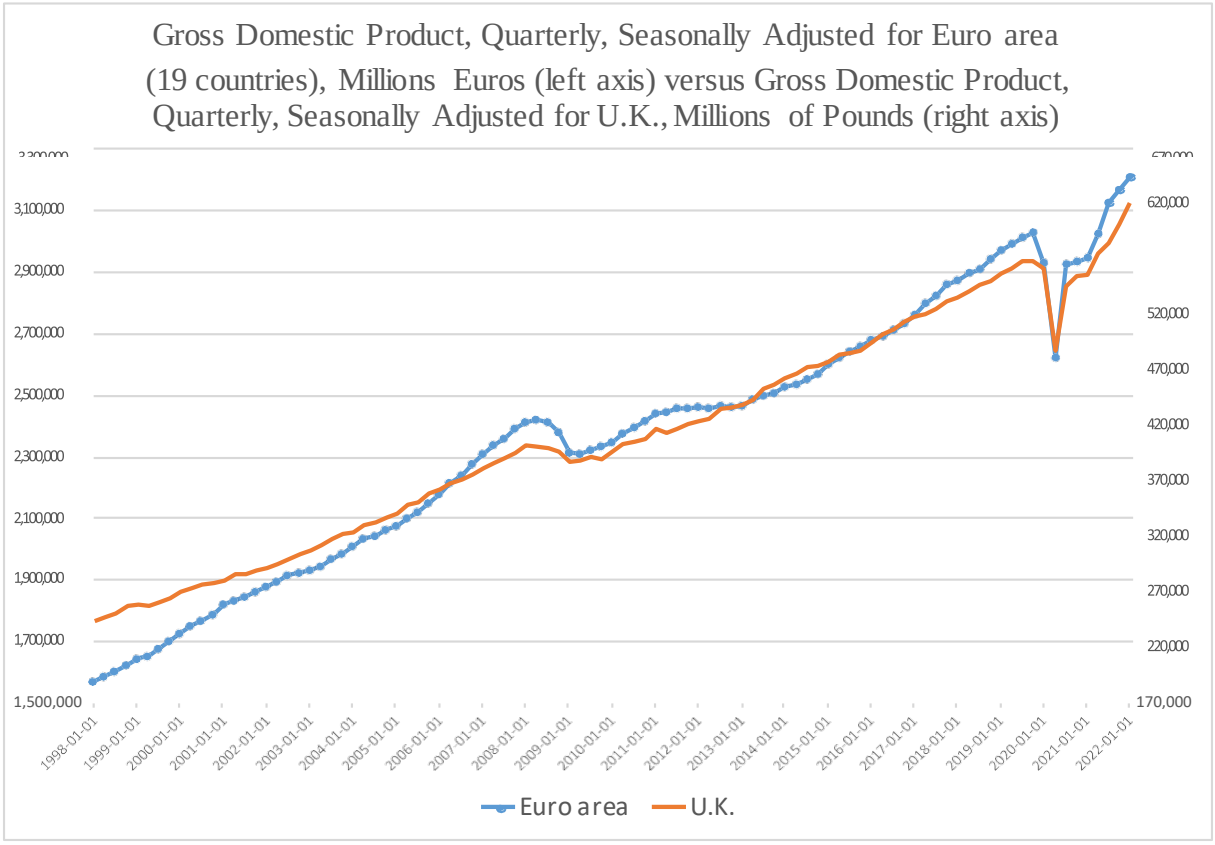
Germany, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Greece, Slovenia, Cyprus, Malta, Slovakia, Estonia, Latvia, and Lithuania. The other nine members of the European Union continue to use their own national currencies, although most of them have undertaken to adopt the Euro in the future.

The assumption in this research is that GDPs propagate through time in waveforms. Wavelet analysis capture the dynamics of these waves. Wavelet analysis expands functions in terms of wavelets generated in the form of translations and dilations of a fixed function called the mother wavelet. The resulting wavelets have special scaling properties, localized in time and frequency, permitting a closer connection between the represented function and their coefficients. Greater numerical stability in reconstruction and manipulation is ensured (Lee and Yamamoto, 1994, p. 44). Extending the analysis to the complex-behavior of economic signals, the originality of this paper lies in the application of wavelet analysis to economic variables subject to common dynamics such as GDP time series. Rostan and Rostan have previously applied wavelet analysis to the forecasts of fossil fuel prices (2021a) and to the forecasts of the Spanish (2018c), Greek (2018d), Austrian (2020), Saudi Arabian (2021b), Persian Gulf (2022a) and Turkish (2022b) economies. This paper is an extension of their work.

On the Covid-19 pandemic issue, present since late 2019 and having spread to the five continents in 2020, killing people by the millions and plunging the world economy into severe recession, this unexpected and dramatic event has forced governments to introduce unprecedented measures such as lockdowns of populations to contain its spread. By December 10, 2022, the recorded number of Coronavirus Cases in the world was 652,302,367 people with a Coronavirus death toll of 6,654,524 (Worldometers, 2022). The lockdowns have paralyzed economies across the five continents, shutting down factories and bringing manufacturing to a halt, with service sectors contracting on a massive scale, forcing millions of workers to leave the labor force. Globally, the economic activity has contracted at a rapid pace and put economies into recession.

Figure 1 illustrates the historical quarterly GDP time series of the Eurozone economy (19 countries) and UK from 1/1/1998 to 1/1/2022. It shows two almost identical patterns at the start of 2020 when the two economies have entered recession following the economic shock from the Covid-19 pandemic that hit the global economy. Since 1998, the GDP of UK seems to have grown at a more rapid pace with a steeper slope than the GDP of the Eurozone economy between 1998 and 2020, the two economies seem to have dived at an identical rate in 2020 and UK seems to have recovered at a more rapid pace in 2021 with a steeper slope.

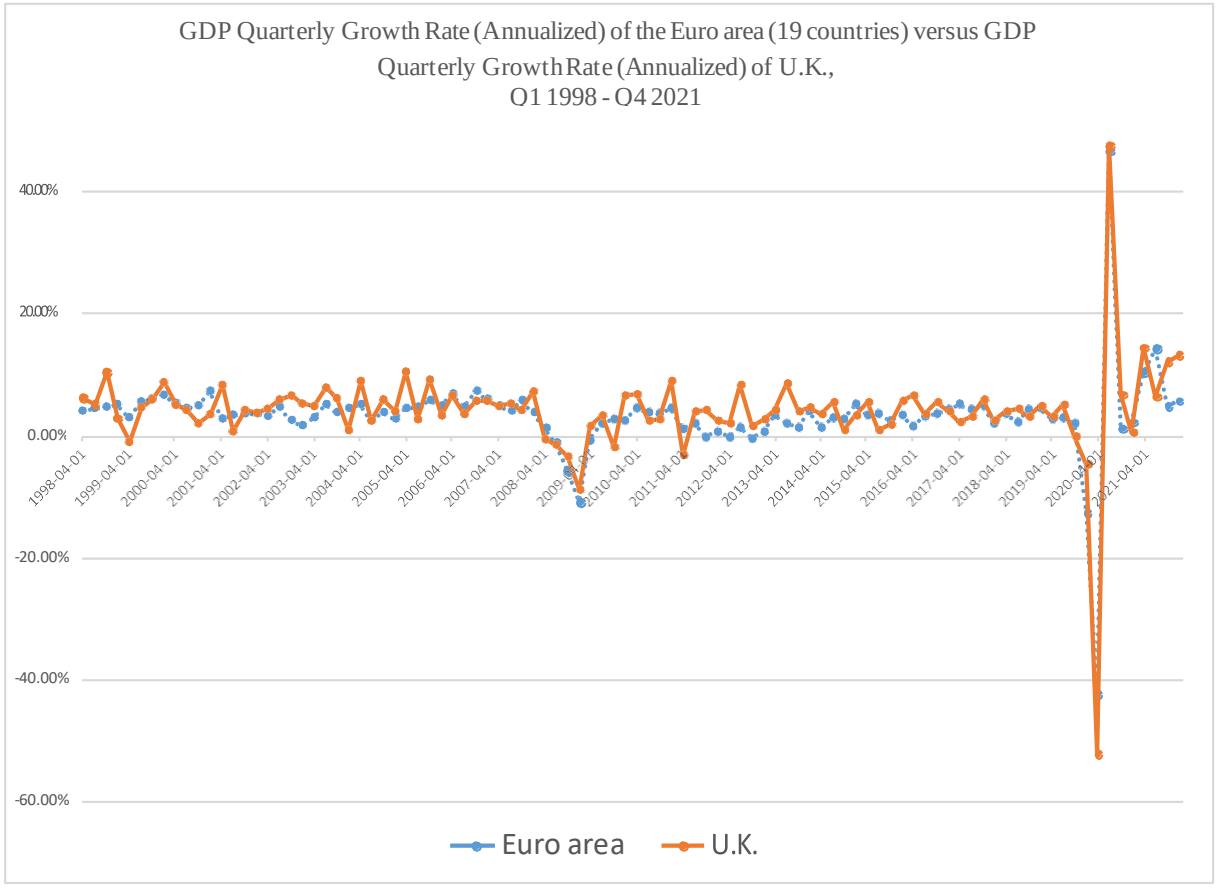
Figure 1: Quarterly GDPs time series of the Eurozone economy (19 countries) and UK from Q1 1998 to Q4 2021.



Sources: Authors' own elaboration. Gross Domestic Product for Eurozone (19 countries) [https://fred.stlouisfed.org/series/EUNNGDP] and UK [https://fred.stlouisfed.org/series/UKNGDP], retrieved from FRED, Federal Reserve Bank of St. Louis

Figure 2 illustrates the historical quarterly GDP growth rate (annualized) time series of the Eurozone economy (19 countries) and UK from Q1 1998 to Q4 2021.

Figure 2: Quarterly GDP growth rate (annualized) time series of the Eurozone economy (19 countries) and UK from Q1 1998 to Q4 2021.

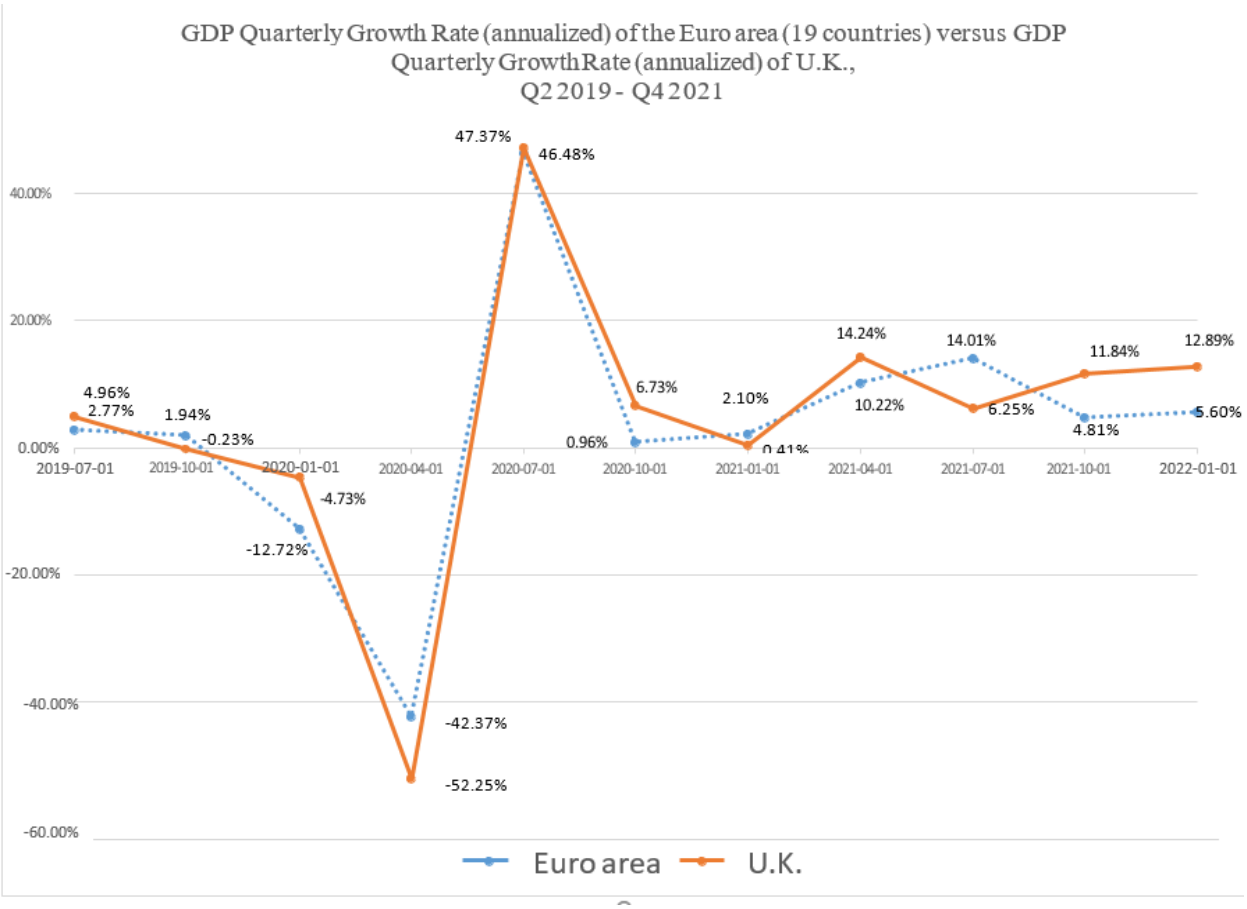


Sources: Authors' own elaboration. Real Gross Domestic Product for Eurozone (19 countries) [https://fred.stlouisfed.org/series/CLVMNACSCAB1GQEA19] and UK [https://fred.stlouisfed.org/series/UKNGDP], retrieved from FRED, Federal Reserve Bank of St. Louis.

As illustrated in Figure 2, between Q1 1998 and Q3 2019, the quarterly GDP growth rate (annualized) of the Eurozone economy (19 countries) was most of the time below the one of UK with an average growth rate of 3.03% for the Eurozone versus 3.92% for UK.

Figure 3 is a zoom of Figure 2 between Q3 2019 and Q4 2021. It illustrates the historical quarterly GDP growth rate (annualized) time series of the Eurozone economy (19 countries) and UK from Q2 2019 to Q4 2021.

Figure 3: Quarterly GDP growth rate (annualized) time series of the Eurozone economy (19 countries) and UK from Q2 2019 to Q4 2021.



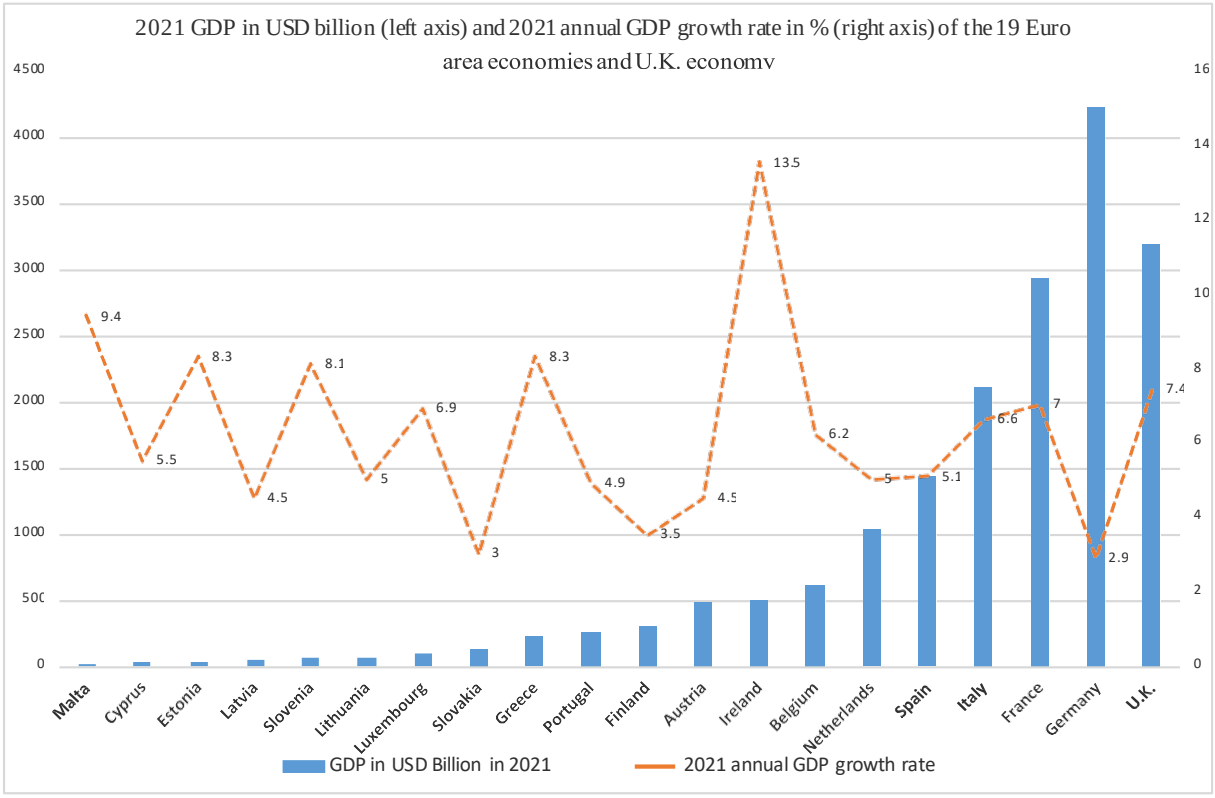
Sources: Authors' own elaboration. Real Gross Domestic Product for Eurozone (19 countries) [https://fred.stlouisfed.org/series/CLVMNACSCAB1GQEA19] and UK [https://fred.stlouisfed.org/series/UKNGDP], retrieved from FRED, Federal Reserve Bank of St. Louis.

As illustrated in Figure 3, during time of pandemic, between Q4 2019 (2020-01-01) and Q4 2021 (2022-01-01), the quarterly GDP growth rate (annualized) of the Eurozone economy (19 countries) was most of the time below the one of UK with an average growth rate of 3.23% for the Eurozone versus 4.75% for UK. It confirms the historical relationship between the 2 economies observed between 1998 and 2019.

In conclusion, the 2050 projections of these 2 economies are expected to respect this relationship, displaying a stronger and more resilient UK economy than the Eurozone economy in terms of GDP growth rate. However, we need to keep in mind that the size of the Eurozone economy (19 countries) was about 4.5 times the size of the UK economy in 2021. In the Eurozone, the growth of its economies varies widely. For example, based on Statista (2022) data, the top 5 economies based on the GDP annual growth rate in 2021 (year to year) were Ireland (+13.5%), Malta (+9.4%), Greece (+8.3%), Estonia (+8.3%) and Slovenia (+8.1%) when the 5 laggers were Germany (+2.9%), Slovakia (+3%), Finland (+3.5%), Austria

(+3.5%) and Latvia (+4.5%). The average annual GDP growth rate for the 19 economies of the Eurozone was 6.22% in 2021. The annual GDP growth rate for UK was 7.4% in 2021. Besides, as illustrated in Figure 4, the largest economy of the Eurozone, Germany, was the worst performer in 2021 with +2.9% of annual growth rate. The smallest economy of the Eurozone, Malta, was the second top performer in terms of 2021 annual growth rate (+9.4%). The 13 smallest economies from Malta to Ireland ranked in increasing GDP had an average 2021 annual growth rate of 6.56%, when the 6 top largest economies from Belgium to Germany had an average 2021 annual growth rate of 5.46%. The correlation coefficient between the size of the 2021 GDP and the growth rate of the 19 countries is -20%. This is not a strong relationship between the two variables, but the correlation is still negative, and it shows that small economies have copped better with the Covid19 pandemic crisis than large economies of the Eurozone. This rule applies to UK, since the size of its economy (3,187 USD billions) is almost equal to France's economy (2,937 USD billions) and its 2021 annual growth rates (+7.4%) almost equal to the growth of France's economy (+7.0%).

Figure 4: 2021 GDP in USD billion (left axis) and 2021 annual GDP growth rate in % (right axis) of the 19 Eurozone economies and U.K.UK's economy



Sources: Authors' own elaboration. Annual gross domestic product growth rate forecast in selected European countries in 2021 from https://www.statista.com/statistics/686147/gdp-

growth-europe/ GDP | Europe in USD Billion in 2021 from https://tradingeconomics.com/country-list/gdp?continent=europe

This paper presents UK versus Eurozone 2050 GDP forecasts before (up to 2019) and during the pandemic (up to 2021) by using wavelets analysis. The following section will discuss the meaning of wavelets in signal processing and explore the ways signal processing has been applied in the literature.

2. Literature Review

2.1. Spectral analysis versus traditional economic forecasting methods

Traditional economic forecasting methods include causal methods (regression analysis, logit, probit), time series methods (moving average, exponential smoothing, trend and seasonal decomposition, Box-Jenkins ARIMA used as a benchmark in this paper) and qualitative methods (Delphi Method, Jury of Executive Opinion, Sales Force Composite, Consumer Market Survey) (FHI, 2019). Signal processing used in this paper to forecast the Eurozone's GDPs belongs to time series methods. Signal processing, a field of physics, focuses on the analysis, synthesis, and modification of signals. The basic assumption of this paper is that economic time series behave like signals propagating through time instead of propagating through space as do the phenomena studied by physics such as audio, video, speech, geophysical, sonar, radar, medical and musical signals (IEEE, 2019). Wavelet analysis is a tool of signal processing. In physics, wavelets assume the practical applications of modeling physical phenomena such as electrical, audio or seismic signals which propagate through space in waveforms. Wavelets have specific properties that mimic signals, which makes them useful for signal processing. Signal processing focuses on the analysis, synthesis, and modification of signals. Spectral (or spectrum) analysis focuses on the data analysis of signals. More specifically, from a finite record of a stationary data sequence, spectral analysis estimates how the total power is distributed over frequency. In meteorology, astronomy and other fields, spectral analysis may reveal 'hidden periodicities' in data, which are to be associated with cyclic behavior or recurring processes (Stoica and Moses, 2005).

Regarding wavelet analysis, forecasters have focused on the Discrete Wavelet Transform (DWT, explained at step three of the methodology), directing attention to several non- tractable properties of continuous wavelet transform (CWT) such as highly redundant wavelet coefficients (Valens, 1999), the infinite number of wavelets in the wavelet transform and the absence of analytical solutions for many functions of the wavelet transforms. A wavelet-based forecasting method using the redundant "à trous" wavelet transform and multiple

resolution signal decomposition was presented in Renaud et al. (2002). Challenges involved in forecasting day-ahead electricity prices based on the wavelet transform and ARIMA model has been detailed in Conejo et al. (2005). Schlüter and Deuschle (2010), capturing seasonalities with time-varying period and intensity, incorporated the wavelet transform to improve forecasting methods. Tan et al. (2010) proposed a price forecasting method based on wavelet transform combined with ARIMA and GARCH models. Kao et al. (2013) integrated wavelet transforms, multivariate adaptive regression splines (MARS), and support vector regression (SVR called Wavelet-MARS-SVR) to address the problem of wavelet sub-series selection and to improve forecast accuracy. Ortega and Khashanah (2013) proposed a wavelet neural network model for the short-term forecast of stock returns from high-frequency financial data. Kriechbaumer et al. (2014) showed the cyclical behavior of metal prices using wavelet analysis to capture the cyclicality by decomposing a time series into its frequency and time domain. They presented a wavelet-autoregressive integrated moving average (ARIMA) approach for forecasting monthly prices of aluminum, copper, lead and zinc. He et al. (2014) proposed an entropy optimized wavelet-based forecasting algorithm to forecast the exchange rate movement. Berger (2016) transformed financial return series into its frequency and time domain via wavelet decomposition to separate short-run noise from long-run trends and assess the relevance of each frequency to value-at-risk (VaR) forecast. Rostan and Rostan (2018a) illustrated the versatility of wavelet analysis to the forecast of financial time series with distinctive properties. Choosing two market indices with divergent properties of their time series—the S&P 500 Composite Index being nonstationary and the VIX (volatility) index being stationary—they proved that using wavelet analysis combined with the Burg model offers high accuracy in terms of forecasts of their time series, thus demonstrating the versatility of this model. Rostan et al. (2015) appraised the financial sustainability of the Spanish pension system, and Rostan and Rostan (2018b) did the same regarding the Saudi pension system using spectral analysis. With a refined methodology using multiscale principal component analysis to take into account the co-dynamics of age groups, Rostan and Rostan (2017) forecasted European and Asian populations with signal processing which resulted in original outcomes that might be contrasted with those of the more conformist population projections of the United Nations. In addition, Rostan and Rostan (2019) identified when the European Muslim population will become a majority in Europe. Rostan and Rostan applied wavelet analysis to the forecasts of Spanish (2018c), Greek (2018d), Saudi (2020b), Austrian (2020c), Persian Gulf (2022a) and Turkish (2022b) economies.

