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The Role of the Financial Condition in the Development of Coastal Municipalities in Poland

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Abstract:

Purpose: *The aim of this study is to assess and discuss the relationship between the financial situation and the level of socio-economic development of coastal rural and urban-rural municipalities in Poland.*
Approach/Methodology/Design: *The diversity of coastal municipalities in Poland due to the level of socio-economic development and financial situation was examined using a synthetic indicator. The analysis was carried out on the basis of data from the Local Data Bank of the Central Statistical Office and from the Ministry of Finance and Regional Accounting Chambers. The time range covers 2004-2017.*
Findings: *The analysis shows that there was a statistically significant and bilateral relationship between the financial situation and the socio-economic development in Polish coastal municipalities in the years 2004-2017. Moreover, the results of an extensive analysis of this relationship showed that despite the fact that a statistical relationship was found in the analyzed period, such a relationship was not proven for each class and each municipality. In the case of the study taking into account classes of different levels, a significant relationship did not occur in the extreme classes, but only in the average.*
Practical Implications: *The conclusions refer to the assumptions of the regional and local policy.*
Originality/Value: *The study concerns current issues of regional and local policy. The results can contribute to the analysis of creating development at the local level.*

Keywords: *Poland, coastal municipalities, financial situation, socio-economic development.*

JEL classification: *O12, R51.*

Paper Type: *Research study.*

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1. Introduction

Municipalities are considered to be the key players in the local economy. This is due, firstly, to their ability to legislate (the Act of 24 July 1998 on the introduction of a three-stage division of the state; the Constitution of the Republic of Poland of 2 April 1997) and, secondly, the fact that they are often the largest employers and investors in the area. Therefore, local units are important both for the inhabitants and for the general socio-economic environment (Szewczuk and Zioło, 2008). The main goal of local units is to achieve a certain level of development. Azam and Emirullah (2014) emphasize that the quality of management plays a key role in creating an environment for development and poverty alleviation, especially in developing areas. The task of local authorities, as a coordinator of development processes, is to create conditions for a stable, harmonious and dynamic development of a given territorial unit based on their own resources and opportunities resulting from the environment (Kogut-Jaworska, 2011; Kot, 2001).

According to UNDP (United Nations Development Programme), development is a process of expanding the potential choices of society, which in consequence is to ensure the relatively best standard of living (UNDP, 1990). According to Kisman and Tasar (2014), local development is now considered a key element supporting overall development and social cohesion. However, as Fleszer (2017) rightly points out, development in its definition assumes changes in a given area that are not homogeneous. The changes may concern various aspects of the municipality's functioning, including the social, economic and cultural spheres.

According to Pike *et al.* (2007), the definitions of local development are complex and linked with concepts of what local development is for. In the 1960s and 1970s, local development was defined mainly in the economic context. Currently, apart from economic issues, the definitions of local development are extended to include social, ecological, political and cultural aspects. The municipalities responsibility for creating and directing development is, on the one hand, their great opportunity, but on the other hand, it is a significant obligation. The main problem results from the fact that all pro-development activities generate relatively high costs, the dominant of which are financial (Stasiak and Janiszewska, 2019). This shows the unquestionable importance of the financial situation in determining the level of socio-economic development.

Therefore, in the article it was decided to examine the relationship between the financial situation and socio-economic development on the example of municipalities. The research problem at work is the answer to the question:

- Is there a significant relationship between the level of socio-economic development and the financial situation in relatively similar municipalities?

The rest of the article is organized as follows. Section 2 reviews the literature on the basic concepts of the issue under study. Part 3 presents the research methods and the study context. Section 4 presents the results. While, part 5 contains conclusions.

