ENTREPRENEURSHIP AND SUSTAINABILITY ISSUES
ISSN 2345-0282 (online) http://jssidoi.org/jesi/
2021 Volume 9 Number 2 (December)
http://doi.org/10.9770/jesi.2021.9.2(13)

Publisher
http://jssidoi.org/esc/home

THE DEGREE OF FISCAL DECENTRALIZATION IN EUROPEAN UNION COUNTRIES IN DIFFERENT STAGES OF THE ECONOMIC CYCLE

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Received 15 August 2021; accepted 15 October 2021; published 30 December 2021

Abstract. The debate surrounding fiscal decentralization is revived in times of threats to sustainable development whose effects are first experienced at the decentralized (local) level and are then transferred to the central level. The extent to which the management of public funds is decentralized is determined mainly by a country's legal system, but also by economic, political and historical factors. A balanced relationship between central control and local autonomy in fiscal management can improve a country's economic performance. This factor could play a key role in planning effective measures to minimize the adverse consequences of the economic recession caused by the Covid-19 pandemic. The aim of this study was to evaluate the degree of fiscal decentralization in European Union (EU) countries, to identify groups of EU Member States characterized by a similar degree of fiscal decentralization, and to describe their economic performance. The degree of fiscal decentralization was evaluated based on local government revenues as a percentage of the GDP in EU Member States. Agglomerative clustering and k-means clustering methods were used to identify groups of countries with similar degrees of fiscal decentralization. The economic performance of countries in each group was evaluated with the use of standard macroeconomic indicators. Three groups of countries with similar degrees of fiscal decentralization were identified. The most decentralized countries were Denmark, Sweden and Finland. These countries were characterized by the highest levels of economic growth. Eco-nomic growth was lowest in the countries that joined the EU after 2004. These countries were characterized by the relatively highest inflation rates and the lowest average household incomes.

Keywords: decentralization, local finance, local government, European Union, local sustainability

Reference to this paper should be made as follows: Wichowska, A. 2021. The degree of fiscal decentralization in European Union countries in different stages of the economic cycle. *Entrepreneurship and Sustainability Issues*, 9(2), 198-208. http://doi.org/10.9770/jesi.2021.9.2(13)

JEL Classifications: H72, H77, C38

Additional disciplines: law, political sciences

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1. Introduction

Despite the adoption of the acquis communautaire and a broad range of common policies and legal measures, the Member States of the European Union (EU) differ in the degree of fiscal decentralization. Decentralization is shaped by a variety of political, economic, social and historical factors. In the economic literature, the debate surrounding fiscal decentralization has continued for many years, and it is intensified in times of economic and financial crises which increase the demand for state intervention in the national economy. The significance of this problem has also been recognized in the context of the common market due to close economic and financial ties between EU Member States and the need for consolidated actions to mitigate the consequences of economic downturns (Szymańska, 2018, pp. 634-635).

Preliminary statistical data on the economic consequences of the Covid-19 pandemic indicate that fiscal decentralization is a highly valid concern because a healthy balance between central control and local autonomy can be an effective tool in hastening economic recovery (Malkina, 2021). Local measures are generally more effective, and they can exert a positive influence on the economic growth of the entire country. However, in an attempt to alleviate the current recession, many countries have undertaken active steps to increase fiscal centralization by introducing various instruments to coordinate local budgets.

The degree of fiscal decentralization should be examined in the first step of the analytical process. Such attempts have been made in the present study which is a continuation of previous research on fiscal decentralization. As noted by many authors, this area of research continues to attract significant interest, but it remains insufficiently investigated.

