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General grants and development – a relationship without a future? The effects of the structure of general grants on the development of local government units in Poland

ALICJA SEKUŁA

ABSTRACT The purpose of this paper is to attempt to identify the reasons for the lack of relationship between general grant revenue and investment expenditure of local government units. The author formulated the hypothesis that there is no link between general grants and investment expenditure and that the reason for this are the current spending on education, absorbing the entire amount of general grants received by local government units. The hypothesis was verified in a procedure consisting of several steps. The theoretical part contains a description of the revenue system of local government units in Poland with particular emphasis on transfers, including general grants. Although the local government in Poland is a three-tier system (communes, counties, provinces), the investigation presented in the analytical part was carried out for four groups of units, also identifying cities with county rights. On the basis of the results of statistical analysis and a comparison of revenues from the education component of the general grants and the overall amount of general grants with expenditure on education, the most likely explanation is the size of expenditure on education, which often exceeds the total revenue from the general grants.

KEYWORDS: • general grants • subsidy • development • local government • local government revenues • investment expenditure • specific grants • Poland

CORRESPONDENCE ADDRESS: Alicja Sekuła, Ph.D., Gdańsk University of Technology, Faculty of Management and Economics, Narutowicza 11/12, 80-233 Gdańsk, Poland, email: alicja.sekula@zie.pg.gda.pl.

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1 Introduction

The discussion presented in this article focuses on the relationship between different sources of local government revenues and investment expenditure. Particular attention has been given to general grants, which, as suggested by earlier studies (Sekuła, 2013: 36), did not translate into investment activity of local government units at any tier in the period 1999–2011. The purpose of this article could therefore be defined as trying to find the reasons for the absence of relationship between the general grant revenues and investment expenditure of local government units in Poland. With this aim in mind, the hypothesis was proposed that there is no relationship between general grants and investment expenditure and that the cause of this situation lies in the current spending on education, to which the entire amount of general grants received by local government units is allocated.

The study covers the period 1999–2012. The analyses were carried out with respect to four groups of units, i.e. communes (with the exception of cities with county rights), cities with county rights, counties and provinces, taking into consideration the financial situation of all units in a particular group, which means that the study covered the entire population. The calculations presented in the article were carried out using the method of multiple regression, whereas the reasoning was based on the inductive method.

2 An outline of the local government structure in Poland after transformation of the political system

The local government system in Poland was reactivated after the political transformation, on 27 May 1990. This marked the beginning of a rapid development of the local self-government system and profound structural and organisational changes in local administration (Panara, Varney, 2013: 255). Although the establishment of the local government was a major part of the political changes in Poland referred to as system transformation, we must bear in mind that the 1990 changes only took place at the lowest (commune) tier.

The situation improved when the foundations of the new local government system were laid by the Constitution of the Republic of Poland adopted on 2 April 1997, stipulating that "other units of regional and/or local government shall be specified by statute" and "the commune shall perform all tasks of local government not reserved to other units of local government" (The Constitution of the Republic of Poland, 1997: 164). It was then that the territorial reform became a constitutional duty. The Polish local government system, reconstructed in 1999, is now made up of communes (gmina), counties (powiat) and provinces (voivodeship).

Units of specific character are cities with county rights, also known as county-free cities (Kuhlmann, 2010: 6-7). They exist in a number of European countries beside Poland, such as France, Norway, Spain and Hungary (Pickvance, 2002: 93). Examples of cities with county rights include Dresden, Schwerin and Munich in Germany (kreisfreie Städte), Innsbruck and Graz in Austria (Statutarstädte), Oslo in Norway and Paris in France. Cities with county rights perform the duties assigned both to communes and counties, but do not constitute a separate tier of the local government. The quantitative structure of Polish local government, with emphasis on the specific nature of cities with county rights, is shown in Figure 1. One of its distinctive features is the high number of counties, i.e. the second tier of the local government system, at least triple that of the French departments, or Spanish or Italian provinces. Meanwhile, the number of Polish communes, more than 60% of which are rural communes, is considered relatively low compared to the aforementioned countries or smaller European states, such as Slovakia
(Wilson, Švihlová, 2000: 259) Hungary, Czech Republic or Romania (Horváthová et al., 2012: 276).

