"The impact of fiscal decentralization on economic development"

AUTHORS	Mykola Pasichnyi ⓘD https://orcid.org/0000-0001-7663-776X
	Ⓡ http://www.researcherid.com/rid/O-3418-2016
	Tetiana Kaneva ⓘD https://orcid.org/0000-0002-3302-9593
	Maksym Ruban ⓘD https://orcid.org/0000-0002-9269-8674
	Anton Nepytaliuk ⓘD https://orcid.org/0000-0002-7890-3889

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
30	1	2

Mykola Pasichnyi, Ph.D.
(Economics), Associate Professor,
Department of Finance, Kyiv
National University of Trade and
Economics, Ukraine.

Tetiana Kaneva, Ph.D. (Economics),
Associate Professor, Dean of Faculty
of Finance and Banking, Kyiv
National University of Trade and
Economics, Ukraine.

Maksym Ruban, Postgraduate
Student, Kyiv National University of
Trade and Economics, Ukraine.

Anton Nepytaliuk, Postgraduate
Student, Vasyl' Stus Donetsk National
University, Ukraine.

Mykola Pasichnyi (Ukraine), **Tetiana Kaneva** (Ukraine), **Maksym Ruban** (Ukraine), **Anton Nepytaliuk** (Ukraine)

THE IMPACT OF FISCAL DECENTRALIZATION ON ECONOMIC DEVELOPMENT

Abstract

In this article, updated approach to assess the impact of fiscal decentralization on economic development is offered. The relationship between the proper level of fiscal decentralization and economic growth for 27 advanced and emerging economies in Europe from 1992 to 2017 was evaluated using panel data. In the EU members, Belarus, Georgia and Ukraine expenditures decentralization was more essential than revenue decentralization. The vast majority of the counties from Central and Eastern Europe have increased the level of fiscal decentralization since 1992. It was found that revenue decentralization was associated with lower growth rates, while expenditures decentralization could slightly encourage economic development. The overall decentralization indicator adversely affected the growth, but that interconnection was not robust. The empirical investigation showed significant role of demographic structure and sustainability to ensure economic development. The authors propose the statements for the local authorities to develop the methodical bases of the fiscal policy's design. In the survey, a balanced approach to the tax and public spending policy's preparation and planning is presented.

INTRODUCTION

The influence of fiscal policy on economic welfare is crucial but rather ambiguous. In the second half of the XXth century, decentralization has turned into the worldwide trend in the area of public finance. In modern scientific discourse, fiscal decentralization is also commonly known as fiscal federalism and forms a subject for specific study. The OECD countries have become the pioneers in the mentioned process, giving their local authorities a wide range of fiscal powers and abilities. Meanwhile, taking the situational weakness of the institutional framework into account fiscal decentralization has been considered as a challenge for emerging economies. Regarding the explicit effects in the field of public financial governance, the decentralization's impact on economic development has been already assessed by enormous group of scientists. In theory, the local governments' fiscal autonomy is the obligatory prerequisite for economic liberty. If the quality of public goods, produced by the local authorities, is poor, the taxpayers are disinterested in the high level of fiscal decentralization. The divergence between declared, potential and achieved level of the region's financial capacity under conditions of decentralization is an important object of the study both in advanced and emerging economies.

There are two principal aspects of the mentioned phenomenon, so its profound analysis is usually performed in several stages. At the first stage, it covers the issues of revenue and expenditure decentralization

separately. That analytical stage allows to identify the main characteristics of fiscal space and its development vectors. At the second stage, all the obtained results are combined in order to assess the overall fiscal policy's efficiency. There are a plenty of quantitative fiscal decentralization's indicators used in the international assessment practice, but the deep analysis demands qualitative parameters as well. Expenditures decentralization indicates the local authorities' ability to choose properly the ways of public spending. Regarding the initial hypothesis of the administrative unit inhabitant's homogenous social demands, the expenditures decentralization's positive impact on the economic agents' behavior should be expected. At the same time, the population's aggregate Pigouvian satisfaction hugely depends on the quality of public administration. The taxpayers could be satisfied only through the essential improvement in infrastructure, education, medicine, social security, etc. Budget expenditures are traditionally divided into two unequal groups: productive and non-productive. Fiscal decentralization could induce the productive expenditures' specific weight in the total spending structure. Revenue decentralization represents the other side of fiscal federalism. Hence, the strategic managerial task in the field of public finance concerns the revenue sources' structural optimization. Tax policy should be transformed into powerful institutional instrument for endogenous economic development. Under conditions of fiscal federalism, the local authorities represent the primarily force responsible for the competitive business environment, existing in the respective region or administrative unit. Economic welfare, reproductive and migration dynamics, and demographic structure in the long-run are considerably dependent on the fiscal policy's measures, undertaken by the central and local governments.

