Article

Influence of Financial Variables on the Development of Rural Communes of Eastern Poland in 2009–2018

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Abstract: Communes are a place of both economic activity and creation development. They have autonomy in making decisions in the fields of financial, human, and material resources. This research was carried out with the use of a synthetic measure. The aim was to show the impact of financial variables on the development process of rural communes in eastern Poland. The data were collected in spatial terms for 484 rural communes from the region of eastern Poland. The choice of variables was conditioned by the availability of GUS data for the period 2009–2018. The distribution of the evaluation of the development and financial situation of rural communes in eastern Poland was spatially polarized. The reason for the low impact of financial conditions on the development of rural communes in eastern Poland is their dependence on income transferred from the state budget. This stiffens and at the same time stabilizes the financial economy, making it relatively insensitive to the influence of other factors. Low independence can be a significant barrier to future local development. Finance and the economy are intertwined. Actions taken with respect to these must be based on analyses that facilitate making the right decisions.

Keywords: synthetic measure; rural municipalities; competitiveness; financial security; TOPSIS method; public sector

1. Introduction

Municipalities operate in an increasingly complex environment. They are a place of concentration of economic and social activities and a creator of development. They are characterized by autonomy in making decisions in terms of financial, human, material, and information resources. The amount and structure of financial resources at the disposal of municipalities are of particular importance as they affect the economic situation of local governments (Travers 2012). Finance, apart from infrastructure, environmental elements, and social elements, determines the activities of communes. The indicated areas are a set of inter-related factors that create a multidimensional space. They should be viewed as a set of interdependent elements. They occur at the same time and within the spatial horizon.

The market mode of operation of municipalities manifests itself in the search for new management opportunities aimed at increasing the ability to achieve the assumed goals. Municipalities are at the same time an employer, a principal, a client, and an investor. They shape their individual potential in terms of economic, cultural, and social functioning. Local resources of units, including the natural, economic, social, and infrastructural environments used in economic and social relations, are interdependent and occur simultaneously. There is a correlation between the functioning of municipalities and the quality of life and living conditions of the inhabitants or the activities of enterprises. The risk of making negative decisions in this regard should be minimized through analyses that should be multidimensional and support the decision-making process. Communes should be increasingly interested in obtaining and processing information. Information

on the condition of communes, resources, and their use is necessary for both diagnostic and strategic operations. These problems require rational choices and optimal decisions from the point of view of the functioning of the individual. In order for decisions to be rational, they cannot be accidental and made intuitively. They should be based on reliable and properly processed information (Drozdowski 2021; Dobrowolski 2020a).

The commune's self-government can shape the development process by using local resources. Its shape is influenced by many factors, both dependent on and independent of the commune itself (Hall 2015). One of the essential elements of development is the financial situation of communes. There is a correlation between development and the financial situation. A high level of development of the local economy attracts an influx of new residents and investors. The indicated process further influences changes in the budgets of communes in the form of, inter alia, increases in the amount of real estate tax, shares in personal taxes (PIT), and corporate income tax (CIT). The income obtained in this way makes it possible to undertake further pro-development projects (Standar 2017).

The role of municipalities in the development process requires changes in the local financial system and support for endogenous growth potentials. The aim of this article is to evaluate the impact of financial variables on the development process of rural communes using a synthetic measure. The Technique of Order Preference by Similarity to the Ideal Solution (TOPSIS) method was used to build the synthetic measure. Empirical data were collected for 484 rural communes in the eastern Poland region. The choice of variables was conditioned by the availability of data in the Local Data Bank of the Central Statistical Office for 2009 and 2018.

Answers to the following research questions will bring the authors closer to the achievement of the main goal set. The research questions were as follows. Does development depend on financial variables? What is the spatial distribution of development and the financial situation? Do transfers from the state budget influence the development process? It should also be indicated that the weaker the mutual influence of the financial situation and development, the higher the level of transfers from the state budget and current expenditure. A higher level of development means a better financial situation and a more attractive commune. The spatial polarization of these phenomena requires considering diagnostic variables in various dimensions and at various levels of detail.

2. Literature Review

Actions taken in respect of development should focus on achieving social, economic, and spatial cohesion. It is also important to indicate the development profile of a commune, which should become a significant asset in the development process. As a rule, rural communes are assigned an agricultural character. Nowadays, these communes are transforming into residential, service, tourist, and recreational facilities, which strengthens the role of individuals in a dynamically changing environment (Standar 2019).

The subject of the activities of municipalities is public administration, which is performed in a specific area and by law defined in the scope of tasks aimed at satisfying the needs of residents. It implements these tasks on its own behalf and at its own risk. Factors differentiating the way that particular tasks are performed are their endogenous potential, the financial capacity of the commune, and the actual needs of residents and business entities. Commune self-governments carry out various types of tasks related to the current residents' needs, such as access to healthcare services and education, but they should also create favorable conditions for the development of entrepreneurship and increase the region's competitiveness.

The proper and effective functioning of communes should ensure appropriate financial resources, allowing for the implementation of both current and investment projects. Finance is a factor that allows us to evaluate the studied area and make decisions on both current and investment projects that provide the opportunity to create socio-economic development, allow us to increase the innovativeness of communes, and change the current condition of the infrastructure (Głowicka-Wołoszyn et al. 2017).

A commune is an organization operating under changing and unpredictable conditions related to its surroundings. The effective performance of tasks requires the provision of funds for their implementation. These funds may be the commune's own income, general subsidies, or targeted subsidies from the state budget (Ziółkowski 2015). The socio-economic development of communes is inseparably connected to the use of endogenous resources (supported by exogenous resources) in the context of creating new utility functions for the inhabitants (Radwan and Paluch 2008). Development is a historic, long-term process of internal, economic, and social transformation. A commune is forced to constantly adapt to changing environmental conditions and look for a competitive advantage in the development process in all aspects of its activity (Ryńca 2009).

Development is a multidimensional process of qualitative and quantitative (economic, social, and political) changes taking place in the local socio-territorial system. The individual endogenous potential is the (human, innovative, ecological, infrastructural, financial, and institutional) capital that has accumulated in a given area that determines the strength of local changes. The potential of communes results from a combination of local conditions. It determines the possibilities for and directions of development. Development is a complex concept that includes many changes taking place at a specific time. Like any specific process, a socio-economic space is conditioned by a number of factors that may affect this area to varying degrees and with varying degrees of force. The conditions and factors shaping local development are varied and fully dependent on the economic and social processes taking place in a given commune. In addition to processes, changes that cover only certain areas are also of great importance and have an impact on the economy on a global scale. Many authors dealing with theoretical concepts of regional or local development cite various concepts explaining this process. The most popular are: economic base theory; new trade theory; growth poles theory and the concept of geographical growth centers; the theory of cumulative causality; and the core and peripheries model (Grosse 2004; Malecki 1997).

The socio-economic development of communes is inseparably connected to the exploitation of endogenous resources (supported by exogenous resources) in the context of creating new utility functions for residents (Radwan and Paluch 2008). There are areas of both stagnation and even developmental depression, as well as more dynamized developmental processes that are shaped by a number of factors (Standar and Kozera 2019). These factors can be grouped into economic, social, spatial, ecological, political, technical, and local factors. On the other hand, new factors of economic growth include, inter alia, innovation, achievements in science and technology, modern management styles, cooperation networks, and social capital (Šlander and Ogorevc 2019).

Under the conditions of dynamic changes in the external environment, on the local authority there is a special responsibility for the financial situation. Assessment of the financial situation with the use of appropriate tools (including a synthetic measure) provides information on the current situation, allows us to identify differences with respect to other units, and allows us to identify development opportunities (Dylewski 2011).

As indicated by Stanny and Strzelczyk (2015), the financial situation (as a multidimensional phenomenon) represents the possibility to provide public services at least at the current level and to obtain funds from repayable and non-returnable sources for the implementation of future tasks. It is a relative assessment of a commune's finances that can ensure its financial security. Douglas and Gaddie (2002) indicate that the financial situation includes the ability to perform tasks and ensure reliability in terms of the ability to pay off both present and future liabilities. The financial situation, as indicated by Perry and Christensen (2015), is the certainty of repayment of liabilities towards, among other things, customers and employees of the authorities. Groves and Valente (1994) define a financial situation as the state of finances that allows the commune to cover all costs of business in the long term and services at a level ensuring the safety and well-being of the local community.