The aim of this study was to determine the degree of fiscal decentralization in the EU Member States, to identify groups of countries with a similar degree of decentralization, and to characterize their economic performance. The analyzed period was 2004 to 2019. The degree of fiscal decentralization was determined, and groups of countries with similar levels of decentralization were identified based on local government revenues as a percentage of GDP. The analyzed countries were grouped with the use of the k-means clustering method. The potential number of countries in each group was defined by agglomerative clustering, and the results of the analysis were presented in a dendrogram. The economic performance of countries in each group was evaluated with the use of standard macroeconomic indicators. It should be emphasized that in other research conducted all over the world there is no direct evidence of a direct relationship between the degree of decentralization and the economic situation of countries. Characterization of the economies of countries grouped according to the scope of decentralization and their comparison with each other seems to be one of the basic methods of achieving the assumed research aim.

The article contains several chapters. The first chapter reviews the literature on fiscal decentralization and theories relating to public finance management in different stages of the economic cycle. The following two chapters describe the research methodology and present the results of the conducted study. In the Discussion section, the present findings were confronted with the theoretical approaches to fiscal decentralization described in the literature. Conclusions were formulated and the directions for further research were described in the last chapter.

2. Theoretical background

In developed economies around the world, local governments play an important role in governance, controlling public resources and income redistribution in the form of public goods and services. The theoretical and practical aspects of fiscal decentralization have been analyzed in the literature for decades (Schneider, 2003, p. 37; Hansjörg & Junghun, 2016). Decentralization policies are being introduced around the world, including in developing and less developed countries, and the interest in this issue continues to increase (Gadenne & Singhal, 2014, p. 583-585). Decentralization is a global trend, and to a certain extent, its implementation has been triggered by globalization and greater economic openness of many countries (de Mello, 2005, p. 13). These trends are particularly pronounced in the EU, where the single market concept has been fully implemented in practice.

The influence of fiscal decentralization on the economy, society and policy-making has been thoroughly analyzed in the literature. Fiscal decentralization has an extensive theoretical framework, but the conclusions formulated by many researchers are often ambiguous or even mutually exclusive. This is one of the reasons why decentralization continues to attract significant interest. The relevant processes are also widely researched because decentralization delivers numerous benefits that can stabilize national economies during downturns in the business cycle. These advantages have been highlighted by first- (Musgrave 1959; Oates 1972), and second-generation (see Weingast 2014, pp. 14-25) fiscal federalism theories which postulate that adequate financial relations between different levels of state administration can counteract economic crises and minimize their consequences.

Two approaches to explaining the potential effects of decentralization on the economy have been proposed in the vast literature on the subject. The first approach postulates that more extensive decentralization increases the effectiveness of the measures undertaken at the lowest level of governance. Local governments are better acquainted with local affairs, needs and preferences concerning public spending. This knowledge can stimulate economic growth that drives the development of entire countries. As a result, greater decentralization can improve a country's economic stability, create new opportunities for investment, increase the value of investments, GDP and human capital efficiency, stabilize prices, lower budget deficits, improve income redistribution, decrease unemployment and poverty, and promote regional convergence (Martinez-Vazquez & McNab, 2006, pp. 25-49; Sepulveda & Martinez-Vazquez, 2011, pp. 321-343; Kyriacou et al., 2015, pp. 89-90; Martinez-Vazquez et al., 2017, pp. 1100-1112).

The second approach makes a reference to the negative consequences of decentralization, namely phenomena that can diminish the positive effects of decentralization. This approach focuses on the risk of macroeconomic instability caused by transfers of financial resources to local governments. Local authorities can spend public funds irresponsibly or cut local taxes for political gain. Greater decentralization can also worsen local governments' financial condition and force them into debt if the transferred funds are not sufficient to cover statutory expenses. As a result, central debt can be transferred to the local level. Higher transfers from the central government can also increase taxes that are set at the central level. Decentralization can disrupt income convergence by decreasing regional flows of human and financial resources (Keen & Kotsogiannis, 2004, p. 405; Oates, 2008, p. 324; Martinez-Vazquez et al., 2017, pp. 1100-1112; Kargol-Wasiluk & Wildowicz-Giegiel, 2018, pp. 411-426).

