SUSTAINABILITY, DEVELOPMENT REGIONS AND LOCAL REVENUE MOBILIZATION IN ROMANIA

https://doi.org/10.47743/jopafl-2023-28-19

Octavian MOLDOVAN
Babeș-Bolyai University, Faculty of Political, Administrative and Communication Sciences, Department of Public Administration and Management
Cluj-Napoca, Romania,
octavian.moldovan@fspac.ro

Abstract: *This research explores the potential influence that location in a development region can exert on public revenue mobilization in the case of Romanian cities, communes and municipalities. Revenue mobilization was analyzed for 3227 Romanian territorial-administrative units (almost all) for four years (from 2008 to 2011), taking into account the development regions (NUTS 2 level) in which these communities are located.*
The results corroborate previous evidence that, in the case of Romania, regions of development have an effect on revenue mobilization at the local level. According to the data, local authorities/governments from the North-West development region (with collection levels ranging from 85.54% to 90.61% from what was predicted), West (ranging from 81.69% to 87.55%) and Bucharest (ranging from 84.27% to 88.29%) have better revenue mobilization in the analyzed period. On the other hand, local authorities from the North-East development region (74.43% to 82.25%), South (73.88% to 83.43%) and South-East (with collection ranging from 78.68% to 81.89%) reached lower levels of revenue mobilization; Center and South West development regions constitute an intermediary case between the aforementioned two categories.
Keywords: *development regions; financial decentralization; Post Hoc ANOVA; sustainability.*

Introduction

As local public organizations have to serve increasingly diverse and complex community needs, both the academic and the professional environment focus on the diminishing budgetary resources available at the local level. Decentralization, which was once heralded as a tool that could eventually lead to a better match between the needs of community and the public resources available (European Commission, 2007), showed its limitations as smaller local administrative organizations were required to deliver more (centrally delegated) public goods and services, often without having sufficient financial, human or material resources at their disposal; this generated further inequalities and gaps in development between local communities. In order to reach a better understanding of financial revenue mobilization at the local level in Romania, the main objectives of this paper are: (a) to present a descriptive analysis for the 2008-2011 period, and (b) to explore if location in a particular development region (DR from here on) influences revenue collection (Proxied by the effectively collected revenues at the end of the budgetary year, after the execution phase, as a share of what was predicted to be collected at the beginning of the budgetary year (in the budget proposal).)of a local institution (N = 3,227). As such, the current research continues and builds upon previous similar efforts which analyzed the effects of particular institutional types on local revenue mobilization in Romania

(Moldovan, 2016) or explored how local revenues can be forecasted in order to reduce uncertainty (Moldovan and Macarie, 2015).
The theoretical framework will be included in Section 2, initially referring to financial decentralization and local revenue collection, a brief discussion regarding development regions in Romania and an overview of the relationship between revenue mobilization and sustainable development. Section 3 will focus on general methodological aspects of the research, especially referring to the data used for the dependent and independent variable. Section 4 will present the main empirical findings in an exploratory or descriptive perspective, while also discussing the main implications of these findings; Section 5 will continue the previous discussions by linking them with the initial theoretical perspectives, conclude and briefly address some of the limitations of the current work, while also opening future opportunities for research.

Theoretical Framework

Financial Decentralization and Revenue Mobilization at the Local Level

Financial revenue mobilization, defined in this paper as the capability of public institutions to gather funds from taxation (on property or revenue) and other potential sources (levies, licenses, royalties and so on), remains a topic of high academic interest (see Sanogo, 2019; Akudugu and Oppong-Peprah, 2013; de Mello and Barenstein, 2001; Mahi, 2011; Dexu and Wenlong, 2022; Elezi, 2015; Opoku, Kyeremeh and Odoom, 2014; Britchenko, Bezpartochnyi and Maslii, 2019; African Development Bank Group, 2011; Danulețiu, 2010; Junquera-Varela et al., 2017), especially in the case of developing countries and with regard to the local administrative level. The need to focus, both from an academic point of view and from a public policy perspective, on public funds mobilization at the local level is frequently connected with the broader phenomena of financial or fiscal decentralization (see Profiroiu and Profiroiu, 2006, p. 119). Decentralization can be defined as the distribution or redistribution of responsibility for multiple activities, such as planning, administration and resource mobilization and allocation, from the national government and central agencies to other public organizations, often situated at local or regional level (Rondinelli, 1981, pp. 133-145; also see Stancea, 2021); from this perspective, the collection of revenues at the local level can be seen as a crucial aspect of decentralization, since the ability to actually collect sufficient revenues creates real decision-making autonomy. Decentralization is still assumed to 'improve efficiency in service delivery, enhance political and fiscal accountability, and change the process of entering into a fiscal contract with the government' (Junquera-Varela et al., 2017, p. 37) and often sought after by local (sub-national governments), although the implications of this administrative process are not always fully understood and taken into consideration by them. Other definitions of decentralization, such as that provided by Ștefan and Dogaru (2011, p. 130), refer to it as a 'mechanism by means of which the local administration authorities receive the authority and the resources allowing them to make decisions concerning the provision of public services', highlighting the significance of financial decentralization as authorities at the local level have to receive not only responsibilities and duties, but power (decision making authority and financial resources) as well, to be able to act in the interest of the communities they represent.

Gershberg (2008, p. 1) argues that decentralization policies rely on the existence of a clear, predictable and transparent mechanism for the allocation of public funds to local governments, to guarantee that they have sufficient financial resources to provide goods and services according to their duties, but Romania ‘has failed in the eyes of many analysts to develop any serious formula funding mechanisms’ until 2008, mainly due to ‘politics and power’ (Gershberg, 2008, p. 1); central government decision-makers avoided the development and implementation of a transparent mechanism for transferring financial resources towards the local level in order to maintain a degree uncertainty that could permit them to reward ‘loyal’ (politically aligned) communities/local governments. A similar argument was previously put forward by Ioniţă (2005) referring to the allocation of state funds for general, infrastructure and pre-university education, while Marian and King (2016) mentioned that the patterns of government spending appear to be somewhat decoupled from the policy preferences (needs) of citizens.

Dabla-Norris (2006, pp. 100-131) analyzed fiscal decentralization in transition countries and observed that Romania (considered to be an intermediate reformer in his classification): (a) has ‘been less successful in establishing fiscal institutions, controlling fiscal imbalances, and redefining the role of the state’ (Dabla-Norris, 2006, p. 104); (b) the distribution of spending responsibilities between the local and national level is partially unclear (Dabla-Norris, 2006, p. 111); (c) has implemented a more transparent system of transfers (between local and central governments), but the system can still be improved (Dabla-Norris, 2006, p. 115); and that (d) local authorities collect consistent shares of their ‘own’ revenue, mostly from local taxes (Dabla-Norris, 2006, p. 119). Rodríguez-Pose and Krøijer (2009, p. 14) also highlighted the importance of local revenues by arguing that, independent subnational administrative bodies have a higher chance to lead to ‘greater accountability and efficiency’ in healthy institutional and regulatory frameworks, but on the background of inadequate (lower) shares of subnational ‘own source’ revenues, local public authorities (or communities in general) will remain dependent on transfers from the central level, thus negating the potential benefits of financial decentralization. If we take into consideration the fact that Romanian municipalities, cities and communes receive over 40% of their revenues as conditional grants (earmarked to support specific state functions), it seems that the financial autonomy in the case of Romanian sub-national administrative units is relatively limited (see Network of Associations of Local Authorities of South-East Europe – NALAS, 2012, p. 25). A comparable argument was made by Cristinel (2012), who showed that even if the principles of local autonomy and decentralization of public services are often mentioned in the Romanian public discourse, local authorities from counties, cities and especially communes are ‘dependent on transfers of funds from the state’ (Cristinel 2012, p. 920), a fact which limits their real autonomy.

In an attempt to evaluate financial decentralization in EU Member States, Finžgar and Brezovnik (2019, pp. 42-47) used the Conceptual Index of Fiscal Decentralization (CIFD) which takes into account five dimensions/indicators: (1) a flexibility indicator (the number and variability of financial resources available at the local level); (2) the relationship between the financial resources of a local community and their responsibility for public goods and services (measuring if ‘individual countries are able to cover local authority expenditure with centrally-earmarked financial resources’); (3) an autonomy index (the ability of local authorities to ‘determine tax rates and relief without national government consultation’); (4) an equalization index (referring to transfers made by

national governments to local authorities) and (5) the number of local communities in a country.
When NALAS (2012, p. 13) analyzed the administrative levels by which decentralization (financial and other – decision-making) is realized in Romania, the organization identified ‘four levels of sub-sovereign government’, clustered in two distinct tiers. ‘First-tier levels of local government’ consist of communes, cities and municipalities, which have similar rights and responsibilities; counties are in the second tier and they are assessed to be more alike to a ‘the provincial level’. NALAS (2012, p. 13) also observed that communes, municipalities and cities assume a more significant role as sub-national governments ‘in both fiscal terms and public service terms’ and are better connected to citizens and communities than counties. The Institute for Public Policies (IPP) claims that a cleavage was created in Romania between communities and local governments that managed to obtain sufficient funds from their own sources, thus ensure their financial autonomy, and those that did not collect sufficient own financial resources even for covering utilities bills and personnel costs (IPP 2001, p. 9); rich communities often lose sight of the European idea that sustainable development is based on economic and social cohesion (IPP 2001, p. 9) and not on assigning guilt and blaming others. Political pressure, party alignment and discretionary power (at the central government) are also important factors, as public funds are often used by national decision-makers to supplement (via transfers) the revenues of selected local budgets for political and electoral purposes, distorting the re-distribution of funds between local communities (Iorga, Moraru and Giosan, 2010, p. 6) and maintaining political dominion over certain local communities (which base their financial survival on transfers from the central level).