2. Literature Review

Socio-economic development is a popular subject for politicians and researchers, but also for the general public. According to Ziemiańczyk (2010), this results from the accumulation of a wide range of information in the field of subjective and objective economic aspects in this issue. Moreover, according to Kubiczek (2014), the dynamic growth of interest in this subject is the result of the growing importance of all social problems directly or indirectly related to specific negative effects of global globalization. Development is an extremely broad concept in economics, often mistakenly equated with growth. The differences between the terms were clearly presented by Schumpeter (2005), who is considered the creator of the theory of economic development. In the opinion of this author, growth can be defined as a gradual change with a non-uniform course in time, which in the analyzed period is characterized by a consistent trend. Whereas, development is not only a specific change in the intensity of a phenomenon, but also a disconnection of the existing equilibrium by isolating a new trend. According to Hausner (2008), the dominant issue from the perspective of growth is the intensification of certain phenomena, while development deals with the change of their nature and relations.

In economic space, the subject of development is mainly focused on socio-economic development, built from two theoretically independent components. As Hausner (2008) notes, these components form a development circle in which both elements determine each other. According to the definition of Marciniak (2005), social development is a process of favorable transformations of the existing system of social relations, the general structure of society, social criteria and principles of activity, specific patterns of behavior and attitudes. Social development leads to the improvement of the general level of cooperation and interpersonal coexistence, striving to increase the participation of society in the consequences of economic development.

On the other hand, according to Perroux (1961), economic development is a form of integrating psychological and social changes in the population, which thus receives certain conditions for aggregation and permanent intensification of its real product. The issue is defined differently by Nasiłowski (2004), in whose opinion economic development is a long-term process of transformation of a separate administrative space in the economic dimension, which leads to the transformation of society looking for an opportunity to improve its own material, intellectual or health situation. However, according to Marciniak (2005), economic development is all changes in economic relations, production possibilities, structures and mechanisms of the economy, production, consumption and even the natural environment. The consequence of the integral relationship between social and economic development

is the emergence of a term combining both elements into a coherent issue, i.e. socio-economic development, which, according to UNDP (2012), is a process of favorable structural, quantitative and qualitative changes in the social and economic sphere in a given territorial unit. The synthetic concept is defined by Adamowicz (2003), for whom it is a process of positive economic-cultural-political-social transformations closely related to quantitative and qualitative growth aimed at increasing the general welfare of society.

In order for the positive changes (quantitative and qualitative) mentioned in the definitions of development to be possible, the responsible entity must incur capital expenditure (Standar and Kozera, 2019). The investment opportunities are largely determined by the financial situation of a given territorial unit. Klepacki and Kusto (2009) define the financial situation as such a state of generating income by the local government, which allows the implementation of all activities in the sphere of public tasks and allows for investments necessary to meet the constantly changing needs of residents, which will measurably translate into the stimulation of local development.

A more synthetic definition of the financial situation was created by Bury and Dziekański (2012), who defined it as the ability of a local government to pay future and current financial obligations in a timely manner. It should also be noted that in the literature there are certain synonyms of the term financial situation, used interchangeably by the authors. The most popular are, financial health (Clark, 1994; Carmeli, 2003; Kloha *et al.*, 2005; Wang *et al.*, 2007) and financial condition (Cabaleiro-Casal *et al.*, 2014; Rivenbark and Roenigk, 2011; Sohl *et al.*, 2009).

A lot of research has appeared in the literature on the differentiation of local governments in terms of the level of socio-economic development (Salomon, 2005; Heffner and Stanny, 2007; Rakowska, 2011) and financial situation (Hybel, 2010; Standar and Średzińska, 2008; Sobko and Klonowska-Matynia, 2018; Wosiek, 2013; Stasiak and Janiszewska, 2019). The results show that even between similar municipalities in terms of their character or location, there are significant differences in the level of development.

There can be many reasons, but one of the most important is the financial situation, which is a determinant of creating development, but also maintaining it at the assumed level (Sobczyk, 2005; Stanny and Strzelczyk, 2017; Sobko and Klonowska-Matynia, 2018; Ossowska and Ziemińska, 2010). As Sobczyk notes (2005), this indicates an inseparable relationship between the finances of a municipality and its level of development. Wojewódzka (2005) comes to similar conclusions, which notes that the absolute basis for the proper functioning and maintaining a stable development of a municipality is a favorable financial situation. A strong relationship between the financial situation and local development is also noted by Ossowska and Ziemińska (2010), Stanny and Strzelczyk (2017), Sobczyk (2005), Sobko and Klonowska-Matynia (2018) also come to similar conclusions, proving the inseparable relationship between both categories.

