EXPENDITURE INDEPENDENCE OF COMMUNITIES IN THE EXECUTION OF EDUCATIONAL TASKS – A COMPARATIVE ANALYSIS

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Purpose: This study examines the extent of spending autonomy available to municipalities in relation to the fulfilment of their educational responsibilities. The construction of a measure to assess spending autonomy in the implementation of educational tasks permits the comparison of municipalities with one another.

Design/methodology/approach: A multivariate comparative analysis was conducted using the Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) method. A composite index was devised to evaluate the execution of the educational functions. A comparative ranking of municipalities was constructed for the years 2017 and 2022. Furthermore, an empirical analysis of municipal expenditure was conducted between 2008 and 2023.

Findings: The results demonstrated a notable correlation between income and expenditure on educational tasks, indicating that local authorities have discretion in allocating resources for these activities. This finding supports the idea of autonomous spending in this domain.

Research limitations/implications: A primary constraint of the present study is the unavailability of comprehensive and complete data, which is necessary to facilitate a more precise and thorough development of the measure

Practical implications: The present article provides an opportunity to assess the effectiveness of self-government intervention in the area of education spending.

Social implications: The evaluation of the spending autonomy of local governments in the field of education has the potential to influence public policy by optimising the allocation of resources and redressing regional inequalities in education.

Originality/value: This study examines the efficacy of spending on educational tasks and compares it with that of the local authorities with one another. By analyzing the performance of the local authorities at the upper end of the ranking, it is possible to identify a benchmark to which municipalities should aspire.

Keywords: municipality, public finance, educational tasks, spending autonomy, TOPSIS method.

Category of the paper: research paper.

1. Introduction

The main task of local government units (LGUs) is to satisfy the needs of the local community in the area of public goods, such as infrastructure, security, and state administration activities, and in the area of desirable goods, such as healthcare, education, culture, arts, and sports. The implementation of these tasks is determined by the laws that classify the task in question, define how it is to be financed, and set standards and limits for its performance. The laws determine which tasks are compulsory and which are not. For some tasks, local authorities can decide whether to perform them; for others, to what extent; and what resources to allocate to them.

The concept of self-government is founded on the principle of self-reliance, which can be further categorized into four distinct domains: political, organizational, economic, and financial. Among these, financial self-reliance exerts the most significant influence on task realization. This encompassed both revenue and expenditure autonomy. While income autonomy shapes the budgetary framework of the territorial self-government unit, expenditure autonomy empowers the decision-making process regarding the structure and hierarchy of expenditures and, consequently, the type and manner of tasks undertaken.

The financial obligations of territorial self-government units encompass expenditures related to the implementation of educational initiatives, social welfare programmes, municipal management, and the administration of self-government. The largest proportion of financial resources are allocated to the implementation of educational tasks. Self-government is permitted within legal limits set by law to determine the allocation of resources for this purpose. This study examines the degree of financial autonomy enjoyed by municipalities in relation to the fulfilment of their educational obligations. The development of a methodology for evaluating the extent of financial autonomy in the context of educational responsibilities enables the comparison of municipalities with one another and with rural municipalities, urban-rural municipalities, cities with district rights, and cities with district rights and district rights. The aim of the analysis is twofold: first, to identify an effective model for the implementation of educational tasks and second, to propose recommendations for the rationalization of the financing of educational tasks while maintaining appropriate standards.

2. Literature review

It is incumbent on local self-government units to guarantee the implementation of tasks that satisfy the needs of the population in areas of technical, social, order, and safety as well as spatial and ecological order. The type of task is contingent on the financing. The financial

resources at the disposal of territorial self-government units to fulfil their obligations are derived from two principal sources: revenues and subsidies from the central budget. The term "own revenues" encompasses a range of sources, including credits and loans, income derived from property, targeted European Union funds, tax revenues, including local taxes and fees, and participation in central taxes. Subsidies from the central budget, on the other hand, are divided into two categories: a general subsidy and targeted subsidies.

These tasks can be classified as obligatory, optional, statutory, or delegated tasks. The manner in which they are financed varies, with the legislation determining the specific financing method for each task.

Local government units are required to perform a range of tasks, which can be categorized as obligatory or discretionary. This distinction is derived from legislative and regulatory frameworks that govern the economic and social activities of local governments. The level of expenditure incurred by local governments is contingent on the scope of the tasks to be carried out and the decisions pertaining to their degree of implementation.