Assessment of the financial situation of municipalities allows us to determine the efficiency of a municipality's functioning, its ability to meet obligations, and the possibility of raising the standard of quality of the services it provides to local communities (Głowicka-Wołoszyn and Wysocki 2016). So, it is directly related to access to sources of financial supply and depends to a large extent on the possession by municipalities of stable and adequate sources of income (Stanny and Strzelczyk 2018).

The financial situation of communes is demonstrated by their ability to perform tasks, achieve a budget balance, and increase wealth. It is undoubtedly a complex phenomenon created by the level of income, financial independence, amount of capital expenditure, ability to obtain extra-budgetary funds, and financial results. There is a feedback loop between the financial condition of the commune and the level of development (Sobczyk 2010).

3. Materials and Methods

One of the solutions for researching multifaceted phenomena with the use of aggregated values of diagnostic features is the use of a synthetic measure. It allows for the numerical description of complex phenomena. This enables a multidimensional view of the level of this phenomenon in individual examined objects and allows us to conduct comparative analyses in spatial and time terms, linear ordering, and classification (Lenormand and Deffuant 2013; Dziekański 2016). However, caution should be exercised when interpreting obtained results because these measures have certain limitations, e.g., they lead to simplified arrangements and do not take into account qualitative and non-measurable aspects of local or regional development (Strahl 2006).

3.1. Selection of Variables Describing the Studied Phenomenon. Determining the Direction of Variable Preferences in Relation to the Analyzed Phenomenon (Indication of a Stimulant and Destimulant)

The development process, financial situation, and demographic potential are shaped at the same time by, inter alia, economic, environmental, infrastructural, and social factors (Fang et al. 2018). They determine the multi-element space of functioning of communes. They often appear and work together at the same time for the benefit of the local community. Therefore, they are interdependent and should be considered jointly (Ngo Dang et al. 2018; Tang and Wang 2018). The selection of variables for the study was conditioned by the availability at the commune level of data within the BDL CSO. Some data were incomplete and did not cover all communes. Therefore, in this study, the authors focused on the selected variables described in Table 1.

The activities of municipalities are operational, tactical, and strategic. They are carried out in a multidimensional space of functioning. They refer to endogenous and exogenous resources, the use of which ensures qualitative and quantitative changes in the local economy. The socio-economic space of communes is a multi-element system, which includes, inter alia, local community, enterprises, financial resources, natural resources, infrastructure, labor, and capital. It should be noted that the analyzed diagnostic variables (Table 1) can be associated with the three dimensions of cohesion described in the EU objective of public authorities' actions under the implementation of regional policy: X16–X20 and X30–X31 for economic cohesion, X27–X29 for social cohesion, and X32–X40 for territorial cohesion.

Communes have different income and expenditure capacities. Differences arise between them in the amount of their income and actual expenses for public tasks. The level and structure of communes' incomes and expenses are shaped by their financial situation (variables X1–X15), which determines the timely fulfillment of obligations and the quality and continuity of services.

Entrepreneurship (variables X16–X20) and its potential shape the quality of life of the inhabitants and the social and material security of the residents. The number of economic entities shapes the number of employed and unemployed inhabitants as well as the economic situation of the region.

Table 1. List of variables describing the financial situation and economic and social development of communes.

	Variables	Unit	S/D
X1	Operating surplus/total revenues (budget solvency ratio)	%	S
X2	Personal income/total income (financial independence indicator)	%	S
X3	Share in taxes constituting state budget revenues */number of inhabitants (index of fiscal wealth per capita)	PLN	S
X4	Income from local taxes/population (fiscal wealth indicator)	PLN	S
X5	Local tax revenue/current income (tax autonomy indicator)	%	S
X6	Investment expenditure/total expenditure (investment attractiveness index)	%	S
X7	Transfer income/total income (state financial interference index)	%	D
X8	Expenditures on education and upbringing/number of inhabitants	PLN	S
X9	Expenditures on housing/population	PLN	S
X10	Healthcare expenditure/population	PLN	S
X11	Expenditure on the municipal economy and environmental protection/population	PLN	S
X12	Public safety and fire protection expenditure/population	PLN	S
X13	Public administration expenditure/number of inhabitants	PLN	D
X14	Expenditure on agriculture and hunting/population	PLN	S
X15	Interest/personal income (debt service ratio)	%	D
X16	Entities entered in the REGON register per 1000 inhabitants	pcs.	S
X17	Units newly registered in the REGON register per 1000 inhabitants	pcs.	S
X18	Units removed from the REGON register per 1000 inhabitants	pcs.	D
X19	Natural persons conducting economic activity per 1000 inhabitants	pcs.	S
X20	Foundations, associations, and social organizations per 1000 inhabitants	pcs.	S
X21	Population per 1 library (person)	person	S
X22	Population for a public pharmacy	person	S
X23	% of the population using the sewage network	%	S
X24	% of the population using the water supply system	%	S
X25	% of the population using the gas network	%	
X26	Apartments per 1000 inhabitants	pcs.	S
X27	Demographic dependency ratio for the elderly	person	D
X28	Population growth per 1000 inhabitants	person	S
X29	Migration rate per 1000 inhabitants	person	S
X30	Unemployed persons registered in communes per 1000 inhabitants	person	D
X31	Employed persons per 1000 inhabitants	person	S
X32	Total forest area	ha/person	S
X33	Area of farms in the total area	%	S
X34	Areas legally protected in the total area	%	S
X35	Total water consumption in households (water from water supply systems per capita)	m^3/person	D
X36	Mixed waste collected during the year in the total per capita	kg/person	D
X37	Wastewater treated during the year treated together	dam^3	S
X38	Emissions of dust pollution	t/r	D
X39	Emissions of gaseous pollutants	t/r	D
X40	% Of the population using sewage treatment plants	%	S

S, stimulant; D, destimulant; operating surplus = total income − property income − current expenditure; REGON, Register of the National Economy; National Journal of the National Economy Register, a register kept by the President of the Central Statistical Office. The term REGON is also understood as the REGON identification number, i.e., the nine-digit identifier assigned to the entity in this register. * Communes have a share in the personal income tax (PIT) and corporate tax (CIT); Source: own research based on data from the Central Statistical Office of Poland, Stanny and Strzelczyk (2018), Dziekański and Prus (2020), and Pawlik and Dziekański (2020), Barthelemy and Toint (2013), Dziekański and Pawlik (2019).

The condition of infrastructure (X21–X26) determines the attractiveness of municipalities, attracts new companies, and shapes the quality of life of residents and the quality of business activities. Infrastructure shapes the economic activity of communes as well as the openness of the region and its development.

Demographic potential (X27–X31) is important for the identification of development policy determinants. According to Rosner's research, there is a close relationship between population processes (population number, age and occupational structure, birth rate, balance of migration, and population density) and the level of socio-economic development. The age structure of the population shapes the situation in the labor market, and this indirectly affects the local infrastructural and financial potential. In a positive way, it

should be used to assess the decrease in the number of unemployed persons in all groups and the increase in the number of employed persons, business entities, and natural persons.

The natural environment (X32–X40), as a component of the wealth of communes, is an important factor shaping the quality of life of the inhabitants of municipalities. It is a source of raw materials and energy and a geographic space for economic activity, leisure, and places of residence.

Some variables were dropped because their higher values did not necessarily indicate the level of socio-economic development. In the case of variables such as, for example, water consumption per capita or population per library facility, due to the lack of an unambiguous reference to the studied phenomenon, the phenomenon was abandoned. Among other variables shaping the operation of communes, one can indicate road networks, the availability and diversity of the service base, educational and cultural institutions, farmland, legally protected areas, and gas pollution. In the case of these variables, there is no information at the level of communes within the BDL CSO.

In order to ensure the representativeness of the variables, the final set was supplemented with variables that are more discriminatory in a given category and are not very strongly correlated with others in this category. Two features that strongly correlate with each other are carriers of similar information, so one of them is redundant (Eini et al. 2015).