3. Materials and Methods

The object of the research were coastal municipalities in Poland, which as at January 1, 2018 were rural or urban-rural units. It has been assumed that the coastal municipalities are units which border the Baltic Sea in their administrative area. Thus, 20 municipalities were included in the analysis. The time scope of the analysis covered the years 2004-2017. The data used in the work came from the resources of the Local Data Bank of the Central Statistical Office, the Ministry of Finance and Regional Accounting Chambers.

Conducting the study of dependencies required prior determination of the level of socio-economic development and the financial situation of the sample. The analyzed phenomena were assessed using the synthetic measure method (Stanny and Strzelczyk, 2017). The research procedure of the synthetic measure method consisted of several stages (Kamińska and Janulewicz, 2009). In the first stage, appropriate variables describing the phenomenon were selected (Suchecki and Lewandowska-Gwarda, 2010; Wysocki and Lira, 2003; Parysek and Wojtasiewicz, 1978), which were then used to build the matrix. In the next step, measures were transformed in order to normalize them into simple features (Feltynowski, 2009). This was carried out using appropriate formulas depending on the nature of the variable, i.e. stimulant (S) – high values wanted and destimulant (D) – low values wanted. The following formulas were used in the study (Wysocki and Lira, 2003):

for stimulants: $$z_{ij} = \frac{x_{ij} - \min(x_{ij})}{\max(x_{ij}) - \min(x_{ij})} \quad (1)$$

for destimulants: $$z_{ij} = \frac{\max(x_{ij}) - x_{ij}}{\max(x_{ij}) - \min(x_{ij})} \quad (2)$$

where: z_{ij} – value of the normalized feature, x_{ij} – value of the j-th variable of the i-th unit before normalization, max (x_{ij}) – maximum value of the j-th variable of the i-th unit before normalization, min (x_{ij}) – minimum value of the j-th variable i-th unit before normalization.

The next step includes calculating the value of the synthetic indicator (Klóska, 2012; Wysocki and Lira, 2003):

$$q_i = \frac{\sum_{j=1}^{m} z_{ij}}{m} \alpha_j, (i = 1, 2, 3, \dots, n) \quad (3)$$

where: qi – the calculated value of the synthetic meter, zij – standardized value of the j-th feature of the i-th unit, m – number of features included, αj – weight of the j-th variable.

The values of the indicator are always included in the range (0.1), and the value equal to one indicates the maximum level of the examined phenomenon in relation to the remaining units in the sample. The last step with the use of the modeless method was to organize the calculated values of the synthetic measure by assigning

them to individual classes. The work uses the division into three classes according to the formula (Parysek and Wojtasiewicz, 1978):

- Class I: $q_i \geq q_{average} + 0{,}5s_q$ (high level),
- Class II: $q_{average} + 0{,}5s_q > q_i \geq q_{average} - 0{,}5s_q$ (average level),
- Class III: $q_i < q_{average} - 0{,}5s_q$ (low level).

Comparing the opinions of various researchers (Zarębski, 2002; Stanny, 2012; Biczkowska, 2014; Czapiewski, 2010) and taking into account the access to data, substantive premises and statistical criteria the following categories were adopted to assess the level of socio-economic development, demography migration balance per thousand inhabitants (S), population density per square kilometer (S), natural increase per thousand inhabitants (S), social infrastructure number of primary schools per 100 km^2 (S), population per kindergarten (D), number of people using community social assistance per thousand inhabitants (D), population per 1 pharmacy (D), population per library (D), technical infrastructure % of people using the gas installation (S), the ratio of the length of the sewage network to the length of the water supply network in % (S), % of users of the sewage system (S), the ratio of the length of the active water supply network to the area of the municipality (S) tourist infrastructure the number of nights spent by foreign tourists per lodging place (S), total number of nights spent per bed (S), number of bed places per thousand inhabitants (S), total number of overnight stays per thousand inhabitants (S), labor market and entrepreneurship the number of registered business entities per thousand people (S), number of persons conducting business activity in relation to the working age population (S), % of the unemployed in the working age population (D), number of employed persons per thousand inhabitants (S).

