FISCAL DECENTRALIZATION AND REGIONAL DISPARITIES IN CZECHIA AND SLOVAKIA: REGRESSION ANALYSIS AT THE NUTS 2 AND NUTS 3 LEVEL

Lenka Maličká

Abstract: Connection between fiscal decentralization and regional disparities is usually explained in two different manners. Fiscal decentralization might enhance the economic growth and optimal public good provision (and by this way might reduce regional disparities) or it can contribute to the deepening of differences among poor and rich regions. However, there is a wide empirical research of this connection in the economic literature. Despite it, in Czech and Slovak related research, there is an absence of such a literature. This paper focuses on revealing the character of relationship between fiscal decentralization and regional disparities in Czechia and Slovakia on both NUTS2 and NUTS3 levels. Regional disparities increase within both countries. Additionally, estimations results are about supporting the undesirable effect of fiscal decentralization. Statistical significant positive relationship between expenditure and revenue decentralization and regional disparities is observed in both countries, while this relationship using the measurement of tax decentralization is significant and negative only in the case of Slovakia. Unfortunately, even if the inverse estimated relationship support the hypothesis about reduction of regional disparities by tax decentralization, analysis of input data shows the trend toward decreasing the tax decentralization. It contributes to higher regional disparities, too.

Keywords: Regional Disparities, Fiscal Decentralization, NUTS 2, NUTS 3.

JEL Classification: R12, H71, H73.

Introduction

Disparities and income inequalities within countries and among countries exist permanently. But not very often the relation between fiscal decentralization and regional disparities is considered as alive and important. In the field of related economic literature (e.g. Bartolini, et al. 2016; Faldi 2016 or Ezcurra and Pascual, 2008), the influence of fiscal decentralization on regional disparities is equivocal. Arguments in favour of fiscal decentralization stays for higher rate of decentralization, because it assures optimal provision of public resources and encourages economic growth. Arguments in expense of fiscal decentralization are based on the possible occurrence of tax competition for mobile resources (capital). Poor regions are not able to compete with rich ones. This leads to deepening of regional disparities, when rich regions became richer and poor poorer. This disruption in theoretical argumentation is emulated by result of the empirical research.

Regional disparities within Czechia and Slovakia undoubtedly exist and a wide research is dedicated to this field. Similarly, the extent research of fiscal decentralization in mentioned countries was made. And while the foreign economic literature analyses the potential connection between fiscal decentralization and regional disparities, in Czech and Slovak empirical literature, only the blank space could be found. This is the main motivation of the paper. Thus, the main goal of the paper is to estimate the relationship between fiscal decentralization and regional disparities in two neighbouring and quite comparable countries, Czechia and Slovakia, employing the regression analysis. The motivation emerges from ambiguous reference of the theoretical and empirical literature. With regard on current course of public sector in both countries. The impetus for the research methods rises from the work of Lessmann (2006).

The paper is organized in the following manner. After the introduction, the chapter of literature review explains results obtained in recent research. It is followed by the chapter of methods. The chapter of results and discussion presents main findings of the research and opens related questions. The paper ends with conclusion and appendices.

1 Literature review

Correspondingly to antagonism of arguments in favour and in expense of the fiscal decentralization and its impact on regional disparities, results of empirical studies are ambiguous. Undesired impact of fiscal decentralization on regional disparities is early discussed by Prud'homme (1995). He argues that decentralization can be the mother of segregation). His idea was since then frequently under attention. Lessmann (2006, 2009), Ezcurra and Pascual (2008) or Suwanan and Sulstiani (2009) are discussing negative redistributive effects of fiscal decentralization as major argument against the decentralization. However, observed results often show an inverse relationship between the rate of the fiscal decentralization and regional disparities.