The description of the selected set may be presented in the form of an observation matrix X_{ij} in the form:

$$X_{ij} = \begin{bmatrix} x_{11} & x_{12} & \dots & x_{1m} \\ x_{21} & x_{22} & \dots & x_{2m} \\ \dots & \dots & \dots & \dots \\ x_{n1} & x_{n2} & \dots & x_{nm} \end{bmatrix},$$ (1)

where X_{ij} denotes the value of the j-th feature for the i-th object, i denotes the object number (i = 1, 2, ... , n), and j denotes the variable number (j = 1, 2, ... , m).

After selecting the variables, the nature of each variable was examined, i.e., it was determined whether the variable was a stimulant or destimulant. Most of the variables were obvious, resulting from the substantive experience of the researchers and the analysis of the literature. In doubtful cases, we used the procedure by Grabiński (1985), which uses the fact that stimulants should be positively correlated with each other, similarly to destimulants, and negatively correlated with destimulants. The value of the coefficient of variation of the variables used in terms of financial potential ranged from about 0.15 to 2.05. The greatest differentiation was noted in the variables X10 and X9; the smallest difference occurred in the cases of X7 and X8 (see Table 2). The analysis of the data in Table 2 shows that almost all variables are characterized by positive asymmetry. The variable X7 presents negative asymmetry, which in the case of a stimulant is not a favorable situation as it means that a greater number of communes have values of these variables that are lower than their average value.

Table 2. Statistical characteristics of the diagnostic variables for the financial potential of rural communes in eastern Poland (in 2018).

Variable	Range	Mean	Deviation	Variability	Asymmetry
X1	0.31	0.08	0.04	0.48	0.75
X2	0.59	0.28	0.10	0.34	1.55
X3	0.42	0.09	0.05	0.54	2.62
X4	2.11	0.10	0.14	1.36	8.14
X5	0.62	0.11	0.06	0.56	2.89
X6	0.47	0.21	0.09	0.45	0.42
X7	0.64	0.64	0.10	0.15	−1.05
X8	3301.95	1368.67	304.66	0.22	2.53
X9	933.04	65.77	108.86	1.66	4.04
X10	569.52	16.80	34.44	2.05	10.49
X11	3712.70	431.05	391.39	0.91	2.95

Table 2. *Cont.*

Variable	Range	Mean	Deviation	Variability	Asymmetry
X12	684.28	60.87	51.40	0.84	5.27
X13	961.19	481.96	145.77	0.30	1.78
X14	2611.15	251.89	292.99	1.16	3.10
X15	0.09	0.02	0.02	0.79	1.16

Source: own research based on data from the Local Data Bank. Dziekański and Prus (2020).

3.2. Standardization of Variables According to the Zero Unitarization Method

The reliability of the final results depends on the quality of the set of variables. The selected variables should be, among other things, unambiguous, strictly defined, and accurate with high information content and low internal correlation (Fischer 2004). The replacement of the destimulant with the stimulant was done according to the formula (Nelson and Shavitt 2002):

$$X'_{ij} = \frac{1}{X_{ij}}, \tag{2}$$

where X_{ij} is the original value of the variable and X'_{ij} is the value of the variable converted into the stimulant.

The selected variables were subjected to the procedure of zero unitarization using the following formula:

$$Z_{ij} = \frac{x_{ij} - \min_i x_{ij}}{\max_i x_{ij} - \min_i x_{ij}}, \text{ where } x_i \in S, \tag{3}$$

where $\max_{xij} \neq \min_{xij}$, S is the stimulant, x_{ij} denotes the value of the j-th feature for the i-th object, $\max\{x_{ij}\}$ is the maximum value of the j-th variable, $\min\{x_{ij}\}$ is the minimum value of the j-th variable, and the normalized value is j-th feature for the i-th object.

The value of Z_{ij} is in the range [0; 1]. A value of 1 means that the variable obtained the maximum value among all objects tested during the entire testing period (Hendershot 2011). As a result of the transformations, a matrix of uniformized variable values was obtained:

$$Z_{ij} = \begin{bmatrix} z_{11} & z_{12} & \dots & z_{1m} \\ z_{21} & z_{22} & \dots & z_{2m} \\ \dots & \dots & \dots & \dots \\ z_{n1} & z_{n2} & \dots & z_{nm} \end{bmatrix}, \tag{4}$$

where Z_{ij} denotes the unitary value of the j-th feature for the i-th object.

3.3. Determining the Synthetic Measure According to the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) Method for Individual Objects

For the assessment of the multidimensional phenomenon (the financial situation), a synthetic measure was built. For this purpose, we used the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) method (Abidin et al. 2016). It is a reference method in which the reference points of objects in a multidimensional space are: a pattern (=1) and an anti-pattern (=0). Then, the Euclidean distances of individual objects from the pattern and anti-pattern were calculated according to the following formulas:

$$d_i^+ = \sqrt{\frac{1}{n} \sum_{j=1}^{m} \left(Z_{ij} - Z_j^+ \right)^2}, \tag{5}$$

$$d_i^- = \sqrt{\frac{1}{n} \sum_{j=1}^{m} \left(Z_{ij} - Z_j^- \right)^2}, \tag{6}$$

where n is the number of variables forming the pattern or anti-pattern; Z_{ij} denotes the unitized value of the j-th feature for the tested unit; and Z_j^+/Z_j^- is the pattern or anti-pattern object (Behzadian et al. 2012; Bąk 2018).

The value of the synthetic measure for individual objects was estimated using aggregate functions, based on the formula:

$$q_i = \frac{d_i^-}{d_i^- + d_i^+}, \text{ where } 0 \leq q_i \leq 1, i = 1, 2, \ldots, n, \tag{7}$$

where $q_i \in [0; 1]$ is the value of the synthetic measure; d_i^- is the distance of the object from the anti-pattern (from 0); and d_i^+ is the distance of the object from the pattern (from 1).

A higher value of the measure indicates a better situation of an individual in the studied area (Eini et al. 2015).

Then, the average value of the synthetic measure was determined, indicating the development potential of the commune. It was calculated based on the formula:

$$\overline{X} = \frac{\sum_{i=1}^{n} q_i}{n}, \tag{8}$$

where $\overline{X}$ is the arithmetic mean as a value of the synthetic measure of development, q_i is the synthetic value of the category of a specific potential, and n is the number of tested potentials (categories). The value of the arithmetic mean is the quotient of the total value of all studied endogenous potentials of communes and the number of them.

The conducted analysis allowed for the elimination of the problem of variable repeatability within the examined categories. The applied TOPSIS method made it possible to conduct an evaluation using many criteria, to present the results in numerical form, and to organize objects in a linear manner (building a ranking of units). An important advantage of the classic TOPSIS method is its computational simplicity, the indication of a positive and negative pattern, and the large number of alternative criteria (Kim et al. 2013; Velasquez and Hester 2013).

3.4. Division of the Surveyed Population into Typological Groups and Evaluation of the Obtained Results

In the last stage of the research, a division into typological groups was used to interpret the obtained measures. The threshold values were percentiles (2, 4, 6, and 8; 5 groups were formed). The size of the synthetic measure in the first group indicates the unit that is better in the following groups—the weaker units. A correlation analysis was also performed (Pearson's coefficient), a scatter plot with a fit line was made, and a linear regression analysis was performed (Trojak and Tokarski 2013; Kumari and Yadav 2018).

Regression analysis is the study of the relationship between the variables of interest and aims at the construction of a model that reflects this relationship well. It allows us to indicate the relationships between the dependent variables (Y) and the independent variables (X). The linear regression model is described by the following formula:

$$y_i = b\, x_i + a, i = 1, 2, \ldots, n, \tag{9}$$

In the case of the multiple regression model, when we had more predictors, we used the following formula for the regression line:

$$y_i = b_1\, x_1 + b_2\, x_2 + \ldots + b_i\, x_i + a, i = 1, 2, \ldots, n, \tag{10}$$

where:

b is the regression coefficient calculated for individual predictors in the model;
x is the independent variable;
y is the dependent variable in the model; and a is an intercept.