The financial independence of self-government, which is enshrined in legislation, affords territorial self-government units and latitude to select the manner in which tasks are undertaken and, in turn, how funds are allocated. Spending independence can be defined as the freedom to pursue fiscal policy and, above all, shape budget expenditure and balance (Kosek-Wojnar, Surówka, 2002). The extent of spending autonomy is influenced by a number of factors, including the type of tasks to be performed, legal regulations governing their execution, level of rigid expenditure, revenue generated by the entity in question, possibility of using balanced revenues, and access to loan markets. The capacity for self-reliance enables territorial self-government units to utilize budgetary deficits and local debt instruments to finance planned investment-oriented tasks. Constraints on spending autonomy are contingent on obligations imposed by the legislature. These include expenditure limits, methods of accounting for expenditures, the principles of transparency and savings, and priorities in debt coverage. It is presumed that expenditure independence signifies freedom in terms of the fiscal policy pursued, particularly regarding the formulation of budgetary expenditure and budget balance (Chojna-Duch, 2012).

The extent of spending autonomy is inextricably linked to the revenue and structure. The relationship between task expenditure and revenue restricts the degree of spending autonomy. The earmarked subsidies received by territorial self-government units were allocated for specific purposes. The high proportion of income allocated to these subsidies demonstrates the limited spending autonomy of the self-governing territorial units. While subsidies are distributed to finance specific tasks, the level of implementation is standardized. However, if these funds are not utilized, they may be redirected to implement other tasks. The objective allocation of subsidies increases the scope of spending autonomy of territorial self-government units (Jasińska, 2021).

It is incumbent upon the state to undertake activities pertaining to education, upbringing, and care of its citizens. The Polish educational system was designed to enhance the quality of education, create a more level playing field, and ensure universal access to education. Education is compulsory until the age of 18, with no tuition fees in public schools. Therefore, parents may choose alternative educational institutions for their child. Access to education is universal and equal, with systems of individual financial and organizational assistance in place to facilitate this LGUs are responsible for the implementation of educational policies.

The educational financing model in Poland is based on two principal sources of funding: the educational part of the general subsidy derived from the state budget, and a targeted subsidy. Furthermore, the model is augmented by self-government revenues in addition to funds derived from programs based on non-returnable foreign funds. The educational component of the general subvention, along with the distribution algorithm, is determined annually. Legal regulations stipulate the minimum amounts allocated to units. The subsidy considers a range of expenditures incurred by territorial self-government units, including salaries, teacher-in-service training, individual pupil tuition, severance pay for teachers, start-up benefits for teachers, the education of non-Polish pupils, oral matriculation examination examiners, and vocational counselling. Moreover, the financial circumstances of the local government units are considered.

Communes received supplementary financial assistance from the educational part of the General Subvention Reserve. However, the appropriate applications must be submitted. The reserve is at the disposal of the minister responsible for public finance, who, when allocating it, consults with the minister for education and upbringing, as well as representatives of local government units.

LGUs are eligible for grants supporting the implementation of educational activities. This represents a source of funding through which the state influences the functioning of units. It is the most potent instrument for state intervention in territorial self-government unit activities (Owsiak, 2017). Subsidies pertain particularly to tasks of an investment nature, as well as tasks related to the advancement of education in rural areas, tasks related to the implementation of educational reforms, and tasks aimed at equalizing educational opportunities and providing practical education. The subsidy may be granted to up to 50% of the planned expenditure of the territorial self-governing unit. The entity is required to allocate its own funds in the relevant budgetary period to implement the subsidized task in an amount equal to at least 50% of the planned expenditure. If the expenditure incurred by an entity's resources exceeds the number of grants received, the entity is required to return the difference to the grantor.

3. Materials and methods

This study was conducted on a sample of municipalities for the period of 2008-2023. The temporal scope was determined based on the availability of the data. This study uses data from the local data bank of the Central Statistical Office. A multidimensional comparative analysis was conducted using the Technique for Order Preference by Similarity to an Ideal Solution (TOPSIS) method. A series of diagnostic variables was selected based on both substantive and formal criteria. The variables were verified by applying the classical coefficient of variation and those with low variation were rejected. The information potential of the variables was analyzed using the inverse correlation matrix method. In addition, the indicators were identified as stimulants or destimulants. Variables used in this study are presented in Table 1.

