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Does system of local government subsidisation fulfil revenue equalisation function? Evidence from Poland

JEL Classification: *H71; H22; H11*

Keywords: *general grants; revenue equalization; own revenues; revenue equalisation function; Poland*

Abstract
Research background: General grants in the system of local government finance should pursue five different functions. One of them is revenue equalization. This function is achieved if the revenue gap is reduced after the application of the subsidising mechanism. In addition, to be completed, the size of the support should be inversely proportional to own revenues.
Purpose of the article: The aim of the article is to analyse the fulfilment of the revenue equalization function by general grants. Therefore, beside the theoretical analysis, which presents the general grants structure and the functions assigned to them, the article discusses the results of studies showing changes in the revenue gap after the application of the grant mechanism and the correlation between per capita own revenue and the amount of funds from selected parts (equalisation, balancing-regional, reserve, compensating) of the general grant. The following tentative research hypothesis was adopted: general grants fail to fulfil the revenue equalisation function.
Methods: Two research methods were applied to achieve the aim of the article and verify the research hypothesis: descriptive statistics and correlation — calculating the Pearson correlation coefficient.
Findings & Value added: Based on the analyses, it was concluded that, once the corrective and equalising mechanism was applied, the range between the extreme per capita revenue

values was reduced by 40–50% on average, at all local government levels, i.e. at commune (including cities with county right), county and province levels, in each year from the period analysed, i.e. 2012–2016. The correlation between the sizes of revenue before and after budget subsidising is always negative, whereas the strength of the relationship ranged between low and significant, depending on the local government level. It was found that general grants do fulfil the revenue equalisation function, which contradicts the initially formulated research hypothesis.

Introduction

General grants constitute one of the three obligatory sources of revenue for the Polish local governments. The other two are specific grants from the state budget and own revenues. As a source of revenue, general grants have specific features distinguishing them from the aforementioned specific grants and own revenues in the narrow sense (for example, property tax), and making them similar to the shares in the personal and corporate income taxes, statutorily assigned to own revenues. This assignment is criticised by scientists and practitioners because, for one thing, these revenues do not have the features of "typical" own revenues (in the strict sense) like the aforementioned property tax, vehicle tax or agricultural tax. Moreover, such a classification makes it more difficult to make statistical comparisons between concerning the types of revenues of local government units or the structure of their revenues.

Comparing the shares of the individual revenues in local government budgets, general grants may be described as the principal revenue. The amounts of general grants supplying the budgets often correspond to ca. 50% of expenditures, and in individual cases, especially among rural communes, they may constitute up to two-thirds of the expenditures. The importance of revenues expressed by their share in expenditures became the basis for investigation aimed at finding whether the structure of the subsidising mechanism in Poland is correct, i.e. whether it ensures the fulfilment of one of the functions of general grants — revenue equalisation. In other words, the purpose of the article is to investigate whether general grants fulfil the revenue equalisation function in the Polish local government system. The analysis is based on data for 2012–2016. Due to the fact that the obtained results are quite stable, it was considered that a five-year period will be sufficient. The research was carried out separately for the individual local government tiers. i.e. communes, counties and provinces. To accomplish the aim and verify the research hypothesis stating that general grants fail to fulfil the revenue equalisation function, the author used the descriptive statistics and correlation methods by the determination of the Pearson correlation coefficient.

The article consists of two parts: theoretical and practical. The first one describes the system of subsidizing local government in Poland, emphasizing its specifics and discussing the function of general grants. In the second part, research was conducted to verify the research hypothesis.

The characteristics of general grants and their specific features in the Polish system of local government finances

The term *general subsidy* is specific to the Polish legislation, and consequently — to the Polish literature. In foreign publications this type of revenue is seldom referred to as a subsidy. It is far more commonly termed *general grant* (Lotz, 2005, p. 59), as opposed to *specific grant* (Sekuła, 2009, pp. 756–757), since the "generality", or the absence of strict guidelines as to the purpose of expenditure — allocation for financing local governments' functions as a whole, is one of the distinguishing features of general grant. General grants are also non-returnable and free of charge. The first attribute means that, unless grants are unduly received, they are not returned to the state budget; the other indicates that funds received in the form of general grants are not subject to consideration being paid to the state budget. General grants are also characterised by centralisation in the revenue sphere and decentralisation in the expenditure sphere, which means that local governments have freedom of choice as to their disposal (Sekuła, 2015, p. 919).