Regression analysis allows us to check whether the built model significantly predicts the value of the explained variable and determine which variables predict it significantly. In the regression model, the autocorrelation of variables should be excluded. The (corrected) R2 statistic, which indicates the degree to which the estimated regression function explains the variability in the variable y, takes values from 0 to 1 (Gigerenzer 2004).

4. Results

The area of eastern Poland includes the following provinces: Lubelskie, Podlaskie, Podkarpackie, Świętokrzyskie, and Warmińsko-Mazurskie. It is characterized by the lowest level of economic development in Poland and is also one of the weakest regions in the European Union. The problems that have a negative impact on the socio-economic development to a large extent have a structural dimension, being a consequence of historical conditions. Regarding the developmental potential of the macroregion, the unfavorable conditions include poor infrastructure related to limited professional activity, the low effectiveness of the structure of the economy and the labor market, a constant outflow of inhabitants to other regions (e.g., the migration of mainly young people), and a low level of innovation.

The classification of rural communes in eastern Poland according to their financial situation is shown in Figure 1. The white color in the figure indicates urban and urban–rural communes not covered by the study. The black color indicates the best units, and the lighter color indicates weaker units. The division of communes was based on quartiles, which constituted the threshold values for subsequent groups. The rural communes in eastern Poland are characterized by significant disproportions in terms of development and financial situation. The units distinguished by a better financial situation have a higher rate of development. The synthetic measure of development (qi) ranged from 0.16 to 0.51 in 2018 and from 0.15 to 0.46 in 2009 (in the case of the financial standing measure 0.09–0.39 in 2009 and 0.14–0.51 in 2018). The increase in the range of the measure from 0.31 to 0.35 and the increase in the financial situation measure from 0.30 to 0.37 confirm the increase in the differentiation of individuals in terms of development.
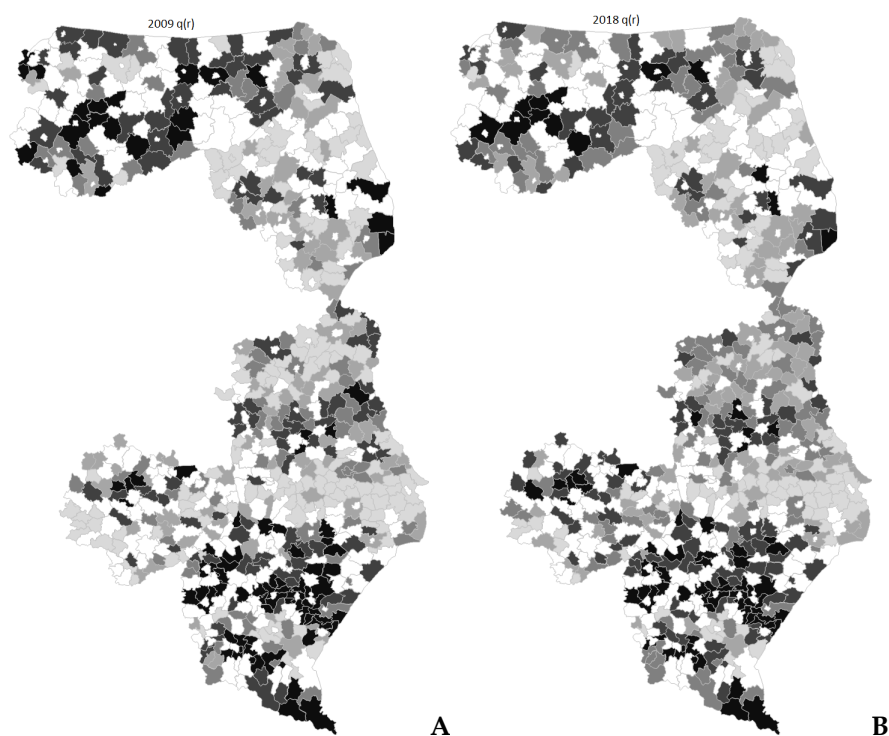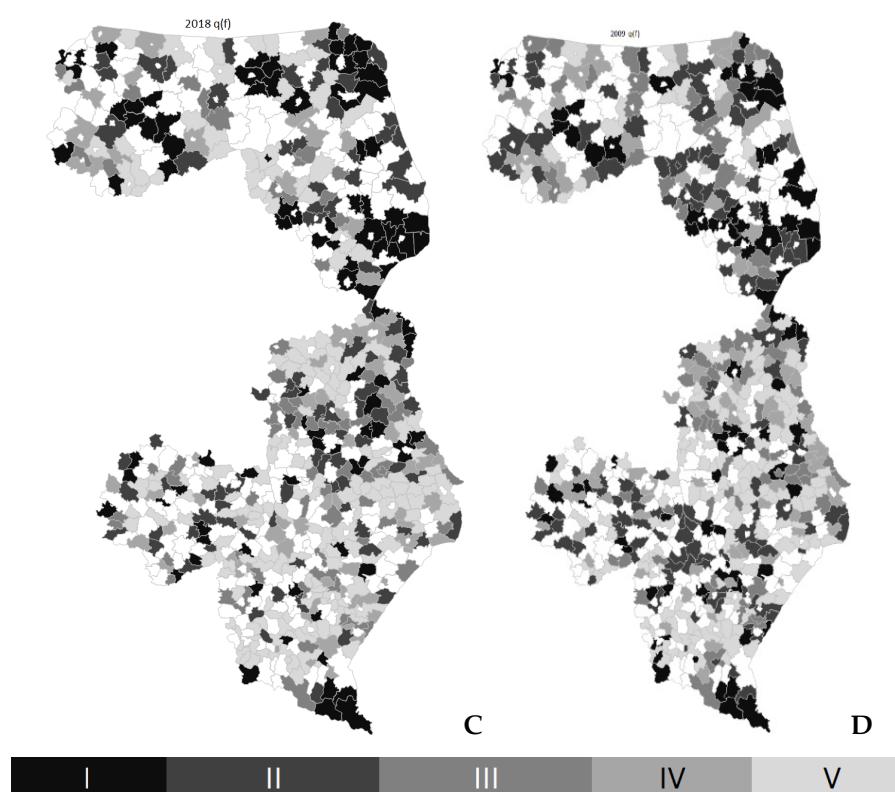

Figure 1. *Cont.*

Figure 1. Synthetic measure of the financial situation of rural communes in eastern Poland in 2009 and 2018. Source: own research. q (r) development measure (**A** 2009, **B** 2018); q (f) financial situation measure (**C** 2018, **D** 2009).

By analyzing the internal conditions of municipalities divided into five typological groups (statistically similar to each other, according to the percentile values 2, 4, 6, and 8), they were characterized as follows:

(1) Group 1 communes are no longer typically agricultural, as evidenced by the number of economic entities and natural persons running a business. Thus, the multifunctionality of rural areas contributes to their development. The use of the rent of the location in relation to urban areas (local development centers) creates opportunities for their rapid development.

(2) The communes in Group 1 (the best group), in relation to the communes of the fourth and fifth groups (the weakest groups), were characterized by lower financial ratio values, which allow for a conclusion about the lower freedom of use of financial resources and, thus, the smaller financial possibilities of these communes.

(3) The group with the best financial situation consisted of 33 communes (28% of all rural communes in the provinces of eastern Poland). These communes were characterized by the highest share of the population per 2 km in relation to the weakest communes.

(4) The communes in the best financial situation (Group 1 communes) obtained higher ratios of the share of personal incomes in total incomes than the weakest communes.

(5) The poorer the financial situation of communes, the smaller was the importance of income sources.

(6) The budget of the weakest communes was the most supported by income from transfers (which weakens their independence).

(7) The main reason for the low impact of financial conditions on the socio-economic development of communes is their dependence on income transferred from the state budget and the amount of current expenditure. These circumstances stiffen and stabilize the financial economy, making it relatively insensitive to the influence of other factors.

(8) The low independence constitutes a barrier to the local development of rural communes.

(9) The growing importance of transfers from the state budget in the group with poor financial standing proves the declining level of financial independence (see Table 3).

Table 3. Values of indicators describing the socio-economic and financial situation of rural communes in eastern Poland in 2009 and 2018.