Ezcurra and Pascual (2008) revealed on the sample of EU countries, that fiscal decentralization is negatively correlated with regional disparities. Fiscal decentralization contributed to a more balanced distribution of resources across space. Lessmann (2009) investigates for the relationship between fiscal decentralization and regional disparities in a set of 23 OECD countries in the period of 1982-2000. His results show the inverse relationship also in poor regions. Suwanan and Sulstiani (2009) made his research on 33 Indonesian provinces in the period of 2001-2008 using a dynamic panel model based on the GMM. His results confirm the desired effect of fiscal decentralization on regional disparities, when the increase of the fiscal decentralization rate causes the decrease of regional disparities among Indonesian provinces. Rodriguez-Pose and Ezcurra (2010) stressed the relationship between fiscal decentralization and regional disparities in 19 developed and seven developing countries in 1990–2006 using a panel data. In developed countries fiscal decentralization reduces regional disparities. In developing countries is this relationship positive. Kyriacou et al. (2015) made a related research. On the sample of 24 OECD countries in the period of 1984-2006, they investigated, how the government quality influences the relation between the fiscal decentralization and regional disparities. Their basic hypothesis is about the potential force of fiscal decentralization to reduce income differences across regions. The menace they saw in governance problems connected to sub-national governments. Their results show, that fiscal decentralization promotes regional convergence in high government quality. Contrary, if the quality of government is poor, the fiscal decentralization increases regional disparities. Bartolini et al. (2016) searched for the relationship between balanced fiscal structures and regional disparities. Their research cover panel of 30 OECD countries in the period of 1995–2011. According to their results, when local spending is financed by local taxation, regional disparities are reduced. Balanced fiscal

structure could provide an incentive to better use of local sources and supports economic development. Bartolini et al. (2016: 46–47) provides also a brief review of empirical literature on the link between fiscal decentralization and regional disparities.

As it was mentioned in the Introduction, in Czech and Slovak conditions there is an absence of literature focusing on the direct connection between fiscal decentralization and regional disparities. Regional disparities in Czechia are stressed separately, e.g. by Štika (2004), Svatošová (2012) or Svatošová and Novotná (2012). In Slovakia, research in this field is made e.g. by Rajčáková (2006), Matlovič and Matlovičová (2011) or Rajčáková and Švecová (2011), etc. Regional disparities in central and eastern European countries during their transition are stressed by Ezcurra et al. (2007) and later by Smętkowski (2015). Regional disparities in Czechia and Slovakia in connection with sustainable growing of energy plants are analysed by Kotrla et al. (2017). Fiscal decentralization in Czechia is analysed e.g. by Jílek (2009) or Provazníková (2015). In Slovakia the wide research is made by Maličká (2016) or Maličká et al. (2017).

2 Methods

The research covers the period 2000–2016 and data for Czechia (CZ) and Slovakia (SK) are extracted from the Eurostat (2019), where the Regional statistics by NUTS classification is provided.

For the fiscal decentralization indicators, measures of expenditure, revenue and tax decentralization are employed. Expenditure and revenue decentralization measures (*ExpDec* and *RevDec*) are constructed as share of local government expenditure or revenue on general government total expenditure or revenue. Tax decentralization is measured in two different was. First as a share of local government tax revenues on general government total tax revenues (*TaxDec1*). Second, it is measured as a share of local government total revenues (*TaxDec2*). These indicators are broadly employed in the fiscal decentralization research.

For the regional disparity measures, the Gini coefficient (abbreviated as gini), coefficient of variation (cv) as standard deviation relativized by the mean value and diffusion (σ^2) are calculated. The gini and cv are broadly used measures of regional disparities in the empirical evidence. Beside it, Matlovič and Matlovičová (2011) display a σ^2 to capture regional disparities in SK. All measures are computed at the basis of the regional GDP per capital, as propose e.g. Bartolini et al. (2016) and many others. However, the empirical evidence employs also other forms of mentioned measures, e.g. Lessmann (2006) uses an adjusted Gini coefficient, population weighted coefficient of variations and mentions other possible indicators based on Herfindahl index or Theil Index. Svatošová (2012) uses an integral indicator covering the whole spectrum of socio-economic conditions. Hamada (2013) or Bartolini et al. (2016) make a review of regional disparity indicators. Mentioning the research of Lessmann (2006), the impetus for computing regional disparities for different NUTS regions comes from his paper. He shows the dependency of regional disparities on the territorial classification. Results present that regional disparities on the NUTS2 level are in average lower than disparities measured at the NUTS3 level. Argues, that the effect of commuters is here partially internalized.

