

FISCAL DECENTRALIZATION DETERMINANTS AND LOCAL ECONOMIC DEVELOPMENT IN EU COUNTRIES

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Abstract

This work aims to assess the impact of fiscal decentralization on local (regional) development in the EU Member States while controlling for macroeconomic and local autonomy specific factors. Using a panel data approach with dynamic effects, we examined the implications of fiscal decentralization on local development across European Union countries over the 1990-2004 period. The novelty of the study is emphasized by including in the analysis a variable which tests local fiscal discipline, more exactly, Fiscal Rule Strength Index for local level of government. Our findings suggest that prosperity of regions, measured in GDP growth depends on variables such as characteristics of decentralization undertaken by each country or local fiscal discipline, confirming our primary hypothesis. This supports the view that recently implemented reforms aiming to enforce fiscal discipline following-up the Fiscal Compact strengthened the local budgetary framework and restrained, therefore, the local discretionary power to act towards development.

Keywords: fiscal decentralization, economic growth, local fiscal discipline.

Introduction

Evolution of the global governance highlight that Europe is confronted with a growing number of challenges on the world stage, ranging from the rise of emerging economies to new security challenges and the EU's influence on global governance is based simultaneously on its long term achievements as a model of regional cooperation with a definite trend of public administration decentralization and strengthening of local autonomy (Wu *et al.*, 2017, pp.93-98). Contemporary period show that some countries continue to grapple with bad governance systems and often with government systems which don't work at fair value: insufficient financial resources, public services to a relatively low level of quality. Many member states are gradually transferring their fiscal and budgetary responsibilities

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to regions and cities, and they get to experience a more pronounced impact of European financial and economic governance (Savy *et al.*, 2017, pp. 12-14). Therefore, sub-national public finance situation it has become a subject highly debated and researched and there has been increasing interest in decentralization all around the world. Moreover, local and regional authorities are responsible for about one third of public spending and for two-thirds of all public investments in the EU, both figures showing a significant increase in the last decade. Furthermore, regions and cities lie a leading role in the implementation and financing of EU programs, in particular, structural funds and European investment (Grindle, 2007, p. 52; European Commission, 2016).

Based on the erroneous assumption that the behavior of sub-national level administration is one of the factors that impede the budgetary targets achievement at national level (even if nation states are primarily responsible for the crisis), European Commission lays out new options with the view to strengthen decentralization implications on the sustainability of public finances, bringing a trend of increasing fiscal decentralization in the EU Member States. In line with this, the European Commission Report of 2015, also show a trend of increasing fiscal decentralization in the EU Member States and the costs and revenue from local or regional level with a share increasingly larger. The report highlights that own revenues within the meaning of the taxes levied in autonomous sub-national is funding instruments more effective than transfers from the central government, but that the levying of taxes and own sub-national levels occurs less than 50% of cases without their share to have increased from 1995 to today.

The contribution of researchers to fiscal decentralization, show practical and theoretical implications, with a rich literature on the theory and policy of the subject. Even if there are a lot of studies which research the correlation between fiscal decentralization and economic growth (Davoodi and Zou, 1998; Martinez and McNab, 2003; Rodriguez and Anne, 2009; Rodriguez *et al.*, 2009, Bova and Carcenac, 2014), we can say that the results did not reflect all the time the perfect way for a viable sustainable development, and this is perhaps the result of a complex interplay of a variety of forces related to development. Moreover, fiscal decentralization also referred to as fiscal federalism can be broadly defined as the study of the structure and functioning of multi-tiered governments. Oates (2005) presents a comprehensive survey of the literature, dividing it into two strands, the first-generation theory, and the second-generation theory. In base of his findings, the early contributions in the first-generation can be found in the seminal papers of Samuelson (1954, 1955), who defined the nature of public goods, Arrow (1970), who conceptualized the roles of the private and public sectors, and Musgrave (1959), who proposed the functions of the government (income distribution, market failure correction, and macroeconomic stabilization). Based on the first point of view, it seems that local governments would be best positioned to provide local public goods because of their knowledge of local preferences and implications of central government should be to monitor and balance the provision of local public



goods, in case there are negative spillovers that could affect other local governments. The second-generation theory refers to key contributions to the theory of federalism focus on information problems, moral hazard, and free riding among the various levels of governments. Other studies, (McKinnon *et al.*, 1997, pp. 191-193; Weingast, 1995, pp. 26-22), highlights the difference between *hard* versus soft budget constraints, where soft budget constraints are ignored by the local governments on the belief that a bailout by the central government is possible. Despite this dominant view of theoretical literature, we find some studies which focus on analyzing the economic benefits of fiscal decentralization and its general effects on development in regional profile (Adefeso *et al.*, 2016; Bartolini *et al.*, 2013; Baskaran *et al.*, 2016; Blöchliger *et al.*, 2016; Rodríguez-Pose *et al.*, 2004).

Other papers, offer some rough guidelines for implementation of fiscal decentralization (Bahl, 1999), providing evidence that the design of a fiscal decentralization program should begin with a recognition of the benefits and costs of this policy. In consequence, each country has unique characteristics that establish the appearance of a negative aspects of fiscal decentralization. Letelier (2016, p. 170), highlight that there are some issues which need to be taken into consideration. One of this consist on the fact that important rights were not granted to local governments, which limits their ability to efficiently organize service offerings. The second one, emphasize that the autonomy of local financial management is limited by its own rules for allocating income by restricting the use of transfers and also, we talk about the incomplete transfer of ownership, that is an obstacle to effective management of local assets, unclear delimitation of legal and constitutional boundaries of local autonomy.

On the other hand, Profiroiu *et al.*, (2015), identifies some negative aspects such as the incidence of public policy insufficiently argued and partially implemented, which could not provide rational solutions to existing problems. For instance, local authorities have not benefited in any case in advance, specialized training on financial management and management of decentralized public services. So we can record a gap between decision-making powers transferred to local authorities and resources to support their (European Commission, 2016).