A similar action was taken in the case of the assessment of the financial situation, taking into account substantive and statistical criteria, access to data and literature (GUS, 2018; Dylewski *et al.*, 2004; Gabrusewicz, 2005). The following measures were taken into account in the study, total liabilities per capita (D), total liabilities ratio in total incomes (D), operating surplus share in total incomes (S), capital expenditure ratio in total expenditures (S), self-financing (S), operating surplus per capita (S), tax revenues per capita (S).

In addition, the E(X) index of both categories, averaged over the years 2004-2017, was built on the basis of the expected value of individual indicators used to create the synthetic measure (e.g., in order to build an averaged synthetic indicator of the financial situation, the expected value from the years 2004-2017 of all measures representing the financial condition of a given municipality was used).

The analysis of the relationship between the analyzed categories required the verification of the variables. Therefore, the ADF test was used to check the stationarity. The Doornik-Hansen test was used to check the normal distribution of the random component. The Durbin-Watson test was used to check the residual

autocorrelation phenomenon. Pearson's linear correlation coefficient method was used for the initial analysis of potential relationships between the variables (Zhang, 2006). The next step of the analysis was to verify the parameters of the obtained values of the synthetic measure by testing their level of integration and the normality of the distribution and autocorrelation of residuals (De Gooijer, 2017; Wang and Jain, 2003; Sobko and Klonowska, 2019). The ADF test (Khim-Sen Liew *et al.*, 2003) showed that all series were stationary at level I(0). The Doornik-Hansen test (Yigit and Mendes, 2016) showed the normality of the random component distribution, and the Durbin-Watson test (Savin and White, 1977) proved the absence of the residual autocorrelation phenomenon. On this basis, it was found that the study of the relationship between the level of socio-economic development and the financial situation of municipalities can be carried out on the basis of linear regression and the least squares method (OLS) (Yan and Gang Sun, 2009; George *et al.*, 2003).

4. Results

The estimated synthetic parameters (Table 1) show that in the analyzed period the best situation in terms of the level of socio-economic development was in the Rewal (qi = 1), Władysławowo (0.75) and Mielno (0.73). On the other hand, the weakest values of the socio-economic development synthetic indicator were characteristic of Smołdzino (0), Wolin (0.13) and Postomino (0.21). The average share of municipalities above the average in the sample was 50%, which indicates an average level of differentiation. This is confirmed by the value of the coefficient of variation (57%). In the case of the financial situation synthetic indicator, it was found that the best situation was in Kosakowo (1), Kołobrzeg (0.96) and Rewal (0.76).

In contrast, the worst performers were Smołdzino (0), Trzebiatów (0.08) and Wolin (0.16). The average share of municipalities above the average in the sample was slightly less than in the analysis of the level of socio-economic development 45%. Similarly, the coefficient of variation (56%) was characterized by a lower value, the value of which in 2008 (78%) was noticeably different from the other. This may indicate that the economic crisis of 2007-2009 affected the financial aspect of the sample much more than the level of development. This is evidenced by the fact that in 2008 there was a decrease in the average value of the synthetic measure of financial condition by as much as 40% compared to 2004. The finances of local governments had to suffer so much that even 4 years later in 2012, the average measure of the financial condition was lower than in 2004. The evidence of the negative effect of the economic slowdown on the budgets of municipalities is also the measure of diversification, which clearly indicates that in the years of the crisis (2008) there was a strong stimulus for dispersion, i.e. some Rewal, Mielno, Darłowo, Dziwnów.

Based on the Pearson's linear correlation coefficient, it was shown that until 2006 there was a relatively high positive correlation, and with the onset of the economic

crisis in 2007, the measure was significantly reduced (Figure 1). The correlation index returned to a relatively high level in 2009, during the partial acceleration of the economy. However, in the following years its measure did not exceed 0.4 - and in 2014 it was negative (-0.07), which means that the improvement of the financial situation took place with a relatively small decrease in the level of socio-economic development.