To estimate the relationship between the fiscal decentralization and regional disparities, separately for CZ and SK, the two-stage least square method (TSLS), proposed by Lessmann (2006), is primarily used. This idea is supported by preliminary calculations, which revealed the possible endogeneity problem of the fiscal decentralization measures, mentioned in Lessmann (2006). The final decision of employing the TSLS or OLS (ordinary least square method) is taken at the basis of the Hausman test (null hypothesis: OLS estimates are consistent). When the null hypothesis is not rejected, the OLS is employed. Validity of instruments is tested by the Weak instrument test (First-stage F-statistics, a value < 10 may indicate weak instruments). Sargan over-identification test is used to test the validity of instruments (null hypothesis: all instruments are valid). Despite of use of robust standard errors (HAC) the heteroskedasticity is tested using the Pesaran-Taylor test for heteroscedasticity (null hypothesis: heteroskedasticity not present) and autocorrelation is tested using a LM test for autocorrelation (null hypothesis: no autocorrelation). If the OLS estimates are consistent according to Hausman test, or any other detections counts counter to use of TSLS, the OLS model is estimated. In OLS estimations, the presence of heteroscedasticity is tested using the Breusch-Pagan test (null hypothesis: heteroskedasticity not present).

3 Results and discussion

Comparison of variables of regional disparities at the level of NUTS2 and NUTS3 and fiscal decentralization measurements are shown in Fig. 1. According to the between country comparison, regional disparities measured by various different indicators are higher in SK, similarly to results mentioned by Ezcurra et al. (2007) or Smętkowski (2015). Degree of fiscal decentralization is higher in Czechia.

As it is observable, contrary to arguments of Lessmann (2006), within countries regional disparities on the level of NUTS2 are higher than on NUTS3 level in both countries. The reason might be found in the outstanding strong position of the units of capital cities in both countries (Praha in CZ and Bratislava in SK) at the NUTS2 level. At the NUTS3 level, regional disparities are lower due to existence of other strong units (strong means with high GDP per capita). Revision of spatial distribution of NUTS3 units with high GDP per capita (excluding the capitals) reveals, that such units are included to a NUTS2 unit together with NUTS3 units with low GDP per capita.

Expenditure and revenue decentralization indicators (*ExpDec* and *RevDec*, see Fig. 1) in the period 2000–2016 show increase of fiscal decentralization since the beginning of monitored period, when the decentralization was implemented by the law in both countries. Values of the tax decentralization measured as *TaxDec1* are obviously lower. It means that major part of government tax revenues is created and used on the central level of government. Additionally, in comparison with the revenue decentralization, it is evident, that local governments are financed through transfers. In SK, according to *TaxDec1* indicator, the tax recentralization (movement towards centralization) is observable, what is mentioned also by Maličká et al. (2017). Deriving the findings of Jílek (2009), countries with low tax decentralization suffer from low tax autonomy of local governments. In countries with low local tax autonomy, shared taxes are widely used.



Fig. 1: Comparison of regional disparities and fiscal decentralization various measures for Czechia and Slovakia calculated for NUTS2 and NUTS3

Source: own computation

The *TaxDec2* indicator, measured as a share of local government tax revenues on local government total revenues, is sensitive to the economic situation and law

changes. Its development in case of CZ is fluctuant. In years 2003–2004 its decrease is observed. As mentions Provazníková (2015: 122), the government did not adopt repetitively the law focusing on increase of ratio on shared taxes for regions, which were thus financed at the basis of transfers. Simultaneous increase of *ExpDec* and *RevDec* indicators is present. Other decrease of the CZ's *TaxDec2* is observed in the period of financial crisis due to decrease of the receipts from shared tax related to economic development. In SK, the massive decrease of the *TaxDec2* indicator since 2002 was caused by transfer funding of local governments. After the adoption of fiscal decentralization correspondent legislation (in 2005, Maličká, 2016), it behaves stably with smooth decrease in 2015, due to change in legislation concerning on vehicle tax managed by Slovak regions.

Detailed results of all provided estimations are displayed in Tab. 1 for NUTS 2 and Tab. 2 for NUTS3. In results, certain common tendencies are observable.