This paper discusses the relationship between fiscal decentralization and economic growth in European Union. Using a panel data sample of 28 countries over the 2000-2014 time span, the aim is to assess the impact of fiscal decentralization on local (regional) development, so we examined and determined the significance and robustness of various endogenous and exogenous factors influencing the economic growth in these countries, like investment, fiscal local rules, tax revenue as a percentage of total subnational revenues and grants % GDP, government bonds rates, political factors and others. Based on the results of this research, we outlined the prospects of economic growth in the countries investigated. To address the research questions and objectives, this study was based on quantitative and qualitative research methods, using SPSS and EViews software.



We used three indicators as proxies for fiscal decentralization: subnational expenditure and tax as a percentage of national expenditure and tax respectively, and thirdly, tax revenue as a percentage of total subnational revenues and grants % GDP. Starts from the premise that effective decentralization should be reflected in the value added produced in a community, we test if the transfer of powers and resources to lower tiers of government allows for a better matching of public policies to local needs and thus for a better allocation of resources and a prosperity of regions.

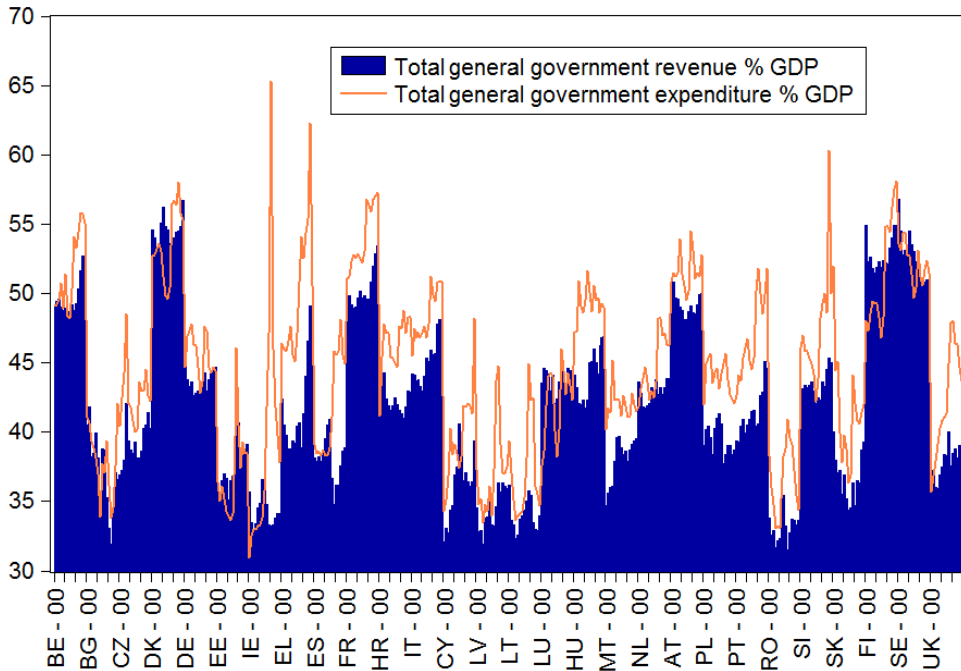
1. European trends in fiscal decentralization

Since the beginning of the 1990s countries in Central and Eastern Europe have undertaken comprehensive reforms of intergovernmental fiscal systems. Over the last two decades, fiscal decentralization has become a central concern in countries around the world, especially in the emerging market economies of Eastern Europe. Undeniably, European Union trends show that many member states transfer gradually fiscal responsibilities and budget to the regions and cities, so they get experience and more pronounced impact of economic governance. Local and regional authorities are responsible for about a third of all public spending and for two-thirds of all public investment in the EU, both figures have increased significantly in the last decade. Furthermore, regions and cities play a leading role in the implementation and financing of EU programs, in particular for structural funds and European investment. In base of International Monetary Fund reports (2011), the degree of decentralization is studied using four measures: revenue, tax burden, expenditure, and compensation of employees.

The importance of the general government sector in the economy may be measured in terms of total general government revenue and expenditure as a percentage of GDP, even if their significance depends on the functions that local authorities are responsible, and the overall size of the public sector of a country. In the EU-28, total government revenue in 2015 amounted to 44.9 % of GDP (down from 45.2 % in 2014), and expenditure amounted to 47.3 % of GDP (down from 48.1 % in 2014). Whilst the general decentralization nature of the public administration, especially the EU discussed below, should not be overlooked, the focus of this submission is also on the implications for the public expenditure and we can also see in Figure 1. that the level of general government expenditure and revenue varies considerably between the EU Member States. Providing evidence that the fiscal stance of government (broadly government expenditure minus tax revenue) influences the level of demand in the economy, there are also important implications for the level of fiscal decentralization more generally.



Figure 1. Evolution of total general government expenditure and revenue % GDP, in the UE, 2000-2014



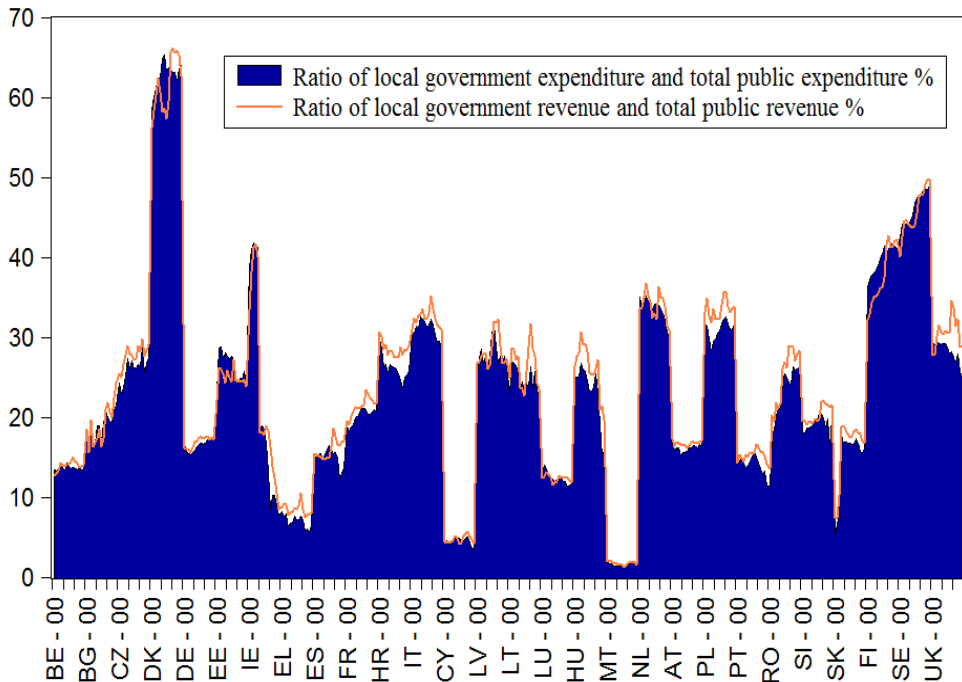
Source: own representation using eviews, IMF database