2.2. Assessing the resilience of the UK's economy after the Covid-19 pandemic and Brexit

As mentioned by the Bank of England (2021), the UK withdrawal from the European Union (EU) on 31 January 2020 was quickly superseded by the alarming spread of Covid-19 in early 2020, which caused the global economy to grind to a halt. The first UK national lockdown was implemented in March 2020 raising concerns about the pandemic's extensive impacts on the UK economy, such as job security. In August 2020, Bank of England panels began to consider the medium and long-term effects of Covid, particularly the structural changes to ways of working, business models, patterns of consumption, the housing market, the future of cities, and inequality.

Atkinson and Goodman (2022) pointed out that the shock of the Covid-19 pandemic on the economy made Boris Johnson the first victim when he was kicked out his job of Prime Minister in 2022. In 2022, the UK has seen the biggest headwinds since the 1970s, overwhelming an economy still struggling with Brexit and the pandemic. After suffering unprecedented shocks in recent years, the UK has succumbed to more intractable problems marked by sluggish growth, runaway inflation (annual inflation rate of 11.1% in October 2022, Trading Economics, 2022) and a series of damaging strikes. The result has been a plunge in consumer confidence that analysts warned could lead to a recession. Railway workers walked off the job in anger that their living standards were slipping, and criminal barristers were striking. In August 2022, nearly 2,000 dock workers at the UK's biggest container port of Felixstowe went on strike in a dispute over pay (Grant, 2022). More than 115,000 British postal workers employed by former state-run Royal Mail planed a four-day strike from the end of August (News Wires, 2022). At the end of 2022, UK was bracing for further disruption from strikes heading into the Christmas period, as ambulance drivers and nurses joined rail operators and postal workers in the worst wave of walkouts the country has endured for at least a decade (Ziady, 2022). More than 20,000 ambulance workers, including paramedics and call handlers, were expected to strike on December 21 in a dispute over pay. Teachers and doctors may be next.

UK has experienced structural problems as well. The main problem has been productivity growth, which slowed after the financial crisis in 2008 and 2009. Low productivity limits the pace at which output can grow and depresses wage packets. Performance gaps in the UK were just as marked, with London consistently outperforming other regions, in part due to the concentration of financial services in the capital city. Atkinson and Goodman (2022) pointed out that Johnson failed to deliver on his 2019 promise to level up the poorest parts of the country. Brexit uncertainty has also seemed to have unsettled executives, with investment flat lining since

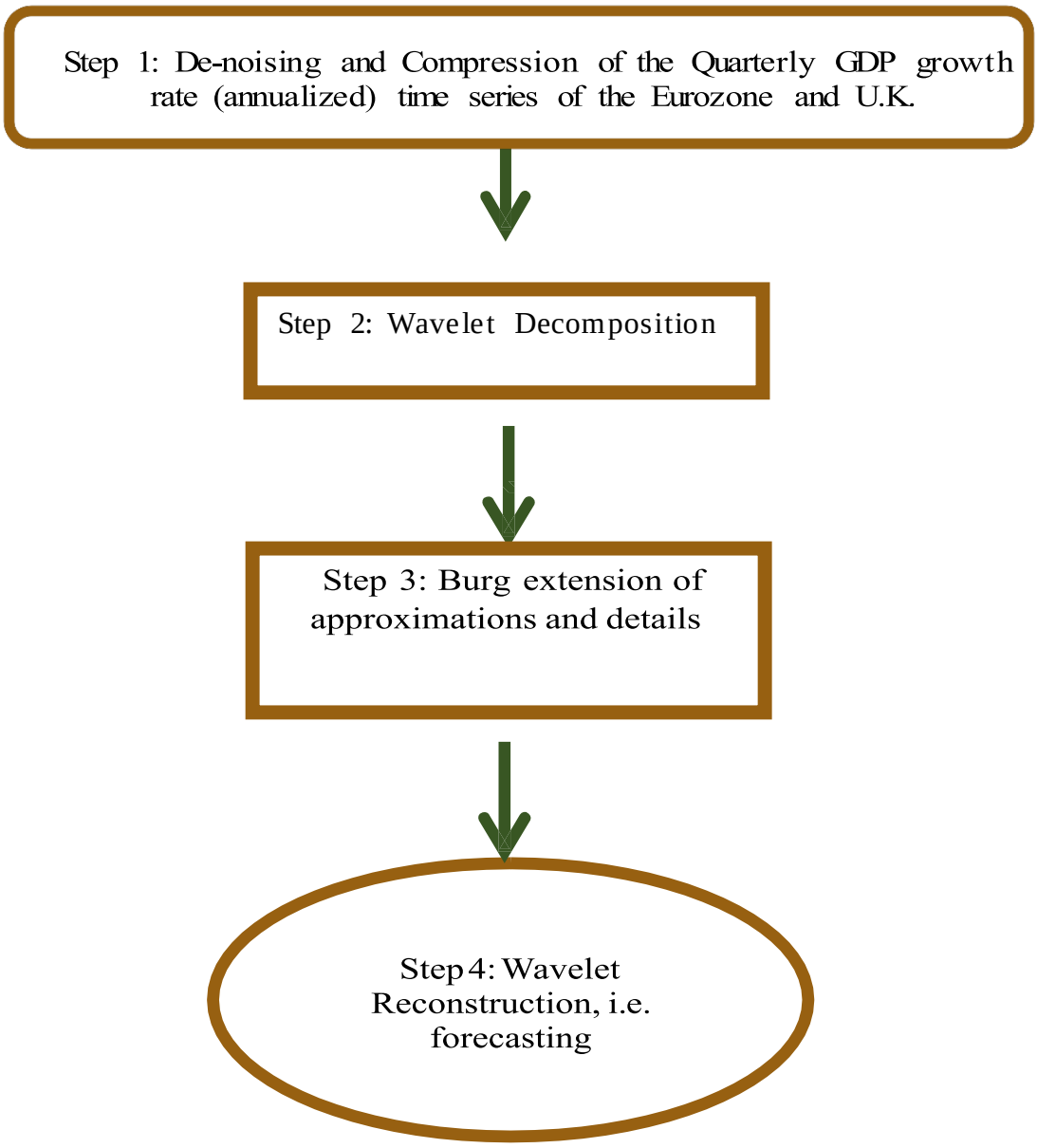
the 2016 public vote to leave the European Union. Had executives continued to spend as they did before the Brexit referendum, investment would have been around 60% higher by the end of 2022. Life outside the EU has also had an impact on trade as importers and exporters contended with higher trade barriers. Despite a sharp fall in the pound since the vote, there was little evidence to suggest the external sector has benefited from increased competitiveness. UK lagged the trade performance of other big nations before the pandemic and has failed to fully share in the global trade rebound since then. As Andrade (2022) of Bloomberg Economics mentioned, Brexit's impact was plain to see after more than one year after Brexit, since the British pound depreciated about 16% against US$ and trade and investment declined substantially as well. In addition, prices of the housing market have risen almost without break since 1995, straining affordability for first-time buyers. Wages have been lagging too. Real wages adjusted for inflation have been falling at the fastest pace in 20 years. To conclude, Britain has experienced a serious economic crisis, damaging the life of millions of angry people.

Section 3 presents the methodology of the paper. Section 4 gathers the results and section 5 concludes.

3. Methodology

The objective of the paper is to identify, using spectral analysis, the resilience of UK's economy following two economic shocks from the Covid-19 pandemic that hit the global economy in Q4 2019, in years 2020, 2021 and 2022 and from the Brexit that hit UK since 2020 when UK withdrew from the European Union. Quarterly growth rates (annualized) of the Real GDP of UK and the Eurozone are forecasted between Q1 2022 and Q4 2050. Two sets of forecasts are generated: forecasts using historical data including the pandemic and the Brexit (from Q1 1998 to Q4 2021) and not including the pandemic and the Brexit (from Q1 1998 to Q3 2019). The computation of the difference of their averages is an indicator of the resilience of the economies, the greater the difference the greater the resilience. Figure 5 illustrates the flowchart of the methodology related to the spectral analysis forecasting model used in this research.

Figure 5: Flowchart of the methodology from step 1 to 4.



Source: Authors' own elaboration.

3.1.Step 1: De-noising and Compression of the Quarterly GDP growth rate (annualized) time series of the Eurozone and UK

Each series is de-noised using a one-dimensional de-noising and compression-oriented function using wavelets. The function is called 'wdencmp' in Matlab (Misiti et al., 2015). The underlying model for the noisy signal is of the form:

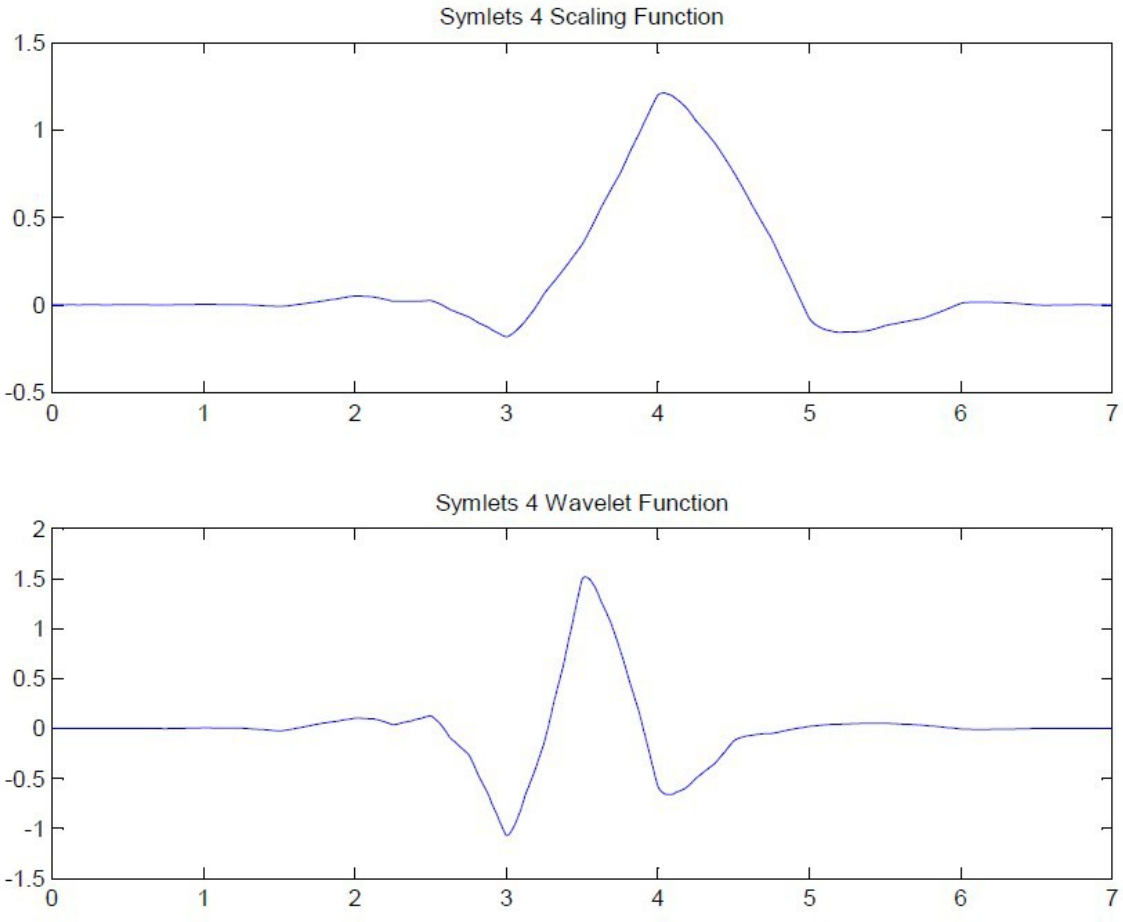
$$s(n) = f(n) + \sigma e(n) \quad (1)$$

where time point n is equally spaced, e(n) is a Gaussian white noise N(0,1) and the noise level σ is supposed to be equal to 1. The de-noising objective is to suppress the noise part of the signal s and to recover f. The de-noising procedure proceeds in three steps: 1) Decomposition, 2) Detail coefficients thresholding and 3) Reconstruction as detailed below.

1) Decomposition. Choose the wavelet sym4 and choose the level 2-decomposition. Wavelet analysis breaks a signal down into its constituent parts for analysis, in this case with a level 2-decomposition. The decomposition method is explained in section 3.2, step 2-Wavelet Decomposition.

Wavelet analysis breaks down a signal into shifted and scaled versions of the original mother wavelet. Sym4 is a Symlets wavelet of order 4 used as the mother wavelet for decomposition and reconstruction. It is a nearly symmetrical wavelet belonging to the family of Symlets proposed by Daubechies (1994). The scaling and wavelet functions of Symlets 4 are illustrated in Figures 6. Wavelets are defined by the wavelet function, also naming the mother wavelet and the scaling function, the latter also named the father wavelet in the time domain. The wavelet function is in effect a band-pass filter and scaling that for each level halves its bandwidth (Mallat, 2009).

Figures 6: Scaling Function and Wavelet Function of Symlets 4



Source: Source: Authors' own elaboration using Matlab

Wavelets are mathematical functions that cut up data into different frequency components and then study each component with a resolution matched to its scale (Graps, 1995). We compute the wavelet decomposition of the signal *s* at level 2.

2) Detail coefficients thresholding. For each level from 1 to 2, we select a threshold and apply soft thresholding to the detail coefficients.

3) Reconstruction. We compute wavelet reconstruction based on the original approximation coefficients of level 2 and the modified detail coefficients of levels from 1 to 2.

Like de-noising, the compression procedure contains three steps: 1) Decomposition. 2) Detail coefficient thresholding. For each level from 1 to 2, a threshold is selected and hard thresholding is applied to the detail coefficients. 3) Reconstruction. The difference with the de-noising procedure is found in step 2. The notion behind compression is based on the concept that

the regular signal component can be accurately approximated using a small number of approximation coefficients (at a suitably selected level) and some of the detail coefficients.

The de-noising technique works in the following way: 'When a data set using wavelets is decomposed, filters act as averaging filters and others that produce details. Some of the resulting wavelet coefficients correspond to details in the data set. If the details are small, they might be omitted without substantially affecting the main features of the data set. The idea of thresholding, then, is to set to zero all coefficients that are less than a particular threshold. These coefficients are used in an inverse wavelet transformation to reconstruct the data set' (Graps, 1995, p.12).

3.2.Wavelet Decomposition

Wavelet analysis breaks a signal down into its constituent parts for analysis. Signals are decomposed after being differentiated, de-noised and compressed at step 2. The signals, i.e., the quarterly time series of UK and the Eurozone GDPs, are decomposed into decomposed signals cAs named approximations and cDs named details. To understand this process, a quick review of wavelet theory is presented.

A wavelet dictionary (Mallat, 1999) is constructed from a mother wavelet ψ of zero mean:

$$\int_{-\infty}^{+\infty} \psi(t)dt = 0 \quad (2)$$

To analyze a non-stationary signal, wavelet analysis identifies the correlation between the time and frequency domains of this signal (Wavelet.org, 2019). The wavelet transform allows exceptional localization in both the time domain via translations of the mother wavelet, and in the scale domain, also called frequency domain via dilations. The translation and dilation operations applied to the mother wavelet are performed to calculate the wavelet coefficients, which represent the correlation between the wavelet and a localized section of the signal. The wavelet coefficients are calculated for each wavelet segment, giving a time-scale function relating the wavelet correlation to the signal.

The mother wavelet ψ represented by equation 2 is dilated with a scale parameter b, and translated by a:

$$D = \left\{ \psi_{a,b}(t) = \frac{1}{\sqrt{b}} \psi\left(\frac{t-a}{b} \right) \right\}_{a \in \Re, b>0} \quad (3)$$

The present methodology uses Sym4, symlets wavelet of order 4, as the mother wavelet ψ for decomposition and reconstruction. It is a nearly symmetrical wavelet belonging to the family of Symlets proposed by Daubechies (1994) and illustrated in Figures 6. We tested many other wavelets including the ones belonging to the Daubechies family with equal or lower performance.

The discrete form of the wavelet (Mallat, 1999) is defined as:

$$\psi_{j,n}(t) = \frac{1}{\sqrt{s_0^j}}\psi\left(\frac{t - n\tau_0 s_0^j}{s_0^j}\right) \quad (4)$$

with j and n integers, $s_0 > 1$ is a fixed dilation step and the translation factor τ_0 depends on the dilation step.

The continuous wavelet transform of a signal s at any scale b and position a is the projection of s on the corresponding wavelet atom:

$$Ws(a,b) = \langle s, \psi_{a.b} \rangle = \int_{-\infty}^{+\infty} s(t)\frac{1}{\sqrt{b}}\psi\left(\frac{t-a}{b}\right)dt \quad (5)$$

The reconstruction of the original signal s(t) is obtained by inverse wavelet transform (Mallat, 1999, p.111):

$$s(t) = \frac{1}{C_\psi}\int_0^{+\infty}\int_{-\infty}^{+\infty} ws(a,b)\psi_b(t-a)\frac{db}{b^2}da \quad (6)$$

The scaling function and the wavelet function of a discrete wavelet transform (DWT) are defined as

$$\varphi(2^j t) = \sum_{i=1}^{n} h_{j+1}(n)\varphi\left(2^{j+1}t - n\right) \quad (7)$$

$$\psi(2^j t) = \sum_{i=1}^{n} g_{j+1}(n)\varphi\left(2^{j+1}t - n\right) \quad (8)$$

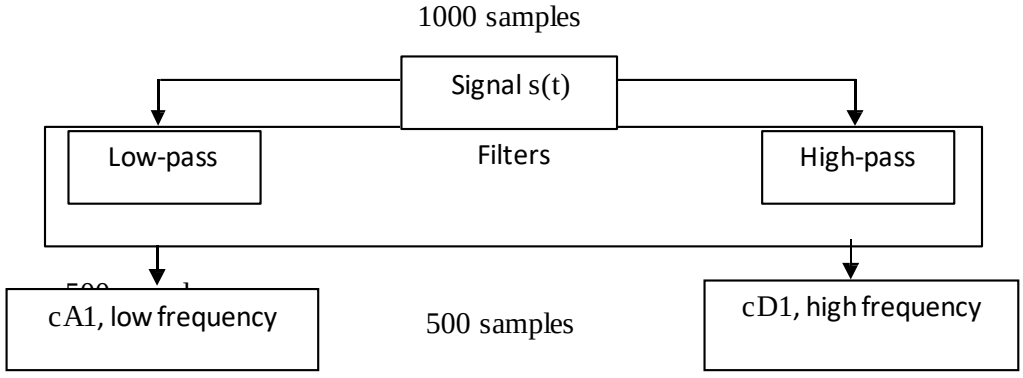
The signal s(t) is expressed as:

$$s(t) = \sum_{i=1}^{n} \lambda_{j-1}(n)\varphi\left(2^{j-1}t - n\right) + \sum_{i=1}^{n} \gamma_{j-1}(n)\psi\left(2^{j-1}t - n\right) \quad (9)$$

The discrete wavelet transform (DWT) is evaluated by passing the signal through lowpass and highpass filters (Corinthios, 2009), dividing it into a lower frequency band and an upper band. Each band is subsequently divided into a second level lower and upper bands. The process is repeated, taking the form of a binary, or "dyadic" tree. The lower band is referred to as the approximation cA and the upper band as the detail cD. DWT decomposes the signal into mutually orthogonal set of wavelets.

Misiti et al. (2015) illustrated the filtering process with a simple diagram (Figure 7).

Figure 7: Diagram of a one-level decomposed signal s(t) using one-dimensional discrete wavelet analysis—illustration of the process of downsampling from 1,000 to 500.

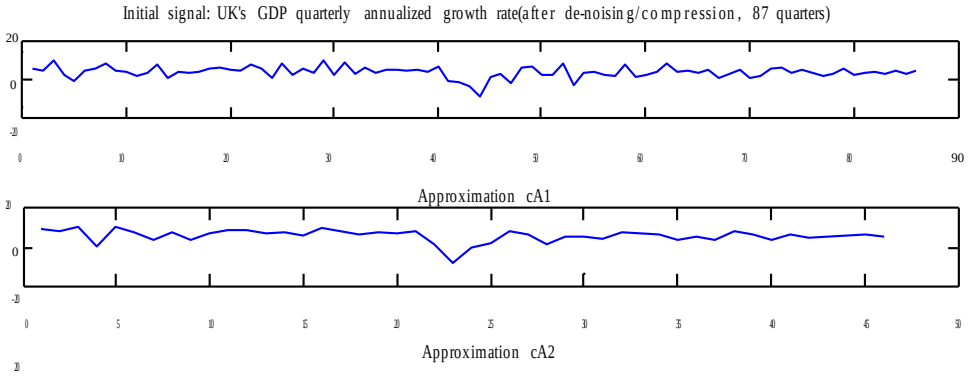


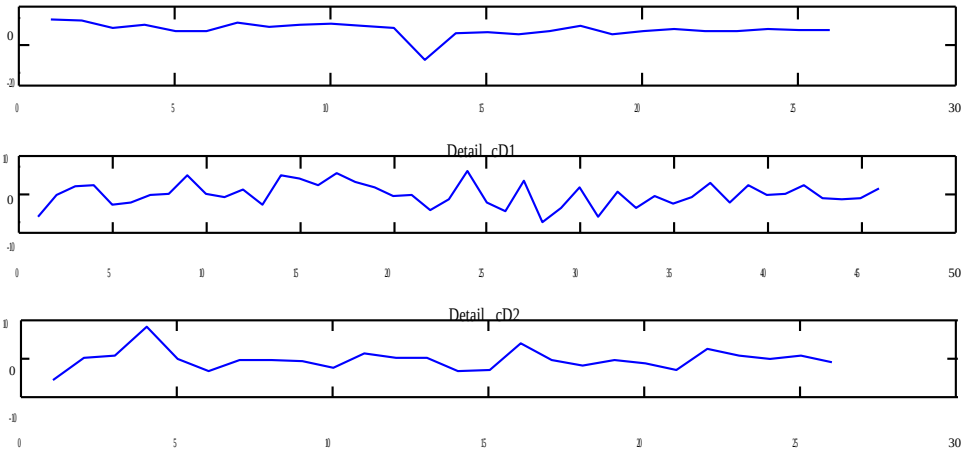
Source: Misiti et al.

(2015)

The model produces two sequences called cA and cD, which are downsampled. The signal is decomposed after being differentiated, de-noised and compressed. The signal, i.e. for the 1998-2019 period the 87-quarter (for the 1998-2021 period the 96-quarter) time series of UK GDP quarterly annualized growth rate transformed at step 1, is decomposed into decomposed signals cAs named approximations and cDs named details. The Discrete Wavelet Transform is a kind of decomposition scheme evaluated by passing the signal through lowpass and highpass filters (Corinthios, 2009), dividing it into a lower frequency band and an upper band. Each band is subsequently divided into a second level lower and upper bands. The process is repeated, taking the form of a binary, or "dyadic" tree. The lower band is referred to as the approximation cA and the upper band as the detail cD. The two sequences cA and cD are downsampled. The downsampling is costly in terms of data: with multilevel decomposition, at each one-level of decomposition the sample size is reduced by half (in fact, slightly more than half the length of the original signal, since the filtering process is implemented by convolving the signal with a filter. The convolution "smears" the signal, introducing several extra samples into the result). Therefore, the decomposition can proceed only until the individual details consist of a single sample. Thus, the number of levels of decomposition will be limited by the initial amount of data of the signal. Figure 5 illustrates the 2nd-level decomposition of UK GDP quarterly annualized growth rate (after de- noising/compression, 87 or 96 quarters). We observe in Figure 8 that details cDs are small and look like high-frequency noise, whereas the approximation cA2 contains much less noise than does the initial signal. In addition, the higher the level of decomposition, the lower the noise generated by details. For a better understanding of signal decomposition using discrete wavelet transform, refer to the methodology section of Rostan and Rostan (2018a).

Figure 8: 2nd-level decomposition of UK's GDP quarterly annualized growth rate (after de- noising/compression, 87 quarters from Q1 1998 to Q3 2019) using one-dimensional discrete wavelet analysis





Source: Authors' own elaboration using Matlab.