3 Revenues of local government units in Poland

The obligatory sources of local government revenues are referred to in various Polish laws, including the most important one – the constitution. According to the division presented therein, local government sources of revenue comprise own revenues, general grants (termed general subsidies in the constitution) and specific grants from the state budget. The three different groups of revenues were designated with respect to the control of receipts and spending of funds obtained from a particular source. The size and importance of the individual groups of revenues at different local government tiers in Poland (with cities with county rights shown separately) in 2011–2012 are presented in Table 1. The data suggest that the proportions of the individual groups of revenues remain relatively stable. The significance of general grants, which are the focus of this article, is varied in the budgets of the individual types of units: the lowest in provinces (ca. 16% of budget revenues) and the highest in land counties, where they account for ca. 43– 45% of revenues.

Local governments are responsible for raising the maximum possible revenue to pay for services required by citizens (Carroll, Johnson, 2010: 223). Local government revenues depend above all on the legal system of a particular country and are influenced by economic, technological and demographic changes (Bartle, Kriz, Morozov, 2011: 269). The fundamental category is own revenue. This concept is understood to mean the revenues whose sources are situated in the territory of a particular local government unit and which have been granted to the unit in their entirety and indefinitely (Guziejewska 2005, p. 2005: 63). The greater the share of own revenues in the budget, the greater the financial independence of a particular spatial unit, e.g. in Spanish communes own revenues account for

almost 60% of total revenues, 30% come from general grants (mostly unconditional), and the remaining 10% come from specific grants. Two thirds of own revenues come from five main taxes and the remaining one third from various charges. The largest tax receipts come from the property tax, local enterprise tax and local vehicle tax. They account for, respectively, 50%, 20% and 15% of revenues generated by taxes (Sol'e-Oll'e, 2006: 157).

Under Polish law, own revenues include receipts from shares in personal income tax (PIT) and corporate income tax (CIT), which constitute part of the state budget revenues. They are neither local government taxes nor joint central and local government taxes. They are state taxes, and local government units have a statutory share in the receipts they generate. (Etel, 2013: 41). This inclusion is of formal nature only, because such receipts do not have the characteristic feature attributed to own revenues (Kornberger-Sokołowska, 2004: 13), i.e. fiscal autonomy, which relates to the scope of powers to establish and control the revenues that enable a unit to manage its finances independently. The value usually used as a basic measure of fiscal autonomy is the indicator showing the share of own revenues of the local government units in their expenditures (Finžgar, Oplotnik, 2013: 658). The general outline of fiscal autonomy and the minimum extent of autonomy of local governments are, as a rule, provided for in the constitution of each state (Radvan, 2014: 819). The Polish constitution guarantees fiscal autonomy of sub-national governments, but only with respect to local taxes and charges (Glumińska-Pawlic, 2003: 132). Other own revenues, chiefly taxes, are established and collected pursuant to the provisions of acts, which do not give local government units much chance of having a real impact on their construction or collection (Glumińska-Pawlic, 2012: 154).

4 Classification of revenues transferred to local government budgets

The potential for generating own revenues varies from unit to unit, which results in considerable differences in the revenue amounts. In such cases the revenues are supplemented with transfers, which in the case of unitary states come chiefly from the state budget. There are different types of such transfers and various methods of their classification. One such method of classification identifies two types of transfers: general type non-matching grants and specific matching grants (Oulasvirta, 1997: 397). A unit receiving the first type of grant is not required to provide or contribute financially to a specific service. The amounts transferred may be spent on any purpose. The receipt of the latter usually entails the necessity for the local government unit receiving the grant to co-finance a specific activity. The disadvantage of this method of division is that it does not include specific grants not requiring the recipient's own contribution, which are awarded in some countries, including Poland. Therefore, the principal division is sometimes considered to be the division into conditional and unconditional grants (Islam,

Choudhury, 1990: 676), regardless of whether they are of general or specific nature.

In some cases a different criterion of a dichotomous division is used. Instead of stressing the need (or lack thereof) of co-financing, the general or specific nature of the grant is taken into consideration. Thus, general purpose grants and grants specified (ear-marked) for a particular purpose are identified (Starkie, 1984: 27). It is a matter of opinion whether each category may be subdivided according to the criterion of the beneficiary's contribution. General purpose grants, in principle, have no specified purpose of spending. Therefore it is hard to image any way of holding the recipient accountable for matching the amount received if the grant has no specific purpose.