1. LITERATURE REVIEW

Fiscal decentralization's impact in different countries varied from quite positive and statistically significant to negative or even insignificant. The pioneers of fiscal decentralization theory had been systematically arguing its general positive impact on economic welfare since the late 1950's till the late 1990's. Summarizing the essential results of his own research, which has been being permanently conducted for almost four decades, Oates (1993) stated that the local authorities' fiscal autonomy considerably provided the best institutional background for inter-region tax competition and, in the long-run, ensured financial equalization. According to the scholar, in the OECD countries, fiscal decentralization was the precondition for the gross regional product's increase. The scientist also mentioned that the average welfare level in the regions with a wide fiscal autonomy was substantially higher than in the regions without it. Tiebout (1961) was one of the first scientists who proposed a consistent economic theory of fiscal decentralization, applying statistical and sociological methods to assess financial policy's impact on economic growth. The scholar disclosed some essential fiscal regulation's behavioral consequences, namely the population's emigrational intentions and the capital circulation's characteristics under conditions of active economic regulation.

Buchanan and Musgrave (1999) investigated the interdependencies between the main political and financial determinants of economic development. The authors pointed out that public governance should follow some rules to achieve the strategic social tasks.

During the last two decades, a huge group of scientists tried to highlight the essential stochastic numerical interrelations between the indices of fiscal decentralization and the actual level of economic development. Due to the differences in the initial hypotheses, applied methodologies and empirical bases, the obtained results were quite controversial. Some authors shared rather apologetic position. They have been systematically stating on the positive fiscal decentralization's impact on economic growth. Ebel and Yilmaz (2000, 2002) studied both advanced and emerging economies over the period from 1971 to 1999. They came to a conclusion that fiscal autonomy is in general positively related to the region's economic development, increasing real GDP growth. Akai and Sakata (2002) investigated the empirical data set that had exhibited positive cultural, historical, and institutional consequences of fiscal federalism in the US. The identical statements were proposed by Thiessen (2003a, 2003b), Meloche, Vaillancourt, and Yilmaz (2004), Eller (2004), Iimi (2005), Buser (2011), etc. The principal difference

in their studies concerned the determination of the fiscal federalism's influence range on the macroeconomic dynamics, while the general results have been quite similar. Meanwhile, some empirical studies in that area have given the diametrical results. Davoodi and Zou (1998), applying a fixed effects model, time dummies, and different unbalanced panel data methods, argued that increase in expenditure decentralization reduces the real GDP per capita growth rate in developing countries. The fiscal decentralization's strong negative effect on economic growth for the OECD countries was reflected in the works of Rodriguez-Pose and Ezcurra (2010), Baskaran and Feld (2013), etc. Lots of authors identified ambiguous impact of fiscal decentralization on the main macroeconomic parameters, which could be characterized neither as robust positive, nor as negative. That conclusion has been sustained by Woller and Philipps (1998), Martinez-Vazquez and McNab (2006), Rodriguez-Pose and Krøijer (2009), Bodman (2011), etc.

It should be specifically noted that most of the mentioned studies were conducted before the Great Recession or involved the empirical pre-crisis financial data. The further objective processes in the sphere of fiscal regulation have imposed some significant institutional restrictions on economic development. Over the last decade, decentralization has become a great challenge for emerging economies, considering the ongoing transformations in public finances. As a milestone, intensified globalization determined the recourse circulation and crucially fostered migration processes. The administrative unit's fiscal potential and capacity, business competitive environment, demographic sustainability, and economic development have become the main markers of the performed fiscal policy's efficiency. Gemmell, Kneller, and Sanz (2013) explored the Oates' hypothesis (1972) that maximum efficiency gains have required a close match between expenditures and revenue decentralization. They find out that spending decentralization was usually associated with lower economic growth than revenue decentralization. Bellofatto and Besfamille (2014) applied statistical methods to determine the optimal institutional regime and the degree of the administrative unit's financial autonomy, considering the strategic choice between partial and full fiscal decentralization. Using a sample of the

OECD countries, Sacchi and Salotti (2014) focused their attention on the fiscal decentralization's impact on the households' income inequality. They have concluded that, in general, fiscal decentralization could be attractive. Meanwhile, it may have quite undesirable effect on the households' income distribution. Thus, the fiscal decentralization's impact on the demographic structure is ambiguous. Borge, Brueckner, and Rattsø (2014) identified essential interconnection between partial fiscal decentralization and demand responsiveness of the local public sector. They have investigated the optimal level of the local government's fiscal autonomy, taking the respective regions' productive capacity into account. Regarding the territorial and administrative units' disparities, Kyriacou, Muinelo-Gallo, and Roca-Sagalés (2015) highlighted the importance of good governance as the background for successful fiscal decentralization. Asatryan, Feld, Lars, and Geys (2015) investigated evidences from the OECD countries in the field of partial fiscal decentralization. They considered sub-national government's fiscal discipline as the vital condition for the public finance system's successful transformation. Blanco, Delgado, and Presno (2018) studied the convergence degree in fiscal federalism in the EU from 1995 to 2015, which covered both episodes of sustainable economic growth and deep recession. Their club-convergence approach has already indicated some clustering. Nevertheless, those scholars identified the necessity of the institutional environment's profound study because of the immanent and crucial divergences in the quality of public financial administration.