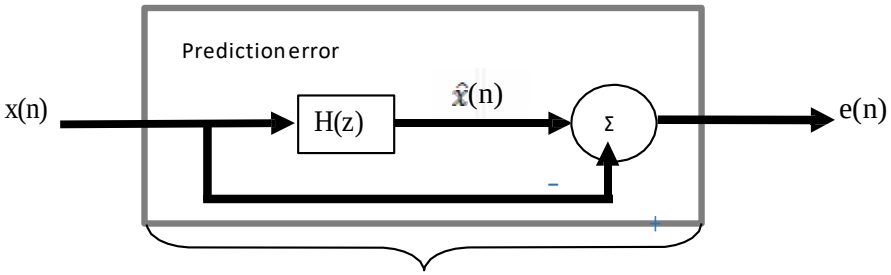
3.3. Step 3: Burg extension of approximations and details

We apply Burg extension to cA and cD as presented in Figure 8. To run the Burg extension, we apply an autoregressive pth order from historical data, in this paper we choose a pth order equal to the longest available order when forecasting. For instance, in 2019, when forecasting UK GDP returns for the subsequent 31 years until 2050 (4*31=124 quarters), the longest pth order available is 86 out of 87 historical data. Given x the decomposed signal (which is cA or cD), a vector a of all-pole filter coefficients is generated that models an input data sequence using the Levinson-Durbin algorithm (Levinson, 1946; Durbin, 1960). The Burg (1975) model is used to fit a pth order autoregressive (AR) model to the input signal, x, by minimizing (least squares) the forward and backward prediction errors while constraining the AR parameters to satisfy the Levinson-Durbin recursion. x is assumed to be the output of an AR system driven by white noise. Vector a contains the normalized estimate of the AR system parameters, A(z), in descending powers of z:

$$H(z) = \frac{\sqrt{e}}{A(z)} = \frac{\sqrt{e}}{1 + a_2 z^{-1} + \ldots + a_{(p+1)} z^{-p}} \qquad (10)$$

Since the method characterizes the input data using an all-pole model, the correct choice of the model order p is important. In Figure 9, the prediction error, e(n), can be viewed as the output of the prediction error filter.

Figure 9: Prediction error filter to run the Burg extension



A(z)

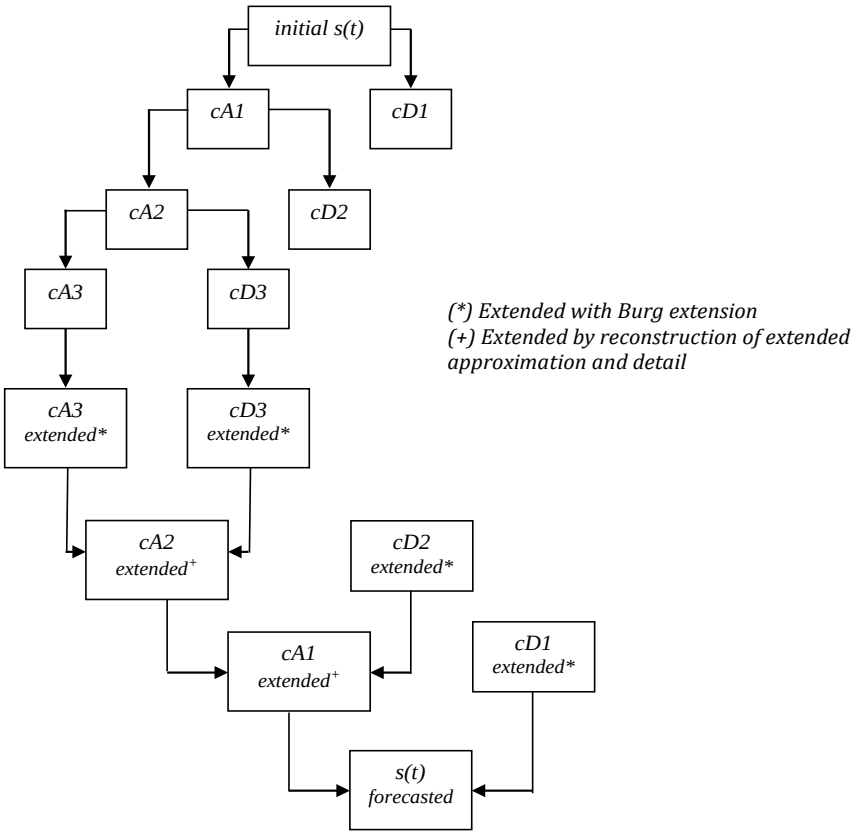
Source: Matlab.

In a last step, the Infinite Impulse Response (IIR) filter extrapolates the index values for each forecast horizon. IIR filters are digital filters with infinite impulse response. Unlike finite impulse response (FIR) filter, IIR filter has the feedback (a recursive part of a filter) and is also known as recursive digital filter.

3.4.Step 4: Wavelet Reconstruction

We recompose/reconstruct the forecasted signals after Burg extension using the methodology illustrated in Figure 5. We present the 3rd-level decomposition/reconstruction diagram in Figure 10. In this paper, the second-level decomposition/reconstruction that is on average the optimal level confirmed in the literature.

Figure 10: Diagram of a 3rd-level wavelet decomposition/reconstruction tree to forecast the initial signal s(t).



Source: Authors' own elaboration using Matlab.

4. Results

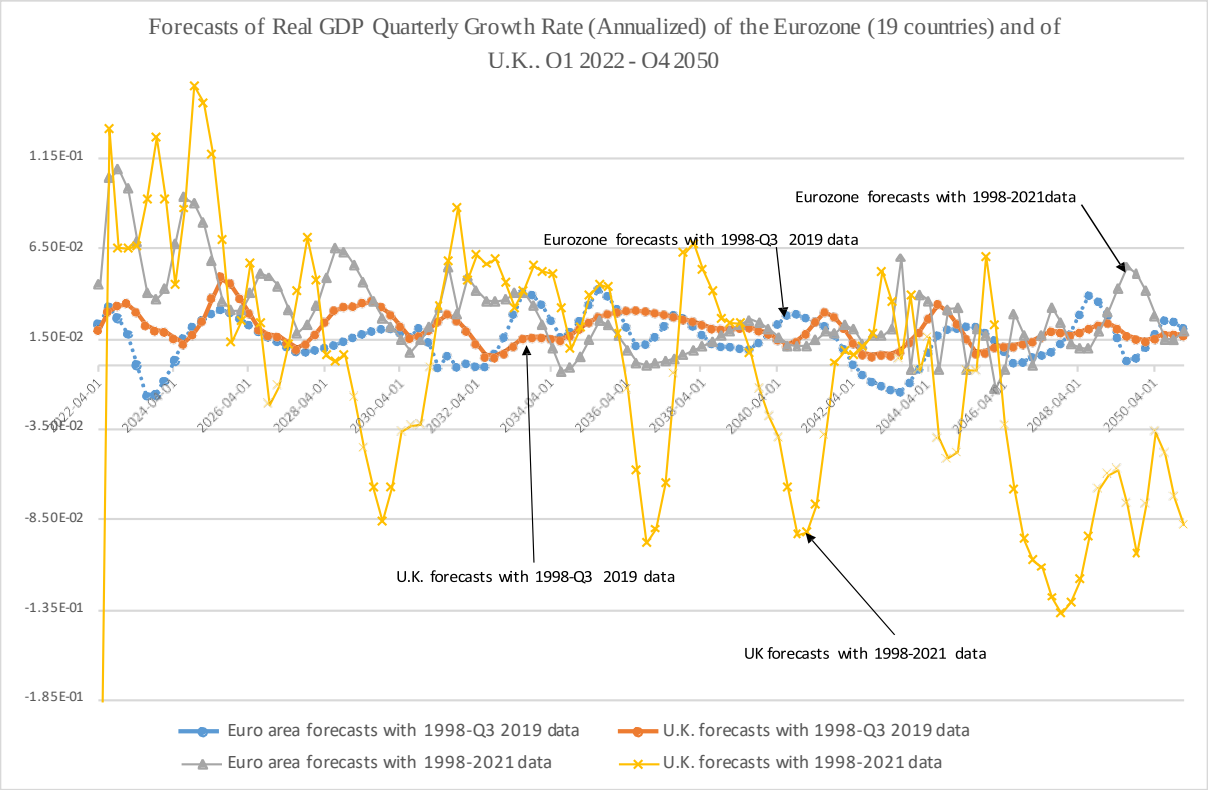
The objective of the paper is to assess the resilience of UK's economy towards two economic shocks: the Covid-19 pandemic that hit the global economy in Q4 2019, in years 2020, 2021 and 2022 and the Brexit following the withdrawal of UK from the European Union on 31 January 2020. To assess the resilience of UK's economy towards these two economic shocks, two sets of forecasts are generated: forecasts using historical data including the pandemic and the Brexit (from Q1 1998 to Q4 2021) and not including the pandemic and the Brexit (from Q1 1998 to Q3 2019). The computation of the difference of their averages is an indicator of the resilience of UK's economy after the pandemic and Brexit, the greater the difference the greater the resilience. In this section, UK's 2050 GDP and growth rate quarterly forecasts are illustrated and the resilience of the UK economy after the Covid-19 Pandemic

and Brexit is assessed. Eurozone's GDP and growth rate quarterly forecasts are used as benchmarks.

4.1.Forecasts of Q1 2022 to Q4 2050 of UK and Eurozone quarterly annualized GDP growth rates

Figure 11 illustrates 116 forecasts with spectral analysis of UK and Eurozone quarterly annualized GDP growth rates from Q1 2022 to Q4 2050.

Figure 11: 116 forecasts with spectral analysis of UK and Eurozone quarterly annualized GDP growth rates from Q1 2022 to Q4 2050



Source: Authors' own elaboration using Matlab

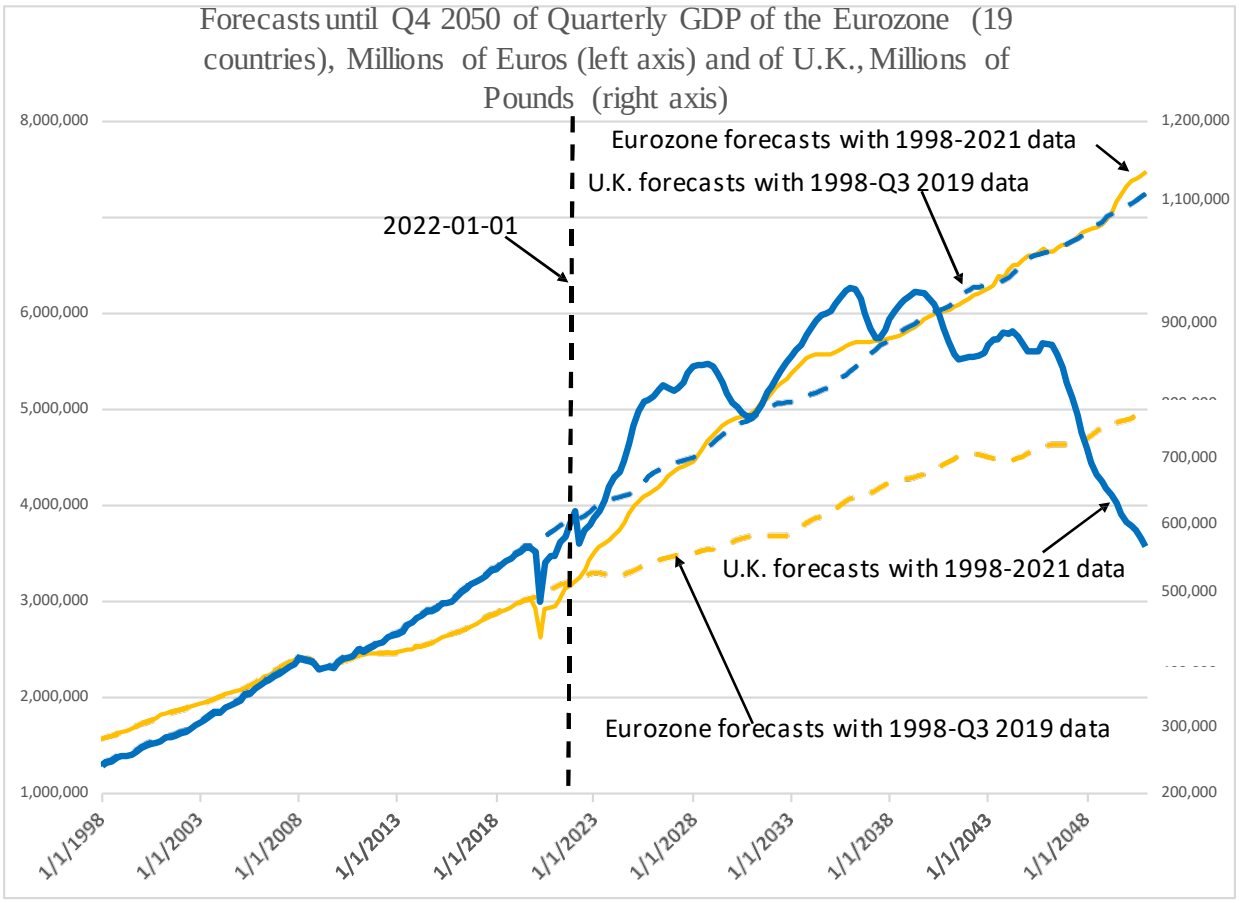
Based on the 116 forecasts for the period Q1 2022-Q4 2050, UK forecasts are more pessimistic than the Eurozone, with an average quarterly (annualized) growth rate of +2.03% for UK, forecasts generated with the Q1 1998-Q3 2019 data versus -0.24% for UK with the forecasts generated with Q1 1998-Q4 2021 data. Eurozone forecasts have an average quarterly

(annualized) growth rate of +1.52% with Q1 1998-Q3 2019 data versus +2.93% with Q1 1998-Q4 2021 data. It shows that without pandemic, UK would have had a better outlook and a higher growth rate until 2050 (+2.03% for UK versus +1.52% for the Eurozone). The Covid-19 pandemic after Q3 2019 and the Brexit in 2020 have hit badly UK, being less resilient than the Eurozone, UK economy has a forecasted average quarterly (annualized) growth rate of -0.24% versus +2.93% for the Eurozone. Why the Eurozone has a better Q1 2022-Q4 2050 average forecast (+2.93%) including the pandemic than UK, - 0.24%? UK forecasts including the pandemic show a greater volatility than Eurozone forecasts (standard deviation of the forecasted returns equal to 7% for UK versus 2.33% for the Eurozone). Besides, Figure 11 illustrates increasing negative quarterly growth rates of UK GDP until Q4 2050.

Figure 12 illustrates 116 quarterly GDP forecasts with spectral analysis of UK and the Eurozone from Q1 2022 to Q4 2050. The rebound of both economies in Q2 2020 (refer to Figure 3), +47.37% in UK and +46.48% in the Eurozone, following the huge contraction in Q1 2020, -52.25% in UK and -42.37% in the Eurozone, clearly explains the divergent trend of the forecasts with Q1 1998-Q3 2019 historical data and with Q1 1998-Q4 2021 historical data for both UK and Eurozone since the model is sensitive to the most recent data. However, with forecasted returns of UK's GDP presenting more volatility and having increased negative returns as illustrated in Figure 11 and mentioned in the previous section, the quarterly GDP of UK is expected to diverge from the positive trend sustained by the Eurozone GDP until 2050 by starting a downtrend in Q2 2040 and plunging after Q1 2046 to reach the level of Q2 2019 in Q4 2050.

4.2.Forecasts of Q1 2022 to Q4 2050 of UK and Eurozone quarterly GDP

Figure 12: Historical data and forecasts with spectral analysis until Q4 2050 of UK and Eurozone quarterly GDPs



Source: Authors' own elaboration using Matlab.

4.3. Assessing the resilience of UK's Economy after the Covid-19 Pandemic and Brexit

To recall, the objective of the paper is to assess the resilience of UK's economy towards two economic shocks: the Covid-19 pandemic that hit the global economy in Q4 2019, in years 2020, 2021 and 2022 and the Brexit following the withdrawal of UK from the European Union on 31 January 2020.

To assess the resilience of UK's economy towards these two economic shocks, two sets of forecasts are generated: forecasts using historical data including the pandemic and the Brexit (from Q1 1998 to Q4 2021) and not including the pandemic and the Brexit (from Q1 1998 to Q3 2019). The computation of the difference of their averages is an indicator of the resilience of the economies during the pandemic, the greater the difference the greater the resilience. By subtracting the average forecasted 2022-2050 Eurozone quarterly GDP growth rate

(annualized) obtained with the Q1 1998-Q4 2021 data, +2.93%, by the one obtained with the Q1 1998-Q3 2019 data, +1.59%, the difference is +1.33%, whereas with UK the difference is -2.33% [-0.24% - (-2.09%)]. Thus, Eurozone shows a greater resilience (+1.33%) than the UK (-2.33%) based on 2022-2050 forecasts. In addition, the authors pointed out that the average of the 2022-2050 quarterly (annualized) growth rate forecasts of the Eurozone is expected to be +2.93% with the 1998-2021 data whereas it is expected to be only -2.09% for UK.

5. Conclusion and Discussion

This paper assesses the resilience of UK's economy towards two economic shocks: the Covid-19 pandemic that hit the global economy in Q4 2019, in years 2020, 2021 and 2022 and the Brexit following the withdrawal of UK from the European Union on 31 January 2020. The paper presents UK's 2050 GDP and growth rate quarterly forecasts before (up to 2019) and during the pandemic and the Brexit (up to 2021) by using spectral analysis. UK economy is benchmarked to the Eurozone economy (19 countries). Spectral analysis can analyze changing transient physical signals. Extending the analysis to complex-behavior economic signals, the originality of this paper is to apply spectral analysis to economic variables subject to common dynamics such as GDP time series. The forecasts cover 116 quarters from Q1 2022 to Q4 2050 and derive from historical quarterly data extending from Q1 1998 to Q4 2021.

Spectral analysis methodology follows four steps that lead to GDP quarterly (annualized) growth rate forecasts: the Quarterly GDP growth rate (annualized) time series of the Eurozone and UK are de-noised and compressed, then decomposed in simpler signals called approximations and details in the framework of the one-dimensional discrete wavelet analysis. Third, the decomposed series are extended with the Burg (1975) model which fits a pth order autoregressive (AR) model to the input signal by minimizing (least squares) the forward and backward prediction errors while constraining the AR parameters to satisfy the Levinson-Durbin recursion. Finally, the series are reconstructed, the extensions being the forecasts.

As illustrated in Figure 3, between Q4 2019 and Q4 2021, the quarterly GDP growth rate (annualized) of the Eurozone economy (19 countries) was most of the time below the one of UK with an average growth rate of 3.23% for the Eurozone versus 4.75% for UK. Therefore, UK was looking more resilient during the Covid-19 pandemic than the Eurozone. However, based on Q1 2022-Q4 2050 forecasts of both economies, by subtracting the average forecasted 2022-2050 Eurozone quarterly GDP growth rate (annualized) obtained with the 1998-2021 data, +2.93%, by the one obtained with the 1998-Q3 2019 data, +1.59%, the difference is +1.33%, whereas with UK the difference is -2.33% [-0.24% - (-2.09%)]. Thus, Eurozone economy shows a greater resilience after the Covid-19 pandemic and the Brexit (+1.33%) than the UK economy (-2.33%) based on Q1 2022-Q4 2050 forecasts. In addition, the average of the Q1 2022-Q4 2050 quarterly (annualized) growth rate forecasts of the Eurozone is expected to be +2.93% with the Q1 1998-Q4 2021 data whereas it is expected to be only -2.09% for UK, which is quite pessimistic for UK.

A relevant question raised by the authors, which may have troubled the minds of British politicians, is "was it worth it for the UK to leave the European Union (EU) of 27 members?" UK joined the EU in 1973 and withdrew from the EU on 31 January 2020. As Andrade (2022) of Bloomberg Economics mentioned, Brexit's impact was plain to see after more than one year after Brexit, since the British pound depreciated about 16% against US$ and trade and investment declined substantially as well. In 2022, the UK has seen the biggest headwinds since the 1970s. After suffering unprecedented shocks in recent years, the UK has succumbed to more intractable problems marked by sluggish growth, runaway inflation (annual inflation rate of 11.1% in October 2022, Trading Economics, 2022) and a series of damaging strikes. The result has been a plunge in consumer confidence that analysts warned could lead to a recession. Railway workers walked off the job in anger that their living standards were slipping, and criminal barristers were striking. At the end of 2022, UK was bracing for further disruption from strikes heading into the Christmas period, as ambulance drivers and nurses joined rail operators and postal workers in the worst wave of walkouts the country has endured for at least a decade (Ziady, 2022). More than 20,000 ambulance workers, including paramedics and call handlers, were expected to strike on December 21 in a dispute over pay.

UK has experienced structural problems as well. The main problem has been productivity growth, which has slowed after the financial crisis in 2008 and 2009. Brexit uncertainty has also seemed to have unsettled executives, with investment flat lining since the 2016 public vote to leave the European Union (EU). Had executives continued to spend as they did before the Brexit referendum, investment would have been around 60% higher by the end of 2022. Life outside the EU has also had an impact on trade as importers and exporters contended with higher trade barriers. Despite a sharp fall in the pound since the vote, there was little evidence to suggest the external sector has benefited from increased competitiveness. UK lagged the trade performance of other big nations before the pandemic and has failed to fully share in the global trade rebound since then. To conclude, UK has experienced a serious economic crisis, damaging the life of millions of angry people. Therefore, based on the conclusions of analysts and on the 2050 GDPs' projections presented in this paper, under the Kingship of Charles III since September 8, 2022, and the leadership of Prime Minister Sunak who has served as Prime Minister of the UK and Leader of the Conservative Party since October 2022, following the brief appearance of Prime Minister Liz Truss from September to October 2022, UK should consider rejoining the EU, move that may improve the performance of its economy by mimicking the positive and steady performance of the Euro area forecasted for the next 30 years. Belonging to a trade block adds constraints to the member state because it is costly, member states providing billions in support to the EU every year; in addition, members are constrained by economic and political decisions taken outside their countries by the most influential members such as Germany and members of the Euro area (using Euro currency as sole legal tender) loose flexibility in their monetary policy (Rostan and Rostan, 2022b). However, the main advantages of belonging to a trade block are waving of tariffs between member countries implying rising exports, economies of scale, higher GDP growth, less volatility of the currency if Euro is used as sole tender and a lower country risk that attracts international investments. UK leadership do need to reassess all these factors and should perceive the net advantage of rejoining the EU.

Further research may focus on additional economic indicators of UK to identify the areas of strengths and weaknesses of the UK economy and how to improve them.

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THE POTENTIAL OF USING BLOCKCHAIN TECHNOLOGY IN HUMAN LIFE: EXAMPLES OF IMPLEMENTATION

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Abstract: *Blockchain technology, successfully implemented for the first time in 2009, with the launch of the first bitcoin cryptocurrency, is increasingly used in other areas of human life. As a cryptographically secured, distributed register is a guarantee of the stored data. The main assumption of blockchain is to eliminate, through built-in validation mechanisms, any central or trusted parties necessary to confirm the correctness of the data. The first part of the article presents general information about the technology. Next, the analysis of the potentials of its implementation in (I) financial and economic, (II) security, (III) political and social, (IV) legal and information was undertaken. The work is based on a case study of successful applications, as well as a comparative analysis, ended with a discussion and conclusions.*

Keywords: Blockchain technology, cryptocurrencies, security, implementation, European Union.

1. Introduction

Blockchain technology has been referred to as the most important invention since the inception of the Internet for several years (De Silva, Parker, and Broun, 2017). It is a mechanism that allows individuals to send a unique digital record without the risk of copying, and without the need for a trusted third party. In practice, it is a shared, distributed, and fault-tolerant database that keeps records in blocks. Blockchain technology is regularly included in the top ten list of the Council on New Technologies of the World Economic Forum in Davos, which prepares a list of the most disruptive technologies with the greatest impact on improving the lives of societies, transforming other areas of the economy, and protecting the natural environment (Nisco Rayome, 2019; Mincewicz, 2021a).

Blockchain is sometimes referred to as the next trusted layer of the Internet (Mougayar, 2016) or the Internet of value (Szpringer, 2019). Although the natural and primary area of application of technology is and will remain cryptocurrencies, the possibility of its use is not limited only to virtual currency. A decentralized network is successfully implemented in various forms in subsequent areas of operation of institutions from the banking sector, private companies, and other organizations, where security plays a key role (Swam, 2015; Tapscott and Tapscott, 2016). Daniel Drescher points out that the blockchain does not evaluate the processed data; hence, their scope and number of areas of potential application are as wide and varied as the scope of human activity. As examples, he mentions payment management, use in the creation of digital resources or digital identity. Blockchain can also be used, for example, in the digitization, storage, and verification of documents and contracts, proofs of ownership, in the provision of notary services, conducting business audits as part of auditing services, or during voting during elections (Drescher, 2017: 226–7). This collection is not closed, as it is practically impossible to discuss all uses of the blockchain. However, it is expected that new areas of implementation will emerge constantly. This is because the decentralized network, distributed over hundreds of computers around the world, based on public- and private-key encryption, is a secure structure for storing and transferring information and data. Therefore, blockchain can potentially be used to improve all processes and activities in which it is necessary to ensure the secure transfer of information or data.