Even if in literature review section we find that a higher degree of fiscal decentralization of government spending is associated with lower provincial economic growth, we have also opinion that are in light of the argument that fiscal decentralization usually makes a positive contribution to local economic growth. There is, however, little empirical evidence to substantiate this claim.

For our study objectives, we chose to emphasize the ratio evolution of local government expenditure and revenue % GDP for the European Union, between 2000 - 2014 (Figure 2). In this case, we can see the characteristics of decentralization undertaken by each country. The IMF database contains the time series for the general government revenue and expenditure 2000-2014 as shown in Figure 1, thus, in Figure 2 based on our own calculations, we chose to show how it evolved ratio of local government expenditure and revenue % GDP, in the UE between these years. This corresponds to the quality of rules based fiscal governance in EU Member States and to the characteristics of decentralization undertaken by each country. Analysing how the ratio has evolved over time, we can notice in case of expenditure for example, that there is a wide variation across the country sample, ranging from more than 50 percent in Denmark to 4 percent in

Malta. Considering the different country characteristics presented in Table 1, the low values for Croatia, Estonia, or Slovenia match expectations of relatively centralized fiscal systems.

Figure 2. Ratio evolution of local government expenditure and revenue % GDP, in the UE, 2000-2014

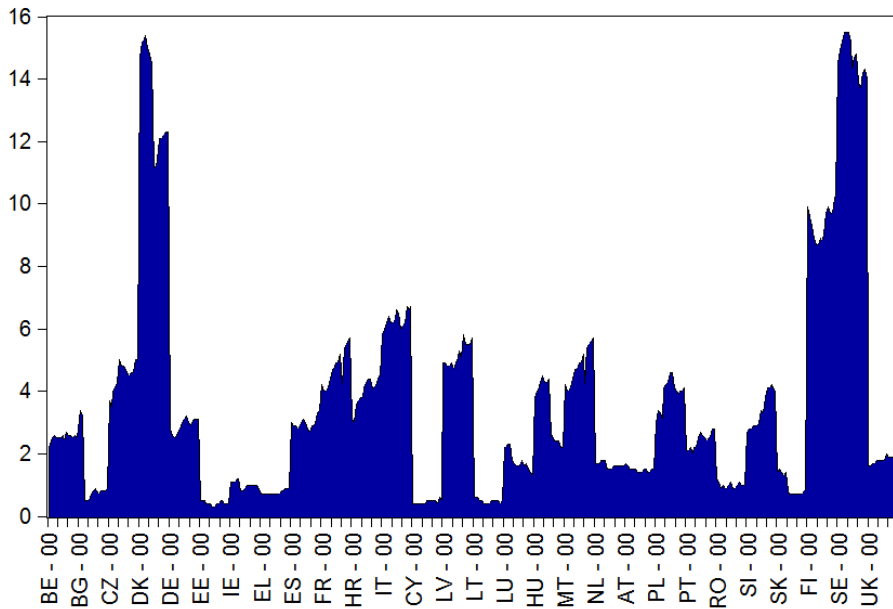


Source: Author's calculation

The structure of tax revenue varied considerably between the EU Member States over 14 years of reference (see Figure 3). As may be expected, those Member States that reported relatively important level of expenditure tended to be those that also raised more taxes (as a proportion of GDP) for general government. For example, in 2014, the highest share of GDP in revenues from the main categories of taxes and social security contributions was 47.4%, recorded in Denmark, followed by France and Belgium (47.2% and 46.1%). The share of these revenues in GDP was below 30% in five EU Member States (Romania, Ireland, Bulgaria, Latvia and Lithuania) and in Switzerland. Of course, empiric data show a clear image of decentralization level, but while there are differences between countries, we can say that the differences between each type of strategy constitute a distinctly different model of sub-national government finance.



Figure 3. Tax revenue as a percentage of total subnational revenues and grants % GDP-EU, 2000-2014



Source: Author calculation

Economic growth is one of the main targets of economic policy of any country around the world. By strengthening the process of fiscal decentralization, we can bring the state on the path of sustainable growth and ensure stability and security in it. But as expected, each country has its own characteristics and depending on the adopted strategy, it can consolidate a model of economic development or not. To strengthen the base of this study, Table 1 shows country characteristics and Structural aspects of fiscal decentralization in 2014.

The total number of subnational government in 2014 in the EU28, amounted to 89.315, including 87.980 municipal level, 1077 intermediary level and 264 regional or state level. On the other hand, we can see that each country presents own characteristics and model of decentralization, with a defined level of autonomy in the base of law or political agreement. For example, in Finland there are 19 regional councils but only one has an autonomous administration (island region of Åland), the 18 other regional entities being statutory joint municipal boards. A reform is under way with the goal of transforming them into self-governing regions. In Spain, the three “formal” autonomous communities (Basque Country, Catalonia, Galicia) retain more autonomy than the other regions. Local subdivisions vary according to the region. The two autonomous cities of Ceuta and Melilla are included in the number of municipalities but not in the number of provinces. Undeniably, the different degrees of decentralization as well as scope of intergovernmental fiscal reform in the region reflect, among other things,

historical, political, ethnic, geographic, and demographic differences. For instance, if we refer to a country like Poland (38.018 millions of peoples), that has larger populations, is likely to require a greater decentralization of public service provision to subnational governments than smaller countries, such as Estonia (1.316 millions of peoples) or Latvia (2.001 millions of peoples). When considering the GDP per capita dynamics (Table 1), the picture becomes slightly different, Ireland and Lithuania are better positioned, with a real GDP growth per capita of 8.2 and 3.9.