Alexandru and Guziejewska (2020) observed that reduced administrative capacity acted as a deterrent or constraint for fiscal decentralization in both Romania and Poland, while ‘Romania has the problem of the incomplete devolution of powers and the limited financial independence of local governments, which basically means that the principle of subsidiarity is insufficiently implemented’. Fabus et al. (2019) showed that financial decentralization goes hand in hand with a high level of economic development, especially in countries with administrative (decision-making) decentralization and established and efficient institutions. Referring to Romanian municipalities, Onofrei et al. (2023) argued that ‘fiscal decentralization determines more responsible and efficient local spending, enhancing local performance and contributing to economic growth’.
One factor which can influence (negatively) public revenue mobilization, especially in developing countries, is the ‘resource course’; as Mawejje (2019, p. 176) has shown based on panel data for 31 sub-Saharan countries, ‘results confirm the existence of a negative relationship between revenues from natural resource sectors and tax revenues’. Another factor which can exercise a negative effect on tax revenues is trade liberalization, especially after the 1970s as ‘overall, trade liberalization led to larger and longer-lived declines in tax revenues in developing countries since 1970 than in today’s rich countries in the 19th and 20th centuries’ (Cagé and Gadenne, 2018, p. 1). Gnangnon and Brun (2018) analyzed the impact that reducing the gap between a country’s Internet usage and average Internet usage at the global level has on public revenue mobilization based on a sample of 164 countries for the 1995-2013 period; the study concluded that bridging the internet usage gap has a positive impact on non-resource tax revenues, with a more pronounced effect in the case of poorer (less developed) countries.

Other variables which can influence public funds mobilization at the local level include: the professional competence and abilities of clerks/public servants specialized in finance/ revenue mobilization (see Ndunda, Ngahu and Wanyoike, 2015), corrupt practices and behaviors (see Brașoveanu and Obreja Brașoveanu, 2013, pp. 167-184), financial and economic crises (see International Monetary Fund, 2015), diminished institutional or administrative capacity, the prevalence of informal and agricultural (or under-developed) economies, tax dodging/avoidance and exemptions, unjust rent-sharing (see Mascagni, Moore and McCluskey, 2014, p. 4), shortcomings in legislation regarding income taxation, reduced transparency in the process of revenue mobilization and remittance (see Gideon and Alouis, 2013) and even deficient institutional or administrative capability to reliably estimate public revenues and their mobilization (see Moldovan and Macarie, 2015).

Revenue mobilization can also be influenced by different types of conflicts arising in a country, while taxation might also differ before, during or after a conflict (see vand den Boogaard et al., 2018, p. 1), but further research is required in order to establish more clear and stable patterns. Akitoby et al. (2020) analyzed how low income countries collected large additions to tax revenue (growth in the tax-to-GDP ratio of half a percent per year over three years or more) and based on a dataset of 55 such instances and concluded that '(i) reforms of indirect taxes and exemptions are the most common tax policy measures; (ii) multi-pronged tax administration reforms often go hand in hand with tax policy measures; and (iii) sustainability of the episodes hinges on tax administration reforms in the key compliance areas (risk-based audits, registration, filing, payment, and reporting)'.

Previous work on revenue collection in Romania has shown that local revenue/financial autonomy can be improved by increasing economic development, fertility, the average living area per inhabitant and the degree of urbanization, while high demographic dependency and unemployment have an adverse effect (Jemna, Onofrei and Cigu, 2013) or that the type of territorial administrative unit has just a spurious effect on revenue mobilization (Moldovan 2016). Furthermore, the tax revenue-to-GDP ratio in Romania is consistently below the EU average or that of New EU Member States (Daianu, Kallai and Lungu, 2012, p. 156) and the low levels of revenue mobilization, which became almost an endemic problem for Romanian public administration, can be connected with social polarization (Dobre, 2015), thus having the potential to further increase disparities between communities and even regions. The pro-cyclical fiscal policy adopted between 2006 and 2015 had negative effects in regard to public revenue mobilization, both in terms of the total volume collected and in respect to revenue mobilization from different sources (Dobrotă, 2016), while the 2008 economic and financial crisis impacted the resources available to both central and local public administration (Slijepčević, 2018; Oprea and Bălan, 2015).

Development Regions in Romania: Brief History and Importance

Development regions (DR) were established in Romania since 1998 (by Law no. 151/1998) and were supposed to facilitate regional development, ensure progress towards European Union accession and then to manage post-accession funding. Albeit 'the regional development policy began to be shaped' in 1996 for the PHARE program (Pendiuc, 2014, p. 36), the initial Romanian legal framework for the regional development policy was established two years later (by the aforementioned Law no. 151/1998) and then replaced by Law no. 315/2004 which is still in place (although it was latter supplemented and amended) and influencing regional development in Romania. Regional development (or the Economic and Social Cohesion Policy) remains a fundamental objective for the European Union (as included in Title XVIII of the Treaty on the Functioning of the EU) (Apostolache, 2014, p. 35) as 'cohesion is necessary to promote an overall harmonious development, the general objective consisting of reducing disparities between the levels of development of the various regions and the backwardness of the least favoured regions or islands, including rural areas' (Pendiuc, 2014, p. 37). In essence, the eight development regions established in Romania are assumed to fulfill the role of a true regional administrative level vis-à-vis economic development, but are not provided with many of the administrative powers, tools and mechanisms of a regional level.

The eight DRs which are supposed to assist in the implementation of the aforementioned regional development policy in Romania correspond to the NUTS 2 level, were created 'through the voluntary association of neighboring counties, without being territorial administrative units or having legal personality' (Pendiuc, 2014, p. 37) and consist of:

North East – which includes all territorial-administrative units (communes, cities/municipalities and counties) from the counties of Iași, Botoșani, Neamț, Suceava, Bacău and Vaslui;

South East– which includes all territorial-administrative units (communes, cities/municipalities and counties) from the counties of Vrancea, Galați, Brăila, Tulcea, Buzău and Constanța;

South – which includes all territorial-administrative units (communes, cities/municipalities and counties) from the counties of Prahova, Dâmbovița, Argeș, Ialomița, Călărași, Giurgiu and Teleorman;

South West – which includes all territorial-administrative units (communes, cities/municipalities and counties) from the counties of Mehedinți, Gorj, Vâlcea, Olt and Dolj;

West – which includes all territorial-administrative units (communes, cities/municipalities and counties) from the counties of Arad, Caraș-Severin, Hunedoara and Timiș;

North West – which includes all territorial-administrative units (communes, cities/municipalities and counties) from the counties of Bihor, Bistrița-Năsăud, Cluj, Maramureș, Satu-Mare and Sălaj);

Center – which includes all territorial-administrative units (communes, cities/municipalities and counties) from the counties of Alba, Sibiu, Mureș, Harghita, Covasna and Brașov); and

Bucharest – which includes all territorial-administrative units from Bucharest and Ilfov County.

Development regions are seen as the results of rather weak institutional reforms in Romania (Lupăncescu et al., 2020). Furthermore, multiple researchers have shown that differences between DRs existed since their inception and that these differences persisted and development cleavages grew even after EU accession, especially during the last economic/financial crisis, in the case of socio-demographic indicators such as total population, employment and unemployment and migration, among others (Bălan and Solomon, 2010, pp. 29-38; Savu and Mîndreci, 2012, pp. 245-248). Oher disparities between Romania's DRs were explored by Russu (2014) in the case of regional GDP per capita, physical infrastructure (referring to roads, railways and communication), education (at the pre-university and university level) and creative/innovation potential (measured by share of employment in high-tech sectors, number of patent applications EOP/1 million inhabitants.

Further inter-regional differences were observed regarding the numbers of employees in the industry, turnover, the density of firms in the industrial sector, company size (according to the number of employees) and the main activity/sector of companies (mining, manufacturing, electricity and gas, water supply and sanitation), leading researchers to conclude that 'the territorial development of Romanian industry shows significant differences due to: natural barriers mainly; easy access to raw materials; functional profile of the area; favorable geographical position; the existence of qualified workforce; characteristics of the educated population in the area and the degree of development of the transport infrastructure' (Iacoboaea, Alpopi and Manole, 2016, p. 36). Para, Negrut and Cismas (2019) argue that, in the case of Romania, the 'regionalization process' has to be redesigned, alongside administrative (decision-making) and financial decentralization in order to ensure a better transfer of competences from the national level to local authorities, thus potentially ensuring multiple benefits, as well as a better absorption of European funds. Overall, the literature seems to agree that, at least until now, the Romanian regional development policy has failed to reduce inter-regional disparities (also see Goschin 2015a and 2015b; Surd, Kassai and Giurgiu, 2011; Diaconu, 2014). A similar failure of European cohesion policies was observed by Novosák et al. (2017, p. 53) in the case of the Czech Republic, as 'economically disadvantaged micro-regions had less structural fund allocation in the economic pillar of sustainable development'; in essence, although structural funding led to a reduction of economic disparities between micro-regions, those who were better-off at the beginning of the development process actually received more structural funding in time than those who were worse-off initially. According to Gavriluta, Onofrei and Cigu (2020), fiscal policy in Romania (decentralization) did not reduce inequality and poverty between development regions (measured with the help of the Gini index) and transfers from the state budget do not diminish inter or intra-regional differences.

One key argument often made to explain the 'resilience' of inter-regional disparities refers to the prevailing cultural values of each DR (Iacobuţă, 2015), as the 'persistence in time of these economic disparities can be explained by considering the cultural legacies – represented by norms, values, institutions, that impact on how people interact, communicate, investigate, think, consult, negotiate and act, influencing the behavior at community/society level' (Oţil and Boldea, 2015, p. 74). Taking into account all the aforementioned differences between DRs (especially cultural traits/factors), we posit that the location of a territorial administrative unit (be it commune, city, municipality or county) in a certain DR will have an effect on its capacity to collect (mobilize) local public revenues.

Revenue Mobilization and Sustainable Development

Going beyond being strictly an affair of the state/government in general or public administration in particular, the issue of revenue mobilization needs to be included in any academic or policy discussion on sustainable development. 'Strengthening domestic resource mobilization, including through international support to developing countries, to improve capacity for tax and other revenue collection' is one of the Addis Ababa Action Agenda cornerstones for attaining the Sustainable Development Goals (see Tamarappoo et al., 2016, p. 1) and 'mobilization and effective use of domestic resources … are central to our common pursuit of sustainable development' (Junquera-Varela et al., 2017, p. ix). Strengthening domestic resource mobilization offers multiple benefits such as: (a) reducing the dependency on external financial flows and limiting vulnerability to external shocks; (b) creating more policy options, increasing the ownership of the (economic) development process and strengthening state capacity; (c) creating positive externalities and improving the domestic economic environment, and (d) creating 'a positive sign by donors and investors, thereby augmenting external resource inflows' (United Nations, 2007, p. 7). However, mobilizing (collecting) public resources is just the first step in ensuring sustainable development, as 'the state's strategic intervention is needed to ensure that the country's limited resources are mobilized and allocated in a way that is compatible with its overall development strategy' (United Nations, 2007, p. 98). A similar view is shared by Junquera-Varela et al. (2017, pp. 1-2) who argue that 'domestic revenues can lead to improved development only if they are translated into productive and beneficial public expenditure' and that only when the two aspects of public finances (namely revenues and expenditures) are jointly taken into consideration in broader public financial management reforms 'domestic resource mobilization (DRM) rightly becomes a development tool for generating revenues to support sustained and inclusive economic development'.