The presented article consists of four parts. The first one, organizing the presented content, indicates the limitations, purpose, and scope of the study. The next one is dedicated to the outline of the concept of blockchain technology and answers the question of what it is and presents three generations of technology. The third part defines four areas in human life, where the technology is successfully used in other countries, including the European Union, which constitute the discussed case study, that is: (1) financial and economic area, (2) security area, (3) political and social, (4) legal and information area. Summaries and conclusions as the ending of the study include a synthetic presentation of the outlined content. Additionally, barriers and challenges related to the further implementation of technologies in the European Union countries were indicated as a starting point for the continuation of research.

2. Limitations, purpose, and scope of the study

The issue of blockchain technology is a multidisciplinary issue that is of interest to lawyers, economists, IT specialists, security specialists and representatives of other social sciences, including political science. The potential of using blockchain technology in human life is therefore a complex issue which, confined to one area of knowledge, does not allow for a comprehensive analysis. The article presents an outline of knowledge related to the potential of implementing blockchain technology in non-economic areas in terms of social sciences. The presented study is the starting point for future in-depth research. The project, carried out on the basis of secondary data, systematizes the current state of knowledge, and also constitutes a voice in the discussion on the use of blockchain technology. An important limitation for the content presented, especially in the next section, is the narrowing of the issues only to blockchain technology and its significant advantages over previously known solutions. Due to the multitude of available solutions, in order to indicate its most important elements constituting the basis of the technology, it is necessary to use a specific example, which in such a situation is usually bitcoin, as the first fully successful implementation. It should be remembered that the first cryptocurrency can be understood in two ways. In the former, it is the set of concepts and technologies that underpin the crypto-based digital money ecosystem, and in the latter, they are simply units of value in a blockchain.

The presented possibilities of use will serve to verify the hypothesis about the usefulness of blockchain technology as a potential tool to support various processes in subsequent spheres of human functioning. The significant advantages of the solution have been indicated, which allow to define the advantages of the technology in comparison with the ones known so far, as well as the potential threats and risks related to the possible implementation. For the purposes of the work, scientific sources in the form of academic publications, internet sources, reports and studies were used.

3. Blockchain technology: an outline of knowledge and properties

Blockchain, as an innovative concept, presented for the first time in 2008, has aroused very different and often controversial reactions since the publication of the first example of its use. Sometimes, it is perceived as a general-purpose technology, capable of changing the

currently used model or data transfer schemes. On the other hand, there are authors pointing to numerous limitations and shortcomings, thus suggesting that analyzing and using it was an action devoid of deep sense or doomed to failure (e.g., Casino, Dasaklis, and Patsakis, 2019). In narrow terms, blockchain can be considered "a special data structure, consisting of transactions assembled into blocks that are cryptographically linked to each other to form a sequential, tamper-resistant chain that defines the order of transactions in the system. A transaction represents any change or modification to the database (Rauch et al., 2018). As a publicly available, distributed, and fault-tolerant database that can be shared by any network participant and over which no one can take exclusive control (Shetty, Kamhooua, Njilla, 2020), blockchain is a technology for decentralized, self-organizing information management. It is a way to save encrypted information in "blocks" on multiple devices (Johnson, Manion, 2019).

The blockchain is the technological solution on which cryptoactives are based. It should be noted that in its proposal, which is also the first successful attempt to implement, Satoshi Nakamoto (2008) cleverly managed to combine the previously existing technological elements. Generation 1.0 was used in cryptocurrencies. Blockchain that covers basic applications such as payment and application support. Its superstructure is generation 2.0, which will apply to various financial assets, but also smart contracts, Ethereum and Hyperledger platforms. In the following years, ideas for the implementation of technology in the non-economic industry appeared: healthcare, media, justice, or various government institutions, which makes up layer 3.0. Futurologists, in turn, envision a single public blockchain that everyone can use. The X.0 blockchain will offer a variety of services, and agencies will use it to make rational decisions and interact with other agencies acting on behalf of the person (see, e.g., Bashir, 2017: 36–7).

Blockchain is a register in which any information secured with the use of public-key and private-key cryptography can be saved, and their transfer takes place in a peer-to-peer network (person to person). The registry in its original form is dispersed, which makes it resistant to damage and modification, and no one can take control of the database. Due to its form, blockchain can economically provide reliability and credibility without the need for expensive infrastructure for replication and recovery after a possible failure. The solution does not require configuring the nodes that want to join it and synchronize the data. The nodes communicate with each other directly on a P2P network thanks to built-in redundancy and elimination of the need for continuous supervision. The chain is made up of successive blocks, which in turn contain the

header and the data. The header includes a reference to the previous block in the chain (its hash), the timestamp of the block creation, and the root of the hash tree of the data or information it contains. In the data block, the hash tree of transactions contained in the block is available, and then the data itself. This way of writing allows you to search for transactions by its hash (in short), without the need to read all the data (Oksanowicz, 2018). The main assumption of the blockchain is to eliminate, through built-in validation mechanisms, any central or trusted parties necessary to confirm the correctness of the data. Blockchain networks, due to their dispersed nature, are resistant to damage, which allows their nodes to eliminate others that fail or behave incorrectly; they generate an error (the so-called Byzantine generals' error). Compared to centralized databases, blockchain enables direct sharing of information in environments without the participation of a trusted third party (Nofer et al., 2017).

In its original form, blockchain was a digital ledger that was created to verify, process, and record all transactions in a distributed network. Although the primary, basic form of blockchain use is and will remain cryptocurrencies due to Satoshi's manifesto published in 2008 Nakamoto, the technology itself is constantly being developed. Despite the many benefits of using blockchain technology, most initiatives are still in their initial development studies and function as pilot implementations, test solutions, or a classic *Proof of Concept*. The following speaks in favor of the use of technology: (1) the potential improvement in the quality of services and products; (2) the speed of response by producers and consumers; (3) the ability to efficiently communicate between networks of different links; (4) increasing the competitiveness of individual industries, sectors, or economies (Włodarczyk, Tomala, Sikorska, 2021). They analyze the possibilities of technology, its undoubted advantages include potential economic benefits in all areas of social and economic life - wherever proper electronic information management allows reducing transaction costs. In 2015–17, optimistic estimates indicated that by 2025 at least 10% of the world's GDP would be managed by blockchain technology (Dudek, 2017; Grech and Camilleri, 2017). Updated forecasts are more cautious, and the cut-off date is 2030 (Davis, PwC, 2020).

Existing blockchains can differ in at least two characteristics: they can contain or not have permissions, and they can be open (public), open to all, or limited, private, intended for a specific user, and corporate. The basic difference between the individual is related to the degree of trust between system users, ranging from a total lack of trust in the case of the public system

to a relatively high level in the case of the private system, which is reflected in their different architecture. The only truly decentralized blockchain solution is the public system. A private blockchain solution is fully controlled by one organization and cannot be considered decentralized, while the corporate system will be only partially decentralized. Another significant technical difference between the above-mentioned solutions is the possibility of changing historical data. In the public system, it is impossible, while in the other systems it is allowed if such is the will of the main users (Hulicki, Lustofin, 2017).

The main features of blockchain technology are decentralization, immutability, and transparency of records. Decentralization is defined as the elimination of a trusted third party in the data transfer process. In blockchain, transaction verification is based on a consensus mechanism between network participants. Invariability means that it is not possible to withdraw data once entered, while the fact that the blockchain is public gives transparency. In blockchain 2.0. The most important change compared to the previous generation of blockchain was the introduction of smart contracts. Smart contracts are defined as a software system that automates the fulfillment of contract terms. They represent computer code that will be automatically executed on a peer-to-peer network, which can reduce administration, lower costs, and improve efficiency. Blockchains 3.0. It is primarily a proposal of private or corporate chains, based on previously known cryptographic solutions that can be adopted by other institutions.

The basis of blockchain technology is a mathematical hash function. The hash function is one of the most important elements of modern cryptography, which assigns any string of characters to any string of characters with a nonspecific value of a fixed length. The hash function works by computing a short signature for the given input. Having any document or other information in digital form as input, and even entire huge data sets, using the hash function, we can calculate a "hash" of these data, which will be resistant to collisions, because two different data sets will not give the same hash, and there is practically no possibility of generating a data set with the same hash as the indicated data set. Another feature of the digest is that it is unidirectional and irreversible, and it is impossible to recreate the original message knowing its digest. These features are used in practice to quickly identify digital data and verify the integrity of the data. The point is that even the smallest change in the source data should make the calculated hash different from the hash of the source data (Rodwald, 2013: 91–2). In the Bitcoin system, the RIPEMD-160 and SHA-256 hash algorithms are used as the first implementation of

the technology. RIPEMD in the blockchain is used to create Bitcoin addresses, and the SHA-256 algorithm is used to verify the computational effort generated by the miners. The hash function based on the 256-bit SHA algorithm is a precompiled access contract at 0x2 and generates an SHA256 hash of the input data. The function is used to implement the second cryptographic tool, which is a digital signature. In the case of Bitcoin, it adopts the Rivest Shamir Adleman standard (RSA), which was the first implementation of a public-key cryptography system[1]. Asymmetric cryptography is used to generate a pair of public and private keys that are mathematically related with the use of Euler functions. In cryptocurrencies, the public key is used to receive payments to the wallet, and the private key is used to sign transactions and generate a "fingerprint" confirming the possession of coins. The public key is on an open blockchain, so all users can access it. It is generated from the private key due to the mathematical relationship between the key pair. The private key is 256-bit randomly selected numbers within the range specified in the Elliptic Curve Algorithm (ECDSA) recommendation. The private key is usually encoded in *Wallet Import Format* (WIF), making them easy to copy and use. The WIF allows you to save a complete private key in a different format (Vaskovskyi, 2018: 13). When a transaction signed with a private key is sent out on the Bitcoin network, the nodes use public keys to verify that the transaction was signed with the appropriate private key. This process confirms the ownership of bitcoins (Antonopoulos, 2014: 61–4). It is therefore the basic condition for the existence of the system.

In quantitative terms, theorists and practitioners indicate that the most important competitive advantage of technology is decentralization (see, e.g., Peters, Panayi, and Chapelle, 2015: 10; Zhang et. al., 2019: 29; Regal et. al. 2019: 698). Apart from the fact that, thanks to the decentralized form, the record contained in the register remains beyond the reach of direct regulations, monetary policies, supervision, or control of institutions, they are resistant to cybercrime threats. Cryptocurrencies are an example of a decentralized network with a P2P architecture. Nodes connected in this way, i.e., electronic devices that communicate with each other, in the case of cryptocurrencies function in a network where there is no central unit (server). Cryptocurrencies operate on a so-called peer-to-peer network. It is a network made by the users themselves, who communicate directly with each other. The architecture model is based on the

[1]Another, identical name, asymmetric cryptography.

equivalence of all nodes. This means that, in contrast to the most widespread, classic *client / server architecture*, there is no control server or centralized services in the network. There is also no predetermined hierarchy, and each user is part of the overall system. In practice, this means that it can act as a server as well as a client - download data from other machines and share its resources with all other dedicated computers (Schollmeier, 2001: 101-2). Describing the IT aspect of the functioning of the Bitcoin system, it is often emphasized that it was designed as a digital financial system with a P2P architecture, thanks to which it is fully decentralized. Decentralization ensures that the entire system is resistant to failures, physical and IT attacks, or the collusion of some dishonest participants.

4. Areas of successful technology implementation

Although blockchain technology is in an early stage of development and there are few examples of its implementation, previously implemented own and literature studies have led to the identification of the following areas where blockchain technology is currently found or may be used soon. Among the four separate levels of human life, there are: (1) the financial and economic level; (2) safety plane; (3) the political and social level; (4) the legal and information level. This collection, however, is not exhaustive; it is a summary of the current state of knowledge and a starting point for further research.

4.1. Financial and Economic Area

The financial and economic plane is an area of application that is fundamental to blockchain technology. The financial industry was the first to recognize the enormous potential of blockchain. For several years, a huge rash of startups that develop blockchain based cryptocurrency technologies have been visible. In 2008, the blockchain was the basis for the first Bitcoin cryptocurrency Bitcoin. The system proposed by Nakamoto assumed the creation of a mechanism allowing units that do not know each other to send a unique digital record without the risk of copying it, and in a direct manner, excluding the need to use the services of central exchange intermediaries. It allows all entities, both using the system directly and interested only in the circulation and state of digital records, to have equal access to the same and available in real time information on the indicated issues. The next generation of blockchain allowed for economic, market and financial application in services going beyond simple monetary

transactions, such as bonds, futures, mortgage loans, title deeds, and smart contracts. Entities that operate in the financial sector use blockchain technology in: (1) applications and technology solutions they offer to the client; (2) middleware and services; (3) infrastructure and protocols for customer service (Mougayar, 2016). The governments of individual countries became interested in the possibility of implementing blockchain relatively quickly, striving, among other things, to link the technology with their official money. Resilience to failures, hacking attacks, reliability, speed of operation, protection against fraud or crimes committed with the use of electronic tools - these are just some potential advantages of the system that have been noticed and are the basis for the design of *Central Bank Digital Currency* (CBDC).

Advances in cryptography and distributed ledger technology create the possibility of widespread use of digital currencies, also by Central Banks. The introduction and dissemination of CBDC may constitute a historic innovation in money circulation, as well as in banking, and ultimately lead to the realization of the so far utopian vision of a cashless society (Fabris, 2019). In addition to the potential exclusion of physical cash from circulation, CBDC will allow central banks to increase their control over the circulation of money by permanently mediating all exchange transactions. The additional mathematical algorithm that underlies the projects allows the central bank to potentially automate transactions and create rules according to which they can be implemented. CBDCs offer the possibility of introducing a variable speed of circulation, which means that the government can program the money to give it an expiry date, as was the case in, for example, China.

According to a report by the Bank for International Settlements from 2020, 70% of all central banks in individual countries are studying the possibility of issuing their own digital currency. 10% of respondents indicate that they will implement such a solution in the next 3 years, and another 20% within six years (Boar, Holden, Wadsworth, 2020). The work on detailed solutions was accelerated during the Sars pandemic CoV-2. The most advanced work on the implementation of CBDC is carried out by the People's Bank of China (PBOC), that is, the central bank of the People's Republic of China (see Mincewicz, 2021b). In Europe, it was only in 2019 that individual financial institutions began to recognize the potential of CBDC on a large scale. In the European Union, the work of the European Central Bank has been intensified. In October 2020, the report of the task force on the possibility of issuing the digital euro was published (European Central Bank - Eurosystem, 2020). The authors indicate that there is a need

to intensify work on the creation of a digital euro, and the dominant premise has again become the digitization of society, the growing importance of electronic payments, as well as striving to create a secure and stable payment system. In addition to the work at the European Union level, individual countries, as part of their own policy of creating monetary policy, undertake research on the possibility of introducing the digital currency of the central bank into circulation. In its report (Deutsche Bank Research, 2020), Deutsche Bank points to the role and need to intensify CBDC work in connection with the COVID-19 pandemic, which accelerated the "digital cash revolution". Tests on the digital euro have already taken place in France (Banque de France - Eurosysteme, 2020), and more countries such as Estonia are working with private entities to start research.

4.2. Security area

Security is the second area where blockchain technology is already being used and is likely to be widely used in the future. When pointing to the potential for implementation in this area, attention should be paid to the many possibilities offered by the blockchain in the functioning of the army. In the first comprehensive study of 2016, there is a proposal to use blockchain in the military for: (I) maintaining security in cyberspace, mainly in the area of data transmission and integrity, (II) managing the supply chain of products and services for the military, especially in emergency situations, (III) and for effective and reliable communication (Barnas, 2016). The available data show that work on the possibility of using blockchain technology in the military field is carried out by the three largest military powers: the United States of America, the Russian Federation, and the People's Republic of China. In turn, countries such as South Korea and India announced pilot test programs in 2019 (Mincewicz, 2020). The North Atlantic Alliance (NATO) also seems to recognize the potential that can be used to strengthen security. Anders Fogh Rasmussen, the former Secretary General of the Alliance, has repeatedly indicated that securing data transfer using blockchain in the future will be common (Singer, 2019). Another example of the use of technology to ensure security is the improvement of border control systems. A significant problem in the currently used systems is data exchange, which makes it difficult to track, for example, suspected persons. The systems are controlled by one entity and cannot be easily transferred between different security institutions. The

mechanisms used do not make it possible to immediately create a passport blacklist or invalidate a document (Chang, Iakovou, and Shi, 2020). Blockchain is the solution to this problem because information can be transferred anywhere in the world using smart contracts. All changes and updates concerning wanted persons are available to authorized entities, which significantly improves the work (e.g., Geneiatakis et al., 2020; Mastilak et al., 2020).

4.3. Political and social area

The third of the defined areas where blockchain technology can be successfully used is the political and social level. Estonia is one of the classic examples of digitization of all public services. At the end of the twentieth century, the X-Road platform was developed to enable the integration of IT systems and secure data transfer (Paide et al., 2018). In 2001, the electronic ID card was implemented and, in 2005, the first electronic voting in the elections was carried out (Sheeter, 2005). After the experiences of 2007 and the cyberattack (eg, Biaoskórski, 2011), even more attention was paid to cybersecurity in the country. The result was the design, testing, and implementation of solutions that will ensure the security of the Estonian e-Government system. When voting in elections, for example, Estonian citizens use a special ID card that entitles them to vote. Although blockchain technology in this case is used to support the election process, it may become its central link over time. In 2019, on the i-Voting website, in the elections to the European Parliament and the national parliament, 46.7 and 43.8 percent of the votes cast their votes electronically voting (valimised.ee, 2019). Blockchain technology, in addition to Estonia, has been used, among others, in conducting clerks at the local regional level in Switzerland (Zug) (Offerman, 2018). In November 2018, in turn, when the Thai Democratic Party elections were held, a total of 127,000 votes were cast across the country through the blockchain -based application (Cheng et al., 2018). In South Korea, there was a blockchain-based voting system during the referendum in Gyeonggi-do province (Emem, 2018). In view of the coronavirus pandemic in Poland, the e-voting functionality offered by the National Depository for Securities was developed, which was used for electronic voting during General Meetings of Shareholders of listed companies (Gałus, 2020). In addition to supporting the administration and voting system, medicine seems to be an ideal example of the possibility of using blockchain technology in the political and social area. In Sweden (Stawicki et al., 2018), a pilot research program is

underway to enable all physicians and healthcare professionals to have safe and easy access to patient records and treatment history. The potential use of blockchains in the healthcare industry allows achieving a number of benefits, such as financial savings, high availability, and preventing the distribution of counterfeit drugs. Blockchain is therefore becoming a BigData supporting tool (Dhanalakshmi and Babu, 2019). However, it should be borne in mind that the implementation of technology in the medical sector, in line with the above example, creates a number of new challenges. They are related, for example, to the need to maintain privacy and the protection of personal data. Although the registry allows you to verify who and when had access due to authorizations, it will create a field for significant abuse related to the protection of sensitive medical data that may be taken over by unauthorized persons (a similar risk exists in traditional systems). This problem concerns each of the analyzed spaces, but it should be expected that soon solutions will be developed that will allow for its marginalization. Two scenarios seem likely. The first involves the development of a tokenization system (analogy to voting with the use of blockchain) that will entitle you to gain access. An alternative is to use private blockchain algorithms for dedicated solutions that prevent such activities. A hybrid solution also seems possible.

4.4. Legal and Information Area

Blockchain technology has significant implementation potential in the **legal and information field** of human life. The wide-ranging space includes: blockchain use to protect property rights; for digital identity management, confirmation of the authenticity of university diplomas, or in the field of the Internet of Things as a tool supporting its development. A permanent record placed in a chain allows, for example, to confirm that a given thing, object, or work undeniably belongs to a specific person. The blockchain stores this information in a permanent and unchanging manner. In this way, using the so-called proof of existence, the authorship of the work in question can be confirmed. The properties of blockchain offer numerous possibilities of application also in the field of various registers of property rights. Blockchain -based applications could also make it possible to direct payments for listening to a given song directly to a specific artist. Potentially, blockchains can support the management of access rights to information resources. The tools offered by applications using blockchain make

it possible to generate your own identity in a distributed network, i.e., without using the resources of a trusted third party. Identification systems used in blockchain, unlike traditional solutions, are more reliable and, above all, more resistant to attempts to falsify information and are more effective in protecting data against unauthorized access. Due to its properties, blockchain in connection with digital identity can be successfully used by universities to ensure the authenticity of their diplomas (Gresch, 2018; UntungRahardja, EkaPurnamaHarahap, 2020). The report, commissioned by the Joint Research Center of the European Commission, explicitly indicated that one of the four most important applications of blockchain should be document authentication (Anderberg et al., 2019). As the next layer of the Internet, blockchain also significantly complements the functioning of the dynamically developing Internet of Things (IoT), which offers several benefits – from savings to enabling companies to make decisions and improve results thanks to data provided by devices connected to the IoT. The network model is based on a centralized structure where devices connect to a data cloud or central servers to transfer and process the relevant data. The blockchain allows things connected to the Internet to communicate directly with each other and carry out transactions. Due to the availability of smart contracts, devices can directly handle negotiations and execute transactions without the need for human action or the use of indirect services.

5. Discussions and conclusions

The implementation of blockchain technology creates several important problems that should be considered when starting work on pilot projects. The main challenge is the question of how justified is the use of blockchain technology in a specific case, what direct benefits does the technology bring to a specific area of application? The authors' opinion should certainly be shared, who, quoting the thought of Joseph Schumpeter, claim that, like any new technology, blockchain initially causes creative destruction, and later may stimulate the development of a larger ecosystem embracing old ways of operating (e.g., Pasterny, 2021: 88). The thesis that technology can be complementary to other spheres of society functioning directs thinking towards evolution, not revolution. Although it is an information technology in its original use, it has many other dimensions. First, as a decentralization tool, it is a new revolutionary paradigm of computational processes. When analyzing the possibilities of implementation, and at the same

time the benefits of using the technology, so far, the greatest opportunities are in the areas of human life, where it is beneficial to have some basic features of blockchain. An example may be the area of security understood in a narrow sense (defense) and in a broad sense (food security, economic security, etc.). Another example is healthcare, where technology facilitates the automation of data operations, supply chain management, and drug safety.

The potential of the technology is primarily: stability, transparency, and potentially the least risk of interference by third parties. Blockchains are based on various cryptographic solutions. Blockchain is a decentralized or distributed system, cryptographically secure, providing unchangeable links when resources are shipped, and having a large computing network. Due to its properties, the technology changed the current mode of operation implemented by automating all processes that had been previously performed manually. Blockchain -based applications operate in a completely decentralized manner. Blockchain also takes into account that its security as a communication medium can be compromised by external or internal actors. Blockchain technology has completely changed the way it works, implemented by automating all processes that were previously done manually with unfortunate features. Blockchain provides efficient results that build trust between entities through a reliable environment and a user-friendly network. Manipulating blockchains is extremely difficult due to the use of a distributed, cryptographically secured data structure and the assumption of the ability to operate in the absence of trust.

Blockchain technology was initially developed to implement cross-border payments as an alternative to government currency. In the period after Ethereum was introduced, it became a computing network. Each time, the basic question when implementing a solution is to decide what type of blockchain it should be (public or private). Based on the presented outline, it should be stated that there are currently no technical measures in blockchain technology that could carry out tasks in a defined area of human life. The projects are at the initial pilot stage. In the European Union, Estonia is a country where political decision makers place a significant emphasis on the possibility of technology development. As early as 2012, Estonia launched the Inheritance Registry in the Ministry of Justice, thus gaining the status of the first country in the world to implement blockchain in its administrative systems. On the part of government agencies, The Estonian Information Systems Authority under the Ministry of Economic Affairs and Communications of Estonia was responsible for the design and implementation of the

regulations. The Estonian Information Systems Authority (RIA), as an internal service provider for the government, guarantees access to the blockchain network to government agencies through the X- road infrastructure. To this end, Estonia uses the Guardtime blockchain technology KSI. Guardtime is an Estonian company, a world leader among blockchain technology providers. Technology based on quality guaranteed by an appropriate contract and with limited access ensures integrity, interoperability, and independent verification of the value of the entire system. France, on the other hand, adopted a decree in 2017 that allowed the legal transfer of securities through the blockchain. These laws establish a legal framework that allows French institutions to use ICOs as a means of raising capital. The example of work on CBDC, the euro currency, or the regulations adopted by the European Parliament in 2022, under which the issue of shares and bonds as well as trading in these securities and their settlement using blockchain technology will be tested, indicates the growing role of technology in the European Union.