Table 1. Country Characteristics and structural aspects of fiscal decentralization, 2014

Country	Population (mil. of pop.)	Area (km ²)	GDP by NUTS 2 regions	Real GDP pc growth	Fiscal local rules index ¹	Convergence score to FRL	Number of subnational governments			
							Municipal level	Intermediary level	Regional/ state level	Total
AT ²	8.544	82409	43,230	-0.1	0.8942	1.2	2100	0	9	2109
BE ³	11.204	30326	400,643	0.8	1.5480	1.2	589	10	6	605
BG	7.202	110370	17,559	2.1	3.5475	2.15	264			264
CZ	10.512	77227	62,150	2.6	-0.1299	1.15	6258	0	14	6272
CY	0.858	9251	117,750	-1.4	0.5117	0.9	379			379
HR	4.238	222213	64,909	0.2	1.6232	1.2	555	0	21	576
DK	5.627	42959	62,150	0.7	1.9054	2.15	98		5	103
EE	1.316	43432	36,741	3.3	0.7618	1.1	213			213
FI	5.451	303891	121,571	-1.1	0.2514	1.35	313		1	314
FR ⁴	63.982	647795	7,727	0.2	3.0472	1.95	35885	101	18	36004
DE ⁵	81.198	357376	320,763	1.2	2.8274	1.75	11092	402	16	11510
EL	10.927	130820	168,893	1.3	0.8175	1.45	325	0	13	338
IE	4.61	689394	241,581	8.2	2.4094	0.9	31			31
IT	60.783	295113	87,752	-0.6	2.8547	1.4	8047	107	22	8176
LV	2.001	64573	1,613,859	3.3	2.8405	1.4	119			119
LT	2.932	63300	355,045	3.9	0.5595	1.2	60			60
LU	0.55	25891	70,973	1.6	2.1531	1.6	105			105
MT	0.425	315243	17,394	2.5	1.4360	1.65	68			68
PL	38.018	312679	64,351	3.3	1.7633	1.7	2478		16	2874
PT	10.401	92226	43,408	1.5	1.5497	1.4	308		2	310
UK	64.597	242509	78,918	2.3	1.3764	1.45	389	27	3	419
RO	19.947	23839	123	3.3	2.0679	1.2	3188	0	41	3223
SK	5.416	49039	197,255	2.4	2.9496	1.95	2927		8	2935
SI	2.061	20138	135,631	2.9	-0.8242	0.9	212			212
ES	46.455	505944	2,254,297	1.6	3.0439	1.2	8119	50	17	8186
SE	9.747	407340	54,089	1.3	1.9969	1.45	290		21	311
NL	16.865	33718	10,160	1	2.9776	1.65	390		12	402
HU	9.877	93028	38,084	4	0.7780	0.9	3178	0	19	3197
Max.	81.198	689394	2254297	8.2	3.5475	2.15	35885	402	41	36004
Min.	0.425	9251	123	-1.4	-0.824	0.9	31	0	1	31

Notes: GDP is expressed in current market prices

Source: OECD, Eurostat, World Bank, UNDP, ILO

¹ Depending on the type and number of fiscal local rules, it has been established a score of 0.25 for each rule, the amount presented is their sum. In terms of importance, with reference to the origin of fiscal rules-5: Constitutional; 4: International Treaty, 3: Common Law; 2: Coalition Agreement 1: political commitment, it has been established a score equal to their sum. Final results-convergence to fiscal responsibility.

² Austria: the municipal level comprises statutory cities, towns, markets and villages. The nine Bundesländer include Vienna.

³ Belgium: the upper level consists of six federated entities (three language communities and three regions)

⁴ France: total area and population include the five outermost regions.

⁵ Germany: the intermediary level comprises 295 rural districts and 107 district-free cities.



In terms of convergence to fiscal responsibility laws, we find a preference of inadequacy of the legal fiscal mostly on profile of less developed countries, with problems in terms of capacity to effectively manage public finance system, talking concerned by Cyprus, Czech Republic, Bulgaria, Slovenia, Hungary, which have scores below 1.2. At the opposite pole, we discuss about the scope of economic powerhouses, which, according to empirical studies, annual reports and practices in the field, enjoys economic growth and a different status, respectively Denmark, Netherland, France, Luxembourg and Germany, which according to our analysis recorded scores above 1.65, reaching a maximum of 2.15.

2. Data and methodology

It is evident from the literature review section that several studies focus exclusively on the studying the link between fiscal decentralization and economic growth, with the result of what we call the real autonomy of regions and other studies focus on analyse the economic benefits of fiscal decentralization and its general effects on development in regional profile. However, research supporting the need for consolidation in the direction of the objective of this study, the subject being ambiguous (Thornton, 2007, p. 67). Even if the existence of these studies come to different points of view regarding the effects of fiscal decentralization on economic growth, there has been a general practice to utilize the countries including Central and Eastern Europe over the period of 1990–2004 and 1990–2008. Most empirical studies have focused on income or expenditure share in total revenues of local governments or government spending as a measure of fiscal decentralization, other studies it uses as reference, variables such as investment, employment rate or the share of local spending in total public spending (Akai and Sakata, 2002, pp. 96-99). Another author distinguishes between unitary and federal states in a study of 46 developed countries and developing countries using annual data for the 1971-1990 period and found that fiscal decentralization has a positive and statistically significant growth in unitary states (Yilmaz, 1999, p. 258). On the other hand, even if Lin and Liu (2000), find that in case of China profile, the retention of national revenues collected at the provincial level have a statistically significant positive impact on the growth of real GDP per capita, Zhang and Zou (1998), demonstrate a negative impact of fiscal decentralization on revenue growth provinces in China during the period 1980-1992.