In the literature, general grants are sometimes referred to as *general-purpose transfers* (Shah, 2016, p. 56) to emphasise that they are not earmarked for a specific purpose. The fact that the grant provider does not indicate the directions of spending the grant is also reflected in the expression *non-earmarked grants* (Bröthaler & Getzner, 2011, p. 140). This feature of grants of this type is also highlighted by the term *general purpose grant* (Starkie, 1984, p. 27). To receive general grants, it is not necessary to provide consideration or co-finance a particular service by a local government unit, therefore, they are sometimes termed *general type non-matching grants* (Oulasvirta, 1997, p. 397). To emphasise the absence of conditions imposed by the donor, the term *unconditional grants* (Islam & Choudhury, 1990, p. 676) is sometimes used.

In Poland the overall amount of general grants is the sum of three (Table 1), or in the case of communes (optionally) four amounts (plus funds from reserve division) of unequal sizes that make up the total. As from 2004, general grants consist of three components: equalisation, balancing (regional in provinces) and educational. A reserve is also created, both for the general grant and with respect to the educational component, whereas communes

may also receive funds in the form of compensating grants (Sekuła & Basińska, 2014, p. 148). The largest part, in some cases accounting for up to 90% of general grant revenues, is the educational part. As a component of general grants, in common with their other components, it has all the features of such grants. It is not provided for specific educational tasks, but on account of performing these tasks. Revenues do not have to cover the expenses of the schools run by local governments, because they are not allocated to any tasks — educational or other. Nevertheless, the origin of this source of revenue, the method of its calculation or nomenclature indicate a strong relationship to the tasks related to education, hence the educational component revenues were not considered in the analysis of the function of general grants.

The state budget does not have to be the only source supplying all the components of general grants. In most countries, including Poland, the mechanism defining the revenues from general grants is shaped by the application of two basic forms of division of public funds:

- vertical, where revenues are supplemented by funds from the state budget; in the case of Poland it applies to all the components apart from the balancing/regional component,
- horizontal, where revenues are supplemented with funds acquired from the local government units of the same level whose revenues are considered high; they make up the component called balancing in the case of communes and counties and regional – in the case of provinces.

Most countries, not only European apply the vertical and horizontal mechanisms of revenue redistribution simultaneously (Swianiewicz, 2016, pp. 26–55; Eccleston & Woolley, 2015, pp. 216–243).

The functions of general grants

Nowadays, in local governments, the application of the redistribution system by means of general grants does not raise any doubts. Transfers serve various purposes, so any differences in individual systems apply to the construction of the redistribution system and the presence of the horizontal revenue division, beside the vertical division. It is assumed that the subsidising mechanism should fulfil the following functions: supportive, equalising, balancing, compensating and incentive (Figure 1).

The first component is intended to support the performance of tasks. The grants that serve the supportive function should be determined in accordance with the scope of duties performed by local government units at a particular level. Because of the inherent features of general grants: decen-

tralisation in the expenditure sphere and lack of allocation to a specific purpose, they cannot be used to transfer funds for the performance of a particular task. In this situation the amount of grant is calculated according to the scope of tasks performed. To enable this, it is necessary to adopt a specific standard for task fulfilment, called the minimum service level, the costs of which should be known. Based on such assumptions, it is possible to calculate the size of transfer according to objective criteria. The aforementioned standards are defined as models of selected service delivery measures/indicators, which determine the scope, level and cost of a service. In practice, application of standards involves comparing the parameters of services with an established model. The educational component of general subsidies is often presented as an example of practical application of the supportive function. Its size depends on the size of so-called education voucher, calculated according to a complicated procedure, including, inter alia, the scope of educational tasks performed. However, the education expenditures and revenues are not as rigidly connected as in the case of specific grants. If revenues from the education grant could be allocated only to educational expenditures, thus having the features of specific grants, local government units would have to return funds from the educational component that were not used to fulfil educational tasks.

