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Measurements of Fiscal Imbalances in Romania

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Abstract: Subnational government inequalities are always a challenge for the countries all over the world, in particular large ones, even are unitary states or federations. Romania has a unitary system, but decentralization process and different level of economic development of individual territorial units determine specific problems resulting in fiscal gaps, both horizontal and vertical. The paper focuses in the first part on the review of the literature regarding the measurement of the vertical and horizontal fiscal imbalances, and the second part will measure fiscal imbalances in Romania counties based on methodologies identified in the first part. Despite being a unitary country, Romania presents an increasing of horizontal fiscal imbalance and high vertical fiscal imbalances for 28 counties of 42. The paper can be considered a useful viewpoint in understanding the state of fiscal imbalances in Romania.

Keywords: vertical fiscal imbalance; horizontal fiscal imbalance; fiscal gap; subnational government inequalities; transfers

1. Introduction

The decentralization of public finances as a complex system determines the decentralization of the tax authority and to create a financial equalization system because of different level of economic development of individual administrative-territorial units. In this context, the problem of public income redistribution emerges, both horizontal and vertical (Kowalik, 2016).

The goal of this paper is twofold, theoretical and empirical. Firstly, at theoretical level, we highlight the state of knowledge of the literature regarding the measures applied for vertical and horizontal fiscal imbalances. Secondly, assimilating the results of previous studies, I will measure fiscal imbalances in Romania based on different methodologies and apply it in the case of Romanian counties over the period of time 2005-2015. We pay particular attention to the methodologies developed or used by Hunter (1974, 1977), Martinez-Vazquez and Boex (1999, 2001), Shankar and Shah (2001), Schroeder and Smoke (2003), Bird (1993), Bird and Tarasov (2002, 2004), Cowell (2011), Li and Xu (2008), and Kowalik (2015, 2016) to measure fiscal imbalances, both horizontal and vertical. This paper contributes to creating a comprehensive view on fiscal imbalance and inequalities in Romanian counties and to the best of our knowledge, this is the first study that measuring fiscal imbalances using the methodologies developed or used in their research by Hunter (1974, 1977), Martinez-Vazquez and Boex (1999, 2001), Shankar and Shah (2001), Schroeder and Smoke (2003), Bird and Tarasov (2004) and Kowalik (2016).

The working hypothesis is there are imbalances between Romanian counties, both horizontal and vertical, having a significant impact on subnational sustainable development.

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The remainder of the paper is organized as follows: section 2 provides a review of the theoretical and empirical literature; and section 3 contains a presentation of the state and facts regarding decentralization and fiscal imbalances in Romania. The paper ends with conclusions and references.

2. Literature Review

Various measures may be used for measuring horizontal differences and vertical fiscal imbalance. Differences or imbalances are considered by Kowalic (2015) as static showing inequalities in the given moment, and dynamic reflecting historical trends. In his opinion (Kowalic, 2015) dynamic measures are based on the hypothesis of convergence or divergence.

Bird and Tarasov (2004) consider that vertical fiscal imbalances (VFI) or fiscal gap is the difference between expenditures and own-source revenues at different levels of government. As opposite, vertical fiscal balance is achieved when expenditures and own revenues of subnational governments (excluding any type of transfers) are balanced and this can be possible for the richest subnational governments, measured in terms of its capacity to raise resources on its own (Bird, 1993, Bird and Tarasov, 2004). In this context, fiscal gap is possible only for poorest subnational governments, because they are in the situation of the impossibility to cover the public expenditure with own revenues. Vertical fiscal gaps may in principle be closed or reduced by raising subnational revenues from existing sources or reducing subnational expenditures.

Regarding how vertical fiscal imbalances (VFI) may be measured, the coefficient of vertical fiscal imbalances is one of the indicators following the methodologies developed or used in their research by Hunter (1974, 1977), Martinez-Vazquez and Boex (1999, 2001), Shankar and Shah (2001), Schroeder and Smoke (2003), Bird and Tarasov (2002, 2004) Cowell (2011) and Kowalik (2015, 2016) based in general on following synthetized formulas:

$$CVI = 1 - \frac{T_{SNG}}{E_{SNG}} \qquad (1)$$

where *CVI* is coefficient of vertical imbalance; T_{SNG} is total transfers from central government or equalization transfers and other transfers, respectively total subnational resources not under subnational control; and E_{SNG} is total subnational expenditures. The value of the coefficient of vertical imbalance equal or closer to 0 means the total or a high financial control of the central authorities over the local authorities, while the coefficient equal or closer to 1 means the total or a high autonomy of the local authorities in making financial decisions.