This issue can be solved by dividing grants into three groups: general revenue grants, specific purpose non-matching grants, and specific purpose matching grants (Brennan, Pincus, 1990: 132). The first type is of the same nature as non-matching general grants. Such grants are awarded and transferred to the recipient unconditionally. Their chief impact is the so-called income effect in the form of increased spending, local tax relief or debt repayment. In the case of specific purpose grants the funds received have to be spent on a particular purpose, e.g. education. The effect of non-matching grants is similar to that of general purpose grants if the amount spent on a specific purpose by a local government unit is not lower than the amount of the grant. The third type of grant, i.e. matching grants, generates an income effect, as well as a substitution effect. The former results from an increase in the local government unit's revenue, and the latter is due to increased funds earmarked for a specific purpose, which include those received as a transfer and the unit's own contribution. A matching grant for public transport may contribute to improved quality, increased availability or reduced price of the service for users. The division described above has been employed in Poland, where general subsidies are an equivalent of general revenue grants. There are also specific grants, although they are not usually classified according to their matching or non-matching character.

5 Features and types of general grants

The primary aim of fund transfer in the form of general grants is to supplement a particular unit's own revenues. What distinguishes them from specific grants, referred to in the further part of the article, is the freedom as to the way of fund disposal. As previously mentioned, the decision concerning the allocation of funds from general grants rests with the legislative body. This construction is in line with the European Charter of Local Self-Government, whose guidelines stipulate that local government units should be given autonomy in the use of funds transferred to them by the central government (Oplotnik, Finžgar, 2013: 40-41).

General grants are used to finance the local government units' assigned functions. The funds received in this form are made up of a number of independently calculated components. The titles of the individual components do not determine the purpose or manner of spending the received funds, but only provide for greater flexibility due to the different algorithms of calculations and transfers and the possibility of including various numbers of criteria. Thus, designating the individual components of general grants with different titles is not synonymous with defining the purposes and tasks for which the funds are permitted to be used (Ofiarski, 2002: 278). There are no regulations specifying the nature of this expenditure – whether it should be earmarked for investment or current activities. This decision rests with the local governments.

As of 2004, general grants consist of three components: equalisation, balancing (regional in provinces) and educational (Figure 2).

The first component is referred to as an equalisation general grant. Its purpose is to offset the difference of revenues earned by local government units at a particular tier and to assist economically weaker units. Another component – the balancing general grant (regional in provinces) – consists of payments made by units characterised by a high fiscal capacity. Because of the method of collection and division (transfers from wealthy units to poor ones) it is commonly referred to as a 'Robin Hood Charge' (Polish: *janosikowe*). This type of general grant is highly controversial due to its functioning in the local government finance system and method of calculation of wealthy units' payments. The latter is often challenged as unconstitutional and has to be adjudicated on by the Constitutional Tribunal.

The last component of the general grant is the educational general grant. In terms of the amount it is the largest part of the general grant, especially in counties and communes. Its overall amount for all the local government units is specified by the finance act. In the case of the educational component the idea behind the solution is dubious, i.e. financing of education by means of grants. The essence of general grants is to minimise disproportions or supplement funds, rather than finance local government units' functions. It is noteworthy that, formally, it is not appropriate to link the educational general grant revenues with expenditure on education due to the features of the general grant (unspecified purpose of expenditure). This is the case in practical terms, however, due to the considerable share of education expenditure in overall spending. To emphasise this relationship, the term 'education-specific grant' is often used. The issue to address when contemplating a change of the source of revenues to finance education is how to ensure sufficient own revenues, especially in those local government units that would be unable to take on the burden of financing the education tasks in the present situation. Hence, subsidising expenditure on education is considered contrary to the general idea of general grants, but rationally justified (Mackiewicz..., 2007: 144).

In practice, therefore the: (Sekuła, 2009b: 109):

- equalisation general grant constitutes a means of vertical division of funds between local government and the state,
- balancing/regional general grant is a tool of horizontal redistribution between units of the same type,
- education general grant is an instrument of financing education functions.

6 Properties of specific grants

In common with general grants, specific grants belong to the category of revenues that derive from the state budget. They are regarded as the most centralised type of revenue, interfering in the financial management of spatial units to the greatest extent and, as such, ought to be used as an additional source of revenue. This recommendation is followed not only in European countries. In 1990–2005 in Canada grants to municipalities constituted an important, but not the most important, source of municipality budget revenues (Bojorquez, Champagne, Vaillancourt, 2009: 442).