Another function — equalisation — refers to the evaluation of the revenue potential of a local government unit and its comparison with the mean, median or maximum value at a particular local government tier. On this basis, the amount of compensation is calculated, which should be inversely proportional to the capacity to earn own revenues, characterised by uneven spatial distribution and efficiency. This function is the focus of further analysis.

The next function — balancing — is not determined by the revenue criterion, but by the costs of task fulfilment. Corrective transfers take into account unequal demand for some goods and public services due to objective factors, such as climate, demographic conditions, spatial development and the predominant type of housing. This function is realised by taking into account the unequal unit costs of service provision arising from objective causes rather than e.g. poor management. It must be emphasised that there are distinct differences between the support and balancing functions. While the funds of the former type are provided for task fulfilment (for example the educational component of grants awarded on account of the performance of educational tasks), the funds of the latter type are provided to compensate for unequal costs of service delivery, where the differences arise from objective reasons.

The next function — compensating — is performed only at the commune level in the case of Poland. It involves adding specific computational elements to the algorithm to include amounts replacing the eliminated or centrally restricted sources of own revenues. It could be said that such grants play a substitute role for own revenues of local government units that were taken from them or reduced under applicable regulation.

The last of the aforementioned functions — incentive — involves the construction of a general transfer system ensuring that the compensation is provided up to a certain level. On the one hand, the funds transferred in the form of general grant should sufficiently supplement other revenues to guarantee services at a desired level, and on the other — motivate local governments to seek additional revenues from different sources, without discouraging them from making these efforts. Excessive flattening of the revenues of local governments due to supplying their budgets with general grants can demotivate local government units and reduce their efficiency in acquiring budget revenues. To sum up, the aforementioned function, also described as stimulating, involves supporting the efforts of local authorities to increase the units' competitiveness.

To ensure that general grants can fulfil these functions, it is necessary to follow specific principles of their construction, calculation and transfer. These principles can be outlined as follows:

- they are a source of non-returnable revenues whose construction counteracts the strengthening and widening of territorial disparities in own revenue distribution;
- they correct the vertical imbalance between own tasks and revenues;
- they reduce the differences between the revenue potential and expenditure needs of local communities;
- therefore, the funds awarded are proportional to the financial needs and inversely proportional to own revenue earning capacity;
- together with own revenues, they enable the fulfilment of mandatory tasks;
- the use of the funds should be flexible — they must not affect the units' autonomy with respect to expenditure;
- their role is to increase the resources at the disposal of local government units as part of own system revenues;
- the size of transfers should stimulate local government units to manage their finances in a rational and prudent way and to take responsibility for the effects produced through the use of the grants;
- they must not demotivate or discourage from taking initiative and seeking additional sources of revenues;

- that is why revenue equalisation between units whose own revenues are characterised by uneven spatial distribution should be partial;
- the system must be permanent, stable and predictable, so the criteria for and principles of awarding the funds should be provided for in laws;
- the criteria for the allocation of funds by means of general grants should be fair, objective and straightforward, eliminating arbitrary decisions of officials concerning the amounts or dates of transfer.

Research methodology

Verification of the research hypothesis formulated in the introduction and achievement of the aim of the study required appropriate research methods. The method of descriptive statistics was employed in the first stage of the investigation, where the revenue ranges were compared. It was the initial and fundamental step in the analysis of the data collected. The descriptive statistics method used here was a tabular description with a summary of calculation results.