According to the results, the relation in particular years differed significantly, as evidenced by the differentiation of the correlation measure at the level of as much as 75%. It is also important that the correlation measure between the average index of both categories was at a relatively high level, and this may indicate the existence of a real positive relationship between finances and the development of the studied sample over the years 2004-2017.

Table 1. *Values of the synthetic level indicator of socio-economic development and financial situation in selected years*

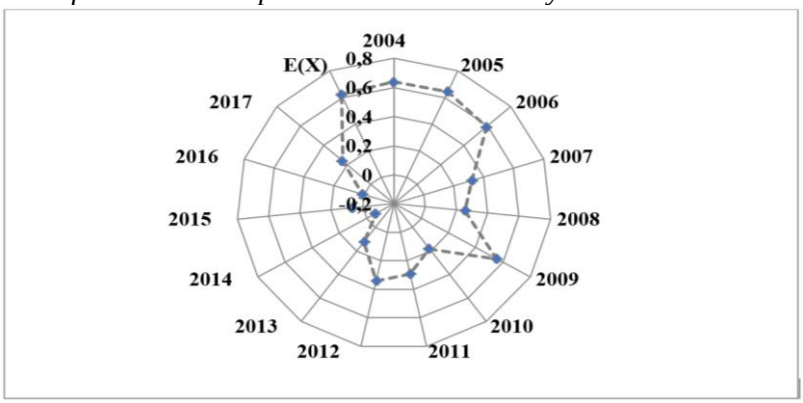
Municipality	Socio-economic development					Financial situation				
	2004	2008	2012	2016	E(X)	2004	2008	2012	2016	E(X)
Stegna	0.17	0.27	0.25	0.34	0.26	0.51	0.42	0.33	0.66	0.33
Sztutowo	0.21	0.23	0.28	0.34	0.28	0.84	0.41	0.94	0.62	0.70
Kosakowo	0.51	0.54	0.65	0.75	0.63	0.74	0.80	0.81	1.00	1.00
Krokowa	0.34	0.44	0.43	0.49	0.44	0.54	0.40	0.50	0.57	0.46
Puck	0.26	0.38	0.37	0.42	0.38	0.64	0.59	0.53	0.61	0.45
Smołdzino	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.61	0.00
Ustka	0.41	0.45	0.42	0.49	0,47	0.32	0.35	0.56	0.79	0.44
Choczewo	0.19	0.30	0.16	0.17	0,23	0.47	0.14	0.30	0.46	0.23
Rewal	1.00	1.00	1.00	1.00	1,00	1.00	0.04	0.64	0.00	0.76
Kołobrzeg	0.52	0.54	0.56	0.62	0,56	0.89	1.00	1.00	0.95	0.96
Ustronie Morskie	0.58	0.65	0.68	0.76	0,68	0.65	0.50	0.34	0.78	0.61
Będzino	0.15	0.34	0.20	0.25	0,24	0.25	0.05	0.29	0.50	0.17
Mielno	0.66	0.71	0.75	0.78	0,73	0.60	0.20	0.36	0.86	0.56
Darłowo	0.25	0.32	0.29	0.36	0,30	0.70	0.13	0.52	0.78	0.47
Postomino	0.13	0.25	0.19	0.16	0,21	0.46	0.40	0.55	0.91	0.69
Trzebiatów	0.33	0.31	0.31	0.41	0,32	0.00	0.12	0.37	0.57	0.08
Dziwnów	0.57	0.60	0.56	0.52	0,56	0.83	0.21	0.32	0.76	0.58
Międzyzdroje	0.51	0.61	0.59	0.61	0,61	0.51	0.62	0.47	0.72	0.53
Wolin	0.12	0.12	0.14	0.16	0,13	0.18	0.07	0.37	0.38	0.16
Władysławowo	0.72	0.69	0.72	0.82	0,75	0.71	0.55	0.39	0.62	0.41
Average value for the year	0.38	0.44	0.43	0.47	0,44	0.55	0.35	0.48	0.66	0.48
% of municipalities above the average	45%	50%	45%	50%	50%	55%	55%	45%	50%	45%
Coefficient of variation	66%	53%	59%	55%	57%	50%	78%	49%	35%	56%