Regardless of whether decentralization generates positive or negative consequences for the economy, a potential relationship exists between decentralization and a country's economic performance. Some researchers have commented on the absence of direct and empirically proven associations between decentralization and the economic performance of countries with different legal systems (Lago-Penas et al., 2011, p. 197),), which can be largely attributed to difficulties in measuring the strength of such associations. Econometric models have been developed in an attempt to identify such relationships, but the resulting conclusions are always limited and bound by numerous constraints. Therefore, research studies often produce discrepant results that cannot be applied universally (Salmon, 2013, p. 93). Differences in the economic development, legal regulations and administrative systems of the compared countries further complicate such analyses.

To minimize the above problems, the data analyzed in this study covered a longer period of time, conclusions were formulated by analyzing groups of countries with a similar degree of fiscal decentralization, and a statistical approach was adopted (Salmon 2013, p. 100). It was assumed that EU countries have certain similarities, mainly because some of their fiscal policies have to be coordinated. European Union countries are also members of the International Monetary Fund, and they have to abide by the same regulations and undertake specific measures

ISSN 2345-0282 (online) http://jssidoi.org/jesi/
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during recession (Feld & Schnellenbach, 2011; Neyapti, 2013, 528-532; Ban & Gallagher 2015, pp. 137-138; Wildowicz-Giegiel, 2019, pp. 6110630). However, the EU Member States also differ in numerous respects which influence the degree of fiscal decentralization, including democratic maturity, economic convergence, as well as historical and political factors that affect the relations between central and local administration. These aspects were not analyzed in this study due to space constraints.

The above approach was adopted to evaluate selected trends in countries with different degrees of fiscal decentralization. The results can be used in further research dedicated to the problem.

3. Research objective and methodology

The degree of fiscal decentralization was evaluated based on the local revenue-to-GDP ratio in the EU Member States. The above indicator as well as the local spending-to-GDP ratio are the main measures of fiscal decentralization that are used by, among others, the OECD (OECD, 2020) and the World Bank (Ebel & Yilmaz, 2002, p. 6). The revenue-to-GDP ratio supports comparisons of the degree of decentralization in all countries around the world that are included in international statistical reports. However, the discussed indicator does not account for the extent to which local governments control the amount of collected revenues, for example by setting local tax rates. The revenue-to-GDP ratio was selected for this study because local government spending is a derivative of the revenues accumulated at the local level. Other variables were not considered because their inclusion would extend beyond the conceptual framework of this research.

The analyzed period was 2004 to 2020. The initial date marks the largest enlargement of the EU, and the end date was selected due to the availability of Eurostat data (Eurostat 2020). The period between 2004 and 2019 witnessed numerous crises and breakthrough events in the EU, including the global economic crisis that erupted at the end of the first decade of the 21st century, the Eurozone crisis, as well as political and social crises, including Brexit which was an unprecedented event in the history of the EU. The analyzed period also covers three multiannual financial frameworks in the EU.

The research hypothesis postulates that the EU Member States can be divided into groups of countries that are characterized by similar degrees of fiscal decentralization but different levels of economic growth.
Agglomerative clustering, a hierarchical clustering method, was applied in the first stage of the study to determine the potential number of groups with similar degrees of decentralization. The analysis relied on Ward's method, the most popular agglomerative clustering procedure that relies on a variance criterion to minimize total variance within clusters (Ward 1963; Murtagh & Legendre, 2014, pp. 274-295; Thalassinos et al. 2019, pp. 591-609). The results were used to develop a dendrogram presenting the structure of the analyzed data and the potential number of clusters (Tibshirani et al., 2001, 415-418; Roszko-Wójtowicz & Grzelak, 2021, pp. 103-138).

European Union countries were grouped with the involvement of the classification method which is used to detect similarities between groups within the same population (Jain, 2010, p. 654). The k-means clustering method is a popular variant of the above approach. This non-hierarchical method divides a population into several previously identified groups, where none of the elements in a given cluster belong to any other cluster (Małkowska et. al., 2021, pp. 325-355). k-clusters agglomerate objects that are most similar to one another and most different from objects in other clusters in terms of one or more parameters. Many variants of the k-means clustering method have been proposed, and in this study, objects were grouped based on the Euclidean distance from the centroid of each cluster. This method supported the identification of groups of EU countries characterized by similar degrees of decentralization. Data were processed statistically in the Statistica v. 13.3 program.