First, estimated coefficients of *ExpDec* and *RevDec* are positive and significant in prevalent part, in both countries and at both NUTS levels. The mentioned positive relationship counts on deepening of regional disparities with higher degrees of fiscal decentralization measured as expenditure and revenue decentralization. Expenditure and revenue decentralization measures include transfer payments made by the central government to sub-national governments. It is obvious that transfer payments create an important part of sub-national revenue (see Fig. 1, difference between *ExpDec* or *RevDec* and *TaxDec1*). Even they should reduce vertical fiscal imbalances and ensure the horizontal equalization, they could not enhance the optimal provision of local public goods (e.g. due to potential presence of the fly-paper effect) and thus they could not decrease horizontal inequalities among correspondent NUTS units. As transfers are received by subnational governments, they are immediately spent to cover current needs of localities and do not create any space to improve the conditions of local public goods provisioning.

Second, in general, estimated coefficients of TaxDec1 and TaxDec2 are negative in prevalent part in both countries and at both NUTS levels. Here, two additional facts might be observed. In case of CZ, the relationship between fiscal decentralization and regional disparities is negative but mostly it is not statistically significant. In case of SK, the relationship between the tax decentralization indicators and regional disparities, on both NUTS2 and NUTS3 levels, is negative and statistically significant. Regional disparities are reduced with higher degrees of tax decentralization. But considering the real development of the tax decentralization in the SK's conditions, the inverse relationship between tax decentralization and regional disparities should be interpreted quite differently. With lowering degree of tax decentralization (what is empirically observable), regional disparities are deepening. Persistent regional disparities result in the mobile capital localization processes across the country. In the SK it is significantly influenced by incentives given by the central government and by the process of privatisation of national enterprises, which are mostly situated in the area close to the capital city (or capital city region). Investors consider i.a. the tax system of the country. Assignment of certain advantage, e.g. tax holiday, is usually related to the corporate tax. In this case, the central government has the power to tax. Possibilities of lower governments are limited in this field. Additionally, manipulation with the real estate tax (where the tax power is assigned to local governments) to attract the mobile capital might boost the tax competition among localities. Potential scenario is twofold. It might lead to the race-to-the-bottom or to raise of local development caused by catching the investment.