Aldasoro and Seiferling (2014) consider that vertical fiscal imbalances attempt to measure the extent to which subnational governments' expenditures are financed through own revenues rather than transfers from the central government or borrowing by the subnational governments.

Horizontal fiscal imbalance (HFI) is considered by Bird and Tarasov (2004) the resulting difference in the resources available to subnational governments at the same level.

Following the methodologies of Shankar and Shah (2001), Bird and Tarasov (2002, 2004), Cowell (2011), Kowalic (2015), horizontal fiscal imbalance (equalization) as static measures ranges maximum to minimum in a given time. Minimum (maximum) as a percentage of national average is the ratio of the per capita value in the poorest (richest) subnational government to the national per capita average:

$$\frac{y_{min}}{\bar{y}} * 100\% \qquad (2)$$

and

$$\frac{y_{max}}{\bar{y}} * 100\% \qquad (3)$$

where y_{min} means subnational government with minimum parameter per capita, y_{max} means region with maximum parameter per capita, $\bar{y}$ - national average of given parameter. Parameter per capita may be subnational government GDP, per capita regional personal income, per capita total subnational government expenditure, and per capita subnational government own revenue.

Minimum (maximum) measure a relative size of horizontal disparities. A high degree of deviation from the average in either direction shows either very rich or very poor subnational government (Bird and Tarasov, 2004). A low degree of variation indicates that subnational governments are relatively homogeneous in terms of the variable measured (Bird and Tarasov, 2004).

Range *(R)* is a measure characterizing the empirical area of variation of the examined feature (Cowell, 2011, Kowalic, 2015).

$$R=y_{max}-y_{min} \qquad (4)$$

Maximum to minimum ratio (*MMR*) is the per capita value for the richest subnational government divided by the per capita value for the poorest subnational government (Bird and Tarasov, 2002, 2004, Shankar and Shah, 2003, Li and Xu, 2008, Kowalic, 2015):

$$MMR = \frac{y_{max}}{y_{min}} \qquad (5)$$

A value of 1 for *MMR* would represent perfect equality and larger values show how big are the subnational governments inequalities.

3. Facts Regarding Fiscal Imbalances in Romania

Romania has a decentralized fiscal system coupled with elements of a deconcentration system. Its fiscal system contains three hierarchical levels specified by Romanian Constitution: county, towns and/or municipalities, and communes. Counties correspond to NUTS III level.

In accordance with the economic and social cohesion objectives of Romania and the European Union in the field of regional development policies, eight development regions are established on the territory of Romania corresponding to NUTS II level. These regions are not administrative-territorial units and do not have legal personality (Law no 315/2004, art. 5 (1-2)).

With the development of the market economy since the end of '89s, the fiscal relations between central and subnational governments have been established by several major reforms. Those reforms mainly were focused on legal framework of decentralization, on the revenue-sharing rules and made changes in expenditure responsibilities.

The calculations are based on statistical data obtained from Romanian National Institute of Statistics (2019) and the Directorate for Fiscal Policies and Local Budgeting. Ministry of Regional Development and Public Administration and European Grants (2019). The inequality measures are presented for the 42nd counties of Romania over the period of time 2004-2015.

Using the methodology of Hunter (1974, 1977), Martinez-Vazquez and Boex (1999, 2001), Schroeder and Smoke (2003), Bird and Tarasov (2004) and Kowalik (2016), vertical fiscal imbalance for all 42 counties of Romania is presented in Figure 1.

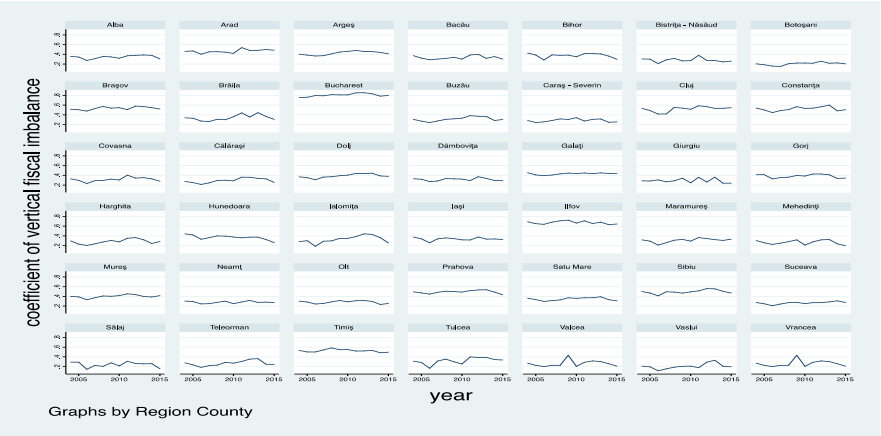

Figure 1. Vertical Fiscal Imbalances in Romanian Counties, 2005-2015

Source: computed by author processing data of the Directorate for Fiscal Policies and Local Budgeting, Ministry of Regional Development and Public Administration and European Grants (2019), using Stata 14.0