As previously mentioned, better own revenues mobilization can ensure that national and local governments have sufficient funds to invest in sustainable growth (relieve poverty, deliver superior public goods and services) without needing to resort to external or internal borrowing or to print money, thus it can be argued that domestic revenue mobilization is 'the key to economic stability; enabling investment in infrastructure, proactive social policies, and the accumulation of savings' (Fakile, Adegbie and Faboyede, 2014, p. 91). In essence, according to the aforementioned authors, 'domestic resource mobilization fulfils two key objectives sought by developing countries: predictable and sustainable financing on the one hand and a reduction in long-term dependence on aid on the other' (Fakile, Adegbie and Faboyede, 2014, p. 91; for a more detailed analysis on the interplay between foreign/external aid and revenue mobilization please see Morrissey, 2015).

Although the significance of domestic revenue mobilization for sustainable development cannot be contested (see Oprea et al., 2022) as they are 'critical to fund government services and to support development' (Modica, Laudage and Harding, 2018, p. 2), Oxfam (2019, p. 25) draws attention that we need to go beyond simple technical and administrative reforms which aim to increase the capacity of tax administrations and improve overall revenue collection and focus more on equitable domestic revenue mobilization or 'the political decision to increase equity and government revenue through fair, transparent, and accountable revenue systems'. Furthermore, equitable domestic revenue mobilization should be achieved by following a set of six principles: (1) improving the fiscal system and the net equity of tax structures; (2) ensuring an equitable composition of domestic revenues; (3) fortifying gender-responsive domestic revenue mobilization with budgeting; (4) approaching technical and administrative reform through pro-poor and gender equity lens; (5) rationalizing tax incentives and implementing more effective corporate taxation, and (6) making public revenues more accountable and transparent for economic sectors, actors and citizens (Oxfam 2019, pp. 25-26).

Methodology

This research is based on data available from The Direction for Fiscal Policies and Local Budgets (DFPLB, 2013); the data is openly available and continuously updated. The final database (The same database was previously used by the author in Moldovan (2016)) used in the empirical analysis includes: (a) the official names and categories of territorial-administrative units (t.a.u. from here on); (b) the economic development region in which t.a.u.s are located, and (c) the revenue collection level (in percentage points, referring to what was actually collected at the end of the budgetary year as a share of what was predicted to be collected at the beginning of the budgetary year) for the 2008-2011 period, for 3,227 Romanian local t.a.u. As such, the database includes all Romanian t.a.u., with the exception of the municipality of Bucharest (the capital city) which was excluded as an outlier and which could skew the results.

The level of revenue collection represents the dependent variable of this study, while the development region (DR) in which a territorial-administrative unit is located is the independent ('explanatory') variable. The dependent variable (namely revenue collection levels for the 2008-2011 period) is ratio data, calculated with the formula: revenues effectively collected (at the end of the budgetary year, after the budgetary implementation phase) divided by revenues predicted or proposed (at the beginning of the budgetary year, during the budget proposal and adoption). The data was collected in the case of each territorial-administrative unit: country, municipality, city and commune. This indicator, although not perfect, was used as a proxy for revenue mobilization in Romania since it permits us to conduct comparisons between territorial-administrative units from different DRs, which would be impossible/irrelevant to do with other indicators (such as the total collected revenues in monetary units), as there are factual differences in tax bases between the local authorities which are located in each DR.

The DRs used in the analysis as independent variables are nominal type data, referring to the location of a particular territorial administrative unit in one of the following DRs: North East, South East, South, South West, West, North West, Center and Bucharest. Besides the inter-regional differences already mentioned in section 2.2. of the current work, Avrămescu (2012) managed to create a hierarchy of the DRs based on an index of development consisting of six indicators (GDP per capita, average net monthly earnings, unemployment rate, gross investments of active economic actors, the ratio of active economic actors per 1000 inhabitants, and research expenditures per inhabitant) for 1998 and 2009; the latter 'development region' hierarchy was as follows: (Avrămescu, 2012, p. 44): Bucharest (1st), West (2nd), North-West (3rd), Centre (4th), South (5th), South-East (6th), South-West (7th) and North-East (8th). Thus, our analysis will allow not only to test the potential effect that location in a development region has on revenue mobilization, but also to observe if the development ranking developed by Avrămescu (2012) is similar to that generated in the case of revenue mobilization.

The basic assumptions that have to be fulfilled for the one-way ANOVA (the statistical procedure which allows us to test if DRs have a statistically significant effect on revenue mobilization at the local level) will be discussed at length in section 4.2, after a brief descriptive/exploratory analysis of revenue collection levels in the eight regions from 2008 to 2011.

Results

The results of the data analysis will be presented in a descriptive/exploratory approach in order to better observe local revenue mobilization levels for public institutions located in each development region and to further evaluate if location in a certain DR has an effect on the revenue mobilization of local authorities.

Central Tendency Indicators

A general descriptive analysis of revenue collection/mobilization for all four years (from 2008 to 2011) is presented in Table 1. The lowermost levels of revenue mobilization for the first two years, 2008 and 2009, meaning 0.00%, can be justified when considering the fact that a new t.a.u. was created in 2010, namely Racşa commune (in the county of Satu Mare), by splitting from the existing commune of Oraşu Nou (see Law no. 86/2010); since no data for Racşa was available for the first two years, as the commune did not exist, the minimum was computed as being 0.

The mean for revenue mobilization in 2008 was 79.40% (from what was estimated at the beginning of the budgetary year), the minimum (excluding Racşa) was 11.02% and the maximum 167.15%, with a range of 156.13 (Table 1). In 2009, the mean for revenue mobilization was 78.69%, the minimum (excluding Racşa) was 17% and the maximum was 127.34%, with a range of 110.34. In 2010, the mean was higher than in the previous two years (82.84%); the minimum (25.93%), maximum (172.70%) and the range (146.77) are also above previous values. In 2011, the mean revenue mobilization was even higher (84.60%), but both the minimum (24.00%) and maximum (134.80%) were lower than in 2010 (see Table 1).

Table 1: Revenue mobilization - general descriptive statistics (2008-2011)

Year	N	Range	Min.	Max.	Mean (Std. Er.)	Std. Dev.	Skewness (Std. Er.)	Kurtosis (Std. Er.)
Collection levels 2008	3,227	167.15	0.00	167.15	79.376 (0.271)	15.415	-0.778 (0.043)	1.553 (0.086)
Collection levels 2009	3,227	127.34	0.00	127.34	78.671 (0.259)	14.694	-0.822 (0.043)	1.032 (0.086)
Collection levels 2010	3,227	146.77	25.93	172.70	82.845 (0.221)	12.529	-0.636 (0.043)	1.405 (0.860)
Collection levels 2011	3,227	110.80	24.00	134.80	84.637 (0.218)	12.389	-0.910 (0.043)	1.052 (0.086)

Source: Authorial computation based on DFPLB (2013) data

Skewness and Kurtosis were also analyzed to understand better how the data is spread. The descriptive analysis from Table 1 indicates rather low values for Skewness, suggesting that differences in the case of revenue mobilization between different t.a.u. are rather small in size. The Kurtosis presents differences between the four years, is smaller than 3, but can still be considered to be in the limits of normal distribution (Table 1).

Although using the aforementioned indicators (Skewness and Kurtosis) as well as a visual inspection of Figures 1 to 4, we can assume a rather normal distribution in the case of our cases/data, more insights can be gained if we analyze the 2008-2011 trends for each DR (see Table 2).

In 2008 (Table 2) the highest mean values can be observed in the case of Bucharest (86.18%) followed by North West (85.54%), while the lowest are in North East (74.43%) and South (76.65%); North West also presents the highest level of revenue collection (positive outlier, 167.15%), while North East the smallest (negative outlier, 11.02%). In 2009, Bucharest and North West present the highest means again (87.78% and 86.17%), while South (73.88%) and South West (75.32%) have the lowest means. Extreme values are found in North East (17.00%) and North West (127.34%). In 2010, North West (89.59%) and Bucharest (88.29) averaged the highest levels of revenue collection once again, while South East (80.53%) and South (80.96%) performed the worst. Extreme examples of revenue collection are observed in North West (172.70%) and South (25.93%). In 2011 (Table 2), the highest mean was for the North-West region (90.61%), followed by West (87.55%), while the lowest means were in South East (81.89%) and North East (82.25%).