The economic performance of the identified groups of countries was evaluated with the use of standard macroeconomic indicators: GDP at market prices, economic growth (GDP growth at market prices), inflation rate (consumer price index), public deficit and public debt, average household income, and unemployment rate.

4. Results and discussion

The agglomerative clustering method was used to divide EU countries into three groups, and the cut-off point is presented in the dendrogram in Figure 1. The identified number of groups was characterized by the largest Euclidean distances between clusters. A more detailed analysis involving a larger number of smaller clusters would not support classification because the obtained groups would be increasingly similar. The k-means clustering method was applied in the next step of the analysis to sort Euclidean distances between three clusters and select cluster centroids at fixed intervals. Convergence was achieved already in the second iteration. The resulting groups of countries differed maximally in the degree of decentralization, and each cluster contained countries with the most similar levels of decentralization. The Euclidean distance between the first and the second group was 15.12, between the first and the third group – 20.74, and between the second and the third group – 5.66.

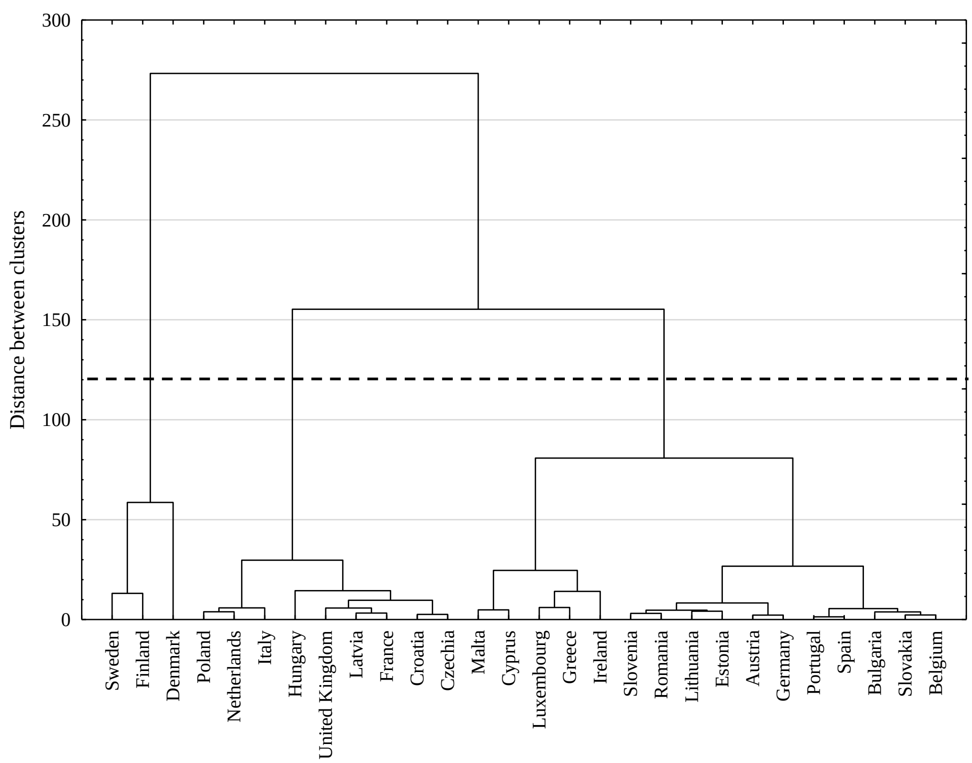

Figure 1. Dendrogram of the European Union countries based on the local revenue-to-GDP ratio in 2004-2009, calculated with the use of Ward's method and Euclidean distances. The line denotes the cut-off point for cluster analysis

Source: own calculations based on Eurostat (2020)