As can be seen, Bucharest has the highest level of the coefficient, being closer to 1, and in this context is considered the most autonomous subnational government in Romania. Vaslui, Vrancea, Vâlcea, Botoșani, Sălaj, and Teleorman have the coefficient of fiscal vertical imbalance closer to 0, meaning high equalizations transfers that cover the public expenditure of subnational governments. In fact, these subnational governments are dependent so much to the transfer, that can be considered that are more centralized rather then decentralized subnational governments.

Using the methodology used by Bird and Tarasov (2004), Kowalic (2015), the horizontal fiscal imbalances in Romanian counties over the period 2004-2015 is presented in Figures 2, 3, 4 and Table 1.

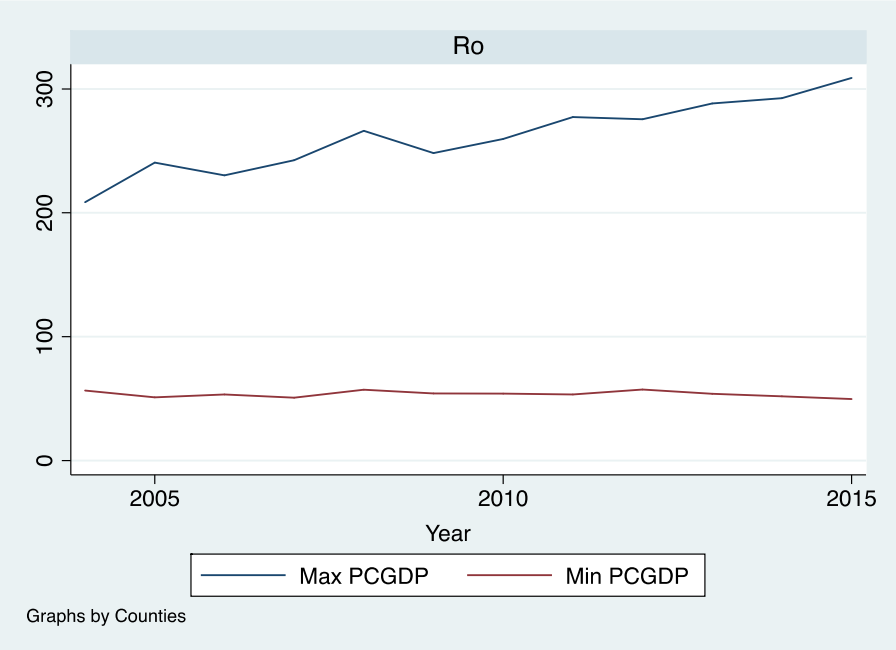

Figure 2. Coefficient of Minimum (Maximum) as Percent of National Average Based on per capita GDP (2004-2015)

Source: computed by author processing data of the Romanian National Institute of Statistics (2019)

Figure 2 shows an increasing gap between the best and the worst subnational governments in

Romania, respectively counties. Respectively, the tendency of the subnational governments with a great development is to became more develop and the trend is obviously very sharp, and for the subnational governments that are slowly development the tendency is to become much poor then the previous years.

Figure 3. Range Based on Per Capita GDP (Romanian Counties, 2004-2015)

Source: computed by author processing data of the Romanian National Institute of Statistics (2019)

Figure 3 show increasing disproportions among the 42nd Romanian counties, and the tendency is a very sharp rising.

Table 1. Maximum-to-minimum ratio (MMR) based on per capita GDP, per capita SNG own revenues and per capita SNG expenditure (Romanian counties, 2004-2015)

Year	MMR PCGDP	MMR SNG Own revenue	MMR SNG expenditure
2004	3.69	5.32	4.37
2005	4.71	7.45	5.06
2006	4.32	15.47	5.88
2007	4.77	9.70	4.91
2008	4.65	8.06	5.29
2009	4.58	5.03	4.67
2010	4.80	4.99	5.56
2011	5.20	14.17	6.68
2012	4.81	6.07	4.36
2013	5.35	6.92	5.49
2014	5.64	8.58	4.33
2015	6.22	9.11	5.41

Source: computed by author processing data of the Directorate for Fiscal Policies and Local Budgeting. Ministry of Regional Development and Public Administration and European Grants (2019) and Romanian National Institute of Statistics (2019)