Table 2: Revenue mobilization by DR, selected central tendency indicators (2008-2011)

Development Region	**Selected Statistics**	**Values for 2008**	**Values for 2009**	**Values for 2010**	**Values for 2011**
North East	Mean	74.43 %	75.42%	81.05%	82.25%
	Minimum	11.02%	17.00%	37.21%	24.00%
	Maximum	100.00%	100.00%	100.00%	100%
	Range	88.98	83.00	62.79	76.00
	Skewness	-.714	-.865	-.690	-1.098
	Kurtosis	.036	.816	.128	1.676
	N	558	558	558	558
South East	Mean	81.57%	78.68%	80.53%	81.89%
	Minimum	19.53%	35.59%	33.89%	28.73%
	Maximum	132.19%	124.84%	100.00%	100%
	Range	112.66	89.25	66.11	71.27
	Skewness	-.637	-.578	-.832	-.827
	Kurtosis	1.187	.199	.414	.509
	N	396	396	396	396
South	Mean	76.65%	73.88%	80.96%	83.43%
	Minimum	12.45%	19.47%	25.93%	38.24%
	Maximum	121.35%	122.48%	108.42%	134.80%
	Range	108.90	103.01	82.49	96.56
	Skewness	-.729	-.570	-.874	-.747
	Kurtosis	.508	.210	.584	.714
	N	574	574	574	574
South West	Mean	76.90%	75.32%	81.42%	84.51%
	Minimum	20.00%	28.00%	47.00%	39.00%
	Maximum	100.00%	100.00%	100.00%	100%
	Range	80.00	72.00	53.00	61.00
	Skewness	-.906	-.734	-.598	-.844
	Kurtosis	.917	.242	-.405	.406
	N	452	452	452	452
West	Mean	82.93%	81.69%	83.92%	87.55%

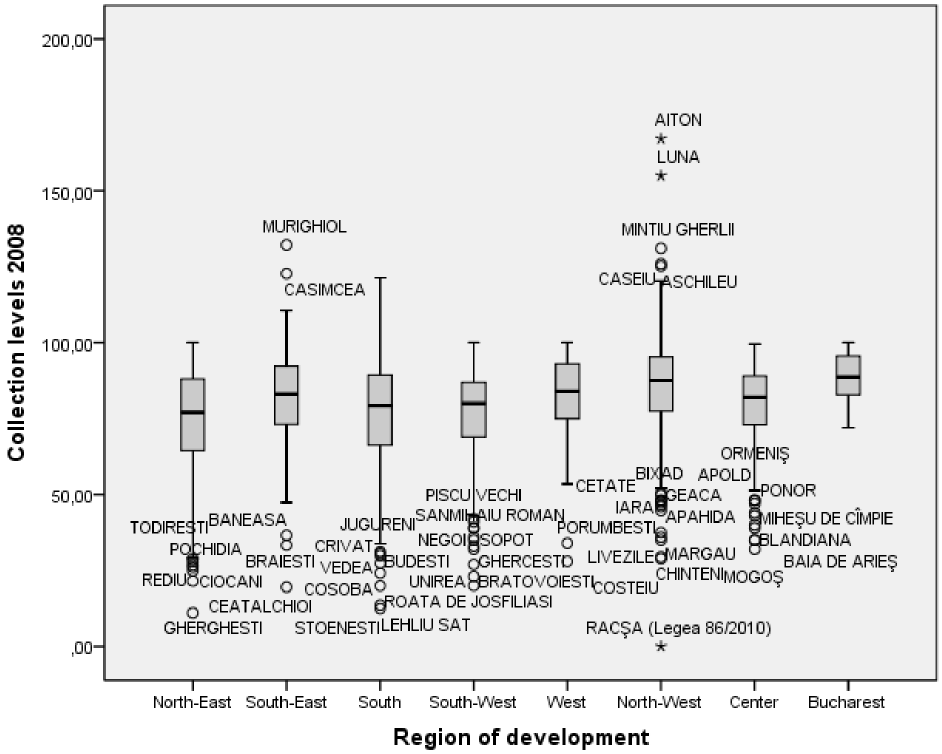
	Minimum	28.00%	38.00%	43.80%	45.28%
	Maximum	100.00%	100.00%	100.00%	100%
	Range	72.00	62.00	56.20	54.72
	Skewness	-.795	-.698	-.797	-1.251
	Kurtosis	1.138	.179	.410	1.539
	N	327	327	327	327
North West	Mean	85.54%	86.1795%	89.59%	90.61%
	Minimum	28.87%	38.43%	36.73%	40.13%
	Maximum	167.15%	127.34%	172.70%	131.47%
	Range	138.28	88.91	135.97	91.34
	Skewness	-.208	-.709	-.018	-1.168
	Kurtosis	3.519	.948	6.105	2.312
	N	452	452	452	452
Center	Mean	80.03%	81.91%	82.84%	83.49%
	Minimum	32.00%	32.40%	39.25%	47.87%
	Maximum	99.50%	99.54%	99.37%	99.45%
	Range	67.50	67.14	60.12	51.58
	Skewness	-1.010	-.877	-.881	-.857
	Kurtosis	1.322	1.465	.752	.337
	N	420	420	420	420
Bucharest	Mean	86.18%	87.78%	88.29%	84.27%
	Minimum	72.00%	75.00%	75.00%	46.00%
	Maximum	100.00%	100.00%	100.00%	100.00%
	Range	28.00	25.00	25.00	54.00
	Skewness	-.261	-.148	-.326	-1.045
	Kurtosis	-1.103	-1.077	-.961	1.286
	N	48	48	48	48

Source: Authorial computation based on DFPLB (2013) data

A visual representation of the data (see Figure 1 to Figure 4) offers more evidence for the presence of differences in revenue collection at the local level and that these differences can be connected with the DR in which a institution is situated. The Tukey box plot (Figure 1) presents an analysis of revenue collection by DR for 2008. It is noticeable that only two DRs present positive outliers (territorial administrative units that managed to collect significantly more than what they predicted), namely South East and North West. All DRs have negative outliers (local authorities that collected significantly less than what they predicted), albeit the number as well as their position differ.

Furthermore, the length of the 'whiskers' (the lines that start from the box) differs; they are shorter for Bucharest and longer for the rest of the regions. The same can be said regarding the height of the box. Judging by the fact that the upper whisker is shorter than the lower one (for each DR), it seems that there are more territorial administrative units that manage to collect fewer revenues (than what was initially predicted) than there are those that collected more revenues, regardless of the DR (Figure 1).

Figure 1: Revenue collection by region of development in 2008

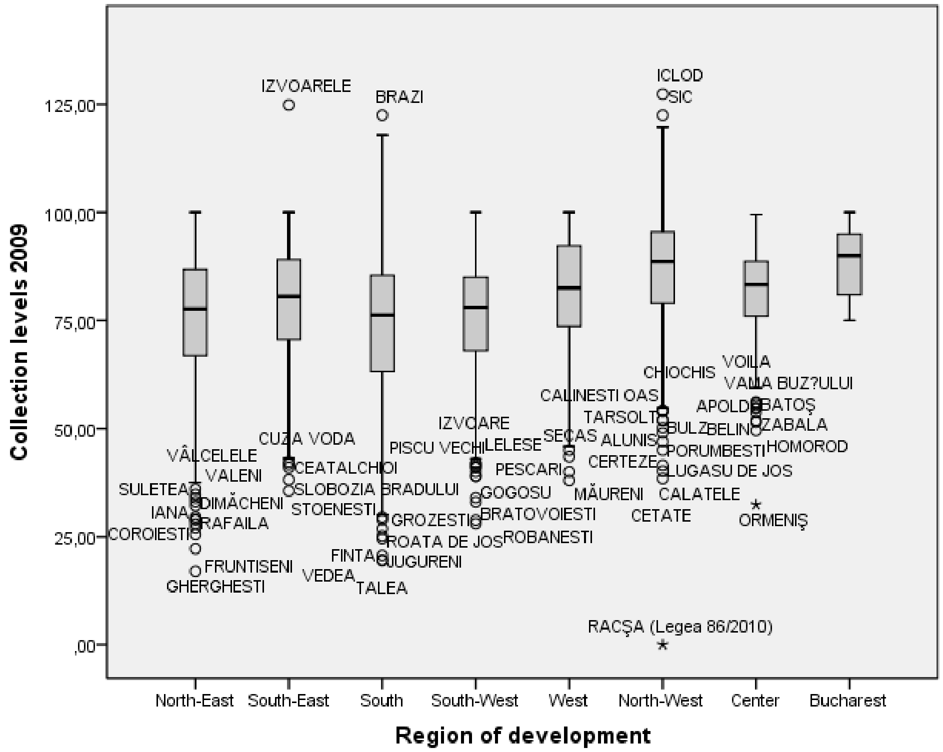


Source: Authorial computation based on DFPLB (2013) data

For 2009 (Figure 2) we can observe fewer positive outliers (only 4, in North West, South and South East). Negative outliers on the other hand are present in all eight DRs. The length of the 'whiskers' (following the same pattern: shorter for Bucharest and longer for the rest of the regions) seems to be bigger than in 2008, suggesting that more of the data tends toward extreme (positive and negative) values. These developments signal the existence of negative issues regarding the process of revenue mobilization at the local level and the same can be said regarding the height of the box, when compared to the previous year.

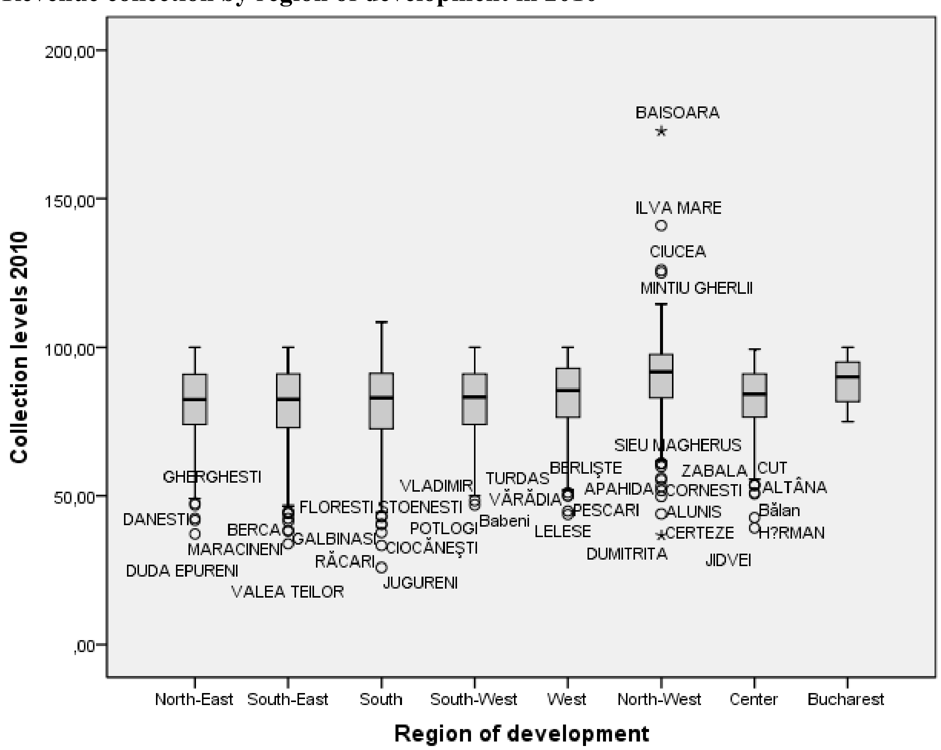
In 2010 only the North-West region maintains positive outliers, while the rest (except Bucharest) show negative ones (Figure 3). In the case of the North West, South and Bucharest regions, a significant percentage of the data is located around or above the 100 % indicator, meaning that parts of these regions managed to achieve higher levels of revenue collection than what was predicted, at least when compared to others.