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PECULIARITIES OF ABUSE CONTROL IN THE PLATFORM ECONOMY

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Abstract: *In some markets, there has been a spike in digitization. There may be changes in the market structure as a result of this, as well as an increase in the market strength of some huge digital enterprises. In light of this, the role of abuse control in digital markets is projected to grow in importance in the coming years. At the national and union levels, efforts are now being made to tighten abuse control on internet platforms. This thesis examines a number of topics relating to internet platform competition and market power, such as the criteria for determining market power of digital platforms and the method to follow in circumstances where the market tends to "tip" permanently in favor of a platform. Another question is whether the principles of Art. 102 TFEU appear sufficient in terms of market power in digital platforms. Central to this is the consideration that a special platform regulation, where dominant platform companies will be subject to additional obligations and stricter monitoring beyond Art. 102 TFEU could be a useful addition to the existing merger regulation.*

Keywords: Abuse control, case law, digitization, digital companies, EU regulation, merger regulation.

Introduction

The present thesis investigates digitization, which has accelerated in all aspects of our lives. This also means that economic transactions can be processed much more quickly. (Furman, 2019). With its rapid technological advancements, the digital age presents new challenges for competition policy. In dynamically developing markets, effective merger control and protection against abuse of market power must be ensured. Such position can emerge and spread beyond

traditional borders, particularly in connection with platform-based business models. Because of the potential for rapid adjustment of digital offers, the associated competition issues pose unique challenges for European abuse control. Large companies that abuse digital marketplaces, particularly online platform companies, must face harsher penalties. It is a common approach of various areas of European law, since penalties are applicable not only in criminal law area (Klimek, 2020a; Klimek, 2020b). As a result, competition law procedures must be simplified, and if necessary, supporting regulatory instruments must be developed. The implementation of these requirements necessitates an understanding of the peculiarities of digital platforms' market power, as well as the platform economy's information problems (Peráček, 2020). This could contribute to the debate over how to more effectively punish large companies on digital markets (online platform companies), and if necessary, accompanying regulatory instruments will be developed. Understanding the unique characteristics of the digital platforms as well as the information issues that exist in the platform economy is necessary for the realization of these objectives.

Objective and methodology

The primary goal of this article is to thoroughly examine various existing regulatory concepts and to clarify their limitations in light of the challenges associated with platform economy abuse control. We set this objective based on the needs and emerging problems from practice. The sub-objectives of the paper are focused on:

- evaluating the state and development of the special features of the market power of platforms and information problems in the platform economy and
- proposing approaches to market power-related and information-related problems.

Our research goal is to analyze how competition law procedures should be facilitated for this purpose and, if necessary, what regulatory instruments should be developed to protect platform users. Through in-depth document analysis, the data was gathered from scientific literature as well as related case law. Several scientific methods of research have been used in the exploration and development of our paper. We applied the analysis method to investigate the state of abuse control in the platform economy. The synthesis will allow us to combine partial information into a single unit. We reviewed the economic-legal and regulatory situation, as well

as abstractions, using critical analysis. We apply the comparative method in order to analyze the views of economists and lawyers from both sides of the Atlantic on abuse control in the platform economy. We were able to reach reliable and valid conclusions and results based to the methods we used.

Platform characteristics and information issues in the platform economy

The uniqueness of the business models used by online platform companies (Nyman-Metcalf, Dutt, Chochia, 2014) is that they target a variety of distinct user groups who communicate with one another on the platform. Platforms act as intermediaries between user groups, but not necessarily between "relevant" markets (Stehlík, Hamuľák, Petr, 2017). Platforms, e.g. social networks, mediate among users (one-sided). But they can also stand between different user groups which either offer or search online content, as in the case of search or trading platforms (multi-sided, Šmejkal, 2016). In both cases, the platform's offer to users is to enable them to exchange information directly with one another. The possibility for users to exchange information directly means that users may concentrate on a specific platform (Šramel, Horváth, 2021). The fact that the platform has a large number of users in one market can make it more appealing to other users, either from the same user group (direct network effect) or from a different group (indirect network effect). However, other factors, such as the platform's ability to benefit from economies of scale, the ability for users to use them in parallel and their switching effort, the platform's differentiation capabilities, and user heterogeneity, all influence the extent to which such network effects can promote concentration. A large portion of the economy relies on the provision of digital platform services. In time of rapid innovation, online platforms have a significant impact on changes in living standards. In the digital economy, digital platforms are uniquely positioned. While being offered for free, platform services supported by digital advertising offer significant benefits to users. A variety of internet services command high cash values from consumers. It is critical that competition in these areas is strong since these services are so crucial to consumers. Important to mention is that consumer welfare from digital goods is significant and is not included in GDP. Consumer surplus is a strong indicator of consumer well-being. This is essential in the digital economy, where many digital goods are free.

Online platform companies, in particular those with a data-driven business model, gain market power not only through potentially strong (direct and indirect) network effects, but also through the competitive relevance of the data aggregated on the platform (Haucap, 2018). This is true at least if the platform has the ability to use the data to the exclusion of other market participants (Daňko, Žárská, 2019). The larger a platform's database, the better it can adapt its service to user needs. The more relevant data a platform has in comparison to its competitors, the more difficult it is for others to compete. As a result, the size of a platform's database has both positive and negative effects for its users due to less competition. The competition problems caused by large online platforms can be of a structural nature and manifest themselves in two ways, the market position of the platform can no longer be contested in the long term (tipping) and platforms can transfer their market power to other markets (Ďuriš, Funta, 2021) in order to create more or less invulnerable ecosystems (Funta, 2020). Platform-based ecosystems, on the other hand, are ambiguous. The term "ecosystem" refers to cross-market structures in which data from various markets is combined on the (technical) platforms of one or, if necessary, several companies, and users are offered complementary services as a result. On the one hand, platform users gain access to a large number of products, as well as the fact that the ecosystem is appealing to other users. On the other hand, an ecosystem like this can significantly reduce competition from outside sources. It is more difficult for competitors to find customers for alternative offers if the consumers are already tied to the ecosystem of a dominant provider.

The fact that large online platforms serve as intermediaries and provide a central infrastructure for their users has the structural effect of influencing the market. In the report “a competition policy for the digital age”, it is therefore emphasized that platforms can act as rule-setters (Crémer, de Montjoye, Schweitzer, 2019; Horváth, 2021). This could justify the proposal that dominant platforms need to be put under stricter behavioral requirements than other dominant companies. According to European case law, such companies per se have a “special responsibility” for not further damaging the market structure through their behavior (C-322/81, NV Nederlandsche Banden Industrie Michelin v Commission of the European Communities). The availability of information is another feature of the platform economy (Rutgers, Sauter, 2021). Due to their potentially exclusive access to data (Králik, Králiková, Kozák, 2021), online platform companies, particularly those with a data-based business model, can have information advantages, both to their users and to the authorities. The authorities have extensive powers to

gather information in administrative proceedings (Kubincová, S. et al. (2019). Nonetheless, understanding the purposes for which a dominant platform company uses data can be difficult. Digital market conditions can change quickly, and market participants must constantly adapt their behavior to changing circumstances (Kaplow, 2010). However, there is an information gap not only between the platform company and outsiders, but it can also develop between the platform users on the retailer side and on the consumer side, especially in the case of online marketplaces. Particularly with a view to the algorithmic pricing of many online retailers, it is suspected that this may be at the expense of consumers (Šmejkal, 2014), either due to price discrimination or due to consumer-damaging coordination of prices (collusion).

Approaches to market power-related problems

Several of the problems described above address the prerequisites for establishing market dominance on platform markets, as well as abusive behavior that permanently shakes markets or creates unassailable ecosystems. However, by implementing existing Articles 101 and 102 TFEU, the problems can be addressed at least partially at the Union level (Svoboda, Munková, Kindl, 2012). Where these provisions do not fully address the problems described, further development of the European legal framework is required.

Determining the market power of digital platforms

The described peculiarities in determining online platform companies' market power should not necessitate any changes to Article 102 TFEU (abuse prohibition) or European merger control at the Union level. The concept of "intermediation power" is being debated in order to simplify the determination of market power in the case of online platforms. This concept, however, can be reconciled with the European Court of Justice's definition of a dominant position without changing the existing regulations. The concept of intermediation power is thus critical. The concept of intermediation power is linked with the observations, that the more digital platforms (Funta, 2019) bundle the demand for goods or services, the more providers of goods or services can rely on the intermediation services of these platforms for access to the opposite side of the market. Furthermore, because of information asymmetries, intermediation platforms frequently have room for maneuver that is not controlled by competition. Increasing importance

of such intermediaries corresponds to the increasing dependency of the providers. Platform service providers face the risk of becoming economically dependent on intermediation platforms. This situation has the potential to deteriorate into one of abuse of dominance, resulting in unfair competition and impeding the entry of new entrants into the market. The European Court of Justice developed the following definition of "dominant market position" for the prohibition of the abuse (Mulaj, 2022) of market power in Article 102 TFEU: The dominant position referred to in this article relates to a position of economic strength enjoyed by an undertaking which enables it to prevent effective competition being maintained on the relevant market by giving it the power to behave to an appreciable extent independently of its competitors, customers and ultimately of its consumers (C-27/76, United Brands Company and United Brands Continentaal BV v Commission of the European Communities). A significant impediment to effective competition generally results from the creation or strengthening of a dominant position. With a view to preserving the guidance that may be drawn from past judgments of the European courts and Commission decisions pursuant to Regulation (EEC) No 4064/89, while at the same time maintaining consistency with the standards of competitive harm which have been applied by the Commission and the Community courts regarding the compatibility of a concentration with the common market, this Regulation should accordingly establish the principle that a concentration with a Community dimension which would significantly impede effective competition, in the common market or in a substantial part thereof, in particular as a result of the creation or strengthening of a dominant position, is to be declared incompatible with the common market (Council Regulation (EC) No 139/2004). This definition does not necessitate the delimitation of markets in which the dominant company has leeway and can thus act independently of other market participants. It only remains to identify the markets where competition is hampered. Platforms that serve as a barrier between user groups are thus rendered obsolete. The only thing that matters is how their actions affect relevant markets with direct user contact, as well as third-party markets. In this context, any platform-based dependencies that prevent users from switching to alternative offers can be considered.

Tipping of markets

Article 101 TFEU may cover certain types of behavior (Osztovits, 2012), such as exclusivity agreements or most-favored-nation clauses (MFN clauses). However, competition

protection is only applicable in the case of unilateral behavior if the platform company already has a dominant position under Article 102 TFEU. A "tipping" of markets can be based on the success of companies in competition and in these cases is not objectionable in terms of competition policy. This is a statement that is both correct and important, because history has shown that competition, particularly in the digital economy, is frequently conducted not only on the market, but also around the market. So, for example, Facebook has not always been the leading social network, but despite network effects working against it at the time, it has gained its position (Medzini, 2022) with the (apparent) monopoly MySpace, and is now being challenged by new competitors such as Snapchat and TikTok, which have managed to build up a very large user base in a short period of time. A monopoly that emerges in a tipped market, on the other hand, is difficult to reverse. Thus, it makes sense under antitrust law to focus on anti-competitive practices that may promote tipping rather than tipping itself. As a result, before considering market dominance, authorities should be empowered to prevent problematic one-sided behavior that can lead to market tipping (Miskolczi-Bodnár, 2015). So far, European competition law has not recognized any prohibition of monopoly. In contrast, Section 2 of U.S. Sherman Act (15 U.S.C. § 2) contains such a prohibition. This rule applies when a company inappropriately hinders competition by creating or maintaining monopoly power. Most of the cases relate to the conduct of a company (Szegedi, 2014) that has already achieved a leading position in the market, although the regulation also prohibits monopoly attempts and monopoly conspiracies (Posner, 2019). The main distinction between Section 2 of the US Sherman Act and Article 102 TFEU is that the US monopoly prohibition is limited to a certain level of intervention, such as the existence of a dominant position (Jones, Sufrin, 2016). This allows the intervention to be handled more flexibly, allowing the antitrust authorities to intervene earlier. In theory, this adaptability can be applied to any behavior in which companies take advantage of their size. In practice, the Sherman Act imposes strict requirements on courts to provide evidence that monopoly is occurring, or is threatening to occur. A similar standard as in the prohibition of monopoly of § 2 of the U.S. Sherman Act can be found in the so-called SIEC test of merger control. According to this, merger control serves to prevent certain agreements with structural effects (merger agreements) "which would significantly impede effective competition, in the common market or in a substantial part of it, in particular as a result of the creation or

strengthening of a dominant position, shall be declared incompatible with the common market" (Article 2 (3) EC Merger Regulation).

Prohibition of abuse under Article 102 TFEU

European case law and competition authority practice take a different conceptual approach when applying Article 102 TFEU. The European jurisprudence does not call the market position into question, but rather examines whether the investigated behavior results in market power leverage. According to case law, abuse can also be established in this case if the investigated behavior only affects markets other than the dominated ones. According to the European Court of Justice, such leverage of market power is at least possible when there are "special circumstances", for example, when the company in question has a quasi-monopoly on a market (C-333/94 P, Tetra Pak International SA v Commission of the European Communities). Following this case law, the court ruled that companies in platform markets may experience abuse, in which the abusive behavior has an impact across all markets (T-201/04, Microsoft Corp. v Commission of the European Communities). The European Commission took action against the search engine operator Google because of preferential treatment of its own price comparison service linked to the search service, so-called self-favoring (Google Search Shopping). In this case, the market for general search services was already tipped in favor of Google to an extent that was difficult to enter for others (T-612/17, Google and Alphabet v Commission (Google Shopping)). In another proceeding, the European Commission took action against tying agreements that Google had imposed on the manufacturers of Android devices (based on its dominant position in the market for Android app stores) in order to strengthen its dominant position in the market for general Internet search services and gain competitive advantage in the mobile internet browser market (Google Android). If a company with a strategic market position did not adequately inform other companies about the scope, quality, or success of the provided service, or otherwise made it excessively difficult to exercise the value of this service, this could be seen as problematic. It should be also noted, however, that companies can take advantage of the information advantages (Karácsony, 2019). In order to apply Article 102 TFEU in the above-mentioned cases, additional effects on competition that promote market power would have to be proven (Miskolczi-Bodnár, Szuchy, 2017).

Platforms as central infrastructures

The issue of large platforms' market position can be examined from various perspectives. One approach could be to require dominant platform companies to demonstrate that they are not abusing their position (Klimek, 2013) as defined by Article 102 TFEU. Another approach would be to impose additional obligations and stricter monitoring on dominant online platform companies on an individual basis.

Platform regulation as a sensible regulatory supplement?

It is the responsibility of dominant online platform companies to ensure that the rules they choose do not obstruct free and undistorted competition without objective justification (Bostoen, Mândrescu, 2020). A dominant online platform that establishes a marketplace must also ensure that the marketplace operates on a level playing field and must not use its regulatory power to influence the outcome of the competition. Preventive regulations (Škrabka, (2020) that subject dominant online platform companies to additional requirements in the event of a structurally impaired market structure could be based on Article 103 and Article 352 TFEU. In this respect, there is a parallel to the preventive regulations of merger control (Šmejkal, 2020). Such an anti-competitive platform regulation could supplement the platform-related regulations that the EU has already enacted to protect the internal market, which aim to increase transparency and fairness for businesses, among other things. Technical interoperability and the resulting open architecture of the Internet are required for unrestricted information use (Gregušová, Dulak, Chlipala, Susko, 2005). Data portability is also important in terms of competition, as it helps to reduce lock-in effects that are harmful to platform users. Article 20 of the GDPR already establishes requirements for data portability in the existing legal framework. The enforceability of such a user right can in practice be impaired by the fact that the systems between which the data is to be transferred are technically not sufficiently coordinated with one another (Andraško, Horvat, Mesarčík, 2019). As a result, it appears that, before imposing increased interoperability and portability responsibilities on leading online platform companies, it is necessary to first determine whether existing standards have been proven in practice and which deficiencies remain (Klouda, 2020).

Approaches to information-related problems

Transparency issues in the platform industry may be highlighted as a distinguishing feature (Khan, 2019). There is a risk of algorithmic collusion in online marketplace relationships between retailers and customers.

Information gaps between platforms and authorities

A competitive problem may exist under Article 102 TFEU if a dominant online platform suggests answering search queries solely on the basis of user preferences, despite the fact that the displayed results are influenced by providing commissions (Plavčan, Funta, 2020). The considerations which can be found in the documents of the European Commission on the legislative package concerning digital services relating to targeted information collections of major platform companies (gatekeepers) appear with regard to the enforcement of Regulation 2019/1150 as reasonable. A platform service should be seen as a gatekeeper if it has a significant impact on the internal market, operates a core platform service which serves as an important gateway for business users to reach end users and enjoys an entrenched and durable position in its operations or it is foreseeable that it will enjoy such a position in the near future 2020/0374(COD). In any case, Article 102 TFEU assigns the burden of proof in cases of the exploitation abuse to the relevant authority (Schweitzer, Haucap, Kerber, Welker, 2018). This bears the risk of ambiguity in the legal assessment even if facts are to be determined from the affected company. According to the case-law of the European Court of Justice, especially in cases of exploitation abuse (Whish, Bailey, 2018), it is not excluded that in favor of the antitrust authorities in a judicial review considerable and sometimes huge difficulties are to be taken into account (C-27/76, United Brands Company and United Brands Continentaal BV v Commission of the European Communities). As a result of the information imbalances in this area, it may be unclear to authorities which information can deliver the company to a request for information and whether the information provided is complete (Wen, Feng, 2018).

The European case-law has based on the Union's fundamental rights (Svák, 2000) and the European Convention on Human Rights (Pirošíková, Siman, 2012; Sitek, Roman, 2016; Sitek, 2017) worked out the supplemental procedural principle to take evidence for cost and pricing that the regulatory obligation (Kecskés, Karácsony, Glavanits, 2021) is limited in terms of burdening facts. The company concerned may therefore deny the disclosure of the facts in

question. The company is therefore likely to be obliged to take evidence for cost and pricing and in the case of data-based business models to disclose the collected data (C-407/04 P, Dalmine SpA v Commission of the European Communities). On the other hand, the company, in its own interest, is obliged to provide reasons of justification. The dominant company has to show that the efficiency gains counteract any likely negative effects on competition and consumer welfare in the affected markets (Shao, 2021). Furthermore, those gains have been, or are likely to be, the result of that conduct, that such conduct is required for the achievement of those efficiency gains, and that the procedure does not eliminate effective competition by removing all or most existing sources of actual or potential competition (C-209/10, Post Danmark A/S v Konkurrencerådet). There is no obligation in the sense that a company must support the investigation, otherwise. Although the European Court of Justice decided that coercion or compulsion can be inadmissible to obtain such information (C-411/15 P, Timab Industries and Cie financière et de participations Roullier (CFPR) v European Commission), this applies if protected rights are actually impaired.

Information gaps to the detriment of consumers in online marketplaces

There has been a lot of discussion in recent years about whether algorithms can contribute to competition problems (Yara, Brazheyev, Golovko, Bashkatova, 2021). The debate primarily revolves around two topics: algorithmic collusion and the use of algorithms for price discrimination. A question that was rarely addressed was whether there is a link between the role of online platform companies and the potential risk of competition issues associated with the use of algorithms. In this regard, we can argue in favor of requiring a dominant online platform that establishes a marketplace to ensure a level playing field on that marketplace and refrain from using its market-regulating power. Otherwise, there is a chance that online platform companies would actively interfere with and distort the competition on the platform. Another question is whether online platforms (especially online marketplaces) can influence market structure in ways that increase the likelihood of algorithmic collusion or price discrimination. Furthermore, in terms of network effects, increasing concentration increases market transparency. Retailers on the internet marketplace are likely to benefit more than consumers from this increased market transparency. This is due to the fact that retailers have more money to invest in their algorithms. Furthermore, retailers can use the data at their disposal to address customers in a more context-specific and personalized manner (Fedushko, Mastykash, Syerov, Peráček 2020). Retailers, on

the other hand, can learn which groups of customers are less likely than others to switch to more appealing offers by addressing them in this manner. If customers do not switch to competitors quickly enough, price differentiation can be used to persuade them to pay more than they would if only unit prices were used. If retailers can differentiate between customer groups based on price, it may indicate that the market is becoming increasingly fragmented, necessitating the definition of narrower relevant sub-markets (Lopatka, 2011). In such narrowly defined markets, structural conditions for price-related coordination may be more favorable than in larger and less fragmented markets. This is due to the increased likelihood that reaching an agreement, monitoring compliance with coordination modalities, and sanctioning deviations from coordinated prices via retaliatory measures will be relatively simple (e.g. short-term predatory prices). The coordination's long-term success (Signoret, 2020) would then be determined by whether outsiders' reactions, such as current and future competitors who do not participate in the coordination, as well as customers, jeopardize the expected outcomes (Guidelines on the assessment of horizontal mergers). It will be difficult for outsiders to disrupt the coordination if online marketplace retailers are able to differentiate prices between customer groups over a longer period of time.

Conclusions

More and more data is being used since the cost of gathering, storing, processing, and analyzing data has substantially decreased. These two developments, namely the growing importance of platforms on the one hand and the role of data as a critical resource on the other, are the primary drivers of structural change in the digital economy. There is an economic justification for the fact that stricter and more effective abuse control, which effectively addresses anti-competitive behavior by companies, reduces the importance of concurrent merger control expansion. But, extending merger control is currently difficult because, while it would make it easier to address the problem of so-called killer acquisitions, it may exacerbate other issues that are equally important. However, the idea that a special platform regulation, which subjects dominant online platform companies to additional obligations and stricter monitoring beyond Article 102 TFEU, can be viewed as a useful addition to the current merger control regulation should be emphasized. The EC Merger Regulation acts as a deterrent to mergers that may have a negative impact on market structure in the long run. Platform regulation in tipping

platform markets could help to avoid the risk that powerful online platform corporations stifle competition and continue to harm consumers. Furthermore, the platform regulation could be used to account for dealers' informational advantages over consumers on online marketplaces. This is significant in light of the increased risk of implicit coordination and, as a result, excessive consumer prices on online marketplaces. This risk could be countered by expanding the presumption of damage in Article 17 Directive 2014/104/EU. In the connection between retailers and consumers on online marketplaces, a more precise specification of the assessment criteria for automated pricing of online merchants using price algorithms appears to be desirable. Insofar as price differentials on online marketplaces suggest that relevant markets are fragmenting, it is important to consider how the term "relevant market" is defined in EU competition law. To adequately protect consumers from harm caused by automatically established and excessively high prices, it may be suggested that a statutory presumption of damage be created. Forbidding violations of the law prevents future harm that could undermine long-term business alliances in the internet platform economy. To address the information gap between platform companies and investigating authorities, procedural obligations to cooperate should be tightened. Furthermore, the legal presumption of damage seems desirable in order to effectively protect consumers from damage caused by automatically set and unreasonably excessive prices under Article 102 TFEU. Furthermore, the criteria for market definition on online marketplaces should be revised if price differentiation by retailers indicates that relevant markets are fragmenting.

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THE ROLE OF MUSEUMS AND PUBLIC COLLECTIONS INSTITUTIONS IN CONDUCTING PROVENANCE RESEARCH OF NAZI LOOTED ART OF JEWISH OWNERSHIP

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Abstract: *This paper presents some findings of a research on a PhD level that aimed to develop a policy model regarding handling provenance research of Nazi looted art of Jewish ownership. The paper focuses on two major aspects related to provenance research of looted art, namely, the Museums' conflict of interests and training and education of researchers to handle collections in training for provenance research. The research offers practical tools for states that wish to rethink their cultural policy with regard to Nazi looted art. The research was carried out using a qualitative approach, and the data rely on in-depth, semi-structured interviews, analysis of various historical and present-day documents, plus discussion from the focus group. Interviewees included key art world figures, museum directors, art curators, senior diplomats, and senior government officials. The paper argues that it is of great importance for humanity to protect, preserve and maintain cultural heritage objects. Developments in culture heritage show collective history, social changes are reflected within cultural heritage objects and will present recommendations drawn from the findings regarding the role of museums and public collections' handlers in training for provenance research of Nazi looted art of Jewish ownership.*

Keywords: Nazi looted art; provenance research; cultural heritage policy, role of museums, public collections, education and training for provenance research.