	2009					**2018**				
	I	**II**	**II**	**IV**	**V**	**I**	**II**	**III**	**IV**	**V**
q development	0.32	0.26	0.24	0.21	0.19	0.37	0.30	0.27	0.24	0.21
Number of communes	102	116	76	98	92	97	127	90	112	58
	Determinants of the socio-economic situation									
Population per km^2	87	53	50	43	44	96	57	45	40	38
Migration balance per 1000 people	2.4	−0.5	−1.9	−2.9	−3.4	2.6	−1.9	−2.9	−4.7	−4.5
Unemployed persons registered in communes per 1000 inhabitants	70	71	61	56	58	37	38	41	38	44
Employed persons per 1000 inhabitants	107	80	66	59	54	117	94	80	61	59
Entities entered into the REGON register per 1000 inhabitants	57	51	47	42	40	76	65	57	52	50
Natural persons conducting economic activity per 1000 inhabitants	48	41	36	33	31	62	51	43	40	38
	Determinants of the financial situation									
q financial situation	0.18	0.16	0.17	0.16	0.15	0.21	0.19	0.20	0.19	0.18
Personal income/total income	0.34	0.27	0.26	0.24	0.23	0.35	0.29	0.28	0.25	0.24
Investment expenditure/total expenditure	0.21	0.18	0.21	0.20	0.18	0.22	0.21	0.20	0.20	0.20
Transfer income/total income	0.63	0.69	0.69	0.73	0.75	0.58	0.64	0.65	0.68	0.68

Source: own research.

Figure 2 shows the distribution model for the synthetic measure of development and financial situation. In the case of the development measure, we observed a right-hand distribution of 0.29 > 0.28 in 2018 and 0.25 > 0.24 in 2009. In the case of the financial standing measure, we observed a right-hand distribution of 0.17 > 0.16 in 2009 and a symmetrical distribution of 0.19 = 0.19 in 2018. The right-hand skewness indicates that a greater number of communes have values of these variables that are lower than their average value. The largest range in 2018 for the development measure was 0.25–0.30 (155, 32%), and the largest range in 2018 for the financial standing measure was 0.15–0.20 (327, 68%). There was a predominance in the indicated ranges.

The statistical characteristics of the synthetic measure of the financial situation, as well as the income from local taxes of rural communes in eastern Poland in 2018 compared to 2009, do not indicate the stability of this phenomenon in the analyzed area.

The analysis of the dispersion of the measure of economic security in rural communes in eastern Poland in 2009 and 2018 shows a slight increase in differentiation. This is indicated by the range of 0.31–0.35 for development and 0.30–0.37 for the financial situation; the quarterly range of 0.07–0.08 for development and 0.04–0.04 for the financial situation; and the standard deviation of 0.05–0.06 for development and 0.04–0.04 for the financial situation. The stability of the phenomenon is indicated by the coefficient of variation of 0.20–0.20 for development and 0.22–0.20 for the financial situation; and the quarter deviation of 0.04–0.04 for development and 0.02–0.02 for the financial situation. Additionally, it should be noted that almost all variables (except for transfer income/total income—the state's financial interference rate) show a positive asymmetry, which is not a favorable situation for stimulants. This means that a larger number of communes have values of these variables that are lower than their average, indicating the weakness of the analyzed region in the indicated area (see Table 4).
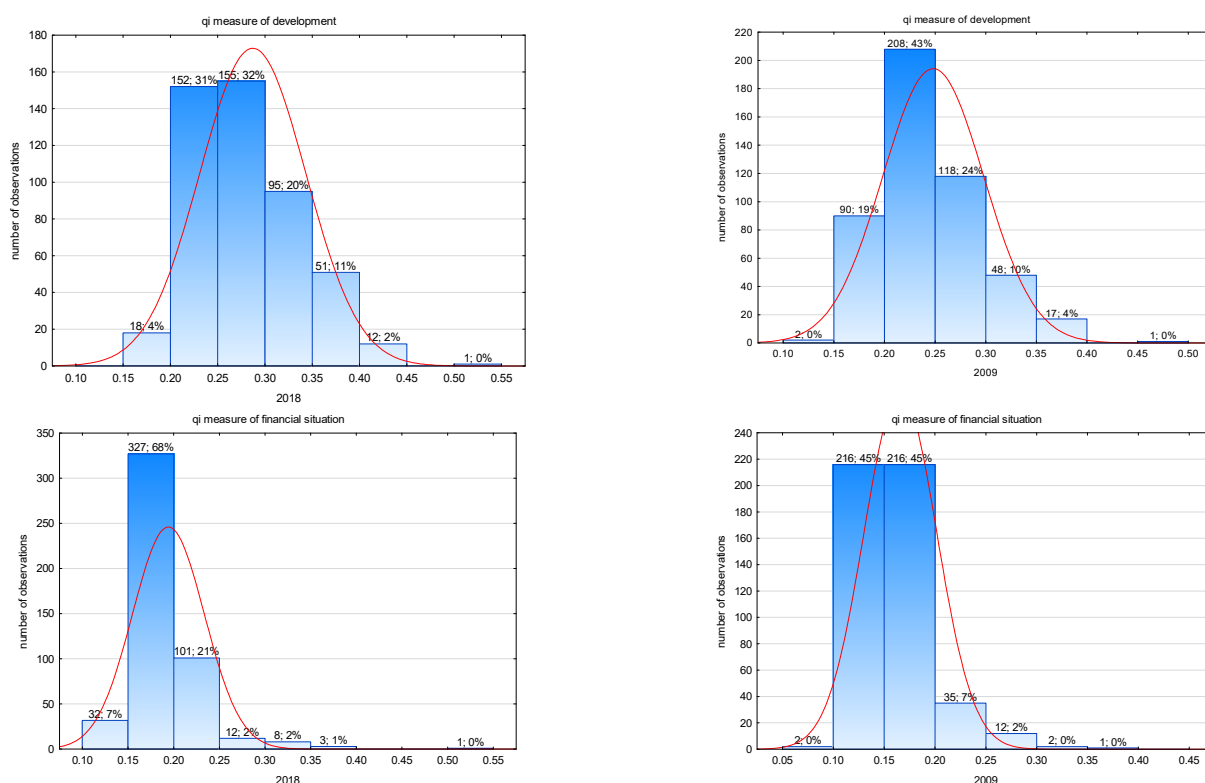
Figure 2. The synthetic measure of the financial situation of rural communes in eastern Poland in 2009 and 2018. Source: own research.

Table 4. Statistical characteristics of the synthetic measure of the financial situation of rural communes in eastern Poland in 2009 and 2018.

	q Development		q Financial Situation		Financial Independence Indicator		Investment Attractiveness Index		State Financial Interference Index	
	2009	**2018**	**2009**	**2018**	**2009**	**2018**	**2009**	**2018**	**2009**	**2018**
Min	0.15	0.16	0.09	0.14	0.09	0.11	0.00	0.01	0.18	0.20
Max	0.46	0.51	0.39	0.51	0.81	0.70	0.71	0.48	0.88	0.85
Mean	0.25	0.29	0.17	0.19	0.27	0.28	0.20	0.21	0.70	0.65
Median	0.24	0.28	0.16	0.19	0.24	0.26	0.19	0.20	0.73	0.66
Standard deviation	0.05	0.06	0.04	0.04	0.11	0.10	0.11	0.09	0.11	0.10
Quarter deviation	0.04	0.04	0.02	0.02	0.06	0.05	0.07	0.07	0.07	0.06
Coefficient of variation	0.20	0.20	0.22	0.20	0.40	0.34	0.54	0.45	0.16	0.15
Positional coefficient of variation	0.15	0.15	0.13	0.11	0.25	0.19	0.37	0.33	0.09	0.09
Range	0.31	0.35	0.30	0.37	0.72	0.59	0.71	0.47	0.70	0.65
Quartile range	0.07	0.08	0.04	0.04	0.12	0.10	0.14	0.13	0.13	0.12
Skewness (asymmetry)	0.80	0.61	1.80	2.63	1.58	1.56	0.85	0.41	−1.38	−1.06
Kurtosis (measure of concentration)	0.66	0.01	5.81	12.49	3.34	3.12	1.21	−0.19	2.36	1.70

Financial independence indicator = personal income/total income; investment attractiveness index = investment expenditure/total expenditure; state financial interference index = transfer income/total income. Source: own research.