Table 1.
Indicators used to test the expenditure independence of communes in Poland

	Diagnostic variable
O_1	Share of educational subsidy in expenditure on educational tasks
O_2	Expenditure on education per capita
O_3	Share of expenditure on wages and salaries and their derivatives for educational tasks in total income
O_4	Share of capital expenditure on educational tasks in own income
O_5	Net enrolment rates (primary education)
O_6	Share of earmarked subsidies in total income
O_7	Share of own revenue in total expenditure
O_8	Investment expenditure per population
O_9	Share of income from local taxes and charges in expenditure

Source: own elaboration.

In the next stage of the research, the above characteristics were normalized using the method of unitization from zero according to the following formula:

For stimulants:
$$z_{ik} = \frac{O_{ik} - \min_i\{O_{ik}\}}{\max_i\{O_{ik}\} - \min_i\{O_{ik}\}}, \max_i\{O_{ik}\} \neq \min_i\{O_{ik}\} \tag{1}$$

For destimulants:
$$z_{ik} = \frac{\max_i\{O_{ik}\} - O_{ik}}{\max_i\{O_{ik}\} - \min_i\{O_{ik}\}}, \max_i\{O_{ik}\} \neq \min_i\{O_{ik}\} \tag{2}$$

Weights were assigned to each variable. The importance of these criteria was determined using the inter-criteria correlation method.

$$w_j = \frac{C_j}{\sum_{k=1}^P C_k} \text{ where } C_j = s_{j(z)} \sum_{k=1}^P (1 - r_{jk}), j = 1,2,\ldots,P \tag{3}$$

C_j – measure of the information capacity of the j-th characteristic,

$s_{j(z)}$ – standard deviation calculated from the standardised values of the j-th characteristic,

r_{jk} – correlation coefficient between jth and kth characteristic,

P – number of diagnostic variables for N surveyed units.

The coordinates of the model units, benchmark (A+) and anti-benchmark (A−), were determined based on the normalized values of the characteristics, the weighting coefficients determined for the importance of these characteristics, and the coordinates of the model units, benchmark (A+), and anti-benchmark (A−).

$$A^+ = \left(\max_i(z_{i1}), \max_i(z_{i2}), \dots, \max_i(z_{iK}) \right) = (z_1^+, z_2^+, \dots, z_{1K}^+) \tag{4}$$

$$A^- = \left(\min_i(z_{i1}), \min_i(z_{i2}), \dots, \min_i(z_{iK}) \right) = (z_1^-, z_2^-, \dots, z_{1K}^-) \tag{5}$$

For each unit, the Euclidean distances from the designated $z+$ pattern and z^- antipatterns were calculated as follows:

$$d_i^+ = \sqrt{\sum_{k=1}^{P}(z_{ik} - z_k^+)^2} \; ; \; d_i^- = \sqrt{\sum_{k=1}^{P}(z_{ik} - z_k^-)^2}, i = 1, 2, \dots, N \tag{6}$$

and the values of the synthetic trait SWO were determined.

$$SWO_i = \frac{d_i^-}{d_i^+ + d_i^-}, i = 1, 2, \dots, N \tag{7}$$

The values of the synthetic SWO characteristics were determined for the groups of communes in 2017 and 2022.

4. Results

Among the expenditures of local governments, those related to education were among the highest. In the period 2008-2023, they accounted for 35%, 33%, 34%, and 29% of the expenditures of certain groups of rural, urban, urban-rural, and cities with poviat rights, respectively.

Municipal expenditure on education increased during this period. In 2023, compared to 2008, it increased by 145% in rural municipalities, 152% in urban municipalities, 171% in urban-rural municipalities, and 167% in cities with poviat rights.