Figure 2: Revenue collection by region of development in 2009



Source: Authorial computation based on DFPLB (2013) data

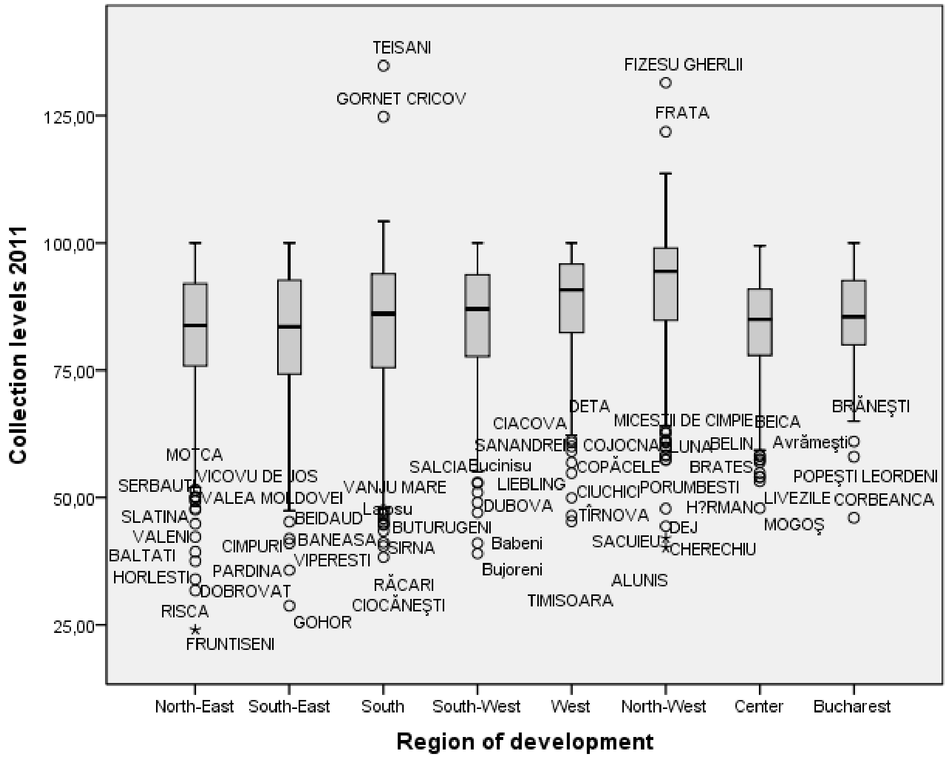
Figure 3: Revenue collection by region of development in 2010



Source: Authorial computation based on DFPLB (2013) data

In 2011 (Figure 4), besides the North West DR, positive outliers can also be identified in the South region, while all DRs have negative outliers (territorial administrative units which had significantly lower revenue collection levels than the regional average).

Figure 4: Revenue collection by region of development in 2011



Source: Authorial computation based on DFPLB (2013) data

Both the analysis of selected central tendency indicators (Table 2) and the analysis of the spread of the data according to the DR criterion (Figures 1 to 4) suggest that there is a difference between DRs regarding their influence on revenue collection. However, in order to confirm this hypothesis/observation (that the differences that can be observed between different regions of development regarding revenue mobilization at the local level are statistically significant and not due to chance) a more complex and robust analysis of variance is required.

Post-hoc ANOVA: Does DR matter?

To further test if the differences that occur between local communities situated in different DRs regarding revenue collection/mobilization are significant from a statistical perspective, an analysis of variance was conducted. A one-way analysis of variance (ANOVA) was used to observe if there are statistically significant differences between the means of multiple groups. Specifically, ANOVA tests the null hypothesis:

$$H0: \mu 1 = \mu 2 = \mu 3 = ... = \mu k, \quad (1)$$

Where μi = group mean and k = number of groups. If, however, the one-way ANOVA returns a significant result then we must accept the alternative hypothesis (HA), namely that there are at least two group means that are significantly different from each other. The main assumptions that have to be observed to realize a one-way ANOVA are discussed below.

The first assumption to conduct an ANOVA analysis is that the independent variable (development regions in our case) consists of two or more categorical independent groups; given the nature of our data (grouping local authorities by DRs), this criteria is met/fulfilled. The second assumption refers to the fact that the dependent variable should be either interval or ratio (continuous); this condition is also respected, since the dependent variable refers to the levels of revenue collection (collected/predicted local revenues) for the 2008-2011 period, which is a ratio measurement. The third condition requires that the dependent variable should be normally distributed for each category of the independent variable – this assumption was analyzed in Table 1 and Table 2, as well as in Figures 1 to 4 and is meet by the data. The fourth assumption refers to equality of variances between the independent groups; homogeneity of variances was tested in SPSS using Levene's Test and the Robust Tests of Equality of Means (see Table 3) – see the discussion below. The last (fifth) assumption, independence of cases is also meet by our data.
A key assumption of the one-way ANOVA is that the variances of the compared groups are similar. In the case of Levene's Test of Homogeneity of Variance (Table 3), if the statistical significance value is greater than .05, the test shows that there is homogeneity of variances. Unfortunately, the data fails to meet the assumption of homogeneity of variance, as the Sig. values are lower than .05 (meaning that population variances are not equal), thus we will take into account the Robust Tests of Equality of Means (Table 3), instead of the usual ANOVA table.

Table 3: Homogeneity of variances tests (Collected/predicted) revenues by development region

Year of analysis	Statistical tests			
	Levene's test		Robust Tests of Equality of Means	
	Levene Statistic	Sig.	Welch Statistic	Sig.
2008	16.407	.000	32.913	.000*
2009	18.637	.000	46.958	.000*
2010	6.366	.000	28.765	.000*
2011	7.369	.000	26.832	.000*

Source: Authorial computation based on DFPLB (2013) data

With values for the Welch Statistic rather high (32.913 for 2008, 46.958 for 2009, 28.765 for 2010 and 26.832 for 2011) and *p* values below the 0.05 threshold (see Table 3), the analysis shows that there is a statistically significant difference in the mean levels of revenue mobilization between different development regions, across the entire period studied. Although there is a statistically significant difference between the analyzed groups, we are not able to determine (at this point) how the groups differ. To better observe the DRs between which there are statistically significant differences, the research continued by conducting post hoc tests (see Table 4) (the post hoc test best fitted in this case is Games-Howell because it does not rely on homogeneity of variance – this being an assumption not meet by our data).

Overall, when compared to other regions, the North East region seems to collect fewer revenues than what it was proposed (Table 4). The mean difference is negative

($p<0.05$) for all four years when compared with West, North West and Bucharest (with the exception of 2011 in the case of the latter). Negative differences can also be observed for 2008 and 2009 when compared to South East and Center DRs ($p<0.05$), but when this region was compared to South and South West the mean differences were not statistically significant ($p>0.05$).

The South East region presents less stable interaction over time (Table 4). In 2008 and 2009, it collected statistically significant more revenues than North East, South and South West ($p<0.05$), but when compared to the same regions in 2010 and 2011 the mean difference (although negative) lost its statistical significance ($p>0.05$). On the other hand, in all four years, this region collected less than North West ($p<0.05$) and Bucharest (again, with the exception of 2011). It also collected less in 2010 and 2011 (when compared to the West; $p<0.05$) and in 2009 (when compared to Center; $p<0.05$), other interactions with these two regions not being statistically significant.

The South region (Table 4) managed to achieve lower levels of revenue collection when compared to West, North West, and Bucharest in all four years (with the exception of Bucharest in 2011), as well as when compared to Center (in 2008 and 2009) ($p<0.05$) and South East (in 2009). All other mean differences proved not to be statistically significant ($p>0.05$).

The South West DR (Table 4) collected less than the North West in the entire period ($p<0.05$), less than West and Center (in 2008, 2009 and 2011; $p<0.05$), less than Bucharest (in 2008-2010; $p<0.05$) and less than South East (in 2008 and 2009; $p<0.05$). This region did not manage to collect more local revenues than any other region.

During the analyzed period, the West region (Table 4) managed to collect significantly more than the North East and South ($p<0.05$), but less than Bucharest and North West ($p<0.05$). The region collected more when compared to South East (in 2010 and 2011), South West (in 2008, 2009 and 2011) and Center (in 2008 and 2011) ($p<0.05$ in all cases), other mean differences being statistically insignificant.

The North West DR (Table 4) managed to collect more than any other region of development in the analyzed period ($p<0.05$), with the exception of Bucharest (for the 2008-2010 period) and West (in 2008) (for these two exceptions $p>0.05$).

Table 4: Post Hoc ANOVA, multiple comparisons, Games-Howell (Collected/predicted revenues by development region, 2008-2011)