Czechia												
		gi	ini			c	v			c	52	
const	0.149 ***	0.134 ***	0.573 ***	0.346 ***	0.264 ***	0.179 **	2.375 ***	0.746 *	5.903 ***	5.647 ***	12.91 ***	6.881 ***
Unempl	-0.003 ***	-0.004 ***	-0.001 **	-0.003 ***	-0.007 **	-0.008 **	0.003	-0.012 **	-0.012	-0.017	0.021 ***	-0.102 **
GDPpc	-0.001 **	-0.001 **	0.002 ***		-0.001	-0.001	0.013 ***		0.070 ***	0.071 ***	0.115 ***	
рор			-0.040 ***	-0.015 **			-0.199	-0.016			-0.678 ***	0.888 **
ExpDec	0.168 ***				0.854 ***				2,790 ***			
RevDec		0.214 ***				1.123 ***				3.571 ***		
TaxDec1			-0.086				-0.458				-0.028	
TaxDec2				-0.016				-0.134				0.394 *
Hausman test	0.006	0.002	0.832	0.002	0.006	0.000	0.000	0.000	0.000	0.000	0.520	0.150
Estimated model TSLS/OLS	↓ TSLS	↓ TSLS	↓ OLS	Weak ins. test < 10 ↓	↓ TSLS	↓ TSLS	Low Adj \mathbb{R}^2 at TSLS \downarrow OLS	Weak ins. test < 10 ↓	↓ TSLS	↓ TSLS	↓ OLS	↓ OLS
Sargan over-	0.512	0.587	-	-	0.631	0.895	-	-	0.783	0.481	-	-
Weak instrument	26.15	11.19	-	0.127	26.15	11.19	-	0.127	26.15	11.19	-	-
LM test for autocorrelation	0.187	0.301	0.121	0.064	0.933	0.611	0.976	0.114	0.171	0.445	0.856	0.031
Pesaran-Taylor test	0.154	0.101	-	-	0.525	0.058	-	-	0.736	0.335	-	-
Breusch-Pagan test	-	-	0.187	0.119	-	-	0.236	0.595	-	-	0.899	0.539
Adj R ²	0.511	0.415	0.780	0.535	0.586	0.543	0.829	0.199	0.984	0.975	0.993	0.641
Slavelie												
Slovakia												
	0.1((0 171	0.252	0.220	0.4(0	0.4(0	V 0.594	0.527	(111	(192	6027	(942
const	0.166	0.1/1 ***	0.252	0.230	0.469	0.469	0.584	0.53/	0.111 ***	0.183 ***	6.937 ***	6.84 <i>3</i> ***
Unempl	0.001	0.001	0.003 ***	0.001	0.003	0.003	0.009 ***	0.004 **	0.005	0.001	0.013	0.005
GDPpc	0.003	0.003	0.002 ***	0.003 **	0.009 ***	0.009 ***	0.006 ***	0.007	0.010 ***	0.098	0.097 ***	0.094 ***
pop EvenDee	0.204				0.204				2 470			
ExpDec	0.304 **	0.200			0.294	0.200			5.4/9 ***	2 1 6 5		
RevDec		0.286 **	2.020			0.298	4 470			3.105	12.42	
TaxDec1			-2.028 ***	0.040			-4.478 ***	0.140			-13.42 ***	0.011
TaxDec2				-0.069 **				-0.149 **				-0.911 ***
Hausman test	0.036	0.025	0.138	0.311	0.128	0.079	0.068	0.702	0.003	0.011	0.011	0.130
Estimated model TSLS/OLS	↓ TSLS	↓ TSLS	↓ OLS	↓ OLS	↓ OLS	↓ OLS	↓ OLS	↓ OLS	↓ TSLS	↓ TSLS	↓ OLS	↓ OLS
Sargan over- identification test	0.458	0.332	-	-	-	-	-	-	0.438	0.173	-	-
Weak instrument test	9.91	12.51	-	-	-	-	-	-	9.91	12.51	-	-
LM test for autocorrelation	0.838	0.508	0.549	0.739	0.476	0.510	0.675	0.505	0.534	0.882	0.024	0.530
Pesaran-Taylor test	0.022	0.079	-	-	-	-	-	-	0.003	0.018	-	-
Breusch-Pagan test	-	-	0.526	0.193	0.077	0.060	0.821	0.100	-	-	0.447	0.503
Adj R ²	0.610	0.618	0.865	0.791	0.736	0.733	0.863	0.786	0.968	0.973	0.971	0.989