The main source of funding for educational tasks of territorial self-government units is the educational part of the general subsidy from the state budget. The amount of this subsidy has increased in line with the increase in expenditure on these tasks. During the study period, the subsidy increased by 75% for groups of rural municipalities, 114% for urban municipalities, 113% for urban-rural municipalities, and 146% for cities with poviat rights. The changes in the amount of education in the general subsidy over the 16 years resulted from changes in the education policy and the distribution of educational tasks among territorial self-government units. Inflation and random factors such as the Covid-19 epidemic or war in Ukraine also affected the subsidy amount. The amount allocated to the education part of the general subsidy increased each year compared with the previous year. During the review period, there were

years in which the level was similar to that in the previous year. Figure 1 presents a comparison between the educational portion of the general subsidy and the expenditure on education from 2008 to 2023.
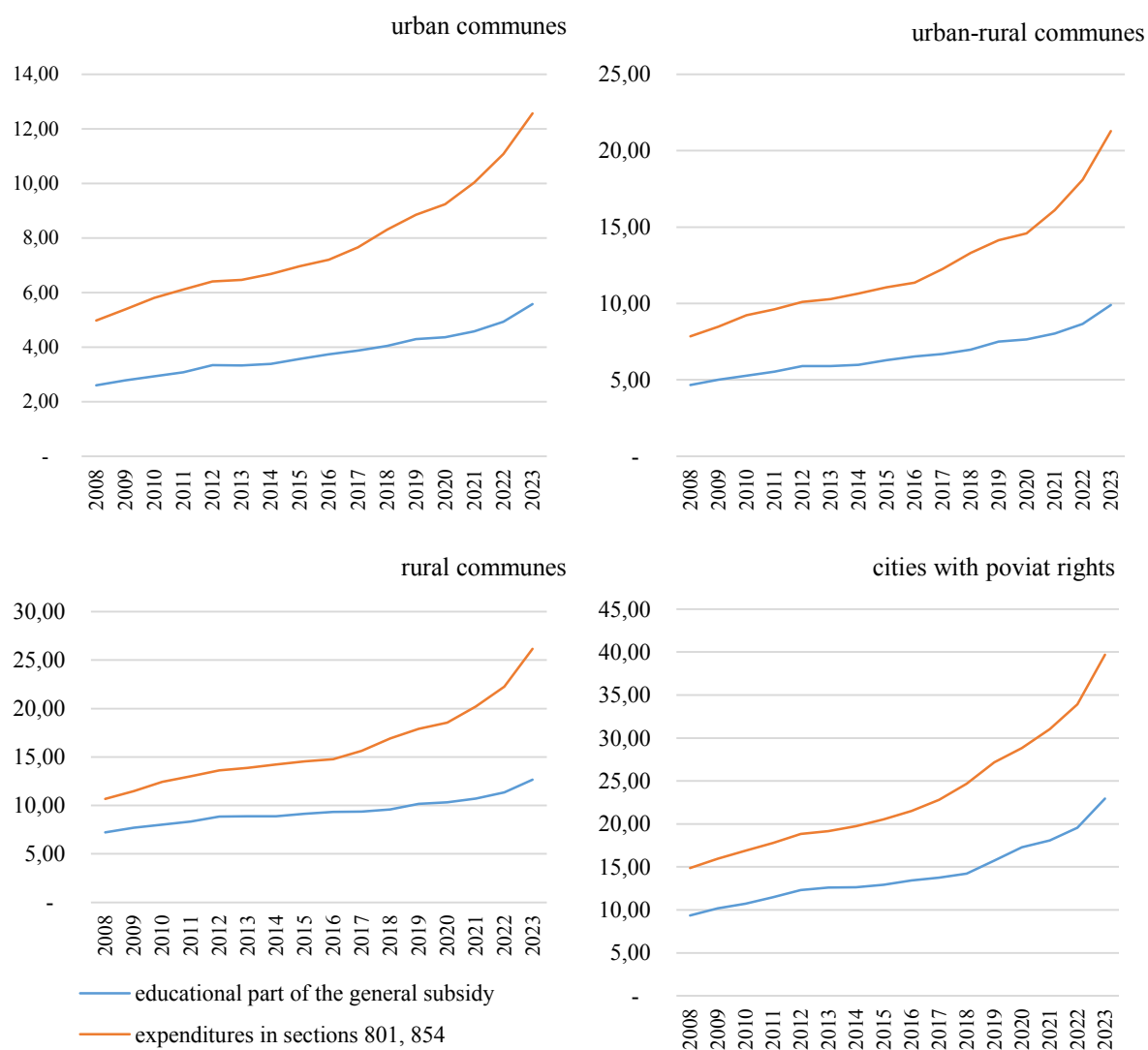

Figure 1. Comparison of the educational part of the general subsidy with expenditure on education from 2008 to 2023.

Source: own elaboration based on BDL GUS.