Financial independence is an important factor in socio-economic development (Przybytniowski 2019), especially in rural municipalities. These units are characterized by a lower income potential (lower financial independence). As a result, it may constitute a barrier to multifunctional development (Mölders 2014). At the same time, there is a significant diversification in the socio-economic development of rural communes. Rural

commenues with the highest personal incomes are characterized by a much higher level of development. They determine the degree of financial independence of municipalities, and an increase or decrease in them affects the planning and implementation of investment activities. The impact on the level of financial independence of communes is also determined by the scope of the rights to freely spend the generated income (Heller and Farelnik 2013).

At the same time, local governments are powered by income transferred to them, often for a specific purpose (thus limiting the expenditure independence of local government units). The transfer income includes grants and subsidies. These funds are characterized by the fact that they are transferred to a specific unit and constitute its source of income (Oates 2008). They are used to equip local government units with additional resources and constitute an instrument of state interference in the activities of this unit. By employing this transfer income, the state ensures that it has an influence on the directions of the implementation of the local financial economy. According to the measure shown in Figure 3, a negative correlation (−0.438, in both analyzed years) was observed between the measure of development and the financial index of interference in rural communes in eastern Poland.
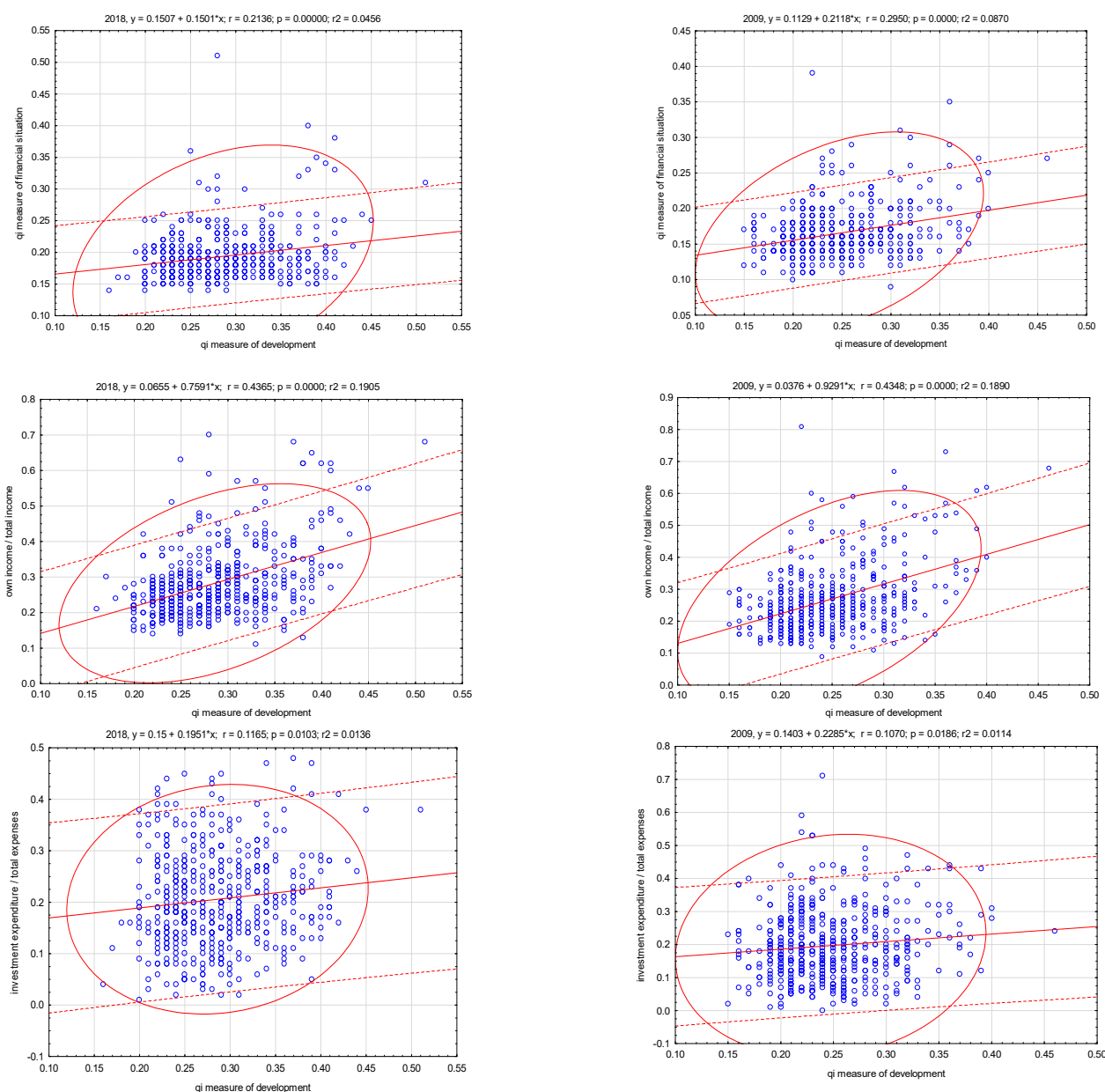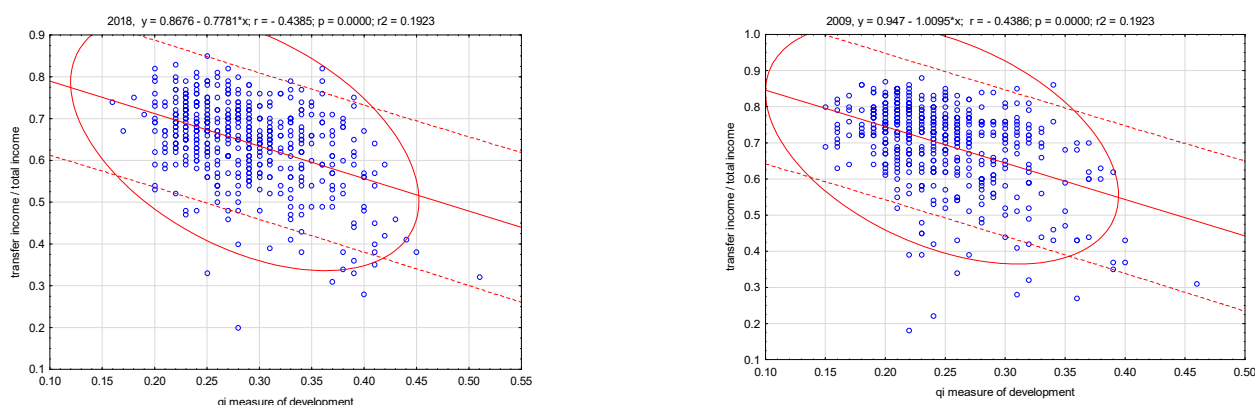

Figure 3. *Cont.*

Figure 3. Dispersion of the synthetic measure of the financial situation of rural communes in eastern Poland in 2009 and 2018. Source: own research.

As shown in Table 5, the development measure was most closely correlated in the financial situation with the financial independence ratio and the state financial interference ratio. Personal income shows the economic activity of inhabitants and the state of their possessions. They depend on the economic development of an individual, expanding the economic base and increasing the income of local governments. A high value of the correlation with the share of transfers may indicate the dependence of a commune on revenues from the state budget. This stiffens the financial economy of the commune, making it relatively insensitive to the influence of other factors.

Table 5. Correlation between the financial situation and development measures and socio-economic variables in rural communes of eastern Poland (co. Pearson; 2009–2018).

Specification	q Development
Financial independence indicator	0.4077
State financial interference index	−0.359
Entities entered in the REGON register per 1000 inhabitants	0.580
Units newly registered in the REGON register per 1000 inhabitants	0.5206
Natural persons conducting economic activity per 1000 inhabitants	0,5759
% of the population using the sewage network	0.8514
% of the population using the water supply system	0.3698
% of the population using the gas network	0.4957
Population growth per 1000 inhabitants	0.4354
Migration rate per 1000 inhabitants	0.3948
Wastewater treated during the year treated together	0.7098
% of the population using sewage treatment plants	0.8292

Financial independence indicator = personal income/total income; state financial interference index = transfer income/total income. Key: Linear correlation coefficients for observations from sample 1 to 4840; critical value (with a two-sided 5% critical area) = 0.0282 for n = 4840. Source: own research.