 Tab. 1: Results of estimations for Czechia and Slovakia NUTS 2

Legend: *** significant at 0.01 level, ** at 0.05 level and * at 0.1 level of significance

Source: own computation

					Czechi	a						
		gi	ini				cv			(σ^2	
const	0.109 ***	0.104 ***	0.105 ***	0.123 ***	0.200 ***	0.127 **	2.001 ***	0.482	5.674 ***	5.423 ***	5.152 ***	12.51 ***
Unempl	- 0.002 ***	-0.002 ***	- 0.002 ***	-0.002 ***	- 0.006 **	- 0.007 **	0.002	-0.012 **	0.011	0.016	0.001	0.017 **
GDPpc	0.001 ***	0.001 ***	0.001 **	0.001 ***	0.001	0.001	0.013 ***		0.072 ***	0.073 ***	0.050 ***	0.116 ***
рор							-0.171 ***	-0.123				- 0.654 ***
ExpDec	0.059 ***				0.739 ***				2.694 ***			
RevDec		0.074 ***				0.971 ***				3.444 ***		
TaxDec1			0.150 **				-0.310				10.32 **	
TaxDec2				-0.007				-0.102				- 0.225
		1			1	1		1				
Hausman test	0.187	0.611	0.205	0.480	0.006	0.000	0.000	0.789	0.000	0.000	0.000	0.000
Estimated model TSLS/OLS	↓ OLS	↓ OLS	↓ OLS	↓ OLS	↓ TSLS	↓ TSLS	Low AdjR ² at TSLS ↓	↓ OLS	↓ TSLS	↓ TSLS	↓ TSLS	Weak instr. ↓ OLS
Sargan over-	-	-	-	-	0.624	0.880	OLS 0.397	-	0.727	0.455	0.404	-
identification test					26.15	11.10	11.20		26.15	11.10	11.40	
LM test for	- 0.731	- 0.578	- 0.525	- 0.345	0.625	0.879	0.949	- 0.074	0.118	0.406	0.271	- 0.866
autocorrelation												
Pesaran-Taylor test	-	-	-	-	0.673	0.052	-	-	0.804	0.392	0.779	-
Breusch-Pagan test	0.514	0.577	0.188	0.282	-	-	0.274	0.547	-	-	-	0.678
Adj K	0.916	0.926	0.914	0.885	0.726	0.6/4	0.879	0.274	0.987	0.980	0.929	0.994
					Sloveki	a						
	[g	ini		SIUVARI	a	cv				²	
const	0.141	0.145	2.361	1.797	3.715	3.744	0.480	0.434	5.920	5.981	31.81	6.593
Lin annal	***	***	***	**	**	**	***	***	***	***	***	***
CDBra	0.001	0.000	0.004 ***	0.001	0.004 **	0.004 **	0.009 ***	0.004 *	0.003	0.000	0.025	0.007
GDPpc	0.002 *	0.002	0.004 ***	0.004 **	0.013	0.013	0.000 ***	0.007	0.098 ***	0.100	0.125 ***	0.090
рор			0.403 ***	-0.301	0.627 **	0.633 **					- 4.770 ***	
ExpDec	0.334 **				0.099				3.102 ***			
RevDec		0.315 **				0.107				2.839 ***		
TaxDec1			- 1.900 ***				-4.233 ***				- 10.84 ***	
TaxDec2				-0.041				-0.136 **				- 1.025 ***
Hausman test	0.017	0.005	0.583	0.080	0.106	0.070	0.115	0.704	0.000	0.001	0.033	0.022
Estimated model TSLS/OLS	↓ TSLS	↓ TSLS	↓ OLS	↓ OLS	↓ OLS	↓ OLS	↓ OLS	↓ OLS	↓ TSLS	↓ TSLS	Weak	↓ TSLS
Sargan over-	0.421	0.320	-		-	-	-	-	0.367	0.172	OLS -	0.081
identification test Weak instrument test	9.91	18.57	-	-	-		_	-	9.91	18.57	0.533	10.13
LM test for	0.067	0.054	0.367	0.533	0.304	0.305	0.602	0.587	0.665	0.104	0.991	0.725
autocorrelation	0.016	0.057							0.007	0.027		0.026
resaran-1 aylor test Breusch-Pagan test	0.016	0.056	- 0.568	0.034	- 0.122	- 0.092	- 0.858	- 0.123	0.007	0.027	- 0.422	0.036
Dieusen i ugun test	I	+	0.014	0.034	0.740	0.750	0.050	0.796	0.060	0.071	0.005	0.000

Tab. 2: Results of estimations for Czechia and Slovakia NUTS 3

Legend: *** significant at 0.01 level, ** at 0.05 level and * at 0.1 level of significance

Source: own computation

Summarizing effects of control variables (their choice was inspired by Lessmann, 2006; Bartolini et al., 2016; etc.), following results are observed. Unemployment rate's impact on regional disparities is negative when measuring regional disparities at the NUTS2 level and positive in the case of NUTS3 level in both countries. Considering larger areas (NUTS2), the increase of unemployment rate causes the decrease of regional disparities, because they are in average more homogenous (cover units with higher and lower rate of unemployment). In the case of NUTS3, leading position of less developed units in terms of unemployment rate might cause higher regional disparities. Simultaneously, the leading position of regions around the capital city, eventually without unemployment, contributes to the abysmal deepening of disparities. The effect of the GDP per capita on regional disparities is positive. It might be caused by the unequal raise of the GDP per capita over the country. It is well known and evident, that the dynamics of the GDP per capita growth in areas near the capital city and in industrialized areas is higher (often threefold higher) than in other parts of both countries. The population size variable is employed only for OLS estimations and its impact on regional disparities bears the ambiguity. Its relationship with regional disparities is negative. The increase of population might reduce the regional disparities in the country. Feasibly, the decrease of population in numerous NUTS2 and NUTS3 units is observable in the period of 2000-2016 in both countries, except of NUTS2 and NUTS3 units covering the capital city and eventually other metropolitan areas, where the number of inhabitants is increasing. Correspondently, if the relationship between the population and regional disparities is inverse (negative), the decrease of population causes the increase of regional disparities. Unfortunately, according to the Eurostat (2019) population projections, the trend of diminishment of population beyond metropolitan areas in CZ and SK will continue in next 30 years.