Note: *The municipalities with the value of the synthetic measure exceeding the average measure in a given year are distinguished in gray color.*
Source: *Own study.*

The use of the OLS method to analyze the potential relationship between the socio-economic situation and the financial situation of municipalities showed that a statistically significant linear functional relationship between the dependent and the explanatory variable and a statistically significant relationship between the partial regression coefficient and the dependent variable occurred in 4 cases, in 2004, 2005, 2006 and for averaged measures of the financial situation and the level of socio-economic development E(X) (Table 2). The results relatively coincide with the indications of the Pearson linear correlation coefficient, which harmonizes the image of the obtained implication. Therefore, it was shown that in the years before the economic crisis, the existence of the dependence was statistically significant.

Despite the fact that in subsequent individual years no significant relationship was found, based on the calculations for E (X), it can be assumed that such a relationship occurred in the analyzed period. In each individual positively verified case, the partial regression coefficient was characterized by higher values in the equations describing the financial condition using the level of socio-economic development than in the opposite situation (with a higher standard error). This may mean that in the analyzed period, the level of development was the stronger determinant of the bilateral relationship.

Figure 1. *Correlation of the financial situation with the level of socio-economic development of coastal municipalities in Poland in the years 2004-2017*



Source: *Own study.*

Table 2. *The relationship between the financial situation and the level of socio-economic development of coastal municipalities in Poland in the years 2004-2017*

Year	R^2 (%)	F	p(F), p(X)	X → Y			Y → X		
				X	Intercept	Standard error (%)	X	Intercept	Standard error (%)
2004***	41	12.4	0.002	0.70	0.28	21	0.59	0.06	20
2005***	42	12.8	0.002	0.77	0.18	24	0.54	0.14	20
2006***	35	9.6	0.006	0.62	0.29	22	0.56	0.14	21
2007	10	2.0	0.169	0.33	0.32	24	0.31	0.28	24

2008	6	1.3	0.277	0.29	0.22	27	0.22	0.36	23
2009	8	1.6	0.217	0.33	0.21	27	0.29	0.31	25
2010	3	0.6	0.444	0.17	0.31	22	0.19	0.31	24
2011	8	1.7	0.207	0.26	0.12	22	0.33	0.35	24
2012	12	2.4	0.141	0.31	0.34	23	0.37	0.25	25
2013	2	0.3	0.606	0.11	0.36	22	0.14	0.41	26
2014	1	0.1	0.776	-0.07	0.56	28	-0.06	0.52	26
2015	1	0.1	0.785	0.07	0.53	27	0.06	0.45	27
2016	0	0.1	0.963	0.01	0.65	23	0.01	0.46	27
2017	6	1.1	0.311	0.25	0.28	27	0.22	0.35	26
E(X)***	39	11.4	0.003	0.68	0.18	22	0.57	0.17	20

Note: *X → Y: impact of the level of socio-economic development on the financial situation, Y → X: impact of the financial situation on the level of socio-economic development.*
**** In a given year, the regression equation and independent variables statistically significant at the significance level α = 1%.*
Source: *Own study.*

Table 3. *Diversification of the relationship between the financial situation and the level of socio-economic development of coastal municipalities in Poland in 2004-2017 due to the classes*

Year	Class	R^2 (%)	F	p(F), p(X)	X → Y			Y → X		
					X	Intercept	Standard error (%)	X	Intercept	Standard error (%)
2004	I	23	1.5	0.281	0.39	0.52	14	0.58	0.20	17
	II*	57	5.3	0.082	0.082	0.99	13	-0.48	0.61	8
	III	1	0.1	0.878	-0.15	0.30	22	-0.03	0.16	11
2005	I	4	0.2	0.687	0.22	0.68	20	0.20	0.50	19
	II*	50	5.0	0.075	-0.58	0.71	12	-0.86	0.81	14
	III	6	0.3	0.586	0.53	0.13	20	0.12	0.14	10
2006	I	2	0.1	0.772	0.18	0.67	21	0.10	0.64	16
	II*	64	7.0	0.057	-0.91	0.80	8	-0.70	0.67	7
	III	26	1.4	0.306	-0.56	0.33	14	-0.46	0.30	12
E(X)	I	10	0.4	0.546	-0.48	1.07	25	-0.20	0.87	16
	II*	61	6.2	0.069	-0.32	0.67	10	-0.54	0.70	14
	III	28	1.6	0.281	0.53	0.06	11	0.53	0.11	11