The characteristic features of specific grants include (Sekuła 2009c: 766):

- their connection with the purpose for which they are earmarked and may be spent,
- their connection with the time period for which they remain at the local government's disposal – usually, until the end of the calendar year,
- the obligation to return the funds to the state budget if they are not spent in the full amount or within the specified time period.
- frequent exercise of the administrative bodies' own discretion during the division of funds (rather than following objective criteria).

These features are characteristic of grants, whether provided to public entities or enterprises. Unlike general grants, specific grants must be spent in the manner imposed by the grant donor institution. They are more frequently earmarked for investment tasks, and as such they are more strongly linked to investments.

7 Investment and development

The main objective of local government unit management is their development. This would be impossible without investment. Regardless of the adopted definition of development or development management, one of the elements that impact on the level of development is the condition of infrastructure. Expansion of infrastructure is even believed to be the basic determinant of development (Kozłowski, 2012: 7). Infrastructure can be defined as public capital goods, including motorways and roads, road transport and airport facilities, school buildings, electricity, gas and water supply and distribution systems, waste and

wastewater treatment facilities, correction units, police, fire service and court buildings (Ayogu, 1999: 171). The condition of the infrastructure depends largely on the activity of the local government, and above all on the investment policy pursued. According to P. R. Agénor, quoting the World Bank estimations, in the early 1990s the obsolete infrastructure of roads, railways, power generation and transmission and water supply systems was responsible for losses corresponding to a quarter of the amount invested by these countries in infrastructure over one year (Agénor, 2009: 233).

A method leading to a qualitative and quantitative improvement of infrastructure is the investment process. Most investments, especially of public utility character, are conducted by public entities, chiefly local government units. Capital expenditures made by local government, more than 90% of which are investment expenditures, are important for delivering public services as well as for economic growth. They often account for a larger proportion of the local government's budget than that of investment expenditure in the state budget. In some highly decentralised countries local government units may even be in charge of more infrastructure than the central government. (Lewis, Oosterman, 2011: 149, 150). Calculations revealed that in developed countries the local government is responsible for ca. two thirds of public investment expenditure in addition to providing public services. (Halmosi, 2013: 293).

However, it should be kept in mind that development does not only depend on investment activity of local government. There are certain expenditures of "soft" nature aimed at boosting development, e.g. local business incentive programmes which may generate additional cash flows in the future. The costs involved in their implementation do not constitute capital expenditure (Hermaszewski, 2013: 33). Since such costs only account for a small portion of infrastructure expenditures, we can assume that investment expenditure constitutes an important factor promoting development. The financial magnitude of investment projects is reflected in the budget in the form of investment expenditure.

8 Research methodology and results

The purpose of the study was to search for possible reasons for the absence of a relationship between general grant revenues and investment expenditure of local government units. Analysis of local government unit revenues and their links to various economic categories is gaining in importance in view of the rapid increase in such revenues. In Switzerland, for example, there has been a decrease by almost 10 percentage points in the share of the central government in total public expenditure and revenue over the past 50 years (Feld, Kirchgässner, Schaltegger, 2010: 31).

A hypothesis was formulated, stating that the absence of relationship may be linked to the size of expenditure on education in relation to revenues from the education general grant. While many sources are devoted to the analysis of expenditure on education (Alm, Buschman, Sjoquist, 2009: 30), relatively few studies focus on searching for the relationship between education revenues, education expenditures and the level of investment. The first step before testing the hypothesis was to establish which types of revenue sources of the three compulsory revenue groups have an impact on investment expenditure.

The relationship between various types of revenues with investment expenditure of local government units may be investigated using a variety of econometric models (Bojorquez, Champagne, Vaillancourt, 2009: 448). The method employed for analysis and formulation of the conclusions presented in this article is a statistical method of multiple regression. The linear model was chosen for the endogenous variable y in relation to set T of exogenous variables x, taking the following form (McClave, Benson, Sincich, 2008: 666):

$$y_T = B_0 + B_1 x_{1T} + B_2 x_{2T} + B_3 x_{3T} + e_T, \text{where:}$$

y – investment expenditures,
x_1 – own revenues,
x_2 – specific grants,
x_3 – general grants,
B – coefficient expressing the impact of revenues on investment expenditures, slope,
B_0 – constant,
e – random component.