The increase in the education component of the general subsidy was not commensurate with the increase in expenditures on education. On average, it covers only 49% of LGUs' expenditures on education by 2023. The percentage share of education subsidies in expenditure in the selected years is shown in Figure 2.
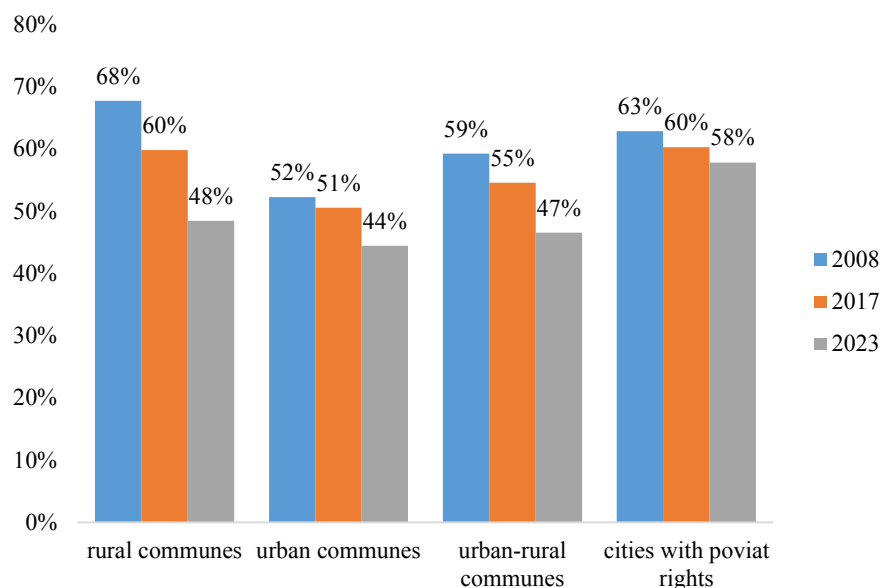
Figure 2. Coverage of expenditure on educational tasks by the educational part of the general subvention in %.

Source: own elaboration based on BDL GUS.

In Poland, legislation does not specify revenue from local self-government units that should be used to finance educational tasks. The decision-making body of the local self-government unit decides on the allocation of the subsidy. Despite this competence, authorities do not allocate funds from the education part of the general subsidy to tasks other than education because they are insufficient. In almost all units, this was less than expenditure on education. Only a few municipalities were located in the study area between the years 2008 and 2015. There were 8 rural communes and 1 urban commune.

In 2023, 57% of urban municipalities and 43% of urban-rural municipalities had sufficient funds from the education part of the general subsidy to cover 40-50% of education expenses, while 38% of rural municipalities and 52% of cities with poviat rights had sufficient funds to cover 50-60% of education expenses. The detailed distribution is shown in Figure 3.
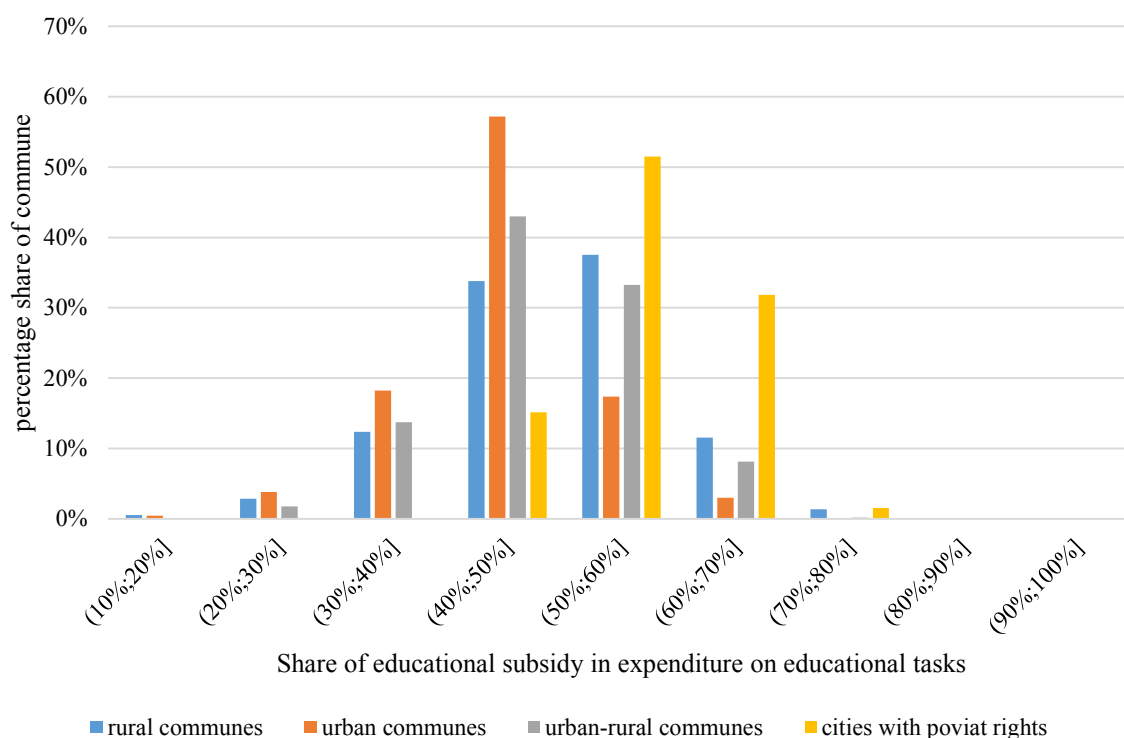
Figure 3. Share of educational subsidy in expenditure on educational tasks in 2023.