Introduction

Looted art consists of artworks, including paintings, prints and sculptures, as well as other cultural property plundered from Jews by the Nazis, their allies and collaborators. It includes Judaica, meaning not only the ritual objects but also libraries and archival materials relating to Judaism and to Jewish organizations and Jewish life generally (Fisher & Weinberger, 2014). Until the 1990s, the world had had three decades of silence regarding Nazi-era looted art. An unusual combination of historical,

psychological and political events brought a new international and public awareness of the Holocaust and restitution over the 1990s (Beker, 1999).

Provenance relates to the place of origin or earliest known history of something, a record of ownership of a work of art or an antique, used as a guide to authenticity or quality (Oxford Dictionary). Curators note that provenance is the history of ownership of a valued object. It tells the story of the object's journey. A full provenance provides a documented history of an object that can help prove its ownership, assign the object to a known artist, and establish the object's authenticity. It is often used to establish an object's value (Steinberg 2008).

Furthermore, the provenance research of Nazi-looted art is a historical quest of a country, to learn about the art objects historical story. By searching for provenance, a country can practice remembrance, educate the public about the Holocaust by using a different view.

Throughout history, the sanctioned looting of cultural assets has been an integral part of war. Cities that contained private and public collections of valuable goods have been looted through time. The Nazi Party (1933) perpetrated the biggest theft of cultural property during WWII. Nazi art plunder occurred in a methodical manner and on an overwhelming scale throughout occupied Europe. It was not a mere incidence of war, but an official policy. As for the Nazis' open policy of Jewish persecution and the destruction of their cultural heritage, which came to its final form on January 20, 1942, at the Wannsee Conference, the Nazis knew it allowed them to confiscate whatever suited them; amongst the loot were major Jewish-owned art collections throughout occupied Europe. A national revolution became a cultural revolution, as well as a political and economic one. The forbidden fruits of this revolution have haunted us till this day. At the end of the war, art objects changed hands, transferred from one person to another, to dealers, art galleries, museum collections, and private owners. Yet post-war Europe was a wounded region and each state's priority was to rebuild its country back as it had been. Provenance research of Nazi-looted art and Nazi-looted art of Jewish ownership was left aside at that time (Fisher & Weinberger, 2014).

Many of the looted art pieces could be part of known museums and cultural institutions' collections, with no knowledge to whom they belong. Some are even part of current public exhibits, with no knowledge of their provenance or ownership lineage. Legal battles between

institutions and the art's possible heirs are still in progress. Yet the question remains unanswered: Where is the justice for these crimes?

The art world invests in looted art without a set governance on the matter or any practical solutions or policies in place. The 1990s brought new, international awareness of Nazi-looted art, which climaxed at the 1998 Washington Conference, when the Washington Principles were signed by 44 countries. However, only five European states started plans to create a mechanism to handle the matter, and unsuccessfully so.

The topic of provenance research of Nazi-era looted art is complex. It involves strong feelings and emotions, enormous amounts of money, and many different actors' conflicts of interest. Combining these components might lead to a tragedy and, on the other hand, by looking into it all and understanding the terrain, might lead to a holistic solution, a cleaner art market for the public's sake and much-needed justice.

This article analyses the active provenance research for Nazi-era looted art and how difficult it is to conduct, maintaining the premise that each object has an owner. It emphasizes ownership and the object's creator. Once the piece transfers from its original, primary owner, it becomes licit or illicit, depending on the circumstances of its transaction dynamics, plus the wider historical context in which these translocations took place. This article offers insights, which can allow European countries to review their cultural policy on the matter of Nazi-looted art, and Nazi-looted art of Jewish ownership.

The findings discussed in this article are based on a doctoral research which relies heavily on interviews and document analyses conducted with government officials, diplomats, curators, directors of cultural institutions, and Jewish community representatives. The article argues that provenance research is significant for reaching solutions concerning Nazi-looted art collections, it claims that the provenance research of Nazi-looted art has immense importance in maintaining and rebuilding European heritage by creating due diligence within cultural institutions collections and in facing the collections' provenance. The article aims to describe some of the complexity of these phenomena, characterizing the different interests that preside over the global cultural institutions' practices, art business, and government views.

The article adds a fresh approach to the existing knowledge on the provenance research of Nazi-looted art and Nazi-looted art of Jewish ownership and offers a few tools for rethinking the

provenance research of Nazi looted art of Jewish ownership for a much-needed change on the matter.

Nazi Looted Art: A stolen Cultural Heritage

Cultural heritage can be the victim of a war. As history shows, the Nazis engaged in a highly organized and sustained program of physical, cultural and economic genocide, confiscating unimaginable numbers of art objects from Jewish families (Kowalski, 1998; Kurtz, 1985; Nicholas, 1995; Yeide, 2009). During the Nazi regime, a national revolution became a cultural revolution; additionally, the political or economic and the theft of cultural property during World War II (WWII) was an official policy—the plundered art was intended to fill the Führermuseum (Nicholas, 1995; Petropoulos, 1999) and was part of an open policy of persecuting the Jewish people and destroying their cultural heritage; this well-orchestrated crime came to its conclusion on January 20, 1942, at the Wannsee Conference. By following this policy, the Nazis knew it allowed them to confiscate major art collections belonging to Jewish families throughout Europe, as well as Jewish-owned businesses, bank accounts, etc.

At the end of WWII, and even after, huge quantities of looted art and cultural goods were found by Allied forces, the ERR handled the goods and the first step was to transfer the goods to collecting points. These points were established throughout Germany; transferred goods were to be sorted there and later returned to the state from which they had been looted, as well as to their rightful owners. There was no controversy over what should be done with the seized object from the occupied countries, the question was how to do it (Nicholas, 1995). In May 1945, an immediate return of a number of universally recognized works of art occurred, a program of ad interim restitution was to be agreed upon between the US Army and the respective recipient nations. By late June 1945, the principle of ad interim return was approved and reaffirmed at Potsdam. States received some of their country's looted objects and it was up to the receiving governments of each nation if and under which circumstances they would return the objects to their rightful owners. Some artworks found their way back to their owners once WWII was over, but many more disappeared. Scholars state that many artworks and cultural objects disappeared into the new owners' collections, passed from one seller to another, purchased or donated to museums all over the world, without warning of the history of these new acquisitions (Masurovsky 2020; Nicholas, 1995; Steinberg 2008).

The topic of Nazi looted art was discussed in several international forums over the years. Beker (1999) states that the Nazi looting debate was neglected over the years and did not receive proper attention from scholars until the 1990s. The unification of Germany in 1990 and the dissolution of the Soviet Union in 1991 were followed by a number of goodwill agreements between Germany and the countries of the former USSR, as well as the opening of official negotiations on repatriation (Konstantin & Kozlov, 1991). Forgotten bank accounts, life insurance policies, seized property, and artworks that had changed hands many times were rediscovered in public museums or in foreign private collections by the heirs of the previous Jewish owners (Steinberg 2009). The increasing value of art and the legal possibilities of recovering Jewish property arose in the late 1990s.

International documents, resolutions and different principles were created during the years, where provenance research proceedings and the restitution of cultural assets are the main topic. The main resolutions and international documents are as follows: The 1995 UNIDROIT Convention on Stolen or Illegal Exported Cultural Objects. The convention attempted to handle the problems arising from the 1970 convention, such as the failures to respond to private law issues. In 1998 a clear statement concerning art restitution, confiscated by the Nazi regime in Germany before and during WWII, was heard for the first time at the Washington Conference on Holocaust-Era Assets, December 3rd, 1998. In 1999, the European Union issued Resolution 1205 of the Parliamentary Assembly of the Council of Europe (1999). The assembly added its weight to the process of restitution of looted Jewish cultural property to its original owners or their heirs, be they individuals, institutions, or communities. In October 2000, the Council of Europe held the Vilnius International Forum in Lithuania as a follow-up to the Washington Conference of December 1998. As a result, the Vilnius Forum Declaration was drafted. All participating governments were asked to reach 'a just and fair solution' to restitute looted art. In 2009, a non-binding declaration was issued by 47 countries, agreeing for measures to right economic wrongs that accompanied the Holocaust against the Jews and other victims of Nazi persecution in Europe - The Terezin Declaration. A year later, 43 of the signatories (excluding Belarus, Malta, Russia, and Poland) endorsed a companion document (Guidelines and Best Practices for the Restitution and Compensation of Immovable (Real) Property, 2010) which set best practices for immovable property.

Summarizing these major intergovernmental conferences and resolutions, it is safe to say that no mechanism exists to monitor progress by the 44 countries that endorsed the 1998 Washington Conference Principles on Nazi-Confiscated Art or by the 47 countries that endorsed the 2009 Terezin Declaration.

Researching Provenance – Protecting Cultural Heritage

It is of great importance for humanity to protect, preserve and maintain cultural heritage objects. Developments in culture heritage show collective history, social changes are reflected within cultural heritage objects. One needs to remember that cultural objects are significant to indigenous peoples and cultural groups because they inspire pride and identity (Amineddoleh, 2013).

The purpose of provenance research is to research the object's ownership history. Provenance is a place of origin or the earliest known history of an object. As per the Oxford Dictionary, provenance is a record of ownership of a work of art or an antique used as a guide for authenticity or quality. Provenance research sheds light on how collections came to be, it is a valuable information about the artists, collections, art dealers, curators and other important historical figures. Museum curators use provenance research in order to establish the complete story of an object from the day it left the artist's hands until it reached its current collection. A full provenance provides us with a documented history of an object that can help prove its ownership, assign the object to a known artist, preserve it and establish the object's authenticity. It is often used to establish an object's value (Steinberg, 2008). As for cultural assets which were looted by the Nazi regime between the years 1933-1945, the outcome of such research will allow a state to be knowledgeable about the asset's rightful owners, its legal heirs and will allow a state to achieve a proper settlement. As per expert's assessments during the Nazi regime 600,000 pieces of art and thousands more books and Judaica artifacts were confiscated and looted from the Jewish people in Europe by the Nazis and their assistants (Petropoulos, 2000). At the end of World War II allied forces locates massive quantities of looted art pieces and cultural objects. All were transferred to different collecting points to be cataloged and ultimately to be transferred to their legal owners. Most of the art was returned to its country of origin, with the assumption that each government will locate its owners and perform restitution. According to the claims conference and the WJRO report of 2014, 85% of these cultural assets were sent to the USA and

to Israel, 8% were sent to west European countries and the remaining 7% were divided between countries such as South Africa, Argentine, Brazil, Australia, Canada and West Germany.

Since WWII, cultural assets were transferred, moved from one place to another, changing hands and states. Moreover, public and private collections worldwide contain an unknown number of objects for which there is no provenance, no history, therefore no understanding of who owned these objects. As stated by Masurovsky (2018) every object begins with an owner, its maker or its creator, it is a working axiom. To live by it, provenance research must be conducted.

Provenance research of Nazi looted art is a highly complicated phenomenon. Most literary sources document accurate facts but with little practical interpretation of events or integrating any international conventions or laws. Hence, it is difficult to understand from the existing literature how reality is perceived and interpreted by the different actors. Different models exist for handling restitution of Nazi looted art and the practice of provenance research and yet none seem to have solved the problem. There is also a need for more knowledge, with regard to these models, to study their failures and create better ones.

This article aims to open a window into unique perspectives on art restitution of the Nazi era. It uses existing theoretical tools combined with obtained data, which was gathered in the field, as part of a doctoral research, to provide further information on the importance of provenance research, its unique value to the restitution process and as a strategy for European culture.

Methodology

The research was conducted according to the qualitative research approach. The qualitative approach offers a platform to understand others' personal experiences and reasons for actions, rather than just examining extant theories or results (Hays & Wood, 2011). Qualitative approach seeks to gather a comprehensive understanding of the way people interpret their perceived world of content from the participant's point of view (Weil, 2005). It aims to explain social reality by learning from peoples' experiences (Shkedi, 2012). The data was collected through in-depth interviews, comprised of 17 interviewees who sat for comprehensive, semi-structured interviews and five participants who took part in the focus group, as well as through document analysis. The interviewes included 17 participants who were chosen since they served in the past and present key positions in the Israeli and German governments and who served in the past and present in key positions in museums, cultural institutions and in the provenance research sphere.

Interviewees include ambassadors, diplomats, government officials, lawyers, Holocaust survivors, senior civil servants, and senior officials in NGO agencies operating in the provenance research field. The interviewee group included eight women and nine men, ranging in age from 40 to 95 years. The focus group participants were chosen since all are currently working in the field of Nazi-looted art provenance research and have significant international and national experience.

Content analysis was used to analyze the data, using Shkedi's (2012) analysis procedure that includes mapping, coding and categorizing. All participants agreed to provide data by signing a consent form.

Findings

Content analysis yields, among others, two important categories. The first category is **Training and Education**. It seems that training and education was identified as one of the problems in the provenance research. The field of provenance research lacked important skills, which leads to a lack of provenance researchers, who are capable to work on art collections. Participants have mentioned that: *"curators lack the knowledge to investigate their collections"*, and another stated that: *"too many things to learn and to be familiar with, I realized I knew nothing, each and every day I found myself learning new things"*.

Content analysis showed that no academic faculties were teaching the subject, no courses were constructed, not as part of art studies or history studies. The participants mentioned the researchers' need for tools and the fact that the entire field needs to be developed as a profession: *"there is the need to learn the craft, there is so much you need to know"*, *"I needed to learn it all by myself, it's a whole new world of looking at the art, but there was no place to learn but from colleges who did it before. I was part of the Gurlitt task force and there I learned plenty"*. The lack of capable researchers emerged upon the publication of the Dutch committee for the Evaluation of the restitution policy for cultural heritage objects from WWII "Striving for Justice" (Published on December 2020). The report confirms the importance of professional researchers. Furthermore, collected data showed that provenance research is required to tell the victims' stories, the stories of the destruction of culture. *"By not researching and not publishing the story, it's like you still continuing the Nazi party actions"*'. Participants claim that the stories need to

be known for the sake of culture: *"this is not some regular theft it was an organized plunder, to destruct our culture completely, and it needs to be known"*.

Ultimately, the data collected showed that the provenance research of Jewish-owned Nazi-looted art can assist in telling Holocaust victims' history and life story. By telling the story a state can educate the people, create remembrance and revive its lost culture. Data also showed the need for capable researchers and training programmes and academic courses, in order to train professional and capable researchers which leads to progress in the field.

The second category to which the data analysis refers is the museums' conflict of interests: the collected data indicated that museums experience a conflict of interest, on the one hand they possess the will to keep their collections, but at the same time they wish for justice, keeping their positive reputation as collections owners. The participants kept on repeating the same lines during the interviews saying: *"there is no doubt as per conflict of interests, they got the art in a way they believe is clean and now they just don't want to give it up, but also wish to remain true in the eyes of their colleges"*. Another participant mentioned the situation as chaotic: *"it's a chaotic situation, many many trees that you cannot see the forest at all, you need to understand so much, who are the bad guys in the story and who are the good guys, there is too much at stake"*.

Participants mentioned that the state has an important role in assisting museums reaching for solutions. *"a country needs to work with its cultural institutions"*. Participants mentioned that: "*a country sometimes neglect to interfere for the fear of feeling it's going to lose the art which is in the country's interest to keep*".

In a nutshell, the above-mentioned findings show that museums are in a constant conflict of interest. Being conservative bodies, museums work hard to keep their collections inside their walls. However, museums wish to preserve their reputation, as they see themselves as being the rightful owners.

Discussion

The findings in training and education suggest that cultural assets tell the story of people, of a society and therefore, are valuable. As the literature shows, the Nazis engaged in a highly organized and sustained program confiscating unimaginable numbers of cultural and art objects from Jewish families (Nicholas, 1995; Yeide, 2009). The theft of cultural property during World War II (WWII) was an official policy which included persecuting the Jewish people and

destroying their cultural heritage. As for the postwar era, the literature is consistent with the findings. The literature shows that postwar restitution was a complicated procedure and an expensive one, states placed the burden of proof on the victims and their heirs which most times prevented families from receiving their property back (Steinberg, 2009). The literature follows the findings regarding the importance of telling the story of the Holocaust and the cultural plunder during WWII. Telling the story can educate people and create remembrance. And yet academic institutions do not include cultural crimes and ethics ideas into their future studies. A student who wishes to address cultural crimes against the Jewish communities of Europe from 1933 to 1945 cannot find an academic curricular standard (Masurovsky, 2018). Therefore, when there is no teaching about the Jewish cultural losses, there is no knowledge concerning a crucial aspect of history and the Nazis' war against the Jewish people.

The provenance research of Nazi-looted art is a historical mission to learn about the Holocaust and achieve remembrance. Provenance is ownership history, tells the story of an object, of its owners (Steinberg 2008). The findings show that researching provenance is for the story to be told and not only for the restitution procedure. It is the history of a community's history, therefore the new generation needs to know its history, to learn about this part of European history. Knowledge is power (Baldwin, 2016), once it exists it creates remembrance. Museums grant knowledge to researchers, educate children and are a focal point of a tourist's journey, therefore telling a story for education's sake is within their job description (Weiss, 2007).

The literature scarcely mentions the lack of trained researchers (Lupfer & Obenaus, 2020), whereas the findings show a solid need for professional researchers and emphasize the importance of capable researchers and forming training modules. There are two pillars of a restitution policy, as the 2020 Restitution Policy for Cultural Heritage Objects from the Second World Wa: report stated; creating of an inventory of looted art and being able to identify possible heirs to the items, these two tasks can only be achieved by capable and professional people.

The conclusion which emerged out of this discussion is that a policy model for European countries regarding handling Jewish-owned Nazi-looted art is associated with the need for capable and professional researchers. Knowing the object's history, sharing its story will raise awareness for Jewish and other groups' cultural losses and eventually will create Holocaust remembrance.

The second finding, regarding the museums' conflicts of interests, can be explained by museums being conservative institutions, where their primal work is to conserve and preserve objects in their collections for sake of maintaining people's cultural heritage. The literature describes the Nazi plunder during the years 1933 to 1945 where unimaginable numbers of Jewish cultural and art objects, as well as those of other families were confiscated (Kowalski, 1998; Kurtz, 1985; Nicholas, 2006; Yeide, 2009). During WWII and after, cultural objects and art works were dislocated, transferred between owners and many more disappeared. Museums purchased or received donations from all over the world, without knowing that these new acquisitions might be the forbidden fruits of the WWII dark history (Masurovsky, 2020; Nicholas, 2006; Steinberg, 2008). The literature shows that it was not a priority for museums to ask questions regarding the line of ownership of these purchased or donated items (Reed, 2013). It seems museums chose to overlook the lack of information while entering the cultural artefacts and art works to their collections. As mentioned by the literature, museums took a chance that might come back to haunt them (Steinberg 2009). The findings are consistent with the literature stating that the art market flourishes while museums buy illicit cultural and art objects. Value is a higher priority and cultural objects and art become more attractive.

The literature describes and the findings agree that cultural institutions have the need to disregard the lack of proven provenance or illicit origin due to the institution's or an individual's wish to protect the assets, to keep them safe from the possibility of destruction, this being in the public interest (Masurovsky, 2020, Amineddoleh, 2013). The findings show that museums are aware of their moral and ethical duty to investigate their collections, but chose to do it slowly and for appearances' sake only, as the literature concurred (Weis, 2007). Curators today can look for the provenance of works of art via various databases. The internet has allowed institutions the option of sharing their information about their collections, the provenance information as well, which increased the conflict-of-interest problem. The literature shows the change in the museums' views due to the globalization process, which forced them to face facts. The information flow forced a change of attitude. Museums are part of the art market, and therefore losing a cultural object or a piece of art to its rightful owners can lead to fewer visitors, researchers and benefactors, ultimately all leads to loss of income. As the findings show, due diligence of the process and transparency can be keys for the provenance research policy. Hence, the conclusion is that a policy model for European states is associated with the museums' wish to protect and

preserve their collections inside a museum's walls. The offered policy should be associated with due diligence and the transparency of the provenance research process.

Conclusions

This paper suggests various conclusions that assist in formulating a policy model for European countries wishing to handle Jewish owned Nazi looted art. The suggested policy relies on the provenance research of the collections belonging to cultural institutions. The procedure will assist states in preserving their cultural heritage, maintaining and unifying societal identity. The study suggests advancing a policy that is associated with qualified, capable and professional researchers, who will be able to create inventories of the looted cultural and art objects and who will be able to search for the objects' rightful owners. Provenance research reveals the objects' story, and once the story is told, society becomes knowledgeable about the Jewish cultural and art losses during the Holocaust, which ultimately leads to remembrance.

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ASYMMETRIC INTERDEPENDENCE, POWER, AND CRISIS IN INTEGRATED SYSTEMS

This is a revised and updated version of the article published in 2013 in the academic journal Romanian review of international studies, V., No.2, 2013.

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Abstract: *As the interdependence intensifies, the European project is increasingly challenged by the implications of asymmetric distribution of power among allied states. The aim of this paper is to elaborate a synthetic theoretical approach in order to provide a more comprehensive assessment of the role cultural factors in determining the collective action and multilateral collaboration of the member states in the context of the apparently benign interdependence. In order to bring more light into the dynamics of the EU in the context of asymmetric interdependence we use a synthetic scientific approach combining the rationalist view on culture of institutional liberalism with the social constructivist perspective, focusing on both constitutive and causal effects of culture on conflict / cooperation relations.*

Keywords: EU dynamics, culture, asymmetric interdependence, synthetic approach.

1. Introduction

In order to bring more insight into the dinamics of the role of culture in the European Union structure as a whole, and more specific on the enlargment process to the CEE, we consider it would be efficient to utilize a synthetic scientific approach combining the rationalist view of institutional liberalism with the constructivist perspective, with the purpose to obtain a more coherent and complex conceptual understanding regarding this phenomenon. We will at least try to begin to answer questions such: (a) why the existing theories / approaches of IR fail to provide a comprehensive assessment method of the role of cultural factors in determining the collective

action and multilateral collaboration of the member states? and (b) how the scientific approaches can be improved in order to constitute a more appropriate tool to serve this purpose in the context of the apparently benign interdependence within the EU?

2. A synthetic theoretical approach on the role of culture in the EU enlargement to CEE

One of the most important events in the history of the EU was the enlargement to include Central and Eastern European (CEE) countries. The collapse of the Soviet Union generated similar reactions in almost all countries in CEE (with the exception Yugoslavia): all wanted primary, to join NATO (security guarantee) and secondly, to join the EU (development guarantee). The European Union was frequently mentioned as an example of effective multilateral cooperation - and in 2012, this recognition culminated with the Nobel Peace Prize award since for over six decades (EU) contributed to the advancement of peace and reconciliation, democracy and human rights in Europe. However, as the interdependence intensifies, the European project is increasingly challenged by the implications of asymmetric distribution of power among allied states. Asymmetries in relationships are the ones which can lead to disputes. The different forms of multilateral cooperation represent simultaneously a reaction to conflict and a permanent exposure to the prospect of conflict.

The aim of this paper is to elaborate a synthetic theoretical approach in order to provide a more comprehensive assessment of the role cultural factors in determining the collective action and multilateral collaboration of the member states in the context of the apparently benign interdependence. In order to bring more light into the dynamics of EU in the context of asymmetric interdependence we use a synthetic scientific approach combining the rationalist view on culture of institutional liberalism with the social constructivist perspective, focusing on both constitutive and causal effects of culture on conflict / cooperation relations.

Constructivism is not a rival theoretical approach in relation to rationalism, and the two theoretical positions do not essentially oppose each other, but constructivism is rather a complementary perspective, and it has a considerable contribution in demonstrating the power of ideas and norms in the construct of global politics.

In this endeavor we will focus on one single form of constructivism, more precisely, on systemic constructivism. The project formulated by Alexander Wendt offers the only real example of this form of constructivism and this moderate version of constructivism („Social Theory of International Politics") is the most useful approach in developing the hypothesis advanced in this article.

The conflict between the systemic approaches and the reductionist ones in explaining international politics represented a strong demarcation line in international theories. If, according to realist terminology, the liberal institutionalism is considered a systemic theory, Wendt's constructivism, although systemic according to the same terminology, combines the two types of theories, considering impossible and erroneous the differentiation of the two, and it builds a synthetic vision of what he refers to as the microstructure and the macrostructure of the international system.

The concept of structure of international politics in the neoliberal view refers to anarchy and the distribution of material capabilities. Constructivism, although accepting the existence of some strictly material elements within the social systems, argues that these elements have little explanatory value.

Wendt argues that "if interests consist largely of ideas, this means that social systems are also structured by the distributions of knowledge" (Wendt, 2011:156) Wendt defines knowledge as *any belief an actor takes to be true* (offering as an example in this respect the American's and the Soviet's beliefs in 1950 that they were enemies), where knowledge can be private or shared.