The above model was also chosen because it enabled inclusion of more than one exogenous variable into the regression equation. The model is based on the following assumptions:

- there is a linear relationship between the independent variables x_1, x_2, x_3 and the dependent variable y,
- values of the independent variables are not random,
- the random component e (error) follows a normal distribution,
- the number of observations exceeds the number of estimated parameters of the model,
- there is no autocorrelation of residuals, i.e. there is no relationship between consecutive residuals,
- there is no strong relationship between the exogenous variables x; none of them is a linear combination of other exogenous variables.

The least squares method estimator was used, yielding the values of the structural parameters.

In order to estimate the strength of a linear relationship, the R^2 coefficient of determination is usually used, calculated from the formula:

$$R^2 = \frac{SSR}{SST} = 1 - \frac{SSE}{SST}, \text{ where:}$$

SSR – sum of squared residuals (explained variation),
SST – total sum of squares (total variation),
SSE – sum of squared errors (unexplained variation),

The measure of the distribution fit is R^2 with a 95% confidence interval.

The criterion concerning normality of distribution of the variables investigated for regression application was fulfilled. However, in order to avoid excessive fit of the model to the data, which occurred in this article, the adjusted coefficient of determination R^2 was applied, calculated from the following formula:

$$\text{adj.}\, R^2 = 1 - \frac{MSE}{SST/(n-1)}, \text{where:}$$

MSE – mean square error,
n – number of observations.

Tests using Student's t-distribution were performed in order to determine which of the exogenous variables x should be included in the regression equation.

Calculations demonstrated a strong correlation between exogenous variables. To reduce the effect of collinearity, the ridge method adjustment was applied, described by the following formula:

$$B(k) = (x'x + kI)^{-1}x'y, \text{where:}$$

x - data matrix,
x'- the transpose of the matrix
x, I - identity matrix,
k - ridge parameter,
y - target variable.

Ridge regression proceeds by adding a small value, *k* (k = 0.1 was assumed in analyses), to the diagonal elements of the correlation matrix. A summary of analysis results is presented in Table 2.

Four groups of units investigated were taken into consideration in the analysis.

In the case of communes, two variables entered into the model explaining the effect of type of revenue on investment: specific grants and general grants. Overall, they accounted for 80% of the variability of the "investment" variable (95% confidence interval 0.65–0.95). However, it turned out that only the former were statistically significant. Non-standardised regression coefficients indicated

that a revenue of PLN 100 from that source generated nearly PLN 54 of investment.

In the second group of units, i.e. cities with county rights, also two variables were included in the model, accounting for a total of 86% of variance of the "investment" variable (95% confidence interval 0.75–0.97). These variables were own revenues and general grants. As in the case of communes, the latter proved not to be statistically significant. Non-standardised regression coefficients showed that own revenues of PLN 100 generated PLN 21 of investment expenditure.

Counties were the third group of units analysed. Initially, the model explaining the effect of revenue on investment was similar to that for cities with county rights, as it included the same variables, i.e. own revenues and general grants. They accounted for 73% of the variability of the "investment" variable (95% confidence interval 0.54–0.92). Further calculations revealed that only the general grants were statistically significant, generating PLN 44.50 of investment expenditure for each PLN 100 of general grant revenue.

An exception among the units analysed seem to be the provinces, where all the three types of revenues were included in the model, accounting for a total of 91% of variance of the "investment" variable (95% confidence interval 0.84–0.98). Two of them – own revenues and specific grants – proved to be statistically significant. This was not the case for general grants. Non-standardised regression coefficients showed that an own revenue of PLN 100 generated nearly PLN 30 of investment expenditure, and PLN 100 of specific grants generated nearly PLN 51.50.

Apparently, the model representing the effect of sources of revenue on investment expenditure was slightly different for each of the four groups of local government units analysed. General grants proved significant in only one group of units – counties. In order to identify the reason for the diversity of impact models and the limited importance of general grants, an analysis was conducted of the amounts of general grants received in each of the four groups of units investigated, as well as the education component of general grants. Then the two variables were compared with the expenditure on education. A summary of these data is presented in Table 3.