Source: own elaboration based on BDL GUS.

The average coverage of the expenditure in question by the education part of the general subsidy in 2023 was highest in cities with poviat rights (58%), followed by rural municipalities (48%), urban municipalities (44%), and urban-rural municipalities (46%). The greatest disparity in this indicator between municipalities is observed in the rural municipality group. The difference between the municipality with the highest level of financing of current expenditure by the education part of the grant and that with the lowest level is 75 pp. The difference was 57 pp for urban-rural municipalities and 49 pp for urban municipalities. The difference was smallest for poviat municipalities (32 pp), which proves the low differentiation of these units in terms of the indicator in question (this was also confirmed by the analysis of the coefficient of variation, 10.4%).

Finances related to the educational tasks carried out by the LGU are described in two sections of the budget classification: section 801 - Education and upbringing and section 854 - Educational upbringing and care. The majority of expenditures on financing educational functions are described in section 801. Section 801 includes capital and current expenditure. Most expenditures are current, including expenditures on salary and derivatives, current expenditures on the purchase of materials and services and subsidies. Table 2 shows the structure of the expenditures in Section 801.

Table 2.

Structure of the share of expenditure in expenditure in section 801 in 2023

	Urban communes	Rural communes	Urban-rural communes	Cities with poviat rights
current expenditure	88%	95%	92%	95%
current expenditure on wages and salaries and related expenditure	62%	65%	64%	63%
total capital expenditure	12%	5%	8%	5%

Source: own elaboration based on BDL GUS.

For each group of commune expenditures on salaries and salary derivatives, education staff accounted for the largest share of education expenditures. LGUs have little ability to make decisions on this expenditure. Through the regulations they adopt, they can decide the amount of certain allowances, such as motivational, functional, tutorial, amount of bonuses, the way in which teachers' overtime is accounted for, and the amount of subsidies for in-service training.

The commune's expenditure in Section 801 per capita ranged from PLN 816 in 2008 to PLN 3039 in 2023. Figure 4 shows the changes in expenditure levels during this period.
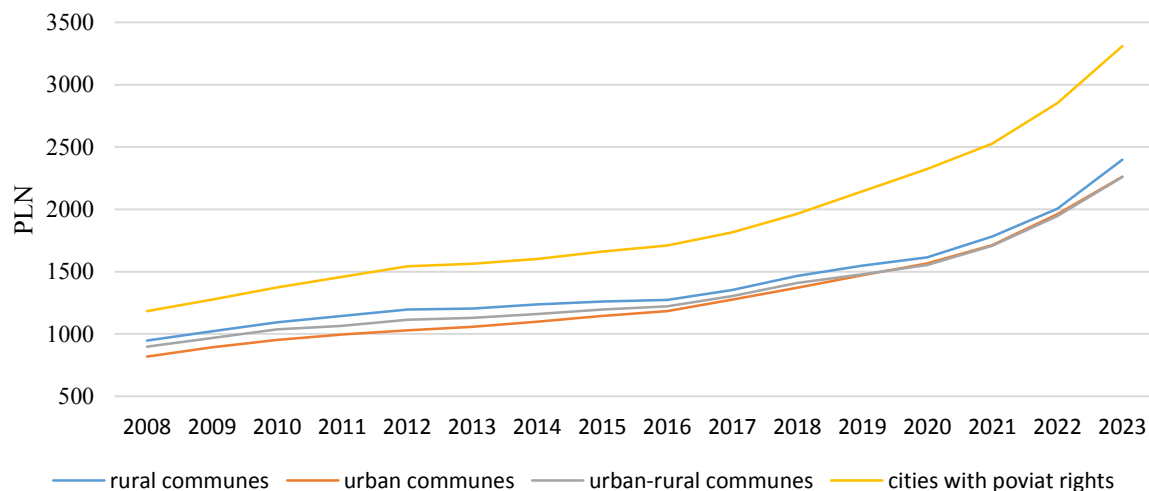
Figure 4. Average expenditure in section 801 per capita in PLN 2008-2023.