Considering the numerous relevant publications on the problem under study, it is obvious that fiscal decentralization's impact on economic development should be evaluated more precisely. Economic development influences and, simultaneously, is crucially affected by the population's demographic structure. Decentralization as an essential aspect of fiscal mechanism affects all the sides of the economic agents' behavior. So, the relevance of the proposed study is indisputable.

The aim of this paper is to evaluate the impact of fiscal decentralization on economic development by simultaneously using a set of decentralization measures, which capture the proper level of fiscal decentralization.

2. METHODS

Fiscal decentralization or fiscal federalism has been maintaining its position as an important political and economic issue in scientific discourse since the late 1950's. Despite a wide range of publications on the mentioned problem, its immanent essence has not been fully disclosed yet. In general, fiscal decentralization is traditionally identified as a specific form of financial powers' redistribution between the different levels of public governance system. If the authority associated with decision making in the spheres of taxation and budget performance is widely delegated to the local governments, a country's fiscal system is expected to be decentralized. Meanwhile, quantitative and qualitative measurement of that authority's allocation remains onerous. The local revenues' and expenditures' shares in the respective elements of the general budget could be approximately considered as the evidences of fiscal federalization. But even if the mentioned indices are sufficiently high, the fiscal system under examination is not necessarily decentralized. There are some common instruments, namely different types of conditional and unconditional inter-government grants, widely used for the fiscal equalization's purposes. So, in practice, expenditures closely associated with the lower level governments could be fully or partially financed by the central government. All the types of received grants indisputably form the basis for the local powers' performance. At the same time, those financial resources are associated with the central government and could not be identified as "local".

Given the above, in this article, the local budgets' elements were assessed, considering the statistical significance of the grants from the consolidated general budget. The local self-government bodies' actual degree of fiscal autonomy was hugely dependent on financial legalization and institutional traditions. The proposed research methodology covered several analytical stages and involved some specific decentralization indicators.

At the first stage, revenue decentralization was analyzed. For each country under study, the annual revenue decentralization indicator (RDI) was defined as the local-to-general governments' revenues ratio. In order to achieve the appropriate results, all received inter-government grants and subsidies were excluded from the local revenues. The assessment formula is given below:

$$RDI = \frac{LR - RIGG}{GR}, \qquad (1)$$

where RDI – the revenue decentralization indicator, LR – the local (and the state, if applicable) governments' revenues, GR – the general governments' revenues, $RIGG$ – received from other levels of fiscal system inter-government grants and subsidies.

At the second stage, tax autonomy was assessed. In the OECD countries, that indicator is defined as the ratio of the "local" taxes' actual collection to the local budgets' tax revenues. According to Bird (1993), "local" taxes are typically assessed, determined and collected by the local government. The scholar adds that it is not necessary for the tax to possess all the above attributes in order to be classified as "local".

Aiming to eliminate methodological uncertainty, in this particular study, we considered three groups of "local" taxes: a) the taxes, which basis was determined by the local government; b) the taxes, which rates were decided by sub-national governments; c) the taxes, which combined both mentioned characteristics. The analysis was conducted for each country separately. The formula for annual tax autonomy is represented below:

$$T_a = \frac{t_{(r)} + t_{(b)} + t_{(r,b)}}{tr_{LB}}, \qquad (2)$$

where T_a – the tax autonomy indicator, $t_{(r)}$ – the taxes, which rates were determined by the local government, $t_{(b)}$ – the taxes, which bases were determined by the local government, $t_{(r,b)}$ – the taxes, which rates and basis were simultaneously determined by the local government, tr_{LB} – the local budgets' tax revenues.

At the third stage, the local budgets' own revenues autonomy was analyzed. Like Gemmell, Kneller, and Sanz (2013), in this article, we considered the local budgets' own revenues as a sum of the above-mentioned taxes, as well as the local budg-

ets' non-tax and capital revenues. The local budgets' own revenues autonomy is represented below:

$$OR_a = \frac{t_{(r)} + t_{(b)} + t_{(r,b)} + ntcr_{LB}}{GR}, \qquad (3)$$

where OR_a – the local budgets' own revenues autonomy, $ntcr_{LB}$ – the local budgets' non-tax and capital revenues.

At the fourth stage, expenditures decentralization was analyzed. Sharing the methodological assumption made by Akai and Sakata (2002), we considered the inter-government grants' influence on expenditures decentralization as statistically insignificant. Thus, the annual expenditures decentralization indicator for each country was assessed, using the next formula:

$$EDI = \frac{LE}{GE}, \qquad (4)$$

where EDI – the expenditures decentralization indicator, LE – the local governments' expenditures, GE – the general governments' expenditures.