The data shown in Table 3 make it possible to draw conclusions as to the relationship between selected components of revenues and expenditures of local government units in Poland. It is noteworthy that, in each group analysed, the overall education expenditure exceeded the revenue from the education component of general grants in the period 1999–2012. What is more, in the case of cities with county rights expenditure on education exceeded the overall general

grant revenues, which may explain why general grants do not promote development (this also proves the hypothesis presented in the introduction) or why the cities' own revenues have a relatively insignificant effect on investment. Presumably, part of their own revenues was spent on education. Meanwhile, in units where expenditure on education did not absorb the entire amount of general grants, i.e. in (land) counties, there is a statistically significant relationship between general grants and investment expenditure. In provinces, where the situation is similar to that in counties, such a relationship cannot be observed, but this is probably due to a greater impact of the other two compulsory sources of revenue, i.e. specific grants and own revenues.

The situation described above, illustrating the link between the education component of general grants and the impact of the entire general grants on investment expenditure, warranted further statistical analysis. The procedure applied was identical to the one presented and described in Table 2. The main difference was the use of four variables. While the first two variables remained unchanged, the third one was divided into two components: the revenue from the education general grant and the total revenue from the remaining components of the general grant. An additional term was included in the previously presented formula, which assumed the following form:

$y_T = B_o + Bx_{1T} + Bx_{2T} + Bx_{3T} + Bx_{4T} + e_T$, where:

- y, x_1, x_2, B, e remain unchanged,
- x_3 represents the revenue from the education general grant,
- x_4 represents the revenue from other components of general grants,

A summary of analysis results is presented in Table 4. As in the previous analysis, because of the high correlation between the variables, the ridge regression method was used. The skewness and kurtosis values were acceptable for the application of the regression method.

The results of statistical analyses shown in Table 4 confirm the previously observed and presented tendencies. The education component of general grants was included in the model only in the case of counties, where the issue of collinearity between own revenues and the education component of general grants may have been too great to ensure that the statistical method used was sufficiently effective. In communes and provinces the model included the revenues from the "remaining" components of general grants (other than the education component). However, these revenues were not sufficiently large to be statistically significant. In the case of cities with county rights no changes were observed compared to the original calculations, which was predictable, considering the size of education expenditure, which exceeds the overall revenue from general grants.

9 Conclusions and final remarks

The purpose of this article was to identify the reasons why general grants have a negligible effect on investment expenditures. Analysis of data and calculation results leads to the conclusion that the situation is caused by the size of expenditures on education in relation to education general grant revenues – in each year analysed and in each type of local government unit the expenditure exceeded the revenue. What is more, in cities with county rights and, in half of the years investigated, in communes, such expenditures exceeded the entire revenues from general grants. In counties, where expenditures on education did not absorb the entire amount of general grants, the relationship between investment expenditures and general grant revenues was statistically significant, but only if the general grants were analysed as a whole. Once they were divided into two components, it was impossible to apply statistical reasoning.

However, it would be wrong to conclude on the basis of the above considerations that the amount of education general grants must be increased to cover the expenditure or that there should be a rigid connection between education revenues and expenditures, as in the case of specific grants. This would be an unwise decision, because the highly diversified group of counties or provinces includes units where the situation is opposite to that in the remaining part of the population. For example, in 2012 in the county of Pi_a the revenue from the education component of general grants exceeded the expenditure in divisions 801 (Education) and 854 (Educational care) by nearly PLN 6,000,000; in the county of Jarocin it did so by PLN 3,000,000, in Lubin by nearly PLN 2,000,000, and in the West Pomeranian province by almost PLN 1,500,000. If education general grant revenues could only be earmarked for education expenditures, as is the case for specific grants, the aforementioned units would have had to return appropriate amounts to the state budget.

Referring to the title and purpose of this article, it should be pointed out that revenues from general grants have no impact on development because they are allocated, in whole or in an overwhelming proportion, to education expenditures, 96–97% of which are current expenditures. Thus, it can be affirmed that the hypothesis formulated in the introduction was proved in the course of the analysis and the most likely causes of the situation analysed were stated. In order to ensure that general grants contribute to development, it would be necessary to review their features and award criteria, both in the case of the education component and the remaining two compulsory components, i.e. equalisation and balancing (regional in provinces).