Returning to the arguments in favour and in expense of the fiscal decentralization in connection with regional disparities, mentioned in the introductory part of the paper, it is possible to conclude that gains of the fiscal decentralization in the CZ and SK's conditions are not reached. In the monitored period, regional disparities increase and expenditure and revenue decentralization increase, too. In case of SK, the tax decentralization decreases. Both the positive impact of expenditure and revenue decentralization on regional disparities in fact reveal the undesirable situation in analysed countries.

Conclusion

Fiscal decentralization is usually promoted for its economic gains (encouragement of economic growth, optimal provision of public goods). However, correspondent criticism reminds for its potential menaces (corruption, undesirable tax competition).

Fiscal decentralization was broadly adopted in many European economies in transition. In Czechia and Slovakia, its real contours became visible in the first decade of 21st century. The real impact of fiscal decentralization in these countries is partially distorted by the cost of adoption (Maličká et al., 2017) and by the financial crisis covered in the monitored period. Macroeconomic implications of fiscal decentralization might thus deviate from expectations and its impact on the economy might turn to undesirable one. This is also the case of the effect of fiscal decentralization on regional disparities. The theoretical literature is disunited in the question of the relationship between fiscal decentralization and regional disparities.

While gains of fiscal decentralization are expected in connection with enhancing the economic growth and allocative effectiveness, a strand of literature connects the fiscal decentralization with deepening the regional disparities through boost of tax competition among subnational self-government units.

The paper focuses on the relationship between fiscal decentralization and regional disparities in Czechia and Slovakia, neighbouring countries with common history. This relationship is analysed calculating regional disparities at NUTS2 and NUTS3 level and by processing the regression analysis, where fiscal decentralization measures are explanatory variables. As mention Bartolini et al. (2016: 16), regional inequalities are decreasing between but increasing within countries. The second part of the statement reflects the situation in both analysed countries, Czechia and Slovakia. Regional disparities increase in the monitored period of 2000-2016 in both countries. It is observable at the NUTS2 and also at the NUTS3 level. Impact of fiscal decentralization on regional disparities depends on the fiscal decentralization expression. Expenditure and revenue decentralization influence regional disparities positively. Tax decentralization influences regional disparities inversely. Statistically significant positive relationship between expenditure and revenue decentralization and regional disparities at both NUTS levels and in both countries signalises, that higher regional disparities might be connected with higher rates of fiscal decentralization. Statistically significant negative relationship between tax decentralization and regional disparities in Slovakia suggests, that by increasing the tax decentralization, regional disparities might be reduced. Paradoxically, in case of Slovakia, the decrease of tax decentralization is observed. Inverse (negative) character of analysed relationship thus lead to increase of regional disparities, too.

Acknowledgement

This contribution was supported by grant VEGA No. 1/0806/18 "Socio-economic evaluation and measurement of economic effectiveness of cultural institutions with accent on museums and galleries in Slovakia".

References

Bartolini, D., Stossberg, S., Blöchliger, H. (2016). Fiscal Decentralisation and Regional Disparities. OECD Economics Department Working Papers No. 1330, Paris: OECD. https://dx.doi.org/10.1787/5jlpq7v3j237-en. Available at: https://www.oecd-ilibrary.org/economics/fiscal-decentralisation-and-regional-disparities_5jlpq7v3j237-en [Accessed 03. 04. 2019].

Ezcurra, R., Pascual, P., Rapún, M. (2007). The Dynamics of Regional Disparities in Central and Eastern Europe during Transition. *European Planning* Studies, 15(10), pp. 1397-1421. https://doi.org/10.1080/09654310701550850

Ezcurra, R., Pascual, P. (2008). Fiscal Decentralization and Regional Disparities: Evidence from Several European Union Countries. *Environment and Planning A: Economy and Space*, 40(5), pp. 1185–1201. https://doi.org/10.1068/a39195

Eurostat (2019). Regional statistics by NUTS classification. Database - Eurostat [online]. Available at: https://ec.europa.eu/eurostat/data/database [Accessed 27. 3. 2019].

Hamada, R. (2013). Regional disparities and Approaches to their Evaluation. *Geographical Studies*, 17(1), pp. 4–16.