According to Rosner's (2012) research, there is a close relationship between the processes regarding a population and the level of socio-economic development. The age structure of the population shapes the situation of the labor market and has an impact on local finances and development (Antony et al. 2017; Banwo et al. 2017). Rural communes in eastern Poland are characterized by a low correlation measure (below 0.5) of development with the natural increase in and balance of migration. The number of economic entities proves the level of entrepreneurship in the region, which is confirmed by the correlation measure being above 0.5. There is a clear disproportion between the density of the distribution of economic entities in urban centers as compared with rural communes.

Pearson's correlation coefficient between the value of the synthetic measure of development and the measure of financial standing in 2018 was 0.213 (0.295 in 2009), while the financial independence index was 0.436 and 0.434 in 2018 and 2009, respectively. A low level of the indicated relation was observed in the case of the investment attractiveness

index (0.116; 0.107). Other correlation values are shown in Table 5. This may confirm that the spatial differentiation of the studied area was quite stable, and the units reacted similarly to changes taking place in the economy.

In order to assess the impact of the variables of the financial situation of rural communes in eastern Poland on the differentiation of development measures (taking into account the values of correlation measures between the selected variables), a regression model was estimated (see Table 6). The fit of the model was measured using the indicators: coefficient of determination R-squared value: 0.359698; and corrected R-squared value: 0.358106. This means that 35% of the variation in the model was explained by the variability of the independent variables. No collinearity was found in the explanatory variables (non-redundancy was assessed by the correlation coefficient). The coefficient of determination measures how much of the overall variability in the dependent variable is explained by the linear regression. One must therefore be careful in its interpretation, because the fit of the model does not increase with the number of variables. There is an essential impact on the dependent variable. Further increasing the multidimensionality of the model would cause the R2 value to increase slightly (the bigger the better). For the model, this could lead to the inclusion of statistically insignificant variables. We can add a large number of irrelevant variables and the actual process will show that the model does not correctly describe the modeled phenomenon. The adjusted coefficient of determination did not reach 60%. This may indicate the need to extend the range of variables with socio-economic elements to characterize the economic security in a multidimensional way. The F statistic (12, 4827) of 225.9688 is statistically significant (the *p*-value for the F test was 0.000000), meaning that the construction of the linear model is correct.

Table 6. Results of the regression analysis between the financial situation (q) and the variables of development of rural communes in eastern Poland.

Description	Coefficient	Standard Error	Student's *t* Test	*p*-Value
Constant	0.382410	0.00639275	59.82	<0.0001
State financial interference index	−0.128171	0.00704407	−18.20	<0.0001
Index of fiscal wealth per capita	0.136306	0.0247880	5.499	<0.0001
Agricultural tax	−0.214572	0.00791490	−27.11	<0.0001
Forest tax	−0.203985	0.0263104	−7.753	<0.0001
Vehicle tax	−0.158478	0.0411964	−3.847	0.0001
Investment expenditure	−0.0525267	0.00804685	−6.528	<0.0001
Expenditures on education and upbringing/number of inhabitants	2.84325×10^{-5}	2.83874×10^{-6}	10.02	<0.0001
Apartments per 1000 inhabitants	5.07479×10^{-5}	7.26467×10^{-6}	6.986	<0.0001
Expenditures on the municipal economy and environmental protection/population	5.38541×10^{-6}	2.39585×10^{-6}	2.248	0.0246
Public safety and fire protection expenditure/population	-2.53834×10^{-5}	1.15646×10^{-5}	−2.195	0.0282
Public administration expenditure/number of inhabitants	-7.61551×10^{-5}	6.97651×10^{-6}	−10.92	<0.0001
Expenditure on agriculture and hunting/population	-1.93975×10^{-5}	2.85645×10^{-6}	−6.791	<0.0001

Arithmetic mean of dependent variable	0.266829	Standard deviation of the dependent variable		0.054140
Sum of residual squares	9.081804	Residual standard error		0.043376
Coefficient of determination R-square	0.359698	Corrected R-square		0.358106
F (12, 4827)	225.9688	P-value for the F test		0.000000
Logarithm of credibility	8326.059	Akaike Information criterion		−16,626.12
Bayesian information criterion Schwarza	−16,541.82	Crit. Hannana–Quinna		−16,596.52

State financial interference index = transfer income/total income; index of fiscal wealth per capita = share in taxes constituting state budget revenues/number of inhabitants; observations from sample 1 to 4840 used; dependent variable (Y): TOPSIS development; linear correlation coefficients for observations from sample 1 to 4840; critical value (with a two-sided 5% critical area) = 0.0282 for n = 4840. Source: own research.

5. Discussion

The socio-economic diversity of municipalities should be analyzed frequently. Research in this area is often focused on the search for and identification of factors shaping the development process (analyses covering one area, e.g., finance, the economy, infrastructure, human capital). The analyses carried out also concern a synthetic measure, e.g., of development or financial situation. Spatial differentiation in the level of development results in different conditions for running a business and a different quality of life and living conditions for inhabitants (Capello 2014).

Socio-economic development is associated with the economic, demographic, and natural aspects as well as with the geographical location (Saviotti et al. 2020). The developmental potential of communes is built by financial resources, the professional activities of inhabitants, the local labor market, entrepreneurship, infrastructure, and the condition of the natural environment (Vermeulen and Pyka 2018). Financial resources are the basis for an individual's activities. They are a prerequisite for the successful implementation of local tasks (related to the needs of residents).

Endogenous resources are becoming more and more important in the development of communes. The progressive decentralization of power, competence, and management makes it possible to speak about the growing importance of local, material, and intangible resources. The endogenous potential of a region, which results from a combination of local conditions, determines its possibilities and directions of development (Churski and Kołsut 2017). As indicated by Milczarek (2005), it is the sum of, among other things, geographic, demographic, economic, and social elements. Kiniorska (2014) distinguishes three types: demographic, economic, and infrastructural elements. The analyses conducted by Churski et al. (2013), Stanny and Strzelczyk (2015), and Dziekański and Prus (2020) show that an important endogenous element influencing development opportunities is financial potential.

The financial potential of communes is conditioned by many factors, including legal and spatial conditions, the level of urbanization of the area, and the potential demographic and economic conditions of a given local government unit. Most rural communes that still exist perform a function typical of rural areas—agriculture (forestry), which translates into a low level of financial potential. Under the conditions of European integration, however, the functions performed by rural communes have changed from typically agricultural to residential, service, tourist, and recreational, which strengthens the role of units in a dynamically changing environment and determines the level and structure of income (Rosner and Stanny 2016).

Filipiak (2009) also points to the importance of the spatial development of an area as a factor influencing the financial condition of municipalities through creating favorable conditions for the development of economic activity and thus encouraging settlement and increasing the potential of human capital. Local authorities should take care of the condition of the infrastructure. This may increase the attractiveness of the area and attract new entrepreneurs or improve the quality of life of the inhabitants. Infrastructure contributes to the economic activation of the region. Knowledge of the social potential, the labor market, and changes in it is of importance to the determinants of a development policy. Human capital is one of the key elements of development (Quaranta et al. 2016; Jutengren et al. 2020). The quality of the natural environment is an important element that enables the proper functioning of economic processes. For economic reasons, it constitutes one of the sources of raw materials and energy and provides geographical space, a place for economic activity, and a place to live or rest.

The financial situation of communes determines the possibilities for the fulfillment of financial obligations, ensuring continuity in the provision of services. Finance allows for a multi-element assessment of the commune's activities, its development possibilities, and the implementation of public tasks. According to Stanny and Strzelczyk (2018), the financial situation is an assessment of the commune's finances, i.e., the possibilities to ensure financial security. This security includes the ability to perform tasks and reliability in terms of the ability to pay off liabilities.