Then, the Pearson correlation coefficient was used in the subsequent analysis. It is used to determine the level of linear relationship between random variables. The coefficient r has a value in the range [-1; 1]. The linear statistical relationship between random variables can vary in strength — the higher the absolute value, the stronger the relationship. For the purpose of this study, the most common interpretation of correlation coefficient was adopted (Peternek & Kośny, 2011, p. 343).

The research was carried out independently for three local government levels: 2478 communes, 314 counties and 16 voivodships, wherein due to the specificity of cities with county rights (a larger share of communal than counties revenue, lack in public statistics precise revenue division into commune and county part) they were included in the first group, i.e. communes, although they perform both commune and county tasks and obtain budget revenue for communes and counties.

Analysis of revenue range changes after the application of the subsidising mechanism

In order to analyse the revenue range changes before and after the application of the subsidising mechanism, certain assumptions had to be made. First of all, the educational grant revenues were eliminated from the calculations, since it was considered to perform only the supportive function.

Furthermore, a detailed analysis of calculation mechanisms for the remaining components of general grants leads to the conclusion that they largely perform the function of revenue equalisation. There are not many criteria taking into account the unequal costs of service delivery due to objective reasons; one of the more commonly used is population density. The revenues that take into consideration the cost criteria in the overall amount of general grants are small; moreover, they are not recognised separately in public statistics. Thus further calculations include the size of general grants minus the educational component, as indicated in Table 1.

The range of per capita revenues between the units with the lowest and the highest revenues is presented in Tables 2 and 3. Table 2 refers to own revenues, whereas Table 3 is based on own revenues supplemented with funds from the corrective and equalising mechanism. The values were reduced by the amounts paid as part of horizontal redistribution. In public statistics these amounts are not recognised (deducted) in the calculation of the revenues of a particular territorial unit or in the calculation of the payments for the balancing/regional component amounts to be paid. This clearly shows an error in the existing solutions because these revenues do not remain at the disposal of local government units, which are required by law to pay them in the amount calculated by the ministry within a specific time limit.

The data presented in Tables 2 and 3 show that in the period analysed, the range of revenues decreased after the application of the subsidising mechanism. Before its implementation, the disparity was most striking among communes (also including cities with county rights) — 1:140 in 2012, later decreasing to 1:100. The inequality was lower in the case of counties and provinces: the range before supplying the budgets with general grants was from 1:3 to 1:5. These differences are due to the nature of own revenue sources assigned to each tier. Counties and provinces do not have own revenues apart from the shares in the personal and corporate income taxes; their revenues are strongly centralised and dependent on the state budget. Local governments have limited possibilities of shaping these revenues on their own account. Commune authorities have far more freedom in this respect, which is reflected in a greater range of per capita revenues.

As mentioned before, application of the subsidising mechanism flattens the inequalities in revenue sizes. This is visible at all levels in all the years analysed. Therefore, it can be concluded that the initial hypothesis of the failure of general grants to fulfil the revenue equalisation function was not confirmed. Once the corrective and equalising mechanism is applied, the range between the extreme revenues falls by ca. 40–50% (Table 3).

The relationship between the size of revenues and amount of grants (per capita) is presented in Table 4. The table contains the Pearson correlation coefficient values. The minus sign denotes an inversely proportional relationship; in other words: the higher the unit's own revenues (per capita), the lower the equalisation by means of grants. Statistically, these grants supply poorer units with greater amounts, which leads to the conclusion that they do fulfil the revenue equalisation function and, consequently, that the initial research hypothesis has been disproved.

As for the strength of the relationship, it is the highest in provinces, where *r* is close to -0.8, so according to the criteria adopted in the methodology section, the relationship can be described as significant. In the remaining cases — communes and counties — the relationship is visible but weak, taking the values in the range 0.2÷0.4; in individual cases — in counties in 2012 and in communes in 2015 and 2016 it exceeded 0.4, thus reaching the moderate level.

Conclusions

The purpose of this study was to find whether the equalising and corrective mechanism applied in the Polish system of local government financing fulfils one of the functions assigned to general grants, which is revenue equalisation.