Source: own elaboration based on BDL GUS.

Per capita expenditure on education varied. Irrespective of municipality type, per capita expenditures varied between units in the same group of municipalities. This is evidenced by the value of the coefficient of variation, which averaged 22% over the study period for urban communes, 22% for rural communes, 17% for urban-rural communes, and 16% for cities with poviat rights.

There is a correlation between education expenditure and local government revenue. The correlation coefficient between per capita expenditure on education and per capita income has different values for the different groups of municipalities. This relationship is strongest for urban and rural communities. The average correlation coefficient for these communes for the period under consideration was 0.40. The correlation coefficient indicated a moderate correlation; however, the relationship was significant. The average correlation coefficient for

urban-rural communes is 0.27 and for cities with poviat rights it is 0.25. However, this correlation was low.

To complement this study, a measure SWO based on the proposed methodology is developed. As a result of the evaluation of the autonomy of expenditures on educational tasks, a ranking of municipalities was obtained. The municipalities under consideration within each group were divided into five classes. Class I to Class V successively include municipalities from the highest SWO value to the lowest SWO value. Comparing 2017 to 2022, we found that the level of spending autonomy increased slightly in the groups surveyed. Figure 5 shows the changes in the SWO evaluation among the commune groups. Among the groups of municipalities, urban-rural municipalities, cities with district rights, and the number of municipalities with a higher value of the SWO measure increased by 2022. The number of municipalities in classes IV and V increased compared to that in 2017. In the rural commune group, the number of communes decreased in favour of Class III. The yardstick has different values for communes, indicating independent spending on educational tasks.
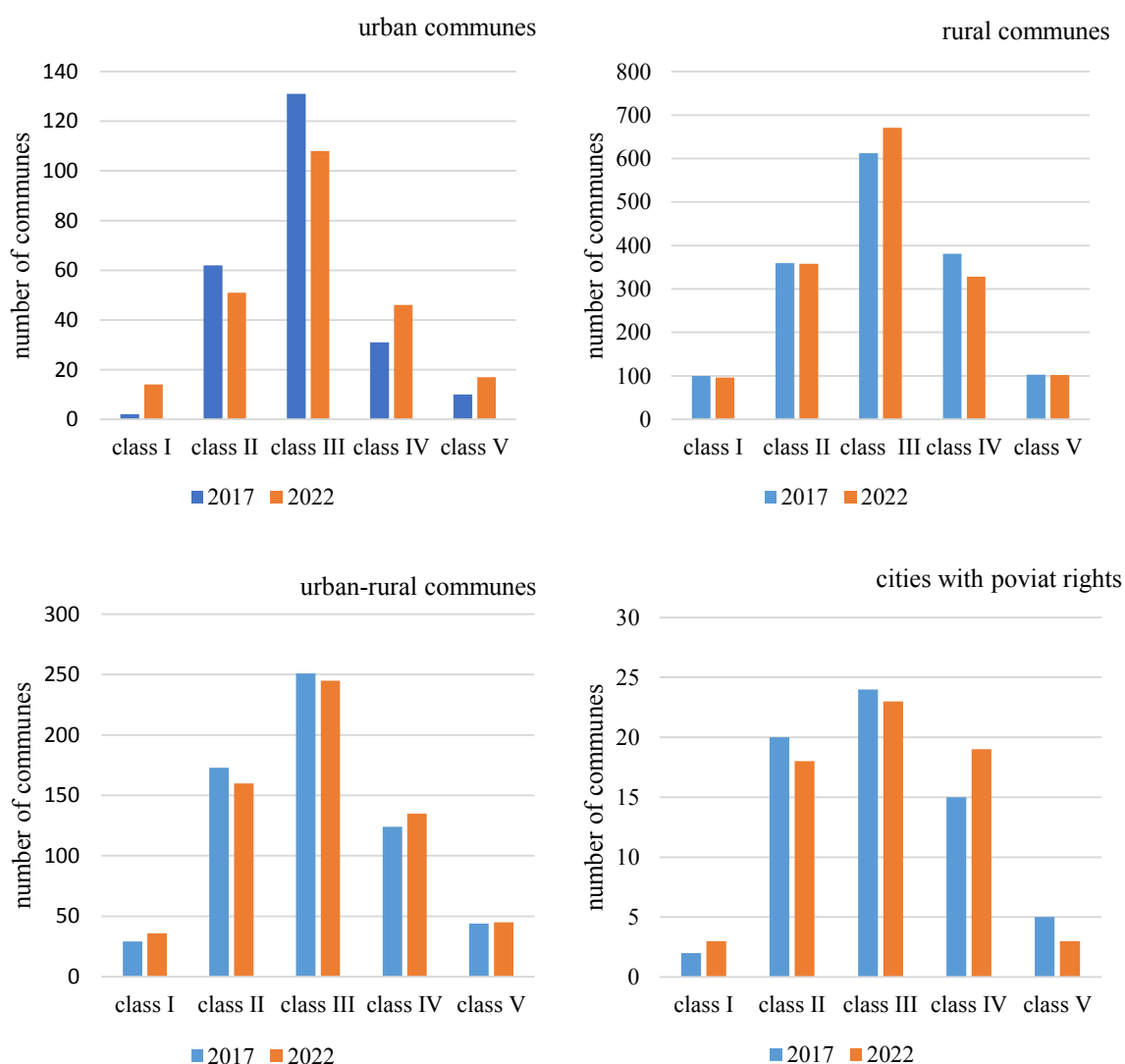