The first group of countries with the highest degree of decentralization was composed of Scandinavian countries: Denmark, Finland and Sweden (Table 1, Figure 2). The degree of decentralization measured by the local revenue-to-GDP ratio was determined at 26.2% on average in 2004-2019 and was relatively stable during the entire period of analysis, with two distinct evolutionary stages (Figure 2). The first stage covered 2004-2008, when the revenue-to-GDP ratio ranged from 24.2% to 24.8%. Beginning from 2009, the analyzed ratio increased to 26.9%

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ISSN 2345-0282 (online) http://jssidoi.org/jesi/
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in consequence of the financial crisis, and it was maintained at a high and unprecedented level in the following years. A minor decreasing trend in the evaluated parameter was observed in the last years of the analysis.
The first group of countries was characterized by the highest economic growth relative to the remaining clusters. Average GDP growth reached 2.95%, and the average inflation rate was determined at 1.4%, which was the lowest value in the entire EU. These countries also enjoyed the most robust financial condition with an average budget surplus at 0.4% of GDP and the lowest public debt at 43.2% of GDP in the analyzed period. Household incomes were highest relative to the remaining groups of countries at EUR 25,476.6 on average. These countries were also characterized by the lowest average unemployment rate of 7.1%.

Table 1. Classification of the European Union countries based on the degree of fiscal decentralization in 2004-2019 and the average values of basic macroeconomic indicators

Countries / average macroeconomic indicators	Countries with the highest degree of decentralization	Countries with a moderate degree of decentralization	Countries with a lowest degree of decentralization
Countries	Denmark, Finland, Sweden	Czechia, Estonia, France, Croatia, Italy, Latvia, Lithuania, Hungary, Netherlands, Poland, Romania, Slovenia, United Kingdom	Belgium, Bulgaria, Germany, Ireland, Greece, Spain, Cyprus, Luxembourg, Malta, Austria, Portugal, Slovakia
GDP at market prices (€) and GDP growth (%)	285 563.2 2.95	621 522.2 2.95	442 992.8 2.51
consumer price index (%)	1.4	2.5	1.9
budget deficit / budget surplus (% in GDP)	0.4	-3.1	-2.7
public debt (% in GDP)	43.2	57.8	72.0
average household income (€)	25 476.6	11 918.9	17 461.6
unemployment rate (%)	7.1	8.2	9.4

Source: own calculations based on Eurostat (2020)

The second group was composed of 13 countries with a moderate degree of decentralization: Czechia, Estonia, France, Croatia, Italy, Latvia, Lithuania, Hungary, Netherlands, Poland, Romania, Slovenia, United Kingdom (Table 1, Figure 2). The average revenue-to-GDP ratio was determined at 11.1%. Similarly to the first group, the degree of decentralization increased in 2009, but a minor decrease in the evaluated parameter was observed in 2011, and fairly stable values were noted in the remaining years of the analysis.

Similarly to the first group of countries, average GDP growth in the second group reached 2.95%. These countries were characterized by the largest economies in terms of their GDP which was determined at EUR 621,522.2 million on average in the analyzed period. The second group of countries ranked last in terms of two macroeconomic indicators: the highest average inflation rate of 2.5% and the highest average budget deficit of -3.1% of GDP. These countries were also characterized by the lowest average household income of EUR 11,918.9. The remaining economic indicators were between minimum and maximum values: public debt was determined at 57.8% of GDP, and the average unemployment rate was 8.2%.

The third group of 12 countries was characterized by the lowest degree of decentralization in 2004-2019: Belgium, Bulgaria, Germany, Ireland, Greece, Spain, Cyprus, Luxembourg, Malta, Austria, Portugal, Slovakia (Table 1). The average local revenue-to-GDP ratio was 5.5% in the analyzed period (Figure 2). Unlike in the remaining groups, the degree of decentralization did not increase in 2009 or the following years (an increase of only 0.1% was noted in 2009), and it remained stable at 5.3-5.6%.