The analyses conducted have disproved the initial hypothesis that general grants fail to perform this function, so the function in question is in fact fulfilled. The strength of the relationship between own revenues and the amount of general grants indicates that statistically greater resources are transferred to units with lower per capita revenues, which is considered appropriate and desirable.

Due to the fact that the calculations apply to the populations of communes, counties and provinces, their results failed to demonstrate certain defects of the subsidisation system connected with the revenue function, existing at all tiers with respect to selected units. The most serious defects include: excessive restrictiveness of the system of payments for the balancing/regional component and the reversal of the revenue status, i.e. a situation where after the application of the corrective and equalisation mechanism the beneficiary unit earns a higher revenue that the payer unit; in other words: when the units supplying resources for the solidarity fund eventually find themselves among the poorest units, i.e. with the lowest per capita revenues. These dysfunctions, extending beyond the subject matter of this article, are discussed in detail in other publications.

The second limitation of the article is the inclusion full amounts of all four general grants components, ie. equalization, balancing (regional), reserve and compensating. Some of them in the calculation criteria take into account cost considerations, e.g. population density, however in the public statistics only total amounts are presented. The amounts of the parts that created the component are not presented, hence the lack of the possibility to separate revenue and cost criteria.

The article does not include references to the results of research published in international literature. Despite many publications devoted to horizontal and fiscal equalization (Bronić & Bajo, 2007, p. 1-26; Heinemann, 2012, p. 471-479; Petchey, 2011, p. 207-214; Turley, Flannery & McNena, 2015, p. 459-484), most of them focus on the process of equalizing fiscal imbalances rather than on the functions that these resources (i.e. general grants) pursue. Too little detail of the data provided by Eurostat also makes it difficult to carry out international comparisons.

Despite this, it is believed that the article could be applied in practice — when constructing the final model of local government general grants. Changes and modifications of this system, which take place every few years, indicate that the final form of this system has not yet been developed in Poland.

Future research, which the author intends to lead in the future in this area, will cover a longer time horizon. It will also be verified if cyclical factors influence the results.

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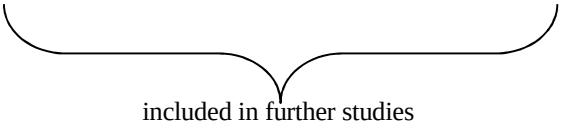
Annex

Table 1. Components of general grants

local government level	equalisation	balancing/ regional	reserve	compensating	educational (including the respective reserve)
communes	V	V/-	V	V	V
counties	V	V/-	V	-	V
provinces	V	-/V	V	-	V



included in further studies

Table 2. Per capita own revenue range at the individual local government tiers in 2012–2016

year	2012	2013	2014	2015	2016
communes*	1:140	1:115	1:100	1:99	1:87
counties	1:5	1:5	1:5	1:4.3	1:4.7
provinces	1:4.3	1:3.2	1:3.5	1:2.9	1:3.4

* including cities with county rights

Source: own calculations based on Local Data Bank and Ministry of Finance.

Table 3. Per capita revenue range (less the local government payments for the balancing/regional component) at the individual local government tiers in 2012–2016, after supplying the budgets with grants

year	2012	2013	2014	2015	2016
communes*	1:86	1:61	1:65	1:51	1:46
counties	1:2.6	1:2.8	1:3.6	1:2.7	1:2.7
provinces	1:2.1	1:1.8	1:1.6	1:1.7	1:1.65

* including cities with county rights

Source: own calculations based on Local Data Bank and Ministry of Finance.

Table 4. Coefficient of correlation between per capita own revenue and per capita general grants (excluding the educational component)

year	2012	2013	2014	2015	2016
communes*	-0.324	-0.381	-0.398	-0.404	-0,614
counties	-0.439	-0.334	-0.257	-0.372	-0.366
provinces	-0.702	-0.684	-0.624	-0.784	-0,773

* including cities with county rights

Source: own calculations based on Local Data Bank and Ministry of Finance.

Figure 1. Description of the functions of general grants