(I) Region of development	(J) Region of development	Difference (I-J) 2008	Sig.	Difference (I-J) 2009	Sig.	Difference (I-J) 2010	Sig.	Difference (I-J) 2011	Sig.
North-East	South-East	-7,13864*	,000	-3,26038*	,013	,53339	,998	,35825	1,000
	South	-2,18593	,375	1,56994	,723	,11999	1,000	-1,18020	,788
	South-West	-2,47366	,200	,09975	1,000	-,35930	1,000	-2,26508	,063
	West	-8,50631*	,000	-6,26830*	,000	-2,8547*	,011	-5,30734*	,000
	North-West	-10,9140*	,000	-10,5564*	,000	-8,5126*	,000	-8,36619*	,000
	Center	-5,59607*	,000	-6,47954*	,000	-1,76433	,234	-1,24393	,678
	Bucharest	-14,3079*	,000	-12,3793*	,000	-7,2917*	,000	-2,01778	,948
South-East	North-East	7,13864*	,000	3,26038*	,013	-,53339	,998	-,35825	1,000
	South	4,95271*	,000	4,83032*	,000	-,41339	1,000	-1,53845	,639
	South-West	4,66498*	,000	3,36012*	,010	-,89269	,970	-2,62333	,051
	West	-1,36766	,846	-3,00792	,051	-3,3881*	,006	-5,66558*	,000
	North-West	-3,77539*	,005	-7,29605*	,000	-9,0459*	,000	-8,72444*	,000
	Center	1,54257	,700	-3,21916*	,004	-2,29771	,123	-1,60218	,531
	Bucharest	-7,16924*	,000	-9,11889*	,000	-7,8251*	,000	-2,37603	,898
South	North-East	2,18593	,375	-1,56994	,723	-,11999	1,000	1,18020	,788
	South-East	-4,95271*	,000	-4,83032*	,000	,41339	1,000	1,53845	,639
	South-West	-,28773	1,000	-1,47020	,794	-,47929	,999	-1,08488	,863
	West	-6,32038*	,000	-7,83824*	,000	-2,9747*	,010	-4,12714*	,000
	North-West	-8,72811*	,000	-12,1264*	,000	-8,6325*	,000	-7,18600*	,000
	Center	-3,41014*	,005	-8,04948*	,000	-1,88432	,207	-,06373	1,000
	Bucharest	-12,1219*	,000	-13,9492*	,000	-7,4117*	,000	-,83758	1,000
South-West	North-East	2,47366	,200	-,09975	1,000	,35930	1,000	2,26508	,063
	South-East	-4,66498*	,000	-3,36012*	,010	,89269	,970	2,62333	,051
	South	,28773	1,000	1,47020	,794	,47929	,999	1,08488	,863
	West	-6,03264*	,000	-6,36805*	,000	-2,49539	,057	-3,04226*	,004
	North-West	-8,44038*	,000	-10,6562*	,000	-8,1533*	,000	-6,10112*	,000
	Center	-3,12241*	,013	-6,57929*	,000	-1,40503	,576	1,02115	,867
	Bucharest	-11,83422*	,000	-12,4790*	,000	-6,9324*	,000	,24730	1,000
West	North-East	8,50631*	,000	6,26830*	,000	2,85469*	,011	5,30734*	,000
	South-East	1,36766	,846	3,00792	,051	3,38808*	,006	5,66558*	,000
	South	6,32038*	,000	7,83824*	,000	2,97469*	,010	4,12714*	,000
	South-West	6,03264*	,000	6,36805*	,000	2,49539	,057	3,04226*	,004
	North-West	-2,40773	,224	-4,28813*	,000	-5,65788*	,000	-3,05886*	,004
	Center	2,91023*	,023	-,21124	1,000	1,09037	,883	4,06340*	,000
	Bucharest	-5,80158*	,002	-6,11097*	,001	-4,43704*	,027	3,28956	,610
North-West	North-East	10,91404*	,000	10,55643*	,000	8,51258*	,000	8,36619*	,000
	South-East	3,77539*	,005	7,29605*	,000	9,04596*	,000	8,72444*	,000
	South	8,72811*	,000	12,12637*	,000	8,63257*	,000	7,18600*	,000
	South-West	8,44038*	,000	10,65617*	,000	8,15327*	,000	6,10112*	,000
	West	2,40773	,224	4,28813*	,000	5,65788*	,000	3,05886*	,004
	Center	5,31797*	,000	4,07689*	,000	6,74825*	,000	7,12226*	,000
	Bucharest	-3,39384	,262	-1,82285	,873	1,22085	,981	6,34841*	,018
Center	North-East	5,59607*	,000	6,47954*	,000	1,76433	,234	1,24393	,678
	South-East	-1,54257	,700	3,21916*	,004	2,29771	,123	1,60218	,531
	South	3,41014*	,005	8,04948*	,000	1,88432	,207	,06373	1,000
	South-West	3,12241*	,013	6,57929*	,000	1,40503	,576	-1,02115	,867
	West	-2,91023*	,023	,21124	1,000	-1,09037	,883	-4,06340*	,000
	North-West	-5,31797*	,000	-4,07689*	,000	-6,74825*	,000	-7,12226*	,000
	Bucharest	-8,71181*	,000	-5,89973*	,000	-5,52740*	,001	-,77385	1,000
Bucharest	North-East	14,30788*	,000	12,37927*	,000	7,29173*	,000	2,01778	,948

	South-East	7,16924*	,000	9,11889*	,000	7,82512*	,000	2,37603	,898
	South	12,12195*	,000	13,94921*	,000	7,41172*	,000	,83758	1,000
	South-West	11,83422*	,000	12,47902*	,000	6,93243*	,000	-,24730	1,000
	West	5,80158*	,002	6,11097*	,001	4,43704*	,027	-3,28956	,610
	North-West	3,39384	,262	1,82285	,873	-1,22085	,981	-6,34841*	,018
	Center	8,71181*	,000	5,89973*	,000	5,52740*	,001	,77385	1,000

*Source: Authorial computation based on DFPLB (2013) data. Note: * the mean difference is significant at the 0.05 level*

The Center DR (Table 4) collected less than North West and Bucharest (for the entire period) and West (in 2008 and 2011) ($p<0.05$), but more than North East, South, South West (in 2008 and 2009; $p<0.05$) and South East (in 2009) ($p<0.05$). All other mean differences are not statistically significant ($p>0.05$) in the case of the Center DR.
According to Table 4, Bucharest DR attained a higher level of revenue collection than any other region (except the North West) in the first three years; the mean difference ranges from 4.36 p.p. to 14.31 p.p. ($p<0.05$). However, in 2011 Bucharest lost this advantage (from a statistical point of view) and the North West region managed to collect with 6.34 p.p. more ($p<0.05$).

Discussion and conclusions

The descriptive analysis showed that local administrative institutions (communes, cities, counties) from North-West region, West and Bucharest attained higher levels of local revenue collection between 2008 and 2011, while the North-East, South and South-East development regions under-performed in regard to local revenue collection. No clear pattern seems to emerge in the case of the remaining two regions (Center and South West) as they constitute an intermediary level between the aforementioned two ('performers' and 'laggards') or simply to not show any consistent pattern. The Games-Howell Post Hoc ANOVA conducted for all Romanian territorial administrative units for the 2008-2011 period corroborates the main findings of the descriptive/exploratory analysis as most of the differences which were initially observed in Table 2 and Figures 1 to 4 are also statistically significant, according to the tests presented in Table 3 and Table 4.
Furthermore, our finding on revenue mobilization are rather similar with those obtained by Avrămescu (2012, p. 44) in his index of development, although the two methodologies and data sets are very different, as: Bucharest, North-West and West generally occupy the first three positions (according to both Avrămescu's ranking for 2009 and our general results, although not necessarily in the same order for the latter two DRs), while North-East and South East are generally among the last three positions in both analyses (Table 5).

Table 5: Comparative analysis of findings.

Development region	Current research ranking (based on mean, largest to smallest)					Avrămescu's ranking (development index)	
	Total*	2008	2009	2010	2011	1998	2009
North-East	27	8	6	6	7	8	8
South-East	25	4	5	8	8	6	6
South	28	7	8	7	6	3	5
South-West	21	6	7	5	3	4	7

West	12	3	4	3	2	7	2
North-West	6	2	2	1	1	5	3
Center	17	5	3	4	5	2	4
Bucharest	8	1	1	2	4	1	1

Source: Authorial computation based on DFPLB (2013) data and Avrămescu (2012, p. 44). Note: the total is based on the sum of rankings; lower total indicates a batter ranking

Some differences can be observed between the two rankings presented in Table 5 in the case of the South West DR (which is an intermediary performer in our ranking, but a laggard according to Avrămescu) and the South DR (which is a worse performer according to our results, but an intermediary performer according to Avrămescu). Unfortunately, these similarities between the main findings of the two researches cannot be further explored in the present paper, but they can constitute the background of future academic works related to Romania's DRs and their importance/role in ensuring sustainable development.

We can also assume that other factors, most likely of cultural origins specific to each DR (Iacobuţă, 2015; Oţil and Boldea, 2015; Bălan and Vasile, 2015) have an important impact on public revenue mobilization, but the scientific literature is rather limited on this subject, thus analyzing the impact of cultural factors on revenue mobilization and voluntary compliance can constitute a topic of interest for future research. More in-depth research is also warranted in the case of culture and sustainable development, going beyond the economic impact of cultural artefact and heritage (see Nocca, 2017): are there regional differences in the way people perceive themselves and the state (at local and national level), differences which influence both their entrepreneurial spirit (or in general what they do to ensure a better quality of life for themselves and their family/community, thus eventually leading to development) and their willingness to pay taxes?

We must also briefly discuss a limitation of the current work: the indicator we used for revenue mobilization (the ratio between collected and predicted revenues) allows us to compare territorial administrative units from the eight DRs on a more objective basis, but it also present a shortcoming – we cannot currently ascertain, without any shadow of a doubt, that the differences observed are due to forecasting failures (as some territorial administrative units proposed unreasonably high or low forecast for what they can reasonably expect to collect) or to deficiencies and shortcomings in the actual collection process (as the initial forecasts were accurate but something else happened during the budgetary year which made that goals/objectives unattainable). We can also posit that some of these potential forecasting/estimation 'errors' or even the general under-performance of public institutions in the case of domestic revenue mobilization could have been averted if a more stable and performant internal public auditing would have been put into place (see Macarie and Moldovan, 2018; Moldovan and Macarie, 2022).

As previously mentioned, the research remains exploratory and descriptive at this stage; the analysis can be further continued in a confirmatory direction by including multiple control variables, such as GDP or GDP/capita, urbanization, demographic dependency, employment and unemployment, the size of the informal/underground economy, sectorial composition of the economy, population and so on, but this goes beyond the aims of the present research. Even so, the current findings can be useful for national decision-makers in an attempt to reorganize Romanian DRs or in (eventual) future attempts to create administrative regions or macro-regions that can reduce inequalities and ensure sustainable development (Duchin, 2017; Pavel and Moldovan, 2019) for local communities. Maintaining the current development regions as the blueprint or background for a potential territorial reorganization of the country would be ill advised, as the aforementioned inter-regional differences might become more pronounced and generate even greater disparities between local communities. Extrapolating from the current findings we can hypothesize that the Bucharest, Center, North-West and West DR which attained higher levels of domestic revenue mobilization (see Table 5) will continue to do so in the future and, consequently, have more consistent and constant financial resources at their disposal to offer public goods and services and to encourage (via regional and local public policies, subsidies and tax levies) economic and social development. On the other hand, if the current situation is maintained, North-East, South-East, South and South-West DR will have less and less consistent and constant financial resources to provide public goods and services and to stimulate economic development in a sustainable manner.