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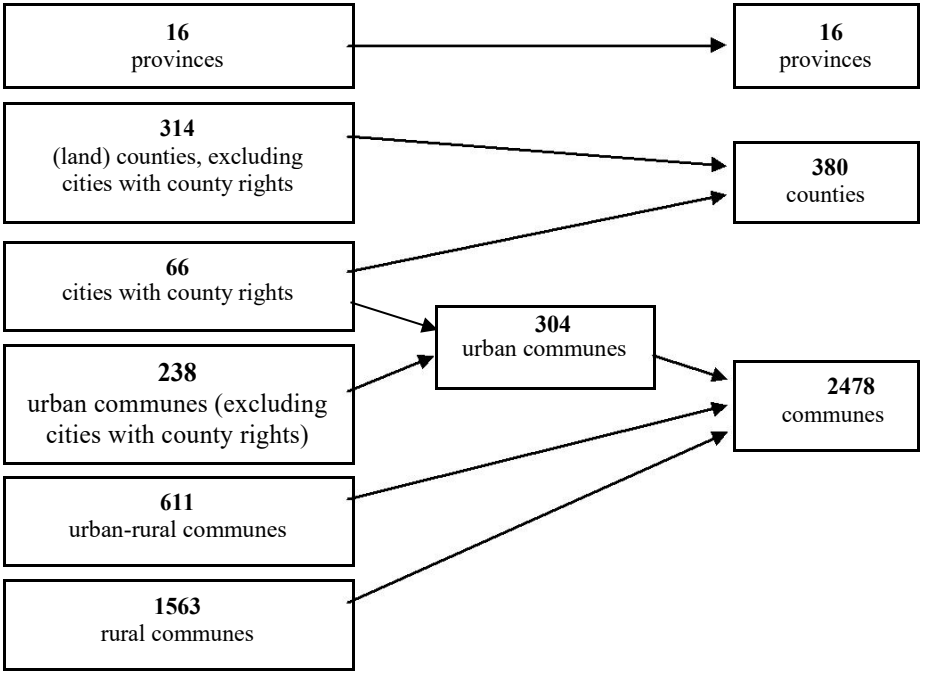
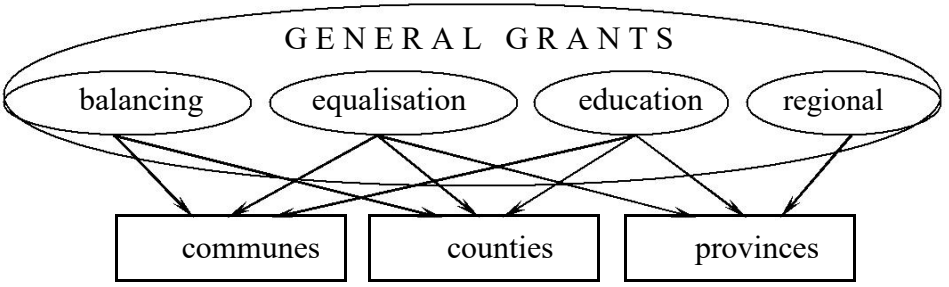
Appendix

Figure 1: Quantitative structure of the local government system in Poland



Source: Author's elaboration

Figure 2: Components of general grants for the individual local government tiers



Source: (Sekuła, 2009a: 76)

Table 1: Structure of revenues of four groups of units in 2011–2012

year	group analysed	communes (excluding cities with county rights)		cities with county rights		counties		provinces	
		PLN bn	%	PLN bn	%	PLN bn	%	PLN bn	%
2012	own revenues	36.52	46.6	37.41	61.1	6.61	29.4	6.55	43.0
	general grants	24.65	31.4	13.28	21.7	10.22	45.4	2.51	16.4
	specific grants	17.24	22.0	10.56	17.2	5.69	25.3	6.18	40.6
	overall (total revenues)	78.41	100.0	61.25	100.0	22.52	100.0	15.24	100.0
2011	own revenues	34.49	45.5	35.95	63.2	6.53	27.7	6.67	44.3
	general subsidies	23.27	30.7	12.48	22.0	10.10	42.9	2.50	16.6
	specific grants	18.07	23.8	8.42	14.8	6.92	29.4	5.90	39.1
	overall (total revenues)	75.83	100.0	56.86	100.0	23.55	100.0	15.07	100.0

Source: Author's calculation based on data from the Ministry of Finance, www.mf.gov.pl.