At the fifth stage, overall decentralization was analyzed. The annual overall decentralization indicator (ODI) represents a decentralization measure that incorporates both the sub-national own revenues' autonomy and the expenditures decentralization indicator. The normalized indicator was defined as the geometric mean of indicators (see formulae (3) and (4)). Hence, the formula for the ODI is represented below:

$$ODI = \sqrt{OR_a \cdot EDI}. \qquad (5)$$

All the mentioned indices were required to estimate the achieved actual decentralization level in selected country under study. Further analytical activity should be focused on the empirical interdependences between fiscal decentralization and economic growth. Scientists, focused on the relations between fiscal decentralization and economic development, proposed to use econometric methods. Based on theoretical and empirical studies of the previous section (Gemmell, Kneller, & Sanz, 2013; Davoodi & Zou, 1998), a model could be expressed as follows:

$$growth_{i,t} = \beta_0 + \beta_1 dec_{i,t} + \beta_2 contr_{i,t} + \varepsilon, \qquad (6)$$

where $growth_{i,t}$ – GDP per capita growth, $dec_{i,t}$ – fiscal decentralization, $contr_{i,t}$ – economic controls.

In the above equation, dependent variable was defined as annual GDP per capita growth. Fiscal decentralization covered revenue and expenditure dimensions, measured by 1, 3, 4, and 5 formulae. In addition, we included several indicators – economic controls. Public governance and economic development are in a mutual relationship. Quality of institutions has a robust influence on economic performance. Low level of government spending and high corruption provokes bad quality of education, public health services (which could be also not affordable to all citizens), transport infrastructure, etc. The size of government is a vital determinant of endogenous economic growth. The scope of spending and tax revenues creates the framework for the economic agents' activity. Thus, we included in our analysis the indicator of tax revenues share to GDP. Furthermore, we need to highlight that human capital fostered socio-economic development of the country and its territorial units. Higher level of human development traditionally corresponds with better educated society and longer life expectancy and is more easily being achieved in advanced economies. Hence, we considered Human Development Index as an independent indicator. The impact of physical capital was evaluated by the investment share from GDP. As mentioned above, the question of demographic sustainability was crucial for ensuring economic development, so we controlled for annual population growth.

3. RESULTS

In this paper, we examined a sample consisting of 27 countries with advanced and emerging economies. That sample included the EU member states, with the exception of Cyprus, Croatia, Ireland, Luxembourg, and Malta, but the economies of Ukraine, Georgia, Belarus, and Norway were analyzed. This study covered the period from 1992 to 2017. In our research, we considered both annual and the mean indicators over the period

for each selected country. It should be mentioned that Austrian, Belgian, German, and Spanish budget systems included two specified sub-national levels: the local and the state. That fact indirectly indicated their self-government bodies' fiscal autonomy degree. The analysis of the RDI proved that Sweden, Germany, Belarus, Denmark, and Finland were characterized by the highest fiscal decentralization. Meanwhile, amid the group of the countries with significant political autonomy of the administrative and territorial units, only Germany was characterized by essential fiscal decentralization. The group of economies with the medium RDI (ranging from 15.00% to 25.00%) included 10 countries, e.g., Poland, Latvia, Ukraine, and Georgia. 7 economies were characterized by the low RDI level (ranging from 8.00% to 15.00%). There were also identified 5 countries with extremely low RDI, namely Greece, Lithuania, Estonia, Slovak Republic, and Romania (Figure 1).

Empirical study proved that the RDI was strongly interconnected with the sub-national tax-to-overall revenues ratio. Over the period, the mentioned ratio significantly varied from 5.50% in Lithuania to 70.61% in Belarus. The average ratio for the sample was equal to 34.83%. The tax poli-

cy's impact on economic development should be regarded while the model of fiscal decentralization is constructed and implemented. In general, that model is characterized by the legislative determination of: a) both national and local taxes, fees, contributions, etc.; b) the proportions of tax revenues' sharing between the different levels of budget system; c) the jurisdictions as well as the regulative mechanisms for the tax bases, rates and benefits. Permanent improvements in fiscal relations have an essential effect on the development vectors of the territorial communities, the administrative units, and the state as well. Strategic decisions of public institutions in the sphere of fiscal decentralization are crucially restricted by the national economic doctrine, the economy's features, the administrative division, the quality of institutions, the tax bases' scale and mobility, the economic agents' trust to the tax policy, etc. For instance, in Estonia, nearly 80.00% of territorial communities were characterized by the population that did not exceed 2,500 inhabitants. The mentioned fact essentially reduced the local authorities' capacity to gain the sufficiently enough own tax revenues, needed to execute even the respective power bodies' own financial responsibilities. Meanwhile, nearly 66.00% of the Estonians