Jílek, M. (2009). Fiscal Decentralization Ratios in Czech Republic. Acta Universitatis Bohemiae Meridionales, The Scientific Journal for Economics, Management and Trade, 12(3), pp. 17–26.

Kotrla, M., Mandalová, K., Prčík, M. (2017). Regional Disparities in Slovakia and The Czech Republic in the Context of Sustainable Growing of Energy Plants. *European Journal of Sustainable Development*, 6(2), pp. 165–180. DOI: 10.14207/ejsd.2017.v6n2p165

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), pp. 89–107. doi:10.1111/pirs.12061.

Lessmann, C. (2006). Fiscal decentralization and Regional Disparity: A Panel Data Approach for OECD Countries. Ifo Working Paper No. 25. Munich: Institute for Economic REsearch at the University of Munich. Available at http://www.cesifo-group.de/DocDL/IfoWorkingPaper-25.pdf [Accessed 03. 04. 2019].

Lessmann, C. (2009). Fiscal decentralization and Regional Disparity: Evidence from Cross-Section and Panel Data. *Environment and Planning A: Economy and Space*, 41(10), pp. 2455–2473. https://doi.org/10.1068/a41296

Maličká, L. (2016). Searching for fiscal decentralization constraining effect on local expenditure: case of Visegrad countries. *Scientific Papers of the University of Pardubice*, 23(8), pp. 68–80.

Maličká, L., Šuliková, V., Šoltés, M. (2017). Relation between fiscal decentralization and economic growth in European Union countries and Slovakia. *Ekonomický časopis*, 65 (9), pp. 856–875.

Matlovič, R., Matlovičová, K. (2011). Regionálne disparity a ich riešenie na Slovensku v rozličných kontextoch. *Acta Facultatis Studiorum Humanitatis et Naturae Universitatis Prešoviensis, Folia Geographica*, LIII (18), pp. 8–87.

Provazníková, R. (2015). Financování měst, obcí a regionu: teorie a praxe. 3.vyd. Praha: Grada.

Prud'homme, R. (1995). The Dangers of Decentralization. *The World Bank Research Observer*, 10(2), pp. 201–220.

Rajčáková, E. (2006). Regionálne disparity na Slovensku - vývoj a súčasný stav. *Geografická revue*, 2(2): 425–448.

Rajčáková, E., Švecová, A. (2011). Regionálna štruktúra Slovenska v posledných troch desaťročiach. *Acta regionalia et environmentalica*, 8(2), pp. 29–37.

Rodríguez-Pose, A., Ezcurra, R. (2010). Does decentralization matter for regional disparities? A crosscountry analysis. *Journal of Economic Geography*, 10(5), pp. 619–644. DOI: https://doi.org/10.1093/jeg/lbp049.

Smętkowski, M. (2015). Differentiation and dynamics of regional development in Central and Eastern European Countries in the period of prosperity and austerity. *Studies of the Industrial Geography Commission of the Polish Geographical Society*, 29(2), pp. 37-52.

Suwanan, A. F., Sulstiani, E. H. (2009). Fiscal Decentralization nad Regional Disparities in Indonesia: A Dynamic Panel Data Evidence. *Journal of Indonesian Economy and Business*, 24(3), pp. 328–336.

Svatošová, L. (2012). The development of regional disparities in Czech Republic over the 2005–2010 years. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis* 60(7), pp. 337–344. DOI: 10.11118/actaun201260070337

Svatošová, L., Novotná, Z. (2012). Regionální disparity a jejich vývoj v ČR v letech 1996–2010. Acta Universitatis Bohemiae Meridionales, The Scientific Journal for Economics, Management and Trade, 15(1), pp. 103–110.

Štika, R. (2004). Regionální rozdíly v Česku v 90. letech v kontextu novodobého vývoje. *Geografie – Sborník České geografické společnosti*, 109 (1), pp. 15–26.

Contact Address

doc. Ing. Lenka Maličká, PhD.

Technical University of Košice, Faculty of Economics, Department of Finance Němcovej 32, 04001 Košice, Slovakia Email: lenka.malicka@tuke.sk Phone number: +421556022665

Received: 30. 04. 2019, reviewed: 05. 07. 2019 Approved for publication: 09. 12. 2019