However, our thematic focus here is the social shared knowledge, i.e., culture, which can be both of conflictual or cooperative dispositions.

The approach of culture in international politics from the perspective of international regimes employed by most neoliberals in the field of international relations involves the same concept of "*interconnected beliefs*" also preferred by constructivists and utilized under the term of common knowledge. Norms, institutions, regimes, are all consisting of common knowledge or, in Wendt's terminology, of "intersubjective understanding."

The interconnected beliefs also represent an important theme for Keohane and Nye who explain that „the national interest can change through learning (...) and learning means changing your own beliefs as a result of new information – (...) where a type of learning of this kind is deepening the awareness of strategic interdependence" (Keohane, Nye 2011: 348-349).

The point of fracture between the two views consists of the ways of analyzing the effects of the common knowledge. For liberal institutionalism, the beliefs shared through learning processes and normative changes / evolutions lead to increased cooperation, i.e., the cultural factor has a **causal effect** on cooperation and conflict relations and is to be taken into account only to the extent that it affects the actors' strategies, otherwise, being considered a neutral factor.

For constructivists, the common knowledge has **constitutive effects,** and it represents a two-way street, both in the direction of cooperation as well as conflict. In order to assert this argument Wendt explains this phenomenon using the term "collective knowledge" in durkheimian acceptation.

For explanatory purposes, it becomes instrumental to enunciate the main differences between the two approaches.

From the neoliberal spectrum, we reiterate the **causal effects** of beliefs shared through international regimes identified by Keohane and Nye, such as: (1) can change the standard operating procedures (SOP) of national bureaucracies; (2) may present new opportunities to form coalitions for sub-national actors and improved access to third parties; (3) can change participant's attitudes through contracts within institutions; (4) can provide information about the rules, which facilitates learning about the behavior of others and (5) can help detach one problem from the rest, thus facilitating learning in specialized groups of negotiators (Keohane, Nye 2011: 350).

From the constructivist spectrum, the phenomenon of collective knowledge revolves around the idea that "group beliefs are inscribed in the collective memory (…) where groups acquire their identity in the course of time only on the basis of these memories. As long as individuals perceive themselves as having loyalty and commitment to a group, collective memories will be available as a resource for mobilizing collective action, even when these are not believed in the phenomenological sense by individuals, and thus, can help explain patterns of aggregate behavior" (Wendt, 2011:176).

A synthetic vision on shared knowledge is the most effective method to address shared beliefs problem (i.e. cultural factors) that have both causal and constitutive effects on action.

The European Union is a compelling example of how elements belonging to both views (both causal and constitutive) operate in international politics.

From the rationalist point of view, the cultural forms (în the neoliberal terminology: common mental models acquired through complex learning processes (Nye, 1987:371) such as norms, institutions, rules, organizations etc., have causal effects on collective action through changing perceptions, beliefs, and finally through normative change.

Nye and Keohane argue that, in this way, „practices or interests that are accepted a while come to be denigrated or even become illegitimate in a subsequent period because normative developments" (Keohane, Nye 2011: 348).

In the case of the European Union we can observe the normative changes that occurred as a result of the functions carried out by organozations (NATO) and institutions (of governments collectively organized as the European Council and of Council of Ministers) – and of supranational institutions: the European Commission, the European Court of Justice and the European Parliament.

As noted above, the national interest can change through learning, and the EU constitutes a practical example of such change of perceptions on national interest. In today's Europe no one can imagine that the military dictatorship can represent an actual threat. For those who are familiar with the history of the European states this is a genuine miracle, and this is possible due to the the enlargement of the EU and NATO, and also due to the fact that today it is almost impossible to think in terms of armed conflict between European nations and this is an incredible transformation since Europe was the continent of wars throughout history.

From the constructivist point of view, where, in Wendt's terminology – „culture is more than the sum of shared ideas that individuals bear in mind, it is a phenomenon supported at the community level" (Wendt, 2011:177) – cultural forms receive another interpretation.

Referring to probably one of the most important and complicated moments in the history of the European Union, namely the extension to the countries of Central and Eastern Europe, an explanation from the constructivist perspective for the success of this endeavor would be the existence of a key resource capable to mobilize the populations of the recently freed nations in order to respond in such an enthusiastic manner to the proposal to join the EU.

The fall of the Berlin Wall in 1989 led to the end of a Europe divided between two non-European superpowers (U.S. in the West and the USSR in the East) and marked the beginning of a transition process in Central and Eastern Europe. The collapse of the Soviet Union generated

similar reactions in almost all countries in CEE (with the exception Yugoslavia): all wanted primary, to join NATO (security guarantee) and secondly, to join the EU (development guarantee).

This transition process has often been described as the "return to Europe" or "reconnecting with Europe." Expressions used in this period accurately reflect the constructivist intuition which stands behind the desire of the elites from the young democracies, but also of a significant proportion of their population: the key resource in this case is represented by the collective memory that throughout the entire history after World War II and to the end of the Cold War, the nations of Central and Eastern Europe were victims of Soviet communist regime.

It can be said therefore, according to the constructivist argument, that the integration process is a consequence of the fact that the the collective memories and therefore collective knowledge is a resource for mobilizing collective action and that this is a reality that can not be ignored when talking about social change: „once created the collective memories, their long-term effects can be difficult shaken even if a majority of individuals has forgotten them at any given time" (Wendt, 2011:177).

The model al cultural approach presented by Wendt grants an equal weight to agency and structure. In his view, the two are mutually constituted and co-determined and the dependence of structure to the agency and to the social process is both constitutive and causal.

This relationship between structure and agents in Wendt's terminology suggests that "culture is a self fulfilling prophecy."

3. Conclusion

This hypothesis can be expressed by the following example: „once the cultural formation known as the European Union has been set up, the EU Member States have acquired the shared belief that they are partners, which contributed to the construction of their identities and interests, in any given circumstances, and their identities and interests were underlying the actions that have reconfirmed to alterities status of partners, thus reproducing EU formation" (Wendt, 2011).

Following this logic, we can conclude that, interdependence, facilitating the flow of information and, therefore, the complex learning processes, and also the distribution of

knowledge, has not only causal effects (normative reconstruction of identities), but also constitutive effects (the formation of new identities).

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GEOPOLITICAL EUROPE, THE CONCEPT OF EUROPE AS A POWER DIFFERENTIATED INTEGRATION AS A WAY FORWARD, SEEN FROM THE FRENCH GEOPOLITICAL CONCEPT

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Abstract: *The leaders of EU member states have been frequently referring to "geopolitical Europe". Macron has been actively promoting the concept of Europe as a power since 2017, a vision based on the premise of deep geopolitical shifts and a new reality of big power rivalries on the world chessboard. Nevertheless, France must convince EU Member States that this concept is stable. As a tool for achieving "geopolitical Europe", the French concept of Differentiated Integration will be examined in this paper. An emphasis will be placed on the EU enlargement process.*

Keywords: Geopolitical Europe, differentiated integration, EU enlargement.

1. Introduction

During the years after the Second World War, Europe entered a calmer period, especially with the creation of the European Community, whose main goal was never to experience another war on the European continent, at least not between European countries. As the concept of Europe has evolved through the European Community to the European Union (which can't be defined as a state nor as an organization and has characteristics of both), Europeans have long focused only on its functionally normative aspect, namely the building of "civilian power", ignoring the shifts on the geopolitical chessboard in the surroundings. In metaphorical terms, Europeans played elegant tennis while the rest of the world played chess. Since the beginning of 2000, there have been indications of the growth of the five actors that will occupy the geopolitical space in the following years; China, Russia, Brazil, India, and, of course, the United States of America, especially in terms of their investments in the economy and the military (Renard,2009).

According to the PowerIndex 2022 score with categories ranging from military might and financials to logistical capability and geography, the top ten countries include: the USA, Russia, China, India, Japan, South Korea, France, United Kingdom, Pakistan, and Brazil, and all 10 have upward trends compared to previous years (PowerIndex,2022). This fact indicates the stability in the growth of world powers on the geopolitical map, from 2000 to 2022, with France being the only EU country in the top ten. Next is Italy in 11th place and Germany in 16th place; other EU countries are lower**.** However, if EU countries join forces, then the EU will be among the first in 2022, as Moravcik will argue for the fact: Europe is the 'Quiet Superpower'(Moravcsik,2009), and later, Europe: The World's Second Military Power (Moravcsik,2010).

The Global Strategy for the European Union's Foreign And Security Policy (2016), stated "An appropriate level of ambition and strategic autonomy is important for Europe's ability to promote peace and security within and beyond its borders.", so after in 2017, Emmanuel Macron, the President of France, stands for "European sovereignty" and in some sense advocating for Europe as power. A few years later, the President of the European Commission, Ursula von der Leyen, while her speech in front of the EU Parliament in Strasbourg, announced the geopolitical Commission that Europe urgently needed (Von der Leyen ,2019). Here Von der Leyen emphasized the importance of the strategic enlargement of the Western Balkans, since the Western Balkans appear today as a strategic vulnerability of the EU. However, the most critical challenge that the EU Commission faces, in making the EU a relevant geopolitical actor, remains the lack of unity among member states towards its immediate neighborhood (Outeda, González & Troitiño, 2020). The EU Commission, especially in this ongoing debate on EU strategic autonomy, states an obligatory point of reference towards Western Balkans, all the way emphasizing that promoting enlargement policy towards the Western Balkans would be essential to ensure the credibility, success, and influence of the EU in the region, especially taking into account the current global scenario, characterized by great geopolitical rivalry (Tocci,2021;Borrell,2020), and to verify the ambitions of the EU to effectively assert itself as a strategically autonomous actor in the years to come (Bonomi,2021). In short, Europe must find a way to transform itself to be able to play an increasingly influential role in geopolitical space in the years to come.

Since to understand geopolitical Europe, one should also understand regionalism, especially the new regionalism, but also and for a better understanding of the paper, we will add a few words on the matter. New regionalism can be seen as an attempt by states to strengthen regional control when traditional centralized national sovereignty no longer functions and to bargain collectively with extra-regional partners (Telo,2014). EU is a new regionalism, for which we could say that it is the most impressive proof of the trend towards regional associations based on common culture and traditions, gradually tightening and geographical expansions. This voluntary association of sovereign countries in the European community was acceptable because it brought economic and other advantages, which means that the states are part of a much wider system. Although at the beginning mainly of economic character, the initial intentions behind the first generation of regional agreements can also be long-term political. The European Union (EU), as a project for international integration, can be said to be a political model that challenges conventional governance assumptions and even sovereignty (in the EU we talk about "shared sovereignty"). Suppose we also see the "geopolitical Europe" from the point of regionalism. In that case, it could be concluded that the extent to which regionalization has developed in Europe, argues for the development of a regional actor with the potential to play a role in the geopolitical sphere. As Telo (2001) describes, 'European regionalism does not only refer to deepening integration policies but also to giving an active contribution – as a single entity, not only as a sum of member states but to filtering and sharing more autonomous international and political relations. We can sum up that the 'new regionalism' provides a theory that can include both states and regional governance as closely linked to a complex system, such as developing in Europe (Hettne & Soderbraum,1998). It should be emphasized that common foreign and defense policy is most closely linked to the construction of geopolitical entities. These policy areas are often considered to represent the fundamental features of state sovereignty, so to which extent they may be regionalized is consequently linked to the construction of geopolitical codes, so the question of possible common European geopolitical codes (NGD Rae, 2007). Furthermore, we accept here the notion that the concept of Europe needs geopolitical reasons to have political outcomes. If there is no geopolitical necessity, there is no Europe as a tangible concept, (Ozdemir,2008) which is at the very point of Macron's arguing for geopolitical Europe or Europe as power.

By conducting this research, hopefully a scientific gap will be filled in terms of building geopolitical Europe, which has been under-analyzed or, if it has been addressed, is insufficient. Ultimately, this research will clarify some aspects of Europe's path to becoming a geopolitical actor, confirming or disproving the research questions and hypotheses. Based on the provided data, argumentation will be given regarding the next steps in the enlargement process. The research questions, on which an answer the research should provide, are: Is the project for Europe as a geopolitical actor realistic? Is differentiated integration a tool that can bring that project to fulfillment? Which are the weak and strong sides of this tool toward the aim of a geopolitical actor? Has Macron's proposal been a backup to the existing European ideas for the EU's future, during the past years? The subject of research arises from the research questions and that is Europe as a geopolitical actor and the path to that. Hypotheses are the following: Geopolitical Europe can be achieved. Differentiated Integration is a tool for achieving Geopolitical Europe. Methodologically, this research uses qualitative and quantitative approaches. Data on the topic of interest has been collected using a grounded theory approach. Sources for the qualitative method have been collected from professional and academic publications, media and journals, official EU documents and policies, politicians' speeches, strategies, and policies; and for the quantitative method from statistical and index data from official organizations.

2. Geopolitical Europe, Europe as power, what that means?

But what defines a country as a geopolitical power, how can Europe achieve this, given the construction of the EU? As Flint defines in his Introduction to Geopolitics, power is "Getting what you want". Geopolitics, as the struggle over the control of spaces and places, focuses on power or the ability to achieve particular goals in the face of opposition or alternatives. In the classical sense of the word, the goal is achieved through war, while in the modern sense, through the skill of "make them follow your agenda willingly" without considering alternatives. Power can be defined as material power - according to which a country is powerful if it has a strong economy, smart population, and large army; relational power - according to which the power of a country is evaluated in comparison with other countries; and ideological power - according to which the power of the state is determined according to the degree of ability to persuade others to do what we want, willingly (Flint,2006;2016;2022). In Ó Tuathail's Critical Geopolitics (2005) the power is introduced as an important element in geopolitics "Although often assumed to be

innocent, the geography of the world is not a product of nature but a product of histories of the struggle between competing authorities over the power to organize, occupy, and administer space." Further, Ó Tuathail says that 'geography is not a natural given but a power-knowledge relationship.", so it can be used in the development and reinforcement of power relations.

Europe is built as an ordered space, with the ability to radiate its beneficial effect and provide order to the disorder outside. Hence, in addition to its military capabilities, the real geopolitical comparative advantage of Europe lies in its civilian influence or use of ideological power or soft power (Nye, Jr., 2008) through economic and cultural influence, international law / the rule of law and democracy, reforms, and institutional changes prompted by the EU. This is the attractive power of the EU (Cooper, 2004). The EU is a pre-eminent civilian power, which can be seen through its goals, such as establishing a single market among its members, a zone without internal borders- the Schengen area, common security, foreign and internal security policy, and own single currency. All that, from the initial 6 to today's 27 members, but also much broader, if are taken into consideration her policies of cooperation, partnerships, as well as the EU enlargement, whit it's Enlargement Policy towards Western Balkans and Turkey, and the European Neighborhood Policy (ENP). As Straw said back in 2003 (Straw,2003), the 2004 Enlargement should be viewed as an opportunity for the EU to expand its sights beyond central Europe and focus on the problems of spreading democracy and prosperity along its southern and eastern borders. "The EU's greatest achievement has been to help secure an absence of war amongst its member states. Enlargement will extend this achievement and cement the intrinsic values to peace across the continent", said Straw. EU Enlargement Accession to the EU is one of the most powerful instruments of the EU to expand its power by using soft power / ideological power or attractive power. Through this instrument, Europe is expanding its influence for peace and stability, making it unique in the World. The attractive power of Europe helped in the stabilization of the polities and economies of over a dozen neighboring countries, making itself a security zone in Europe. Vachudova claims that enlargement largely reinforced domestic reforms through a set of incentives on already converged EU acquis, accession which is a rule-based process using objective criteria backed by strict monitoring and enforcement, thereby stabilizing fledgling democratic and capitalist systems (Vachudova,2005).

Going back to the above, the EU is building its power largely through EU Enlargement: the inclusion of more economies, a larger population, and greater war readiness. However,

whether this is in the function of its relation power, i.e. an increase in power compared to other forces on the geopolitical board depends on the indicators that can be drawn from Enlargement, as well as the cohesiveness of all members within the EU- how could joint decisions be made on important issues. In short, the success of this policy, towards the creation of Europe as a power, depends on the homogeneity and the capacity for EU integration within its borders, especially in the field of defense and foreign policy.

3. Differentiation Integration, as a way forward

The inability of all countries to respond simultaneously, with the same level of development, to certain issues, complicates the functioning of the EU and its Enlargement. In 2017, the EU Commission presented five possible scenarios for the future of Europe in the document "The White paper on the Future of Europe". One of the scenarios is Those Who Want More Do More, meaning the EU will allow willing Member States to do more together in specific areas. Through this, the concept of differentiated integration, as a possible solution for the future of Europe, is officially part of the strategies. Formally, this possibility is given by the Maastricht Treaty but also by the Lisbon Treaty, although some argue that it is present even back from the Treaty of Rome (Leruth,2020).

We took, as a basis of this paper, three research papers on differentiated integration, which we consider crucial when starting to define Europe as a geopolitical actor and the impact of differentiated integration in that process. They are: Lertuh's and Lord's "Differentiated Integration in the European Union: a Concept, a Process, a System or a Theory?" (Leruth & Lord, 2015), so we can define what exactly is differentiated integration for the EU; Fossum's "Democracy and Differentiation in Europe" (Fossum,2015), so we can analyze the effect of differentiated integration on fundamental values as the EU's "super glue", and Schimmelfennig's "Rebordering Europe: external boundaries and integration in the European Union" (Schimmelfennig,2021), so we can have a concept for the natural borders of Europe). We believe that differentiated integration as a reality for Europe, democracy as a value, and the question of Europe's borders, are of structural importance for this paper.

3.1. Borders of Europe

Defarges (1989) said, "France has always promoted the idea of European Europe, with its voice, particularly in East-West relations.", and further Moïsi (1989) pointed out "In a famous and ambiguous statement about Europe that would stretch from the Atlantic to the Urals, de Gaulle constituted a perfect negation of the enduring ideological nature of the East-West divide." In European Europe, we see the French attempts to break out of the bipolar World by creating a third pole and resisting attempts by the superpowers to carve up Europe, so primarily the issue of borders is significant. Europe's borders have not yet been completed or defined, and this is the key to the potential of geopolitical Europe, i.e. Europe as a power. Michel Foucher (2016), French geopolitician, answering the question: Where does Europe end?, says that the European Union has avoided setting geographical limits on Europe - even defining them would mean making political, cultural, and financial choices. The European project needs to be rethought, ... It is not a matter of excluding certain countries, but of being able to exercise an effective foreign policy that will promote common values and interests… ". From a geographical side, Europe is a peninsula of Eurasia, limited by the Mediterranean Sea, the Black Sea, the Caucasus Mountains, the Atlantic Sea, the Arctic Ocean, and the Urals and Caspian Sea, referring to De Gaulle's vision for Europe as a product of geography and history, as a mean of combining and increasing the power of the states of the continent, states which he saw as Europe's unalterable horizon.

To sum up, as Schimmelfenning (2015) says, all definitions of Europe resemble each other concerning Europe's geographical core on the Western peninsula of Eurasia and Europe's fuzzy fluid Eastern boundaries, concluding that in political and media discourse, "Europe" has become closely associated with the EU. As in the report to the European Council, by the Reflection Group on the Future of the EU 2030 (2010), is stated "The EU must remain open to potential new members from Europe, assessing every candidacy on its own merits and compliance with the membership criteria. These are the "true limits of Europe". Later in 2017, with the White Paper on the future of Europe (2017), where one of the 5 proposed scenarios is "Those who want more do more ", which allows the development of a geopolitical project or differentiated Europe, based on common values. This is the importance of Schimmelfennig 's research around borders and European integration from an aspect of this effort. In his paper,

talking about the external and internal re-bordering and different scenarios, he concludes that EU Enlargement has all but stopped. Dividing the borders as economic, political, and military, he emphasizes that the borders are relational: they not only separate but also relate territories to each other. He also emphasizes terms like 'European Strategic Autonomy', von der Leyen's pledge to lead a 'geopolitical Commission', the Commission's classification of China as a 'systemic rival' in March 2019 and talks about 'industrial strategy 'and' champions' as a signal of the rise of a rebordering discourse in EU policy. He also stresses the trap that differentiated integration facilitates cherry-picking behavior. On this issue, work has to be done, because as Macron pointed out in his Sorbonne speech, the values of democracy and rule of law are non-negotiable. There can not be cherry-picking in this matter... As a catalyst for Europe's unity and freedom, they can not be part of a two-speed Europe.

3.2. Differentiation Integration, a "normal" feature of regional integration

Leruth and Lord, in their research, suggest that differentiation integration is fully part of European integration and cannot be studied as the exception to the rule. They suggest that differentiated integration should be studied as a "normal" feature of regional integration. EU is a "system of differentiated integration", where the territorial extension of policy regimes varies among the member states and candidate states (Leuffen, Rittberger & Schimmelfennig, 2013). Here we find the justification for taking differentiation integration as a tool for achieving geopolitical Europe. Further, they see differentiation integration as a permanent, organizational principle of the Union, grounded in the need to manage divisions and disagreements that do not go away, a process as a moving target, unfolding over time and providing new forms of integration. Lord argues that differentiation integration should be evaluated by how far it improves the management of externalities between member states, especially where those externalities affect the obligations governments owe their publics to secure core values of democracy, justice, and freedom from arbitrary domination within states.

3.3. Democracy

Democracy is a core value of the European Union. To explain the importance of democracy, as one of the European values, we will refer to the three core EU values: the rule of law, democracy, and human rights. A common set of values unites people, and with that, the

society itself. If individuals lose awareness of the fundamental values of society, it loses their cohesiveness, its connection. That is, when the system loses the sense of its values, it will not be able to preserve and protect the foundations of its structure. Hence the importance of European values, the rule of law, democracy, and human rights. Without them, the basis for a free, modern, and democratic European community is lost. Through the development of the humanistic world-view (the democratic world-view culminated in the Universal Declaration of Human Rights, applying to all human beings on Earth), which dates back to ancient times, the foundations were met as preconditions for fulfilling the commitments of the French Revolution- liberty, equality, fraternity (the most human of all slogans), such as humanistic thinking, rationality, secularity. As a result of this, today, we can talk about fundamental European values: the rule of law, democracy, and human rights. It is important to note that all these steps are sequentially interdependent: the rule of law, democracy, and human rights, without the possibility of reverse order. There must be first the rule of law, to talk further about democracy, and then about human rights (EuropäischeWerte.info). Without the rule of law, there are no preconditions for the existence of other European values. Hence the importance of coherence between all member states and candidate countries in terms of basic European values. The glue that will unite them. Democracy is not just a value in and of itself, it is also the precondition for sustainable action (Goulard & Monti,2012), which is why it is important to study the relationship between democracy and differentiated integration, so we can examine the stability of this tool for achieving geopolitical Europe.

Given that further EU Enlargement, through differentiated integration, may lead to differentiated integration or disintegration, it is crucial to monitor the opt-outs, externalities, and similar effects and their impact on democracy. Fossum studies differentiation through a democratic perspective, i.e. deliberative democratic perspective, which means the justification of every decision made, by which it will have an effect. That is why here we will mention the importance of the Conference on the Future of Europe, where the citizens themselves participate in the adoption of the strategy for the Future of Europe. Given that the states are the ones who support democracy, and the EU through incongruence, which situation has the predisposition to create a significant gap between integration and democratization. That's why Fossum suggests that the study should not start with integration but with the countries themselves to monitor the effects. Important about the enlargement process itself, it’s what Fossum claims that the biggest

problem with differentiation is in those countries that are subject to EU rules and regulations but at the same time do not participate in the EU political process where they are adopted. The more the state is incorporated, the smaller the functional differentiation (Lipper,2017). To follow up on Lippert's (2017) the assertion that a debate is needed to create a new status for candidate countries such as partial or associated, or junior membership, followed by a revision of Article 49 Treaty of EU. Those countries, enter a political association and get a sense of belonging. This would be attractive not only for the Western Balkans but also for the Eastern Countries. In this way, economic integration would be achieved, and a strong political connection, too, through the geographical consolidation of the EU as a continental community.