In this research, we focused efforts on studying the EU case using a linear regression model based on those of Levine and Renelt (1992) and Woller and Phillips (1998). Based on a panel data sample of 28 countries over the 2000-2014 time span. The novelty of the study is emphasized by include in the analysis a variable which test local fiscal discipline, more exactly, fiscal rule strength index for local level of government. The model adopts the following form:

$$y_{i,t} = \alpha + \beta_y x_{i,t} + \beta_z z_{i,t} + \varepsilon_{i,t}$$



According to Rodriguez-Pose and Fratesi model (2004), we used different annual lags between dependent and explanatory variables in order to show progress while coefficients and also, we introduced in the model one-year lag as a way to avoid simultaneous causation. As we can see in the Table 3., eight annual lags are included. The model adopts the following form:

$$\ln y_{i,t} = \alpha + \beta_y x_{i,t} + \beta_z z_{i,t} + \varepsilon_{i,t}$$

$y_{i,t}$ = GDP per capita growth rate for country i at time t

$x_{i,t}$ = control variables-POP, POPGROWTH, INV, GDPNUTS2, IHNUTS2 for country i at time t

$z_{i,t}$ = fiscal decentralization- FLEXP, FLREV, TAXREV for country i at time t

l = the size of the lag

The cross-section analysis is conducted by averaging the panel data in time in order to identify longer term effects. As mentioned above, one of the main indicators of economic growth of the country is the nominal GDP and GDP per capita, so, for our study, as we find in Woller and Phillips (1998), we derive y by taking the log first-difference of PPP-adjusted real GDP per capita, thus creating the dependent variable GROWTH. Our control variables consist of population (Millions of people), population growth rate, investments % GDP, GDP at current market prices by NUTS 2, household income by NUTS 2 regions/Euro per inhabitant. The last two variables were introduced in the analysis using the average of the sums assigned to NUTS 2 categories, precisely because NUTS 2 are basic regions for the application of regional policies and the quality of management and policies undertaken at this level have implications for growth.

However, some of this variables have been used by researchers in testing economic performance (Gregory *et al.*, 1992; Levine and Renelt, 1992). On the other hand, the fiscal decentralization variables (z), they are also chosen based on a theoretical foundation. Barro and Lee (1996), testing in this case the international measures of schooling years and schooling quality. For (z), we have variable: local expenditure as percentage of total national expenditure, local revenue as percentage of total national revenue and tax revenue as a percentage of total subnational revenues and grants % GDP.

Using data from the IMF's International Financial Statistics, we also tested the regressions including other indicators like fiscal local rules strength index and Government bonds rates, with the purpose to highlight the need to consolidate public finance and fiscal budgetary responsibility. Concerning fiscal local rules strength index as we have proven on other occasions, show convergence towards fiscal responsibility and the calculation method can be consulted in Gavriliuță (2017, pp. 150-151).



Table 2– Variables and Data Source

VARIABLE	DEFINITION	DATA SOURCE
GROWTH	Real GDP Growth	IFF- IMF International Financial Statistics Online
FRS	Fiscal local rules strength index	IFS- IMF International Financial Statistics Online
GBR	Government bonds rates	World Bank
IHNUTS2	Income of households by NUTS 2 regions-Euro per inhabitant	European Commission
POP	Population (Millions of people)	European Commission
POPGROWTH	Population growth rate	European Commission
FLEXP	Local expenditure as percentage of total national expenditure	IFS- IMF International Financial Statistics Online
FLREV	Local revenue as percentage of total national revenue	IFS- IMF International Financial Statistics Online
TAXREV	Tax revenue as a percentage of total subnational revenues and grants % GDP	IFS- IMF International Financial Statistics Online
PDEF	Primary deficits % GDP	European Commission
GDPNUTS2	Gross domestic product (GDP) at current market prices by NUTS 2	European Commission
INV	Investments % GDP	IFS- IMF International Financial Statistics Online

The dataset consists of annual observations of European Union, over the years 1990-2004. The specific choice of the countries and period for the study is based on European Union trends in fiscal decentralization, the purpose being to show the specific situation with the implication of decentralization of development in regional profile and the correlation with the fiscal responsibility.

3. Regression results and analysis

In order to assess the impact of fiscal decentralization on local (regional) development in the EU Member States, we use data from the International Financial Statistics Online, European Commission and World Bank and the results of the empirical analysis are presented in Table 3. The most important motivation of variables choice is the following: First, control variables are determinants for economic growth, and this statement has both economic foundation and demonstrated through the studies (Levine and Renelt, 1992). Second, the choice of variables for fiscal decentralization variables (z), they are also chosen based on a theoretical foundation (Barro and Lee, 1996).

Our analysis highlights that all factors used in the regression model, except IHNUTS2 and GDPNUTS2, have what can be considered as the expected significant coefficient signs. Referring to POP and POPGROWTH variables, we can say that the relation between population and economy is a cardinal problem of the contemporary world, the population is the natural support of labor supply, the factors of production, but also the legitimate recipient of all created goods. A growing population, for example, exert increasing pressure on all the systems and



structures of society: economic, educational, environmental, health, etc. So in our case, a growing population, involve pressure on revenue. Which is why, our study highlights the negative correlation between economic development and population, this view being supported also by studies of Simon (1989). On the other hand, Chesnais (1985) and Lloyd Reynolds (1985) have found no association between the population growth rate and per capita income growth rate.