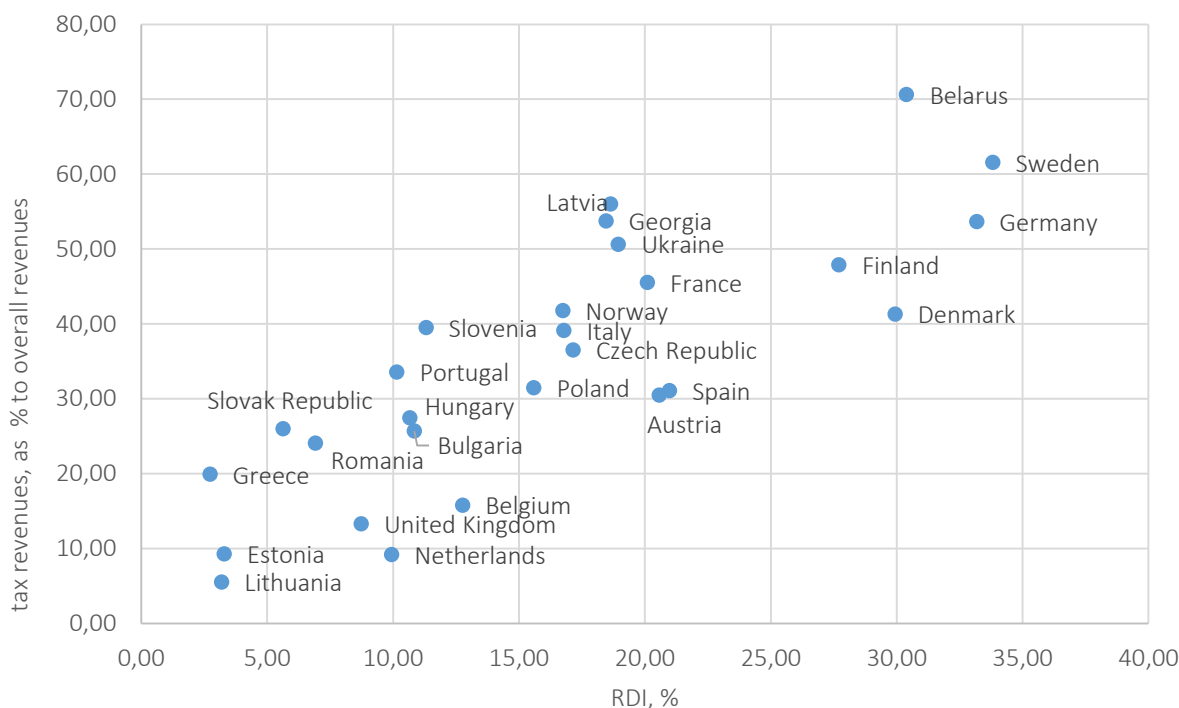Source: Authors' own calculation based on IMF data.

Figure 1. Revenue decentralization in selected countries over 1992–2017 period

permanently live in the territorial communities with less than 10,000 inhabitants. That situation is common for Central and Eastern Europe.

We found out that Sweden, Denmark, and Finland had the highest level of the local budgets' own revenues autonomy (exceed 25.00%). The Nordic countries referred to the group with a strong institutional capacity of sub-national governments to define the tax bases and to set the tax rates. Significant tax decentralization had been associated with a low degree of economic imbalance and rather advanced territorial communities. In that scenario, tax policy had a robust interconnection with spending policy of the local authorities and highly corresponded to the societies' requests. Meanwhile, Romania, Slovak Republic, the Baltic states, and Ukraine were characterized by the low OR_a level (less than 7.00%). That sample mainly represented the countries in which the local governments were primarily involved into tax sharing arrangements and were legislatively able to determine the property tax rates. At the same time, sub-national governments were deprived of power to introduce/abolish the taxes and to regulate the tax bases. In general, the vast majority of the EU countries had a medium level of their own revenues' autonomy. The level of tax decentralization depends on the economic structure, the institutional capacity of territorial units, the means of production, and the tax bases' location. Huge fiscal dependency of sub-national governments on intergovernmental transfers and tax sharing arrangements could decrease economic efficiency and reduce the local authorities' intentions to force the socio-economic development in certain regions.

In general, some essential changes in the total resource productivity could represent the society's response to the financial measures, undertaken by the respective government. Regarding the fact that public spending affects the economic agents' behavior directly in terms of consumer and investment demand, it's crucial to investigate the expenditures decentralization's impact on economic development. Meanwhile, the permanent risks of macroeconomic instability and insufficient development of the public finances' infrastructure indisputably reduce the aggregated effect of fiscal decentralization. The empirical study showed

that on the stage of economic transformations in Central and Eastern Europe existed a certain group of institutional restrictions, interconnected with the rudiments of centralized government policy and weak capacity of the local authorities. Moreover, the rational redistribution of administrative, political and fiscal powers between the different levels of public governance – regarding the economy's structure as well as the division of labor – traditionally formed the strategic priority in the field of financial management's evolution for the aforementioned systems. The local financial resources should be primarily focused on the territorial unit's rapid development, environment protection, and some basic social issues, e.g., public health care and education.