4. Macron's proposal

4.1. Initiative for Europe

On 26th September 2017, at Sorbonne University, Emmanuel Macron gave a speech (Macron,2017) about his Initiative for Europe: sovereign, united and democratic Europe, a way how to make a stronger Europe in the World as it is today. Here, at the beginning of his presidency, he noted "I have no red lines", "let's embrace the differentiations.", "No State must be excluded from the process, but no country must be able to block those wanting to make faster progress or forge further ahead", which best illustrates his open support for a multispeed Europe. Further, he noted that the European project has always worked with "the determination of a few" countries that led the way to further cooperation and integration. Accepting the reality of the European project means accepting the differentiation: "Europe is already moving at several speeds, so we should not be afraid to say so and want it." Further, he addresses the demanding enlargement, already accepted by the Member States and the Commission, which will be so "because the European Union's stronger foundation will allow greater forms of differentiation.", reaffirming his determination that the EU needs reform inside, revision of the treaties, such as the reform of the European Union and the Eurozone, so can continue with the enlargement (Macron,2018). Opting for differentiated integration would allow the EU to ensure stability in its "natural borders" without directly linking it to a promise of enlargement. Addressing Europeans in 2019 via the so-called Letter For European Renewal, he states the crisis in which

Europe is at the moment and the need of doing more and sooner to avoid the trap of the status quo and resignation, so being at a pivotal moment is better to have Europe that advances, sometimes at different places, and it's open to all even there will be disagreements, rather than being static Europe (Macron,2019). Europe is a model based on the freedom of man and the diversity of opinions and creation. So, for Macron more flexible Europe could offer more efficient cooperation, but that means at the same time less cohesive continent (on which work should be done in line with building the same values towards "the European way of life"), which is the cost should be paid to overcome the threat of anti-European movements. France maintains that the only way for the EU to function is to introduce flexibility in its policies. Furthermore, France hopes that a Multi-speed EU will consolidate France's power as part of the EU's hard core, as it considers that it has been weakened as a result of successive enlargements (Brudzinska,Gubalova,Kudzko&Muzergues,2020).

4.2. Europe, political project

In his two interviews in 2019 (FT,2019; Economist,2019), one for The Financial Times and the other for The Economist, Macron urge Europe to start thinking of herself as a geopolitical power, ensuring having control of her destiny, saying that this is the time of truth "which is to decide whether the European Union is a political project or just a market project. I think it's a political project." Nevertheless, what kind of political system we are talking about, and what should be done to put aside the limits of the ability to act? As we see the "ever closer Union" is not in the light of the current moment, and on the other side, the more differentiated EU raises several important questions on the nature and character of the EU as a political system and the kinds of processes and mechanisms that drive its development. By linking differentiation to the notion of the segmented political system, Bátora, and Fossum explain how we understand and analyze differentiated integration with the term which provides a more apt and precise characterization of the EU as a political system and also introduces the notion of segmentation as a distinct dynamic (Bátora & Fossum,2021). They define that segments can solidify under certain structural and institutional conditions, and a political system where such structural elements and mechanisms are pervasive can be characterized as a segmented political system, referring to the EU. As stated in the introduction, the EU is different from a state. From the very outset, it was prevented from becoming a state by the strong built-in constraints on core state

powers (military, diplomacy, policy, tax, and fiscal policies). This, over time, has produced a curious paradox, wherein the EU has seen very little of the capacity build-up that we find in most states. The EU is nevertheless a vital force in Europeanizing the Member (and affiliated) States. So, to combine and fulfill its tasks, the EU had to differentiate both its decision-making methods and patterns of Member State participation in particular policies. Thus, the EU has to incorporate two institutional systems or principles: the supranational community system and the intergovernmental union system. No other solution would have been compatible with maintaining the integrity of systems at the two levels (EU-level and member state level). So, Batora and Fossum's assumptions are that, we should build the EU as a segmented political system, where states are coming together to form a new entity, that is neither a state nor an international organization, but a partial and lopsided polity consisting of one or more segments – with limited ability to summon own resources and constraints on its scope and depth of action. Here, is the main challenge in lowering these limited abilities and making the EU more action-driven. Macron attempts to combine the intergovernmental and supranational in the governing of the Union, hoping balance will be enforced, something that the federalists do not very welcome.

4.3. Differentiated Europe

Macron's strong support of European strategic autonomy, a traditional French objective, has also framed France's position on defense. Europe's quest for strategic autonomy is what he calls "a geopolitical necessity". Europe should develop the tools to think and act autonomously, when necessary. One of his 6 keys to sovereignty is defense, which again will be achieved "through discussions between the various member states who wish to move forward in this area". In recent paper (Siddi,Karjalainen&Jokela,2022) about differentiated cooperation in the EU's foreign and security policy, the founding is that it generates internal consensus and spurred the EU into action on specific policy, adhering to common European values and identity, which allows for building long-standing common EU positions. However, further is said, when differentiated cooperation has departed from the common base, it is ineffective. Macron believes that European Union in 2024 will be brought together on two pillars, the values of democracy and the rule of law and the single market. On the values, there can be no two-speed Europe, as he believes they are "the catalyst for our unity and freedom." They are the foundation and raison

d'etre of the Union (Macron,2022). All member states and candidate countries must respect these policies as fundamental common values. In the absence of these policies, there will be no basis on which the EU exists as a political union, so the key question is to be careful about which forms of differentiation are in favor of democracy and do not endanger it, and which forms of differentiation are not in favor of democracy, i.e. give the opposite result lead to disintegration. In the new reality of the geopolitical changes, Macron believes that Europe should move from being a Europe of cooperation inside the borders to a powerful Europe in the World, fully sovereign, free to make its choices and master its destiny, a new geopolitical player on the world stage.

Proposal for Multi-speed Europe we have even back in 1994, in the paper published by Wolfang Schäuble and Karl Lamers (CDU) (Lamers &Schäuble,1994). They argued in favor of a political union with developed flexible approaches to integration, led by France and Germany, together with the Benelux. The other members will converge in the future, with this core, which would have a centripetal effect. The importance of the paper is on the stability and unity of Europe and future development in the World, where common EU defense and foreign policy is one of high importance. In 2014, the two authors gave an interview for The Financial Times, recalling again to their paper of 1994 and again emphasizing the urgency of Europe as a political union "to establish cores of cooperation within the EU that enable smaller, willing groups of member states to forge ahead" (Lamers & Schäuble, 2014). The issue of differentiation is also tackled in the book "Democracy in Europe - Looking further ahead" by Sylvie Goulard and Mario Monti, where the authors argue that the unity of the 27-strong Europe is crucial to protect everyone's prosperity, but that at the same time "a kind of right to self-determination for the eurozone deserves to be acknowledged", where we can see the proposal for a differentiated approach. However, at the same time, they also believe that "democracy is not just a value in and of itself, it is also the precondition for sustainable action", and they call for democracy by the people and the people (Goulard&Monti,2012). In this context, in the 2000 year, Joschka Fischer, Germany's Foreign Minister, defended the creation of a federal Europe around a "center of gravity" (Fischer,2000) and again in the 2011 year called for "European states must combine interests for the common good" (Fischer,2011). A Treaty would formalize the "center" with its institutions, a parliament, and a directly elected parliament. The center would have emerged as a response to the potential unwillingness of some member states to advance further. This is in

line with the two French statesmen, Robert Schuman and Jean Monnet Schuman, who is 1963, will say" In the coming decade, we will have to enlarge the EU to the east and south-east, and this will, in the end, mean [a] doubling in the number of members. And at the same time, if we are to be able to meet this historic challenge and integrate the new Member States without substantially denting the EU's capacity for action, we must lay the last brick in the building of European integration, namely political integration."(Dannreuther,2004). Holzinger and Schimmelfennig developed their theory on the Grabitz (1984) concept of a "Two- or Multiple-speed Europe" which by them is closest to the current EU. The concept aims to introduce a federal political union in several steps, whereby some states cooperate closer at an earlier point in time while others follow suit later" (Holzinger & Schimmelfennig,2012).

From a state, an international organization to federalization, various concepts of Europe are present, from the time of the EU Community to the present concept of EU, as a 'system of differentiated integration (Schimmelfennig, Leuffen&Rittberger,2014), where the EU by definition is not 'many Europes', with task-specific jurisdictions each having their organization, but one Europe, with a single organizational and member state core and a territorial extension that varies by function. Polities can be conceptualized as three-dimensional configurations of authority: Level of centralization, Functional scope, and the one we are interested in, the Territorial extension, where the authority of a polity can be limited geographically to a single political territory, or it may encompass several territories – up to the entire World (Leuffen, Rittberger & Schimmelfennig, 2013). Worth mentioning from Schimmelfennig, Leuffen, and Rittberger is that according to their research, there is no horizontal differentiation in a policy area if there is uniform and exclusive membership of EU member states. The patterns and trends in the data on integration suggest that differentiation is a durable feature of European integration and maybe even growing in importance, they argue. In the paper Differentiated Integration: How much can the EU accommodate? Andersen and Sitter talk about weak integration as the only viable solution for a heterogeneous system like the EU, further dividing three types of integration, from which they label for EU the imposed integration (Andersen&Sitter,2005). Here they refer to differentiated integration. So, even from years back, never a question of the EU would enlarge to her "natural borders", but when and how much-differentiated integration can the EU accommodate? As the paper mentions, the CIA study from 2005 holds that the EU might not survive in the next two decades, we see that the opposite is happening. Is differentiated

integration the way forward? We may say yes, since it's present as a normal feature for years now, and it allows the path to Europe as a geopolitical power if the fundaments that cause disintegration are well thought out and solved.

5. Data

5.1. Material power

The following data is for the EU Member States and all others that aspire to the EU, whether through the enlargement process or the partnership for cooperation. The Eastern Neighborhood has been taken into account due to recent shifts, whether candidate status should be given as an opportunity to the countries from this part of Eastern Europe. Finally, data is provided for the countries that are currently considered geopolitical powers in the World, for comparison matters. The indicators which are taken (population, GDP, education, military power), correspond to the definition of power as material power. Even some would say that material power should not be that relevant for the EU, but the current war showed the opposite.

Table 1. Material power

EU Member Country		Population (World population review,2022)	GDP percapita (nominal in $) (World population review,2022)	% Tertiary education (World population review,2022)	PowerIndex 2022 (Global Firepower Countries Index,2022)
1.	Germany	83,883.596	54076	31.3	0.2322
2.	France	65, 584.518	46062	39.7	0.1283
3.	Italy	60, 262.77	40861	20.1	0.1801
4.	Spain	46, 719.142	39121	39.7	0.2901
5.	Poland	37, 739.785	34103	32.4	0.4179
6.	Romania	19, 031.335	30526	/*	0.5938
7.	Netherlands	17,134,872	57,534	42.6	0.5937

8.	Belgium	11,668.278	51096	42.4	1.1451
9.	Czech Republic	10, 736.784	40618	24.9	0.6161
10.	Greece	10, 316.637	28748	32.7	0.4506
11.	Portugal	10, 140.57	34043	28.2	0.7282
12.	Sweden	10, 218.971	54146	44.6	0.4231
13.	Hungary	9, 606.259	33030	27.2	0.8633
14.	Austria	9, 066.71	55218	34.2	0.8924
15.	Bulgaria	6, 844.597	23817	/	1.1071
16.	Denmark	5, 834.95	58,932	39.3	0.8677
17.	Finland	5, 554.96	49853	47.9	0.8149
18.	Slovakia	5, 460.193	32709	26.8	0.9617
19.	Ireland	5, 020.199	94392	49.9	2.3147
20.	Croatia	4, 059.286	27717	/	0.9962
21.	Lithuania	2, 661.708	38824	44.1	1.7083
22.	Slovenia	2, 078.034	40067	35.9	1.9486
23.	Latvia	1, 848.837	31509	37.8	2.2758
24.	Estonia	1, 321.91	38834	42.2	2.6527
25.	Cyprus	1, 223.387	40107	/	/
26.	Luxsemburg	642.371	118001	51.3	4.4489
27.	Malta	444.033	42856	/	/
The European Economic Area (EEA), Switzerland, and the North					
28.	Norway	5, 511.37	65,800	45.3	0.5455
29.	Liechtenstein			/	/
30.	Iceland	345.393	55596	40.6	78.6623
31.	Switzerland	8, 773.637	72,874	45.3	0.5015

EU enlargement Western Balkans					
	Albania	2,866.374	14218	/	3.0023
	Republic of North Macedonia	2,083,374	/	/	5.7275
	Montenegro	628,066	/	/	4.8015
	Serbia	8, 653.016	19146	/	0.9923
	Turkey	85, 561.976	30253	22	0.1961
EU enlargement potential candidates					
	Bosnia and Herzegovina	3,249.317	15047	/	4.0288
	Kosovo	/	/	/	13.9136
The Eastern Partnership (EaP)- Eastern Neighbourhood					
	Armenia	2, 971.966	13261	/	2.3169
	Azerbaijan	10, 300.205	14431	/	1.0251
	Belarus	9, 432.8	20187	/	0.8124
	Georgia	3, 968.738	14918	/	2.0014
	Republic of Moldova	4, 013.171	12811	/	2.2515
	Ukraine	43, 192.122	13110	/	0.3266
World population 2022:		7,936,226,584			
United States of America		334,805,269	63,416	50.10	0.0453
Russia		145,805,947	27,903	56.70	0.0501

China	1,448,471,400	17,192	/	0.0511
Brexit: UK	68,497,907	44,117	49.40	0.1382

*no data provided

According to Trading Economics global macro models and analysts expectations, GDP Per Capita in the European Union is expected to reach 32900.00 $ by the end of 2022, which is twice lower as the one in the USA, 63416$ (Tradingeconomics.com,2022). In this sense it's very important to the GDP of the countries aspiring to the EU and the one joining, will they make stronger or weaker the EU economy. As the data shows, no one from the countries in candidate countries or potential candidates or Eastern partnership is reaching the average EU GDP, almost more than half of them have twice lower GDP than the EU. Almost the same case is with other data in the table. Only in terms of population, joining EU aspirants would be advantageous, because it would bring the EU closer to and surpass the USA and Russian populations and reduce the gap with China. However, concerning GDP, tertiary education, as well as military readiness, the indicators show the need to improve performance in these areas, although some of them have excellent results in some fields, such as Serbia with a power index. This data is an indicator that the new countries aspiring to join the EU, with the level of development they have at the moment, would not give optimal rise to the material power of Europe as a geopolitical actor.

5.2. Indicators for Democracy

To show the status of European values, especially the part of the rule of law and democracy, which were previously emphasized as the basis for connecting the EU countries and a glue that protects against disintegration, we took three indices, whose movement we followed during the last years, in the candidate countries for EU membership, as well as the countries from the Eastern Partnership (considering that they also enter what we have previously explained as geographical Europe, but also the latest movements around the candidate status of Ukraine, Moldova, etc.). With this, we want to see the danger of the effect of disintegration, i.e. the inability of these countries to integrate into the EU or vice versa.

Table 2. Democracy indexes

	Freedom in the world (Freedom House) 2022;2021;2020;2019;2018; 2017	EIU Democracy Index 2021	The World Justice Project Rule of Law Index 2021; 2020; 2019;2018-17
EU enlargement Western Balkans			
Albania	67/2022;66/2021;67/2020;68 /2019;68/2018;68/2017	6,11/ Flawed democracy	0,49/2021;0,50/2020;0,51 /2019;0,51/2018-17
Republic of North Macedonia	67/2022; 66/2021; 63/2020; 59/2019; 58/2018; 57/2017	6,03/ Flawed democracy	0,53/2021;0,53/2020;0,54 /2019;0,53/2018-17
Montenegro	67/2022;63/2021;62/2020;65 /2019;67/2018;69/2017	6,02/ Flawed democracy	/
Serbia	62/2022;64/2021;66/2020;67 /2019;73/2018;76/2017	6,36/ Flawed democracy	0,49/2021;0,50/2020;0,50 /2019;0,50/2018-17
Turkey	32/2022;32/2021;32/2020;31 /2019;32/2018;38/2017	4,35/ Hybrid Regime	0,42/2021;0,43/2020;0,42 /2019;0,42/2018-17
EU enlargement potential candidates			
Bosnia and Herzegovina	53/2022;53/2021;53/2020;53 /2019;55/2018;55/2017	5,04/ Hybrid Regime	0,52/2021;0,52/2020;0,53 /2019;0,53/2018-17
Kosovo	56/2022;54/2021;56/2020;54 /2019;52/2018;52/2017	/	0,55/2021; 0,54/2020
The Eastern Partnership (EaP) - Eastern Neighbourhood			
Armenia	55/2022;55/2021;53/2020;51 /2019;45/2018;45/2017	5,49/ Hybrid Regime	/
Azerbaijan	9/2022;10/2021;10/2020;11/ 2019;12/2018;14/2017	2,68/ Authoritarian	/
Belarus	8/2022;11/2021;19/2020;19/ 2019;21/2018;20/2017	2,4/ Authoritarian	0,48/2021; 0,51/2020;0,52/2019;0,51 /2018-17

	Georgia	58/2022;60/2021;61/2020;63 /2019;64/2018;64/2017	5,12/ Hybrid Regime	0,61/2021;0,60/2020;0,61 /2019;0,61/2018-17
	Republic of Moldova	62/2022; 61/2021; 60/2020; 58/2019; 61/2018; 62/2017	6.10 / Flawed democracy	0.51 / 2021; 0.50 / 2020; 0.49 / 2019; 0.49 / 2018-17
	Ukraine	61/2022; 60/2021; 62/2020; 60/2019; 62/2018; 61/2017	5.57 / Hybrid Regime	0.51 / 2021; 0.51 / 2020; 0.50 / 2019; 0.50 / 2018-17

We reviewed the following indices:

- Freedom in the World (Freedom House).: index for the condition of political rights and civil liberties around the world analyses the electoral process, political pluralism and participation, the functioning of the government, freedom of expression and belief, associational and organizational rights, the rule of law, and personal autonomy and individual rights. This index divides countries into free, partly free, and not free. Except for Turkey, Belarus, and Azerbaijan, which are in the "not free" group, the rest are indexed as "partly free". The situation is similar during the years under review, with small improvements observed in Macedonia.
- The World Justice Project Rule of Law Index: measures how the rule of law is experienced and perceived by the general public in 126 countries and jurisdictions worldwide. Scores range from 0 to 1, with 1 indicating the strongest adherence to the rule of law; with over 0.75, we can consider that the country has a good rule of law and below 0.50 a weak rule of law. The data in the past years show that these countries do not have good results, i.e. moderately good results, but over the years, there have been no significant improvements. However, on the other hand, there are countries with poor results among the EU member states; for example, on the last index 2021, Greece has 0.61, Croatia 0.61, Bulgaria even 0.55, and Hungary 0.53, which indicates possible disintegration due to the absence of the core values on which the Union is based. Entering new countries that do not have a good score on these issues would be a danger of further generation of a "climate" of disintegration.

- EIU Democracy Index measures the state of democracy worldwide, which, according to the results, divides the countries into full democracies, flawed democracies, hybrid regimes, and authoritarian regimes. Here we have looked at the latest index from 2021, which gives us a picture of the current state of the countries that are of interest to us, after which it can be seen that most are "flawed democracies". Some of them are improving because they were previously hybrid regimes, but at the same time, part of them are authoritarian regimes.

The conclusion would be that even in those candidate countries, that have started negotiations with the EU, such as Serbia and Montenegro, as well as those waiting for a date for the start of negotiations such as Macedonia and Albania, no significant improvement can be observed in the area of basic EU values, crucial for the country's good integration into the Union. This indicates the need to redefine the manner of enlargement, especially in the sense previously explained in the paper, through differentiated integration with mandatory respect and incorporation of EU values as their own. Otherwise, although by involving all countries within its geographical borders, the EU will gain the opportunity for geopolitical power, the effects of disintegration will be a brake on achieving that goal, and the final effect would be negative. One of the possible solutions is through a different model of rapprochement to influence the key segments that have been defined as causing disintegration and contributing to integration (the rule of law, democracy, etc.) or the formation of different concentric circles in multispeed Europe. In this way, countries will be able to join the various EU policies when they are ready, but in the whole process, the EU will be able to have a greater influence in terms of key segments in each candidate country.

6. Conclusion

The need for Europe as a geopolitical player does not come from someone's desire but first from the circumstances in which the World finds itself. In that geopolitical space of movement of geopolitical forces, there is no place for those who cannot make decisions about their destiny, i.e. they are made by others on their behalf. This change in geopolitical reality puts Europe to the test, whether and to what extent it is ready to transform itself into a third pole in a geopolitical bipolar world. This paper examines several important aspects of Europe as a power; at first glance, perhaps different in their field of research, but interdependent and related to the

issue of geopolitical Europe. The need for expansion is present, especially in rounding off so-called Europe's natural borders, which would mean border stability through common security and foreign policy. The problem of the heterogeneity of the countries that are part of Europe's "natural borders" makes more than necessary the differentiated integration, through which it will be possible to move forward, as much as possible, based on common values. Will it be through a solution of confederal or another status, which would give a sense of belonging to countries that want to join the EU (and do not meet the conditions), until they are sufficiently reformed to meet the necessary criteria? As we have seen from the tables, enlargement as such does not give the desired effects in the area of reform of the countries concerning the basic EU values; hence a new model is needed, which would enable greater effectiveness and transformation, and at the same time contribute to geographical EU consolidation. The allegations in this paper are supported by the conclusions of the Conference on the Future of Europe (2022), which at the initiative of Macron, the EU Commission realized from 2021 to 2022 with final points adopted on 9th May 2022. Through the voice of the citizens at this conference, Europe is on its way to taking the next step towards further enlargement, abandoning decision-making by unanimous voting, the launch of "joint armed forces" and transnational voting lists, possible federalization as the final shape of The EU, some stated as a desired destination. In his latest work, Sergio Fabbrini, gives his answer on Differentiation or federalization: Which democracy for the future of Europe? (Fabbrini, 2021) referring to federalization as an alternative to differentiation, offering the capability for the EU to advance its integration in sovereignty-sensitive policies his points are clear and justified, but the main question is how to get there (since as we saw in this paper not all countries are ready at the same time), our assumptions are through differentiated integration. At every step, pay attention to the processes that would cause disintegration, which refer to the respect of the basic EU values (the rule of law, and democracy).

A research, from 2017, by Börzel, Dimitrova, and Schimmelfennig lists three elements that are cumulatively necessary to be present to enable an effective enlargement policy, namely: a credible membership perspective, conditionality, and assistance, although will further state that this is not a guarantee of success either because it ultimately depends on the conditions in the candidate countries as well as the member states (Börzel, Dimitrova & Schimmelfennig,2017). According to them, the EU's external integration capacity depends on the existence of membership prospects for candidate countries, as well as those aspiring to the EU, such as the

Balkan countries, but also the countries of the Southern Neighborhood - Georgia, Moldova, and Ukraine. Their recommendation is for a clear signal for an EU perspective towards these countries to be constantly present, no matter what, as a distant reality. Regarding the more credible enlargement process, which the authors recommend in the paper, the EU, in 2020, adopted a new enlargement methodology " Enhancing the accession process - A credible EU perspective for the Western Balkans " (European Commission,2020), according to which the whole process should become more credible, with a stronger political steer, more dynamic and predictable. However, reaching the initial results of this new methodology will take a longer period, which Europe in these geopolitical circumstances, does not have the luxury to spend without in the meantime taking other steps that this region will complete (these countries that are within the natural borders of Europe, to bring closer politically). This is crucial for the stability of the borders and hence for Europe. Moreover, as the research mentioned above indicates, "accession conditionality helped improve democracy and governance effectiveness in Eastern Europe. However, after joining the EU, some governments have attempted to limit individual freedoms and undermine the independence of the judiciary to consolidate their power. The EU's capacity to promote and protect democracy and governance effectiveness weakens once candidate countries become members. The current Article 7 sanctions are too blunt and - given the near unanimity requirement - not sufficiently credible." there is a need for reform on key issues within the EU.

Additionally, as in the given Democracy Indexes above in this paper, it can be seen that in both the candidate countries and the EaP countries, there is no significant improvement in the areas of fundamental values, however, the enlargement process with all its mechanisms is ongoing for some years now. Hence, one of the logical and possible solutions for this group of countries in the European political community (Macron,2022), Macron proposed at the closing of the Conference on the Future of Europe in Strasbourg in May 2022. "We must find a political form that enables us to 'dock' to Europe some states that share the same values and geography and build together a political coordination ..", said Macron. Here is the differentiated approach again or a two or multi-tier Europe. For this, some changes should be made in the Treaties; even the current treaties starting from Maastricht, as we pointed out, accept differentiation. Natasha Wunsch in 2017 would point out that a key concern in France's positioning towards further EU enlargement is the desire to preserve the Union's achievements and maintain European

integration as a political project while embracing a policy of 'controlled enlargement' (Wunsch, 2017). This was the case in the years to come, after which point we face now a new proposal from France, which could be identified as a geopolitical one, by which countries outside the EU would be allowed to join in "European core values." This should not mean that the enlargement process would be stopped because the EU's external integration capacity depends on the perspective for membership, but is guided independently from the other until the country's candidates are ready to be full members of the EU. In the meantime, other forms (of confederal form, junior status countries, or alike) should take place as a tool for a more united Europe and a geopolitical one as a final goal.

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