Table 3. Result of Baseline and Decentralization Regressions – Annual Observations

GROWTH	No lag	Lag 1	Lag 2	Lag 3	Lag 4	Lag 5	Lag 6	Lag 7	Lag 8
FRS	-0.5835 (-1.18)**	-3422 (-1.77)*	-4586 (-2.12)**	-0.3111 (-1.34)	-0.2031 (-0.8295)	-4.3315 (-2.23)	-0.1344 (-6.66)	-0.3087 (-1.61)*	-0.3385 (-2.02)**
GBR	-0.4002 (-4.33)***	-3665 (-4.01)***	-0.3618 (-3.63)***	-0.3605 (-3.47)*	-0.3857 (-3.54)***	-0.4337 (-4.65)*	-0.4687 (-5.43)*	-2.2426 (2.71)***	-2.2245 (-2.79)**
IHNUTS2	4.5400 (0.62)	2.1023 (0.28)	4.0307 (0.49)	3.3307 (0.38)	3.0307 (0.3371)	2.0307 (0.49)	-8.0908 (-0.097)	1.1007 (0.15)	1.5707 (0.24)
POP	-0.0139 (-1.72)*	-0.1331 (-1.65)*	-0.0140 (-1.56)*	-0.0110 (-1.15)**	-0.0076 (-0.75)	-0.0148 (-1.82)***	0.0025 (0.25)	-0.0247 (-3.07)**	-0.2065 (-2.94)**
POPGROWTH	-6.9800 (-1.21)	-4.3705 (-1.92)	-7.8605 (-1.99)**	-6.4805 (-1.58)	-5.5405 (-1.31)	-8.6305 (-2.36)***	-4.2105 (-1.16)	-2.3005 (-0.65)	-3.3825 (-1.07)
FLREV	0.1896 (1.44)	0.2950 (2.14)**	0.2940 (1.86)*	0.2666 (1.55)*	0.1925 (1.06)	0.2056 (1.49)	0.1927 (1.09)	0.3612 (2.57)**	0.2321 (1.93)**
FLEXP	-0.1586 (-1.17)	-0.2826 (1.98)**	-0.2781 (-1.70)*	-0.2598 (-1.46)*	-0.1945 (-1.04)	-0.1785 (-1.22)	-0.2035 (-1.086)	-0.3281 (-2.25)**	-0.1947 (-1.15)***
TAXREV	0.2483 (-3.63)***	0.1674 (-2.36)**	-0.2229 (-2.76)***	-0.1918 (-2.18)**	-0.1675 (-1.77)*	-0.2134 (-2.99)**	-0.4449 (-0.48)	-0.2458 (-3.44)*	-0.2496 (-4.083)***
PDEF	0.3879 (5.54)***	0.3097 (4.25)***	0.4122 (5.16)***	0.3776 (4.43)***	0.3497 (3.89)***	0.6222 (7.50)**	0.1360 (1.87)***	0.2504 (3.46)*	0.2086 (3.26)***
GDPNUTS2	-4.5427 (1.16)	3.7907 (0.93)	2.2907 (0.5048)	1.5107 (0.31)	7.5105 (0.14)	2.0307 (0.49)	1.8708 (0.040)	7.4707 (1.83)	5.7407 (1.62)
INV	0.2149 (4.39)***	2.1016 (0.28)***	0.2931 (4.90)***	0.2732 (4.31)***	0.2482 (3.76)***	0.3025 (5.82)***	0.0476 (0.63)	0.6133 (9.97)***	1.1769 (14.10)***
Obs.	419	391	363	335	307	291	251	223	193
R-Squared	0.30892	0.37002	0.30077	0.2918	0.2937	0.3509	0.4257	0.44672	0.52176
F-Statistics	16.5	18.50	12.54	11.05	10.19	17.03	7.78	23	34.6

Note: Standardized coefficients reported; t-statistics in parentheses *** significant at the 1% level; ** significant at the 5% level; *significant at the 10% level

The investment rate INV is positive and significant at the 1 percent level, this stressing that the higher the investment rate, the higher the growth. In case of government bonds rate (GBR), our analysis highlight that has the expected positive correlation to GROWTH and is significant at the 1 percent level for all annual lags, we can see that for lag three, four and five, we have significant at the 10% level.

Our analysis also highlights an interesting point of view regarding the implications of local tax rules in this equation, fiscal local rules strength index is negatively correlated with growth, we have significant at the 10% level for lag one and seven. In this case, the explanation is that at the EU level, IMF report shows a folding these rules rather towards the tightening of local financial autonomy, but not towards empowering local authorities, such as normal.

In terms of fiscal decentralization, local expenditure as percentage of total national expenditure, is one of the most common indicators for fiscal decentralization. This measure is negatively correlated to growth throughout the eight time lags. In this case, we can say that the higher the share of local



expenditure out of total expenditure, the lower the national growth rate. This is due to the previously discussed aspects, even if the regions have been assigned great expenditure responsibilities, they do not have the proper resources to fulfil their assignments. On the other hand, the negative correlation between growth and fiscal local rules strength index, show that these rules are different in each country and did not reflect fiscal responsibility but reflect that local authorities did not have the real autonomy to determine their expenditures. The primary deficits, is significant at the one percent level and significant at the 10% level for lag 7, so if the deficit decreases clearly have growth.

Tax revenue as a percentage of total subnational revenues and grants % GDP, is positive and significant so if the deficit decreases, clearly we have growth, this idea being supported by studies from this area (Christopher, 2005; William, 2003). The most interesting result from the decentralization indicators is the behavior of local authorities in what regard revenue as a percentage of total national revenues % GDP, in this case, our findings suggest that local revenue as percentage of total national revenue is significant at the 5% level for lag 1. Lag 7 and 8.

Conclusions

Within this study we presented the results of an analysis that gave us a picture of the existing body of literature on the topic of “fiscal decentralization and local economic development in EU countries” and from the desire to show a factual situation, we also included elements that allow us to reflect on the future. Thus, taking the above caveats into account, this study has tested the impact of fiscal decentralization on local (regional) development in the EU Member States, while controlling for macroeconomic and local autonomy specific factors. Using data available from Eurostat and International Financial Statistics Online, we conducted a linear regression model based on those of Levine, Woller and Pose and a correlation analysis, based on a panel data sample of 28 countries over the 2000-2014 time span. As a first step, we selected the useful variables regarding fiscal decentralization and local economic development based on their relevance argued in previous scientific studies. For each country of the sample, we computed data provided by Eurostat and International Financial Statistics Online, testing the relationship between fiscal decentralization determinants and local economic development.