Figure 5. Number of municipalities in individual classes in 2017, 2022.

Source: own elaboration.

5. Conclusion

An analysis of the correlation coefficients between the variables related to the amount of income received and expenditure on educational tasks confirmed that self-government makes different decisions regarding their implementation. This indicates that TSUs have a certain degree of independence when deciding how to implement them. This is also evidenced by the values of SWO, the constructed measure of spending autonomy in the implementation of educational tasks, which assumes different values for the surveyed units. The allocated education subsidy is insufficient to cover expenses and the missing funds are supplemented by their own income. This is due to the chosen financing education model. This model is stable, but does not guarantee the same level of educational task implementation. Municipalities with greater spending autonomy in the implementation of educational tasks, that is, those assigned to Class IV and Class V, are characterized by high per capita expenditure on education and high expenditure on the implementation of educational investments covered by their own revenues, particularly taxes and local fees. These municipalities have favorable geographical locations, are economically active, and invest. The municipality with the lowest degree of self-government often has an unfavorable geographical location and does not have sufficient funds for investments that affect its further development. Transfers from the state budget were only used for the current task.

Existing legislation regulates the functioning of the education system, particularly how it is financed, organized, and operated. However, legislation does not specify how individual tasks should be performed. Not all have specific performance standards. This is the case, for example, with the didactic base, the organization of extra classes as part of the process of developing pupils' interests and talents, or as part of psychological and pedagogical support. The legislator delegates power to the LGU, without defining a uniform standard. The financial value of certain allowances is determined by municipal regulations, which vary from one municipality to another and depend on local government decisions. This is because of the degree of spending autonomy afforded by local governments.

The level of expenditure at the commune level varies according to the implementation of supplementary services that enhance the appeal of the educational provision or the personnel policies pursued. The absence of a standardized measure to ascertain the requisite funding for a given task at a specified level results in communes incurring disparate expenditure on its implementation. The financial outlay associated with the implementation of educational tasks in comparable units, in terms of the number of pupils and schools, can vary. This is contingent on the commune's educational policy and financial condition. There is a close relationship between financial health and spending autonomy, particularly with regard to education expenditure.

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