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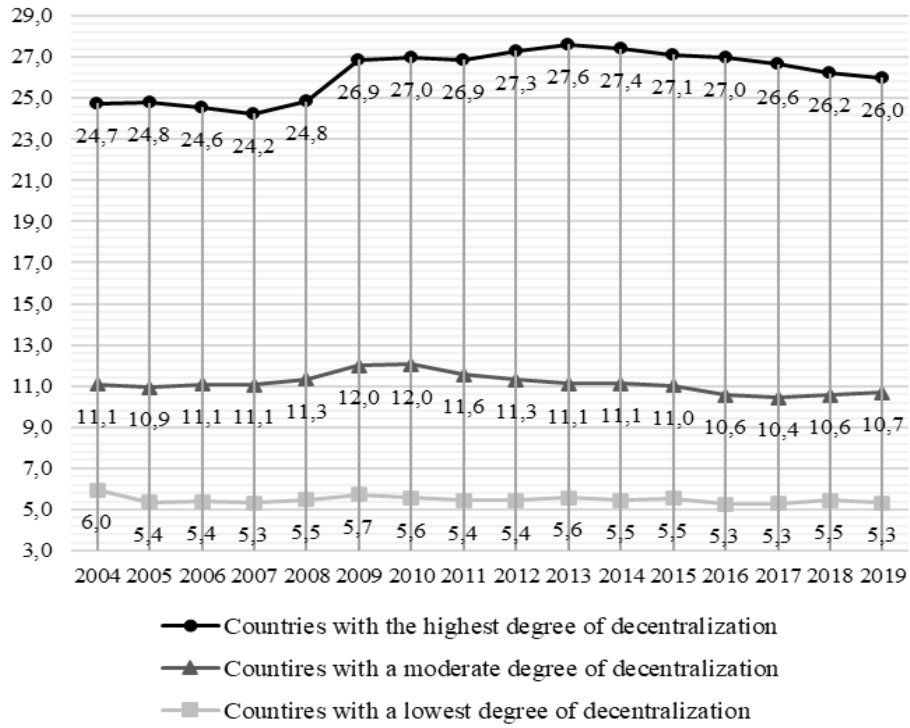

Figure 2. Average degree of fiscal decentralization based on the local revenue-to-GDP ratio in three clusters of EU countries in 2004-2019 (%)

Source: own calculations based on Eurostat (2020)

GDP growth was lowest in the third group of countries at only 2.51% on average. These countries were characterized by the highest average public debt which reached 72% of GDP and exceeded the EU debt limit by 12 percentage points. The average unemployment rate was determined at 9.4% and was highest in the EU. The remaining macroeconomic indicators assumed moderate values relative to the remaining groups. On average, the inflation rate reached 1.9%, budget deficit was determined at -2.7% of GDP, and household income was EUR 17,461.6. It should also be noted that the third group included countries where the Eurozone crisis had erupted and where severe consequences of economic recession persist to this day.

The presented analysis generated detailed information about fiscal decentralization in the EU countries. Three groups of countries with similar values of the local revenue-to-GDP ratio were identified. These countries are characterized not only by a similar degree of decentralization, but also by similar values of selected macroeconomic indicators.

The first group of countries with the highest degree of decentralization, i.e. Denmark, Finland and Sweden, deserve special attention. These countries belong to the most developed economies in the EU. Despite the absence of empirical data to confirm this observation, the results of this study validate other research findings which point to a positive, although indirect association between decentralization and economic growth (see Baskaran et al., 2016; Slavinskaitė, 2017, p. 754).

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2021 Volume 9 Number 2 (December)
http://doi.org/10.9770/jesi.2021.9.2(13)

In the analyzed period, the highest values of most macroeconomic indicators were noted in the first group of countries. In this group, the degree of decentralization further increased in 2009 when the first symptoms of recession were experienced by European markets. The above did not result from a recession-induced decline in economic growth because GDP in the first group of countries returned to pre-crisis levels in 2010, and continued to increase in the following years. The example of Denmark, Finland and Sweden appears to confirm the postulates of first- and second-generation fiscal federalism theories, namely that decentralization has a positive impact on economic growth. However, the presence of such relationships requires in-depth analyses of local governments' tax powers and fiscal autonomy in the historical, political and legal context.