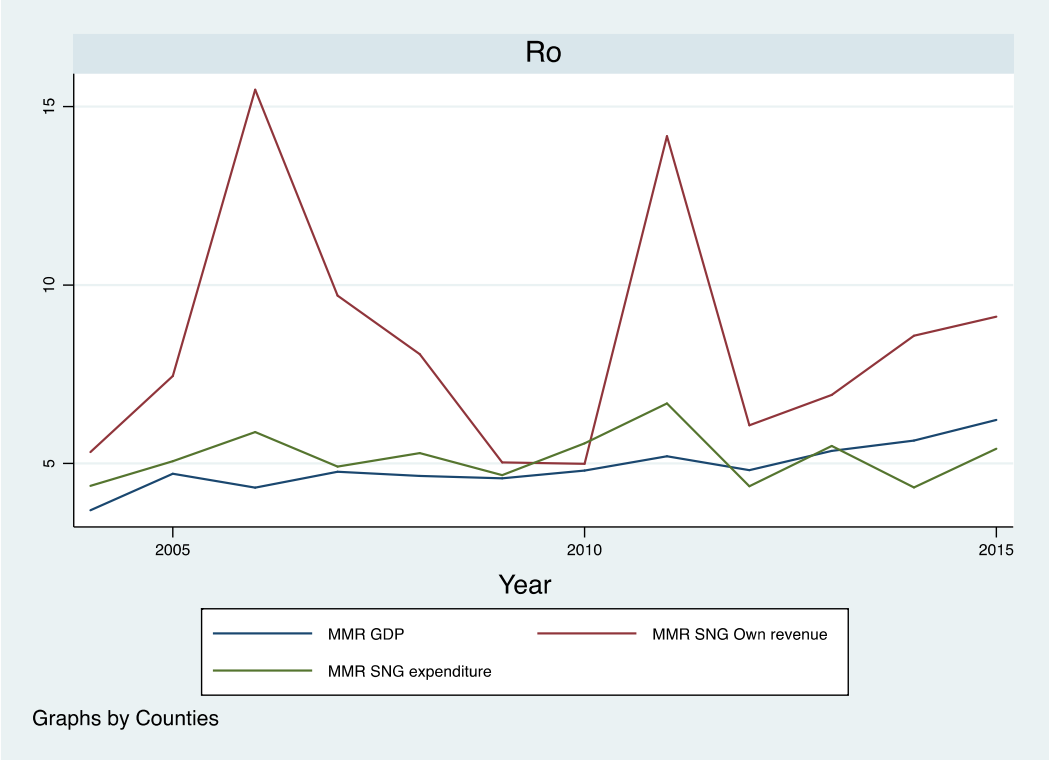

Figure 4. The dynamic of Maximum-to-minimum ratio (MMR) based on per capita GDP, per capita SNG own revenues and per capita SNG expenditure (Romanian counties, 2004-2015)

Source: computed by author processing data of the Directorate for Fiscal Policies and Local Budgeting, Ministry of Regional Development and Public Administration and European Grants (2019) and Romanian National Institute of Statistics (2019)

According to Table 1 and Figure 4, the dynamic of the maximum-to-minimum ration based on GDP over the period of time 2004-2015 present easy fluctuations, with the minimum ratio of 3.69 in 2004 and the highest of 6.22 in 2015, with an increasing tendency. MMR related to subnational expenditures present also slow fluctuation between 4.33 in 2014 (the lowest) and 5.88 (the highest). MMR related on subnational governments (counties) own revenues present strong fluctuations, between a maximum of 15.47 in 2006 and a minimum of 5.03 in 2009.

4. Final Remarks

This study has successfully answered to the main research objective, respectively to examine the fiscal imbalances in the 42 counties of Romania over the period of time 2004-2015, following the methodologies developed and used in their research by Hunter (1974, 1977), Martinez-Vazquez and Boex (1999, 2001), Shankar and Shah (2001), Schroeder and Smoke (2003), Bird (1993), Bird and Tarasov (2002, 2004), Cowell (2011), Li and Xu (2008), and Kowalik (2015, 2016).

The coefficient of vertical fiscal imbalances show that almost 28 counties need equalization transfer from central government, being closer to 0, and only almost 14 counties are autonomous subnational governments.

The coefficients of horizontal fiscal imbalances show an increasing tendency, with the specific of a very sharp development of the richest subnational governments, and a slowly tendency of decrease in development of poorest subnational governments.

This finding are understandable given the current stage of the Romanian economy where fiscal decentralization is under a high number of legal and non-legal, direct and indirect constraints and there is a tendency of the decentralization extension process.

As future research direction I intend to extend the analysis, by measuring fiscal imbalances of the EU countries at the regional level, corresponding to NUTS II.

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