We found that prosperity of regions, measured in GDP growth depends on variables such as characteristics of decentralization undertaken by each country or local fiscal discipline, confirming our primary hypothesis. Almost all factors used in the regression model, have what can be considered as the expected significant coefficient signs. The correlation between the investment rate INV with a positive impact and significance at 1 percent level, stressing that a higher investment rate lead to a higher growth rate. In case of government bonds rate (GBR), our analysis



highlight that has the expected positive correlation to GROWTH and is significant at the 1 percent level for all annual lags, we can see that for lag three, four and five, we have significant at the 10% level.

An interesting point of view can be observed with variables regarding the implications of local tax rules in this equation, fiscal local rules strength index is negatively correlated with growth, we have significant at the 10% level for lag one and seven. In this case, the explanation consists in the fact that at the EU level, IMF report shows a folding these rules rather towards the tightening of local financial autonomy, but not towards empowering local authorities, such as normal. From this point of view, we can notice that overall, fiscal decentralization is a multifaceted process and the inverse relationship between growth and subnational expenditure assignment and fiscal transfers, and the, in time, positive correlation between growth and subnational taxation, as implied in this study, is just one facet to consider.

In terms of fiscal decentralization, local expenditure as percentage of total national expenditure, is one of the most common indicators for fiscal decentralization. This measure is negatively correlated to growth throughout the eight-time lags, in this case, we can say that the higher the share of local expenditure out of total expenditure, the lower the national growth rate. This is due to the previously discussed aspects, even if the regions have been assigned great expenditure responsibilities, they do not have the proper resources to fulfil their assignments. On the other hand, the negative correlation between growth and fiscal local rules strength show that these rules, are different in each country and did not reflect all the time fiscal responsibility but reflect that local authorities did not have the real autonomy to determine their expenditures. The primary deficit is significant at the one percent level and significant at the 10% level for lag 7, so if the deficit decreases clearly have growth.

This finding is very useful for central authorities of the European member States in their efforts to (re)design national fiscal arrangements, especially in the light of recent financial and economic crisis. Thus, recently implemented reforms aiming to enforce fiscal discipline following-up the Fiscal Compact strengthened the local budgetary framework and restrained, therefore, local discretionary power to act towards development. Consequently, budgetary constraints should be set apart, according to the different real potential of subnational collectivities, in order to avoid the negatives effects on regional development. We contribute to the extant literature that tested the impact of fiscal decentralization on local development by introducing a new determinant of local authorities' policy behavior, namely the local fiscal discipline, as a variable that tests, more exactly, subnational fiscal rule strength.



References

- Adefeso, H. A. and Tunde, A.A. (2016), Fiscal Decentralization and Economic Development in Nigeria: The Role of Democratic Institution, *Journal of Politics and Law*, 9(1), pp. 1-10.
- Akai, N. and Masayo, S. (2002), Fiscal decentralization contributes to economic growth: evidence from state-level cross-section data for the United States, *Journal of urban economics*, 52(1), pp. 93-108.
- Arrow, K. (1970), *Political and economic evaluation of social effects and externalities*, *The analysis of public output*, National Bureau of Economic Research, pp. 1-30, (retrieved from <http://papers.nber.org/books/marg70-1>).
- Bahl, R. (1999), *Implementation rules for fiscal decentralization*, *Seminar on Land Policy and Economic Development*, Land Reform Training Institute, Taiwan, November 17, 1998, (retrieved from: <https://pdfs.semanticscholar.org>).
- Barro, R. J. and Jong, W. L. (1996), International measures of schooling years and schooling quality, *The American Economic Review*, 86(2), pp. 218-223.
- Baskaran, T. and Lars, P. F. (2013), Fiscal decentralization and economic growth in OECD countries: is there a relationship?, *Public Finance Review*, (4), pp. 421-445.
- Baskaran, T., Lars P. F. and Jan, S. (2016), Fiscal Federalism, Decentralization, and Economic Growth: A Meta-Analysis, *Economic Inquiry*, 54(3), July 2016 pp. 1445–1463.
- Blöchliger, H., David B., and Sibylle S. (2016), Does Fiscal Decentralization Foster Regional Convergence?, *OECD Economic Policy Papers*, No. 17, pp. 1-20.
- Bova, E., Carcenac, N. and Guerguil M. (2014), *Fiscal Rules and the Procyclicality of Fiscal Policy in the Developing World*, Working Paper, No. 14/122, IMF-Fiscal Affairs Department, Washington, USA.
- Chesnais, J. C. (1985), Progres économique et transition démographique dans les pays pauvres: trente ans d'expérience (1950-1980), *Population* (french edition), 40(1), pp. 11-28.
- Davoodi, H. and Heng-fu, Z. (1998), Fiscal decentralization and economic growth: A cross-country study, *Journal of Urban economics*, 43(2), pp. 244-257.
- European Commission (2010), "Europe 2020" - *Fiscal frameworks*, (retrieved from http://ec.europa.eu/europe2020/pdf/themes/06_fiscal_frameworks_02.pdf).
- European Commission (2014), *National fiscal frameworks and database on numerical fiscal rules*, (retrieved from http://ec.europa.eu/economy_finance/db_indicators/fiscal_governance/fiscal_rules/).
- Gavriliuță, A.F. (2017), Fiscal rules and fiscal responsibility convergence, *The USV Annals of Economics and Public Administration*, 25(1), pp. 144-154.
- Grindle, M. S. (2007), *Going local: decentralization, democratization, and the promise of good governance*, Princeton University Press.