From 1992 to 2017, the average EDI for the sample equaled to 29.72% and standard deviation was equal to 12.43%. The average EDI for Greece was quite low and equaled to 7.36%, while the respective average indicator for Denmark was extremely high and equaled to 61.00%. Considering the achieved level of expenditures decentralization, the above sample should be divided into three sections. The average EDI over the period of the first section did not exceed 25.00%. That section was represented by some post-Soviet countries – Bulgaria, Hungary, Lithuania, Romania, Slovak Republic, and Slovenia – and also included Greece, France, and Portugal. Relatively low EDI in the post-Soviet states was the consequence of their institutional practices in the area of public finance. The extremely low EDI recorded in Greece (rather uncommon for the OECD countries) was dependent on its administrative division and high secession risks. The second section also combined both advanced and emerging economies. It was represented by the countries with the average EDI ranging from 25.01% to 35.00%. Czech Republic, Estonia, Georgia, Latvia, Poland, and Ukraine were characterized by unsteady increase in the EDI. It was the common tendency for the economies that were aiming to regulate their national fiscal legislation according to the globalization challenges. The opposite group of countries in that section was represented by Austria, Italy, Netherlands, Norway, and United Kingdom. The above group had some solid fiscal and political decentralization's traditions. The highest average EDI (over 35.01%) were typical for the North

European countries and federal states, namely Belgium, Germany, and Spain. The only emerging economy with high average EDI (39.51%) was Belarus.

The ODI represented the general effect of fiscal decentralization on economic development, considering the strategic tasks of public governance. Over the period, the mean ODI for the sample equaled to 18.86%, while the standard deviation equaled to 9.23%. Regarding both the RDI and the EDI diversity, a certain kind of "equalization" was caused by the fiscal regulation's impact on the GDP per capita growth rates. The populations' behavioral response to the measures, undertaken by the supreme and the local authorities, was characterized by some lagged effects. Unsatisfactory economic development was commonly regarded as the incentive to enhance social expenditures, which were considered as the perquisite for the rapid increase in intellectual capital. At the same time, that kind of spending was not related directly to economic growth, affecting simultaneously the population's incomes. The ODI explicitly represented the institutional limits for the fiscal federalization's impact on economic growth and welfare.

In order to evaluate the impact of fiscal decentralization on economic development, we carried out the annual macroeconomic and financial indicators. Summary statistics data are presented in Table 1.

Table 1. Summary statistics

Source: Authors' own calculation based on IMF, World Bank and OECD data.

Variables	Observations	Mean	Standard deviation	Max	Min
RDI	682	16.11	9.31	35.98	2.52
OR_a	682	12.62	8.34	33.81	2.10
EDI	682	29.72	12.43	65.97	5.75
ODI	682	18.86	9.23	42.93	3.93
GDP per capita growth	682	1.94	5.00	14.07	−45.33
Human development index	682	0.82	0.07	0.95	0.65
Investment as % of GDP	682	23.47	5.04	49.23	6.05
Population growth	682	0.002	0.83	2.11	−3.75
Tax revenues as % of GDP	682	35.39	6.16	48.98	14.35

Firstly, we used individually decentralization variables to assess the proper effects of revenue, expenditures and overall decentralization with OLS method. Panel was unbalanced due to some lacking observations for Georgia, Latvia, Estonia, Lithuania, Ukraine, and Belarus from 1992 to 1996. Human Development Index had an unexpected negative sign. We suppose that this fact was caused by the non-productive share of public spending on health care, education and other budget programs, which were aimed to stimulate human capital. The investment variable was significantly positive in all cases. Population growth had a negative sign. That provokes thoughts about vital role of demographic structure and sustainability to ensure economic development. Demographic sustainability as a society's certain ability to support automatically and to restore its own structure in the context of social stratification should be considered as the crucial prerequisite for economic growth. The tax share variable was slightly positive related to growth, but it was insignificant in all specification.

Table 2. Regressions of economic growth on fiscal decentralization and controls, the sample of 27 countries, 1992–2017, unbalanced panel

Variables	OLS 1	OLS 2	OLS 3	OLS 4
Investment as % of GDP	0.291* (0.028)	0.291* (0.027)	0.285* (0.028)	0.290* (0.028)
Human development index	−0.103* (0.028)	−0.103* (0.028)	−0.108* (0.029)	−0.103* (0.028)
Population growth	−1.279* (0.224)	−1.263* (0.225)	−1.264* (0.225)	−1.272* (0.224)
Tax revenues as % of GDP	0.044 (0.031)	0.047 (0.033)	0.026 (0.029)	0.039 (0.32)
Rev. decentralization 1 (RDI)	−0.014 (0.016)	−	−	−
Rev. decentralization 2 (OR_a)	−	−0.017 (0.020)	−	−
Expend. decentralization (EDI)	−	−	0.009 (0.012)	−
Overall decentralization (ODI)	−	−	−	−0.007 (0.017)
R^2	0.31	0.31	0.31	0.31
N	682	682	682	682

Notes: The numbers in parentheses are the standard errors of the estimated parameters. '*' denote significance at 1 percent level. R^2 is the adjusted coefficient of determination.