However, even if the current system is not conducive to sustainable development and reducing inter-regional disparities (as the experience of the last 20 years has shown in Romania) and it would be ill-advised to implement more extensive administrative changes based on the current DR (i.e. transforming development regions in administrative ones and potentially reducing the authority and power of other administrative levels – national, county or city/commune), there are some limitations if we want to offer a more complex solution for national policy makers only based on the current data. One could offer a potential solution under the form of using NUTS-I macro-regions instead of NUTS-II regions as the background for an territorial-administrative reform, but the literature shows that in the case of Romania development gaps exist even at the macro-regional level (see Oţil and Părean, 2010; Florea, 2014; Ionescu, 2016), thus this solution would also fail to ensure sustainable development and reduce development gaps. Another more feasible potential solution would be to recombine the current DR established at the NUTS-II level and transform them into different NUTS-I territorial-administrative macro-regions, but multiple other factors (for example: GDP, population, geographical proximity, transport infrastructure, economic characteristics, socio-cultural affinities and history, ethnicity and minorities, natural resources and so on) would have to be taken into consideration beside revenue mobilization in order to ensure sustainable development.

References

1. African Development Bank Group (2011), *Domestic Resource Mobilisation for Poverty Reduction in East Africa: Lessons for Tax Policy and Administration*, Tunis: African Development Bank.
2. Akitoby, Bernardin, Anja Baum, Clay Hackney, Olamide Harrison, Keyra Primus and Veronique Salins (2020), Tax Revenue Mobilization Episodes in Developing Countries. *Policy Design and Practice* 3 (1): 1-29. https://doi.org/10.1080/25741292.2019.1685729
3. Akudugu, J. Ayaribilla and Oppong-Peprah, Edmond (2013), Local Government Revenue Mobilisation and Management: The Case of Asante Akim South District. *Journal of Public Administration and Governance* 2: 98–120. https://doi.org/10.5296/jpag.v3i2.3977
4. Alexandru, Dana Georgeta and Beata Guziejewska (2020), Administrative Capacity as a Constraint to Fiscal Decentralization The Case of Romania and Poland. *Comparative Economic Research. Central and Eastern Europe* 1: 127-143. https://doi.org/10.18778/1508-2008.23.08

5. Apostolache, M. Adina (2014), Regional Development in Romania – From Regulation to Practice. *Procedia Economics and Finance* 8: 34–41. https://doi.org/10.1016/S2212-5671(14)00059-8
6. Avrămescu, T. Cristian (2012), A Multifactorial Statistical Model for Development Regions Hierarchy in Romania. *Annals of the University of Petroşani, Economics* 12(2): 39–46.
7. Bălan, Mariana and Alina Solomon (2010), Macroeconomic Evolution in Romania's Development Regions within the Current Economic- financial Crisis. *Scientific Bulletin – Economic Sciences* 9(15): 29–38.Bălan, Mariana and Valentina Vasile (2015), Cultural Determinants of Economic Performance in Romania. *Procedia - Social and Behavioral Sciences* 188: 290-296. https://doi.org/10.1016/j.sbspro.2015.03.396
8. Brașoveanu, I. Viorel and Laura Obreja Brașoveanu, L. (2013), Public Sector Influences in the Development of Underground Economy and Corruption in Romania, in EU Context. *Economic Computation and Economic Cybernetics Studies and Research* 1: 167–184.
9. Britchenko, Igor, Maksym Bezpartochnyi, and Natalia Maslii (2019), Financial Decentralization in Ukraine: Prerequisites, Problems, Prospects. *VUZF Review* 4 (4): 25-44.
10. Cagé, Julia and Lucie Gadenne (2018), Tax Revenues and the Fiscal Cost of Trade Liberalization, 1792–2006. *Explorations in Economic History* 70: 1-24. https://doi.org/10.1016/j.eeh.2018.07.004
11. Consolidated Version of the Treaty on the Functioning of the European Union, published in the Official Journal of the European Union, no. C 326/47 of October 26, 2012.
12. Cristinel, Ichim (2012), Financial Side Analysis of Local Autonomy in Romania. *Anale. Seria Ştiinte Economice. Timișoara* 18: 915–921.
13. Dabla-Norris, Era (2006), The Challenge of Fiscal Decentralisation in Transition Countries. *Comparative Economic Studies* 48: 100–131.
14. Daianu, Daniel, Kallai, Ella and Laurian Lungu (2012), Tax Policy under the Curse of Low Revenues: The case of Romania (Part I). *Romanian Journal of Economic Forecasting* 1: 156–186.
15. Danulețiu, D. Constantin (2010), Fiscal Decentralization and Issues of Municipal Bonds. The Case of Romania. *Polish Journal of Management Studies* 1: 70–78.
16. de Mello, Luiz and Matias Barenstein (2001), Fiscal Decentralization and Governance: A Cross-Country Analysis. IMF Working Paper WP/01/71, Washington, D.C.: International Monetary Fund.
17. Dexu, He, and Miao Wenlong (2022), Fiscal Decentralization, Financial Decentralization and Macroeconomic Governance. *China Economist* 17 (1): 84-105. https://doi.org/10.19602/j.chinaeconomist.2022.0L07
18. Diaconu (Maxim), Laula (2014), Regional Economic Disparities in Romania. Comparative Analysis of the North-East and West Development Regions. *The USV Annals of Economics and Public Administration* 14 (20): 75–82.
19. Dobre, A. Stelian (2015), Public Revenues and Social Polarization in Romania. *Financial Studies* 2: 92–103.
20. Dobrotă, Gabriela (2016), Tendencies in the Development of Budget Revenues under the Impact of Tax Policy in Romania. *Annals of the „Constantin Brâncuşi" University of Târgu Jiu, Economy Series* 5: 45–50.
21. Duchin, Faye (2017), Resources for Sustainable Economic Development: A Framework for Evaluating Infrastructure System Alternatives. *Sustainability* 9 (11): 2105. https://doi.org/10.3390/su9112105
22. Elezi, Shiret (2015), Local Governance in an International Comparative Perspective. Comparing Local Government Finances in Macedonia with Slovenia. *European Scientific Journal* 13: 519–538.
23. European Commission (2007), *Supporting Decentralisation and Local Governance in Third Countries*, Luxembourg: Office for Official Publications of the European Communities.
24. Fabus, Michal, Nadiya Dubrovina, Lidyia Guryanova, Natalia Chernova, and Olexandr Zyma (2019), Strengthening Financial Decentralization: Driver or Risk Factor for Sustainable Socio-Economic Development of Territories?. *Entrepreneurship and Sustainability Issues* 7 (2): 875-890. https://doi.org/10.9770/jesi.2019.7.2(6)
25. Fakile, A. Samuel, Folajimi F. Adegbie, and Olusola S. Faboyede (2014), Mobilizing Domestic Revenue for Sustainable Development in Africa. *European Journal of Accounting Auditing and Finance Research* 2 (2): 91-108.
26. Finžgar, Mateja and Boštjan Brezovnik (2019), Direct International Comparison of EU Member States Fiscal Decentralization Systems with the Conceptual Index of Fiscal Decentralization (CIFD)

in the Context of European Charter of Local Self-Government (ECLSG). *Transylvanian Review of Administrative Sciences* 56E: 41-59. http://dx.doi.org/10.24193/tras.56E.3

27. Florea, Adrian (2014), Educational Impact on the Romanian's Macroregions. *Annals of Faculty of Economics, University of Oradea, Faculty of Economics* 1(2): 204-209.
28. Gavriluta, Anca Florentina, Mihaela Onofrei, and Elena Cigu, (2020), Fiscal Decentralization and Inequality: An Analysis on Romanian Regions. *Ekonomický časopis* 68 (1): 3-32.
29. Gershberg, A. Ian (2008). *The Realpolitiks of Decentralization and Formula Funding in Romania: A Confounding Case Study*. Paris: UNESCO.
30. Gideon, Zhou and Madhikeni Alouis (2013), Systems, Processes and Challenges of Public Revenue Collection in Zimbabwe. *American International Journal of Contemporary Research* 2: 49–60. http://hdl.handle.net/10566/4794
31. Gnangnon, S.-Kimm and J.-François Brun (2018), Impact of Bridging the Internet Gap on Public Revenue Mobilization. *Information Economics and Policy* 43: 23-33. https://doi.org/10.1016/j.infoecopol.2018.04.001
32. Goschin, Zizi (2015a), Regional Divergence in Romania Based on a New Index of Economic and Social Development. *Procedia Economics and Finance* 32: 103–110. https://doi.org/10.1016/S2212-5671(15)01370-2
33. Goschin, Zizi (2015b), Territorial Inequalities and Economic Growth in Romania. A Multi-factor Approach. *Procedia Economics and Finance* 22: 690-698. https://doi.org/10.1016/S2212-5671(15)00285-3
34. Iacoboaea, Cristina, Alpopi, Cristina and Cristina Manole (2016), The Industry in Romanian Urban Areas and Development Regions. *Theoretical and Empirical Researches in Urban Management* 11 (1): 19-40.
35. Iacobuţă, A.-Oana (2015), Cultural Values and Regional Development in Romania. *Journal of Public Administration, Finance and Law* 7: 182–188.
36. Institutul pentru Politici Publice (2001), *Bugetele Locale între Teorie şi Practică* (Local Budgets between Theory and Practice). Bucureşti: Institutul pentru Politici Publice (IPP).
37. International Monetary Fund (2015), *Current Challenges in Revenue Mobilization: Improving Tax Compliance*. Washington, D.C.: IMF.
38. Ionescu, Romeo-Victor (2016), European Union of the Regional Disparities. *Acta Universitatis Danubius. Œconomica* 12 (6): 168-178.
39. Ioniţă, Sorin (2005), Money for Our People? Decentralisation and Corruption in Romania: The Cases of the Equalisation, Infrastructure and Pre-university Education Funds. *Public Administration and Development* 3: 251–267. https://doi.org/10.1002/pad.365
40. Iorga, E., Moraru, A. and Giosan, V. (2010), Argument. In *Bugetele Autorităţilor Locale din România la Cote de Avarie: Politici de Finanţare Incoerente şi Excesiva Politizare a Procesului de Alocare a Resurselor*. Edited by Iorga, E., Moraru, A., Giosan, V. Bucureşti: Institutul pentru Politici Publice (IPP), pp. 5–7.
41. Jemna, D. Vazile, Onofrei, Mihaela and Elena Cigu (2013), Demographic and Socio-economic Determinants of Local Financial Autonomy in Romania. *Transylvanian Review of Administrative Sciences* 39E: 46–65.
42. Junquera-Varela, Raul F. Marijn Verhoeven, Gangadhar P. Shukla, Bernard Haven, Rajul Awasthi, and Blanca Moreno-Dodson (2017), *Strengthening Domestic Resource Mobilization Moving from Theory to Practice in Low- and Middle-Income Countries*. Washington, DC: International Bank for Reconstruction and Development / The World Bank. https://doi.org/10.1596/978-1-4648-1073-2
43. Law no. 151/1998 on Regional development in Romania, published in Romania's Official Gazette, no. 265 of July 16, 1998 [online] available at http://www.cdep.ro/legislatie/eng/vol35eng.pdf, accessed on April 1, 2018.
44. Law no. 315/2004 on Regional development in Romania, published in Romania's Official Gazette, no. 577 of June 29, 2004, with subsequent amendments and supplementations.
45. Law no. 86/2010 for the establishment of the commune of Racşa, county of Satu Mare, by the reorganization of the Oraşu Nou commune, published in Romania's Official Gazette no. 342.
46. Lupăncescu, Mihaela, Gheorghe Axinte, Paul-Răzvan Şerban, and Marian Ciobotă (2020), The Significance of Decentralisation and of Governance Quality for the Regional Development and the Absorption of the European Funds. *Journal of Advanced Research in Management* 11 (21): 30-38.