- International Monetary Fund (2016), *Government Finance Statistics*, Washington, DC, (retrieved from <https://www.imf.org/external/Pubs/FT/GFS/Manual/2014/gfsfinal.pdf>).
- Letelier, L. (2016), Explaining fiscal decentralization, *Public Finance Review*, 33(2), pp. 155-183.
- Levine, R. and Renelt, D. (1992), A Sensitivity Analysis of Cross-Country Growth Regressions, *The American Economic Review*, 82(4), pp. 942-963.
- Lin, J. Y. and Zhiqiang L. (2000), Fiscal decentralization and economic growth in China, *Economic development and cultural change*, 49(1), pp. 1-21.
- Mankiw, N. G., David R. and David, N. W. (1992), A contribution to the empirics of economic growth, *The quarterly journal of economics*, 107(2), pp. 407-437.
- Martinez, J. and McNab, R. M. (2003), Fiscal decentralization and economic growth, *World development*, 31(9), pp. 1597-1616.
- McKinnon, R. I., and Huw P. (1997), Credible economic liberalizations and overborrowing, *The American Economic Review*, 87(2), pp. 189-193.
- Musgrave, R. A. (1959), *The theory of public finance*, McGraw-Hill Book Company, Inc.
- Oates, W. E. (2005), Toward a second-generation theory of fiscal federalism, *International tax and public finance*, 12(4), pp. 349-373.
- Profiroiu, M., and Profiroiu, A., (2015), Cadrul de analiza a performantelor sectorului public- The analysis of public sector performances, *Economie teoretica si aplicata*, 1, pp. 44-47.
- Reynolds, L. G. (1985), *Economic growth in the Third World, 1850-1980*, Economic Growth Center Publications, pp. 441-456.
- Rodriguez, A. and Anne, K. (2009), Fiscal decentralization and economic growth in Central and Eastern Europe, *Growth and Change*, 40(3), pp. 387-417.
- Rodriguez, P., A. and Ugo F. (2004), Between development and social policies: the impact of European Structural Funds in Objective 1 regions, *Regional Studies*, Vol. 38 (1), pp. 97-113.
- Rodriguez, P.A., Sylvia A., Tijnstra, R. Adala B. (2009), Fiscal decentralization, efficiency, and growth, *Environment and Planning A*, Vol. 41(9), pp. 2041-2062.
- Samuelson, P. A. (1959), The pure theory of public expenditure, *The review of economics and statistics*, 36(4), pp. 387-389.
- Savy, R., Helene, P. and Michel, S. (2017), The Process of Decentralization in Europe, in: Ruano, J. and Profiroiu, M. (eds.), *The Palgrave Handbook of Decentralization in Europe*, Springer International Publishing, pp. 1-14.
- Simon, J. L. (1989), On aggregate empirical studies relating population variables to economic development, *Population and Development Review*, 15(2), pp. 323-332.
- Thornton, J. (2007), Fiscal decentralization and economic growth reconsidered, *Journal of urban economics*, 61(1), pp.64-70.



- Weingast, B. R. (1995), The economic role of political institutions: Market-preserving federalism and economic development, *Journal of Law, Economics, and Organization*, 11(1), pp. 1-31.
- Woller, G. M. and Kerk, P. (1998), Fiscal decentralisation and IDC economic growth: An empirical investigation, *The journal of development studies*, 34(4), pp. 139-148.
- World Bank Economic and Social Database, (2017), (retrieved from <http://data.worldbank.org/data-catalog/world-development-indicators>).
- Wu, X., Ramesh, M. and Jianxing, Y. (2017), Autonomy and Performance: Decentralization Reforms in Zhejiang Province, China, *Public Administration and Development*, 37(2), pp. 94-109.
- Yilmaz, S. (1999), *The impact of fiscal decentralization on macroeconomic performance*, Proceedings of Annual Conference on Taxation and Minutes of the Annual Meeting of the National Tax Association, 92.
- Zhang, T. and Heng-fu Z. (1998), Fiscal decentralization, public spending, and economic growth in China, *Journal of public economics*, 67(2), pp. 221-240.

Appendices

Appendix 1. Result of Analysis of Sets of Data (independent variables) Related to Fiscal Decentralization

		Correlations			
		FLEXP	FLREV	FRS	TAXREV
FLEXP	Pearson Correlation	1	.990**	.349**	.711**
	Sig. (2-tailed)		.000	.000	.000
	N	420	420	420	420
FLREV	Pearson Correlation	.990**	1	.343**	.690**
	Sig. (2-tailed)	.000		.000	.000
	N	420	420	420	420
FRS	Pearson Correlation	.349**	.343**	1	.245**
	Sig. (2-tailed)	.000	.000		.000
	N	420	420	420	420
TAXREV	Pearson Correlation	.711**	.690**	.245**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	420	420	420	420

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Source: Authors' calculations

The Appendix 1 represents the degree of association among the explanatory variables employed for decentralization. The result indicates that there is absence of the problem of multicollinearity as the high coefficient of correlation (≥ 80)



indicates severity of multicollinearity problem. The terms FLREV and FLEXP are highly correlated with $\rho = 0.99$. However, these variables are used in separate case for compose z, so the problem of multicollinearity does not arise.

Appendix 2. Hausman test results-Cross-section fixed and random

Variable	Fixed	Random	Difference (b-B)	sqrt(diag(V b-V B)) (S.E.)
GBR	-0.728216	-0.575078	-0.153138	0.000745
FRS	-0.552147	-0.536140	-0.016007	0.013361
FLEXP	0.419798	0.146798	0.273000	0.004248
FLREV	-0.523409	-0.142623	0.380786	0.005157
IHNUTS2	-0.000001	0.000000	-0.000001	0.000000
INV	0.101926	0.167807	-0.065881	0.000620
GDPNUTS2	0.000000	0.000000	0.000000	0.000000
PDEF	0.265583	0.318251	-0.052668	0.000734
POPGROWTH	-0.000227	-0.000061	-0.000166	0.000000
POP	0.112220	-0.013279	0.125499	0.042908
TAXREV	0.214174	-0.213276	0.427451	0.068130

Source: Authors' calculations

In examining the effect of fiscal decentralization on economic growth through a series of panel regressions, we used the Hausman test in order to test the difference between fixed and random effects. This tests the null hypothesis that the coefficients estimated by the efficient random effects estimator are the same as the ones estimated by the consistent fixed effects estimator. If they are insignificant (P-value, Prob>chi2 larger than .05), then it is safe to use random effects. **RESULT:** Prob>chi2 = 0.0058. As chi2 is significant, fixed effects should be used in the analysis.