In the second and third of group countries, the degree of decentralization was two and three times lower, respectively, that in the first group, and the economic performance of those countries was also significantly lower. Second and third group countries were characterized by high inflation rates, high unemployment, high budget deficit and public debt, and lower household incomes. These observations confirm the presence of a potential relationship between decentralization and economic growth. During the global recession, a minor increase in decentralization was noted in second and third group countries, but it was lower than in the first group. However, after the recession, the degree of decentralization decreased below pre-crisis levels. In the third group of countries, the local revenue-to-GDP ratio did not increase significantly in the years after the financial crisis.

The results of the above analysis suggest that in countries with a higher degree of decentralization, local government powers were further expanded after the recession to combat the negative consequences of the economic crisis. The opposite strategy was implemented by countries with a low degree of decentralization. In the light of the fiscal federalism theory, these observations indicate that the economic crisis was exacerbated or prolonged in countries with a low degree of decentralization. This assumption is supported by the economic performance of third group countries which are still experiencing the adverse effects of the global recession

Conclusions

The debate surrounding fiscal decentralization has continued since World War II. The interest in decentralization is usually revived in times of recession because some economic crises first affect local governments and are then transferred to the central level. A similar scenario can be expected in the coming years when the economic impact of the Covid-19 pandemic becomes apparent. The results of this study represent the first stage of analysis of the evolution of fiscal decentralization in EU countries, and the conclusions formulated based on the past experience can provide valuable inputs for economic practice.

Despite the fact that numerous measures are being undertaken by the EU to coordinate the Member States' fiscal policies, this study revealed considerable differences in their degree of decentralization. Three distinct groups of countries characterized by different degrees of decentralization and different levels of economic growth within the groups were identified. Therefore, the research hypothesis was validated.

There is no direct empirical evidence to confirm the presence of a relationship between the degree of fiscal decentralization and economic performance, but the results of this study validate the assumptions of fiscal federalism theories which postulate a positive association between these two factors. Countries with a higher degree of decentralization were characterized by higher economic growth, higher price stability, lower public debt, higher budget surplus or lower budget deficit, more effective redistribution of income and, consequently, lower unemployment. The opposite was observed in countries with a lower degree of decentralization, some of which were severely affected by the global economic crisis and continue to be plagued by macroeconomic instability.

An interesting conclusion that can be derived from the present findings is that in times of economic recession, the degree of decentralization tends to increase in countries where local authorities enjoy considerable fiscal autonomy. In these countries, local governments were probably tasked with some measures aiming to mitigate the crisis. The opposite was observed in countries with a lower degree of decentralization where this parameter did not change considerably during economic downturn. In the light of fiscal federalism theories, this is a negative phenomenon because local authorities are better acquainted with local needs and have the necessary tools to hasten economic recovery than the central government. An analysis of macroeconomic indicators in recent years suggests that similar trends can be expected in the upcoming economic crisis.

The current study and a review of the literature have confirmed that decentralization is a complex and multifaceted problem that will be further analyzed. The conducted research can provide a basis for numerous scientific hypotheses and inspire further investigations. In the future, attempts should be made to analyze the cause-effect relationship between the variables describing the degree of fiscal decentralization and economic growth in groups of EU countries or in individual cases. Other indicators of decentralization, including the degree of expenditure decentralization, tax autonomy at the local level, and the proportions of various types of expenditures and revenues in total government spending and receipts, can also be included in future analyses. Further research can involve political and legal analyses to assess the potential and real influence of EU regulations on the degree of decentralization in the Member States.

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ENTREPRENEURSHIP AND SUSTAINABILITY ISSUES
ISSN 2345-0282 (online) http://jssidoi.org/jesi/
2021 Volume 9 Number 2 (December)
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