Secondly, the adjusted coefficient of determination was equal to 0.31. The model under investigation was adequate, but the interconnection was not robust. Both revenue decentralization variables had quite weak and negative impact on economic de-

velopment: a) if the *RDI* rose by 1 percentage point, a negligible decline in *GDP* per capita growth was equal to 0.014 percentage points; b) if the *OR$_a$* rose by 1 percentage point, a minor decline in economic growth was equal to 0.017 percentage points. The possible explanation to the obtained results is that the revenues' compositional structure was imperfect. Hence, it should be reconsidered and optimized, taking the strategic tasks of public welfare into account. The relation between the *EDI* and *GDP* per capita growth was statistically significant, but rather weak. If the *EDI* rose by 1 percentage point, an increase in economic growth – equaled to 0.009 percentage points – was recorded. Though the *ODI* was statistically significant, it was rather artificial due to its composed nature. In general, if the *ODI* rose by 1 percentage point, a slight decline in the *GDP* per capita growth rates – equaled to 0.007 percentage points – was observed. So, fiscal decentralization's impact on economic development was statistically significant in all the cases under consideration, but its characteristics were ambiguous due to the plurality of factors, e.g., the composition of fiscal measures, the consistency of financial policy, etc.

4. DISCUSSION

The authors examined whether fiscal decentralization affects the economic development. Evidence of the revenue decentralization's negative effects could be related to the fact that sub-national governments collected distorting taxes on labor and property. The most non-distortionary taxes on consumption were commonly collected by the central governments. The results indicate that expenditures decentralization has a tiny positive impact on GDP per capita growth. Initially, we predict that impact on economic growth would be higher due to productive local expenditures. The next scientific discussion might cover a set of questions about an optimal structure of fiscal decentralization's measures, with the initial hypothesis that distortionary taxes slow the growth dawn and productive local expenditures foster economic development. Furthermore, the efficiency of fiscal decentralization hugely depends on the administrative-territorial structure and the quality of public institutes.

CONCLUSION

In this paper, we evaluated the impact of fiscal decentralization on economic development by simultaneously using a set of decentralization measures. We found out that, in general, the EU countries and a few post-Soviet states in Eastern Europe were essentially more expenditures federalized than revenue decentralized. Revenue decentralization had a tiny negative effect on economic growth; meanwhile, expenditures decentralization could slightly encourage economic development. The overall decentralization indicator adversely affected GDP per capita growth; but that impact was almost insignificant. In addition, robustness checks indicated that obtained results were not robust. In order to increase the efficiency level of the decentralization's impact on economy, we should focus on a closer match between spending and revenue decentralization. It is vital to find an optimal configuration of the revenue/expenditures decentralization's measures, considering the institutional capacity of sub-national governments and the level of economic development. Moreover, it is necessary to determine features of decentralized revenues financing the local expenditures. In the Nordic countries, tax policy had a strong interconnection with spending policy of the local authorities and highly corresponded to the societies' requests. However, the vast majority of countries in Central and Eastern Europe referred to group with a weak interconnection between the mentioned indicators. Fiscal and political autonomy of the local governments intended to ensure social and economic development and to raise the quality of public services. Our investigation emphasized the importance of enhanced demographic sustainability to stimulate economic growth.

REFERENCES

1. Akai, N., & Sakata, M. (2002). Fiscal decentralization contributes to economic growth: evidence from state-level cross-section data for the United States. *Journal of urban economics, 52*(1), 93-108. https://doi.org/10.1016/S0094-1190(02)00018-9

2. Asatryan, Z., Feld, L. P., & Geys, B. (2015). Partial fiscal decentralization and sub-national government fiscal discipline: empirical evidence from OECD countries. *Public Choice, 163*(3-4), 307-320. https://doi.org/10.1007/s11127-015-0250-2

3. Baskaran, T., & Feld, L. P. (2013). Fiscal Decentralization and Economic Growth in the OECD Countries: Is There a Relationship? *Public Finance Review, 41,* 421-445. https://doi.org/10.1177%2F1091142112463726

4. Bellofatto, A. A., & Besfamille, M. (2018). Regional state capacity and the optimal degree of fiscal decentralization. *Journal of Public Economics, 159,* 225-243. https://doi.org/10.1016/j.jpubeco.2017.12.010

5. Bird, R. M. (1993). Threading the fiscal labyrinth: some issues in fiscal decentralization. *National tax journal, 46*(2), 207-227. Retrieved from https://ideas.repec.org/a/ntj/journl/v46y1993i2p207-27.html

6. Blanco, F. A., Delgado, F. J., & Presno, M. J. (2018). *Fiscal decentralization in the EU: Common patterns through a club convergence analysis* (No. 1812). Universidade de Vigo, GEN-Governance and Economics research Network. Retrieved from https://ideas.repec.org/p/gov/wpaper/1812.html

7. Bodman, P. (2011). Fiscal Decentralization and Economic Growth in the OECD. *Applied Economics, 43,* 3021-3035. https://doi.org/10.1080/00036840903427208

8. Borge, L. E., Brueckner, J. K., & Rattsø, J. (2014). Partial fiscal decentralization and demand responsiveness of the local public sector: Theory and evidence from Norway. *Journal of Urban Economics, 80,* 153-163. https://doi.org/10.1016/j.jue.2014.01.003