47. Macarie, Felicia C. and Octavian Moldovan (2018), Evaluating Romanian Internal Public Auditing Using the IA-CM: Current State and Potential Developments. In *Transylvanian International Conference in Public Administration*. Edited by Hințea, C. Maria, Bogdan A. Moldovan, Bianca V. Radu and Raluca M. Suciu. Cluj-Napoca: Accent, pp. 280-302.
48. Mahi, B. Raksaka (2011), Local Own Revenue Mobilization in Indonesia. *Journal of Indonesian Economy and Business* 26 (1): 90-102Marian, C. Gabriel and Ronald F. King (2016), Political Opinion and the Trends in Romanian Government Expenditures. *Transylvanian Review of Administrative Sciences* 48E: 54–65.
49. Mascagni, Giulia, Moore, Mick and Rhiannon McCluskey (2014), *Tax Revenue Mobilisation in Developing Countries: Issues and Challenges*. Brussels: EP Publication Office.
50. Mawejje, Joseph (2019), Natural Resources Governance and Tax Revenue Mobilization in sub-Saharan Africa: The Role of EITI. *Resources Policy* 62: 176-183. https://doi.org/10.1016/j.resourpol.2019.04.001
51. Modica, Emmanuelle, Sabine Laudage and Michelle Harding (2018), *Domestic Revenue Mobilisation: A New Database on Tax Levels and Structures in 80 Countries*. Paris: Centre for Tax Policy and Administration, OECD. https://doi.org/10.1787/22235558
52. Moldovan, Octavian (2016), Local Revenue Mobilization in Romania. *European Financial and Accounting Journal* 11(3): 107–124. https://doi.org/10.18267/j.efaj.166
53. Moldovan, Octavian and Felicia C. Macarie (2015), Reducing Uncertainty in Romanian Public Finances: Forecasting Models for Revenue Collection. *Procedia Economics and Finance* 32: 1550–1567. https://doi.org/10.1016/S2212-5671(15)01545-2
54. Moldovan, Octavian, and Felicia Cornelia Macarie (2022), The Transformation of Romanian Internal Public Audit between 2006 and 2020. *Transylvanian Review of Administrative Sciences* 67E: 21–43. http://dx.doi.org/10.24193/tras.67E.2
55. Morrissey, Oliver (2015), Aid and Domestic Resource Mobilization with a Focus on Sub-Saharan Africa. *Oxford Review of Economic Policy* 31 (3-4): 447–461. https://doi.org/10.1093/oxrep/grv029
56. Ndunda, J.M., Ngahu, S.T. and Wanyoike, D. (2015), Analysis of Factors Influencing Optimal Revenue Collection by County Governments in Kenya. *International Journal of Economics, Commerce and Management* 5: 1114–1129.
57. Network of Associations of Local Authorities of South-East Europe-NALAS (2012), *Fiscal Decentralization Indicators for South-East Europe Report*, Skopje: NALAS.
58. Nocca, Francesca (2017), The Role of Cultural Heritage in Sustainable Development: Multidimensional Indicators as Decision-Making Tool. *Sustainability* 9 (10): 1822. https://doi.org/10.3390/su9101882
59. Novosák, Jiří, Oldřich Hájek, Peter Horváth and Jana Nekolová (2017), Structural Funding and Intrastate Regional Disparities in Post-communist Countries. *Transylvanian Review of Administrative Sciences* 51E: 53-69. http://dx.doi.org/10.24193/tras.51E.4
60. Onofrei, Mihaela, Ionel Bostan, Elena Cigum, and Anca Florentina Vatamanu (2023), Ensuring Budgetary Resources at the Level of Local Communities in the Current Social-Economic Context: Evidence for Romanian Municipalities. *Economies* 11(1). https://doi.org/10.3390/economies11010022
61. Opoku, Ernest, Kyeremeh, Christian and Daniel Odoom (2014), Local Revenue Mobilization Mechanisms: Evidence from the Abura-Asebu-Kwamankese District in Ghana. *Developing Country Studies* 26: 125–137. https://repository.gij.edu.gh/xmlui/handle/gijdr/530
62. Oprea, Florin and Irina Bilan (2015), An Evaluation of the Economic and Financial Crisis's Impact on Local Budgetary Aggregates: The Romanian Case. *Procedia Economics and Finance* 20: 467-477. https://doi.org/10.1016/S2212-5671(15)00098-2
63. Oprea, Florin, Mihaela Onofrei, Gigel Paraschiv, and Lenuta Cojocaru (2022), Do Local Budgets Influence Regional Development? Empirical evidence from Romania. *Lex Localis - Journal of Local Self-Government* 20 (1): 77 – 99. https://doi.org/10.4335/20.1.77-99(2022
64. Oţil, Maria and Mihai Părean (2010), Macro-regional Disparities in Romania. *Annals of the University of Petroșani, Economics* 10 (2): 255-266.
65. Oţil, Maria and Monica Boldea (2015), Regional Disparities – Historical Cultural Influences and Regional Development in Romania. *Annals of the „Constantin Brâncuşi" University of Târgu Jiu, Economy Series* 4: 74–83.

66. Oxfam (2019), *It's Not All About the Money. Domestic Revenue Mobilization, Reducing Inequality and Building Trust with Citizens.* Oxford: Oxfam GB. https://doi.org/10.21201/2019.4382
67. Para, Iulia, Teodor Gheorghe Negrut, and Laura Mariana Cismas (2019), Considerations Regarding the Absorption Capacity of the Structural and Cohesion Funds, the Administrative and Financial Decentralization and the Quality of the Governing Act in Romania. *Network Intelligence Studies* 14: 115-120.
68. Pavel, Alexandru and Octavian Moldovan (2019), Determining Local Economic Development in the Rural Areas of Romania. Exploring the Role of Exogenous Factors. *Sustainability* 11(1): 282. https://doi.org/10.3390/su11010282
69. Pendiuc, Tudor (2014), Realities and Perspectives on Regional Development in Romania. *Strategii Manageriale* 23(1): 35–41.
70. Profiroiu, Marius and Alina Profirou (2006), Decentralization Process in Romania. *Transylvanian Review of Administrative Sciences* 16E: 115–123.
71. Rodríguez-Pose, Andrés and Anne Krøijer (2009), Fiscal Decentralization and Economic Growth in Central and Eastern Europe, LSE 'Europe in Question' Discussion Paper Series no. 12/2009, London School of Economics.
72. Rondinelli, A. Dennis (1981), Government Decentralization in Comparative Perspective: Theory and Practice in Developing Countries. *International Review of Administrative Sciences* 2: 133–145. https://doi.org/10.1177/002085238004700205
73. Russu, Corneliu (2014), Aspects of Regional Development in Romania. *Economic Insights – Trends and Challenges* 4: 25–32.
74. Sanogo, Tiangboho (2019), Does Fiscal Decentralization Enhance Citizens' Access to Public Services and Reduce Poverty? Evidence from Côte d'Ivoire Municipalities in a Conflict Setting. *World Development* 113: 204-221. https://doi.org/10.1016/j.worlddev.2018.09.008
75. Savu, Mihaela and Georgiana Mîndreci (2012), Development Regions in Romania during the Economic Crisis. *Revista Română de Statistică* Supliment Trim IV/2012: 245–248.
76. Slijepčević, Sunčana (2018), The Impact of the Economic Crisis and Obstacles to Investments at Local level. *Transylvanian Review of Administrative Sciences* 55E: 62-79. http://dx.doi.org/10.24193/tras.55E.5
77. Stancea, Isabela (2021), Decentralization, According to the Administrative Code. *Contemporary Economy Journal* 6 (2): 56-60.
78. Ștefan, M.-Cristina and Mirela Dogaru (2011), Implications of Financial Decentralization on the Local Budgets Balancing Policy. *Knowledge Horizons – Economics* 3-4: 130–135.
79. Surd, Vasile, Kassai, Ianos and Laura Giurgiu (2011), Romania Disparities in Regional Development. *Procedia Social and Behavioral Sciences* 19: 21–30. https://doi.org/10.1016/j.sbspro.2011.05.102
80. Tamarappoo, Ramji, Pooja Pokhrel, Muthu Raman, and Jincy Francis (2016), *Analysis of the Linkage between Domestic Revenue Mobilization and Social Sector Spending*. United States Agency for International Development.
81. The Direction for Fiscal Policies and Local Budgets (DFPLB), (2013). Gradul de colectare în anii 2008, 2009, 2010 şi 2011 - pe UAT-uri, tipuri de UAT-uri şi pe judeţe. Available from: <http://www.dpfbl.mai.gov.ro/analize_bugete.html.> [8 June 2015].
82. United Nations (2007), *Economic Development in Africa. Reclaiming Policy Space: Domestic Resource Mobilization and Developmental States*. New York and Geneva: United Nations.
83. van den Boogaard, Vanessa, Wilson Prichard, Mathew W. Benson, and Nikola Milicic (2018), Tax Revenue Mobilization in Conflict-affected Developing Countries. *Journal of International Development* 30(2): 345-364. https://doi.org/10.1002/jid.3352