Table 2: Summary of multiple regression results in the models analysed for the period 1999–2012

group analysed	parameter B_1	parameter B_2	parameter B_3	adjusted R^2	F ($p < .01$)
communes (excluding cities with county rights)	-	0.65*	0.24	0.80	$F_{(2,11)} = 26.83$
cities with county rights	0.58**	-	0.36	0.86	$F_{(2,11)} = 40.84$
counties	0.32	-	0.55*	0.73	$F_{(2,11)} = 18.77$
provinces	0.33*	0.53**	0.22	0.91	$F_{(3,10)} = 44.48$

All B coefficients are standardised.

adjusted R^2 – measure of model fit;

– parameter did not meet the F > 1.0 criterion for application in the model; F – Fisher-Snedecor test statistic;
*p < .05, **p< .001

Source: Author's elaboration based on data from the Ministry of Finance www.mf.gov.pl and Local Data Bank www.stat.gov.pl/bdl/

Table 3: Selected components of revenue and expenditure of four groups of units in 1999–2012 [PLN million]

Communes					year	Cities with county rights				
GG	EDG	EDE	EDE-EDG	EDE-GG		GG	EDG	EDE	EDE-EDG	EDE-GG
1	2	3	4 (3-2)	5 (3-1)	6	7	8	9	10 (9-8)	11 (9-7)
24,649	18,101	24,340	6,239	-309	2012	13,280	12,296	12,296	4,798	3,814
23,268	16,953	23,488	6,535	220	2011	12,483	11,475	11,475	4,429	3,421
22,676	16,230	22,627	6,396	-49	2010	11,804	10,733	10,733	4,481	3,410
21,989	15,494	20,948	5,454	-1,041	2009	11,302	10,193	10,193	4,210	3,101
19,914	14,481	20,370	5,889	457	2008	10,201	9,336	9,336	4,243	3,378
17,866	13,193	18,224	5,032	359	2007	9,327	8,459	8,459	3,888	3,020
16,880	12,526	17,148	4,622	268	2006	8,724	8,020	8,020	3,581	2,877
16,080	12,140	16,211	4,071	131	2005	8,325	7,851	7,851	3,208	2,734
15,821	12,043	15,425	3,382	-396	2004	7,863	7,440	7,440	3,024	2,601
15,218	11,822	14,899	3,076	-319	2003	8,764	7,225	7,225	2,821	1,281
14,701	11,183	14,497	3,314	-203	2002	7,527	6,131	6,131	2,475	1,079
13,508	10,202	12,129	1,927	-1,379	2001	7,838	6,401	6,401	1,763	326
11,669	8,676	12,930	4,254	1,261	2000	6,800	5,578	5,578	2,014	793
10,879	8,446	10,948	2,502	69	1999	5,727	4,628	4,628	1,927	828
Counties					year	Provinces				
GG	EDG	EDE	EDE-EDG	EDE-GG		GG	EDG	EDE	EDE-EDG	EDE-GG
1	2	3	4 (3-2)	5 (3-1)	6	7	8	9	10 (9-8)	11 (9-7)
10,222	7,993	8,778	785	-1,444	2012	2,506	772	1,159	387	-1,347
10,098	7,758	8,633	875	-1,465	2011	2,499	739	1,031	292	-1,468
9,750	7,360	8,198	839	-1,551	2010	2,942	686	971	285	-1,971
9,212	7,054	7,698	644	-1,514	2009	2,792	658	1,280	621	-1,512
8,073	6,480	7,014	534	-1,059	2008	2,270	613	882	269	-1,389
7,445	5,958	6,603	645	-842	2007	2,116	596	912	317	-1,204
6,840	5,658	6,422	764	-418	2006	2,081	578	985	407	-1,096
6,699	5,542	6,011	469	-688	2005	1,350	564	874	309	-477
6,340	5,138	5,515	377	-825	2004	1,290	461	563	102	-727
6,236	4,834	5,100	266	-1,137	2003	1,510	440	485	45	-1,026
5,963	4,583	5,039	456	-923	2002	1,510	420	480	60	-1,030
6,504	5,062	5,266	204	-1,238	2001	1,582	453	497	44	-1,086
5,989	4,689	4,918	229	-1,071	2000	1,400	424	474	49	-927
4,372	3,242	4,176	934	-196	1999	1,141	235	460	224	-681

GG – general grants,
EDG – education component of general grants, EDE – expenditure on education
Source: Author's calculation based on data from the Ministry of Finance, www.mf.gov.pl.