9. Buchanan, J. M., & Musgrave, R. A. (1999). *Public finance and public choice: two contrasting visions of the State* (Mit Press). Retrieved from https://econpapers.repec.org/bookchap/mtptitles/0262024624.htm

10. Buser, W. (2011). The impact of fiscal decentralization on economics performance in high-income OECD nations: an institutional approach. *Public choice, 149*(1), 31-48. Retrieved from https://www.jstor.org/stable/41483721

11. Davoodi, H., & Zou, H. F. (1998) Fiscal decentralization and economic growth: A cross-country study. *Journal of Urban economics, 43*(2), 244-257. https://doi.org/10.1006/juec.1997.2042

12. Ebel, R. D., & Yilmaz, S. (2002). *On the Measurement and Impact of Fiscal Decentralization* (Unpublished Manuscript). World Bank, Washington. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=636092

13. Eller, M. (2004). *The Determinants of Fiscal Decentralization and its Determinants on Economic Growth: Empirical Evidence from a Panel of OECD Countries* (Diploma Thesis).

14. Gemmell, N., Kneller, R., & Sanz, I. (2013). Fiscal decentralization and economic growth: spending versus revenue decentralization. *Economic Inquiry, 51*(4), 1915-1931. https://doi.org/10.1111/j.1465-7295.2012.00508.x

15. Iimi, A. (2005). Decentralization and Economic Growth Revisited: An Empirical Note. *Journal of Urban Economics, 57,* 449-461. https://doi.org/10.1016/j.jue.2004.12.007

16. Kyriacou, A. P., Muinelo-Gallo, L., Roca-Sagalés, O. (2015). Fiscal decentralization and regional disparities: The importance of good governance. *Papers in Regional Science, 94*(1), 89-107. Retrieved from https://rsaiconnect.onlinelibrary.wiley.com/doi/abs/10.1111/pirs.12061

17. Martinez-Vazquez, J., & McNab, R. M. (2006). Fiscal Decentralization, Macrostability, and Growth. *Hacienda Pública Española/Revista de Economía Pública, 179,* 25-49. Retrieved from https://pdfs.semanticscholar.org/7054/8dc7b78ccc308fc569a344eba638575b850c.pdf

18. Meloche, J. P., Vaillancourt, F., & Yilmaz, S. (2004). *Decentralization or fiscal autonomy? What does really matter? Effects on growth and public sector size in European transition countries* (World Bank Policy Research Working Paper, 3254). Retrieved from http://library1.nida.ac.th/worldbankf/fulltext/wps03254.pdf

19. Musgrave, R. A. (1969). Theories of Fiscal Federalism. *Public Finance, 24*(4), 521-532.

20. Oates, W. E. (1972). *Fiscal Federalism*. New York: Harcourt Brace Jovanovich.

21. Oates, W. E. (1993). Fiscal decentralization and economic development. *National Tax Journal, 46*(2), 237-243. Retrieved from https://www.ntanet.org/NTJ/46/2/ntj-v46n02p237-43-fiscal-decentralization-economic-development.pdf

22. Oates, W. E. (1999). An Essay on Fiscal Federalism. *Journal of Economic Literature, 37*(3), 1120-1149. https://doi.org/10.1257/jel.37.3.1120

23. Rodríguez-Pose, A., & Ezcurra, R. (2010). Is fiscal decentralization harmful for economic growth? Evidence from the OECD countries. *Journal of Economic Geography, 11*(4), 619-643. https://doi.org/10.1093/jeg/lbq025

24. Rodriguez-Pose, A., & Krøijer, A. (2009). Fiscal Decentralization and Economic Growth in Central and Eastern Europe. *Growth and Change, 40,* 387-417. https://doi.org/10.1111/j.1468-2257.2009.00488.x

25. Sacchi, A., & Salotti, S. (2014). The effects of fiscal decentralization on household income inequality: some empirical evidence. *Spatial*

Economic Analysis, 9(2), 202-222. https://doi.org/10.1080/17421772.2013.833343

26. Thiessen, U. (2003a). *Fiscal Federalism in Western European and Selected Other Countries: Centralization or Decentralization?* What Is Better for Economic Growth, Unpublished Manuscript, DIW Berlin.

27. Thiessen, U. (2003b). Fiscal Decentralization and Eco-

nomic Growth in High Income OECD Countries. *Fiscal Studies, 24,* 237-274. https://doi.org/10.1111/j.1475-5890.2003.tb00084.x

28. Tiebout, C. M. (1961). An economic theory of fiscal decentralization. In *Public finances: Needs, sources, and utilization* (pp. 79-96). Princeton University Press.

29. Woller, G. M., & Phillips, K. (1998). Fiscal Decentralization

and LDC Economic Growth: An Empirical Investigation. *Journal of Development Studies, 34,* 139-148. https://doi.org/10.1080/00220389808422532

30. Yilmaz, S. (2000). The Impact of Fiscal Decentralization on Macroeconomic Performance. In *National Tax Association* (Ed.) (pp. 251-260). Proceedings of the 92nd Annual Conference on Taxation 1999, Washington, D.C.