Hendrick (2004) relates the financial situation to the ability to raise a sufficient amount of funds, deliver public services, and manage debt. Financial standing relates to the overall level of economic development (Przybytniowski 2016; Drozdowski 2017; Dobrowolski 2020b). It indicates a commune's ability to meet its own administrative and investment needs, which means maintaining and developing its own assets in line with the current and future demand for public services (Aleksandrova-Zlatanska 2019). The financial situation, according to Cabaleiro et al. (2013), is a complex phenomenon and is influenced by many factors. Knowledge of the state of finances allows local authorities to make comparisons with other entities and helps them make financial decisions.

Standar (2019) analyzed the relationship between the location of communes in rural areas in relation to cities with county status and the financial results achieved by them. As a result of the research, it was proved that the smaller the distance from an urban center, the greater the financial independence, financial liquidity, and investment execution becomes, albeit at a higher level of debt.

Dziekański and Wyszkowski (2018), in their research on the diversification of the financial situation of communes in rural areas of the Świętokrzyskie province, used a synthetic measure based on a deliberately selected set of diagnostic variables. The synthetic measure confirmed the diversification of the financial situation of the analyzed rural communes. Data analysis showed that the financial situation was influenced by the level of income from taxes and local fees as well as income from participation in PITs and CITs. The low share of personal income in the total income of the Świętokrzyskie communes proves their low income independence. Dziekański (2014) undertook the construction of a synthetic measure allowing for the measurement of a multidimensional phenomenon and the linear ordering of the studied units. In this way, the author assessed the level of local development by assessing the financial situation, infrastructure, and natural environment of rural communes in the Świętokrzyskie province. Dziekański and Prus (2020) indicate in their research the growing role and importance of communes in the local economy. The analysis showed that rural communes of eastern Poland are characterized by significant disproportions in their financial situation. Rural communes that are in the best financial situation are characterized by a higher share of personal income in total income and a higher level of income from premises and the taxes obtained from the share in the tax on natural and legal persons.

The analyses carried out by Głowicka-Wołoszyn and Wysocki (2016) showed that there are significant differences in the level and structure of municipalities' income. Rural communes of good financial standing were characterized by a higher share of personal income in total income, a higher level of income from taxes on real estate, and income obtained from participation in the tax on natural persons. The revenues of communes with the best financial situation played the greatest role in supplying their budgets, ensuring the independence of local self-governments in decision-making on spending directions.

Stanny and Strzelczyk (2018) presented a number of empirical indicators (covering fiscal solvency, liabilities, dependence on transfers from the state budget, and the degree of financing of public services) used in the assessment of the financial situation. It was proved that communes characterized by a relatively good financial situation were mainly concentrated in suburban zones of large province centers (on the center-periphery line). It was also indicated that the level of socio-economic development and the financial condition are interdependent.

Wang et al. (2017) indicate that the socio-economic environment is a factor that should be taken into account when analyzing the financial situation. Berne and Schramm (1986) include among the main determinants of the financial situation the needs of the local community, the directions of the distribution of local public goods and services, and the society's affluence. Ladd (1992) emphasizes the impact of demographic conditions on the condition of local government finances. Rodríguez Bolívar et al. (2016) identified the main factors shaping the financial situation, including the state of and changes in the size of the

population, the local labor market conditions, increases in local government spending, and public finance management.

6. Conclusions

The activities of municipalities are a multidimensional process implemented in a set of elements, including demographic, economic, financial, and environmental elements, and the links between these elements. Each spatial decision and each process for formulating conditions and directions of development is based on specific premises and information. Having information is a fundamental condition for making correct spatial decisions (including risk minimization). An evaluation of a commune's activities, due to the variety of undertakings, may be performed with the use of a synthetic measure. It should also provide local authorities with information on the use of public resources or the possibility of making operational or investment decisions.

The distribution of the evaluation of the development and financial situation of rural communes in eastern Poland was spatially polarized. The results show that the development of the surveyed communes is related to a better financial situation. Local authorities should first of all take care to improve the economic potential, which would increase the attractiveness of the area and attract new entrepreneurs. The synthetic measure of development (qi) ranged from 0.15 to 0.46 in 2009, while in 2018 it ranged from 0.16 to 0.51. The financial standing measure ranged from 0.09 to 0.39 in 2009 and from 0.14 to 0.51 in 2018. Taking into account the increase in the range of the measure, these results indicate an increase in the differentiation of units in terms of development from 0.31 to 0.35 and in terms of the financial situation measure from 0.30 to 0.37.

The correlation coefficient between the values of the synthetic measure indicates the stability of spatial differentiation in terms of development. A similar situation can be seen in the reaction of communes to changes in the economy. Pearson's correlation coefficient between the value of the synthetic measure of development and the measure of financial standing in 2018 was 0.213 (0.295 in 2009), and the financial independence index was 0436 and 0.434 in 2018 and 2009, respectively. A low level of the indicated relation was observed in the case of the investment attractiveness index: 0.116 and 0.107, respectively. Between the measure of development and the rate of state financial interference, a negative correlation coefficient (-0.438) was observed in both 2009 and 2018.

The surveyed communes are characterized by a low measure of the correlation between development and the natural increase in the population, and a migration balance of less than 0.5. On the other hand, the number of economic entities proves the appropriate level of entrepreneurship in the region (over 0.5).

It seems that the main reason for the relatively low impact of financial conditions on the development of rural communes in eastern Poland is their strong dependence on income transferred from the state budget. This stiffens and at the same time stabilizes the financial economy, making it relatively insensitive to the influence of other factors. Low independence may be a significant barrier to future local development.

The results of this study allow local governments to compare their development with the situation of neighboring communes. Conclusions drawn on this basis may allow local authorities to define potential directions for the optimization of the development process. The obtained results confirm the usefulness of synthetic measures for the assessment of the endogenous potential of the examined communes. They can be an important source of information for local government authorities on disproportions between units, and their effect may be the use of these analyses as a source of knowledge for more effective management of local government units. One should look for regularities explaining the spatial differentiation of the development of communes, as well as their structures and local conditions. At the same time, the obtained results indicate the directions of future research, which include, among other things, comparison of the results of the linear ordering based on a larger number of empirical data sets, comparison of the results of the linear ordering based on the simulation of data sets with specific statistical distributions, conducting a

dynamic analysis in a specified period of time in order to learn about the trend of changes, and comparing the results of rankings based on other methods of linear ordering.

A commune's self-government is the subject of economic development. Its course is influenced by many factors (including infrastructural, economic, demographic, and financial factors) both dependent on and independent of the commune itself. Between development and endogenous resources there is a feedback loop (Hall 2015). An influx of new residents, investors, and enterprises will occur where an area is economically developed. This entails further budget revenues in the form of, e.g., a real estate tax, shares in personal taxes (PIT), and legal revenue (CIT), which enable the undertaking of further pro-development projects (Standar 2017). Parysek (1997) points out that certain factors are common, while others may be present and interact only in certain places and at certain moments in time. Development is related directly to meeting the growing needs of society. In a diversified economic structure, individuals create a specific development climate in which the conditions for taking up business are created by new entities and the conditions for cooperation with others shape these entities.

The issue of the development of rural communes in eastern Poland is very specific, and the villages have undergone a process of intense transformation since Poland's accession to the EU. The research results (for 2008–2019) show that inequality has stabilized the development and financial situation in the rural areas of the surveyed provinces. In the presented studies, particular attention was paid to the relationship between the financial situation and socio-economic diagnostic variables of the development process in 484 rural communes in eastern Poland (in the research carried out so far, they most often included single communes of provinces in eastern Poland; i.e., communes of a specific county). This approach allows us to assess in a wider area the influence of financial variables on the development process. The wider range of financial variables (X1–X15, Table 1) indicate that the main reason for the relatively low impact of these conditions on financial resources for the development of rural communes in eastern Poland is their strong dependence on income transferred from the state budget. This stiffens and at the same time stabilizes the financial economy, making it relatively insensitive to the influence of other factors. Low financial independence may be a significant barrier to future local development. The important development problem of rural communes is to recognize the worsening demographic situation, which is shaping the financial situation in a negative way.

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