Note: *X → Y: impact of the level of socio-economic development on the financial situation, Y → X: impact of the financial situation on the level of socio-economic development.*
** In a given year and in a given class, the regression equation and independent variables statistically significant at the significance level α = 10%.*
Source: *Own study.*

In the next stage of the analysis, it was verified whether the occurrence of the relationship was related to the level of the phenomena studied, i.e., whether the relationship was differentiated due to the averaged level of both categories. The verification was performed only in cases where there was a correlation between the financial situation and the level of socio-economic development, i.e., in 2004, 2005, 2006, and for averaged measures of the financial situation and the level of socio-economic development E(X). Dividing municipalities according to the level of

financial situation and development into three classes, some regularities were searched for in the scope of the potential phenomenon of dependence. The results showed that a statistically significant linear functional relationship between the dependent and the explanatory variable and a statistically significant relationship between the partial regression coefficient and the dependent variable occurred only in the case of 2 classes (Table 3).

In the municipalities with the highest and the lowest levels of both the financial situation and the socio-economic development, there was no significant relation. The proven relationship in classes 2 did not show, in contrast to the general relationship study (Table 2), that in the analyzed period it was development that was a stronger determinant of the bilateral relationship. Only in one case was there a positive relationship between the categories (the influence of X on Y in 2004). Therefore, it can be assumed that in local governments with an average level of financial situation and an average level of socio-economic development, the average growth of both phenomena contributed to a certain extent to the reduction of the latter.

Table 4. *The relationship between the financial situation and the level of socio-economic development in coastal municipalities in Poland in 2004-2017*

Year	R^2 (%)	F	p(F), p(X)	X → Y			Y → X		
				X	Intercept	Standard error (%)	X	Intercept	Standard error (%)
Stegna	4	0.5	0.498	0.63	0.27	17	0.06	0.23	5
Sztutowo	14	1.9	0.193	-2.63	1.29	35	-0.05	0.30	5
Kosakowo*	24	3.7	0.078	0.88	0.18	17	0.27	0.43	9
Krokowa	1	0.1	0.707	0.39	0.26	17	0.03	0.42	5
Puck	3	0.4	0.564	0.41	0.35	13	0.06	0.35	5
Smołdzino	6	0.8	0.382	-3.21	0.21	22	-0.02	-0.21	1
Ustka	19	1.9	0.123	1.88	-0.47	17	0.10	0.43	4
Choczewo	1	0.1	0.828	-0.23	0.39	19	-0.02	0.22	5
Rewal	1	0.1	0.993	3.57	-3.14	38	0.04	0.99	1
Kołobrzeg	19	2.8	0.122	1.85	-0.22	17	0.10	0.49	4
Ustronie Morskie	1	0.1	0.735	0.45	0.29	30	0.02	0.66	7
Będzino	4	0.5	0.473	0.61	0.10	17	0.07	0.22	6
Mielno**	30	5.2	0.042	2.30	-1.22	18	0.13	0.70	4
Darłowo	3	0.3	0.573	0.77	0.31	24	0.03	0.27	5
Postomino	2	0.3	0.614	-0.94	0.73	29	-0.02	0.22	5
Trzebiatów**	37	7.0	0.021	2.79	-0.79	16	0.13	0.32	4
Dziwnów	6	0.7	0.408	1.59	-0.34	28	0.04	0.53	4
Międzyzdroje	7	1.0	0.348	-1.07	1.12	22	-0.07	0.63	5
Wolin	20	3.1	0.105	1.71	-0.02	11	0.12	0.11	3
Władysławowo	1	0.1	0.976	0.03	0.45	15	0.01	0.74	5

Note: *X → Y: impact of the level of socio-economic development on the financial situation, Y → X: impact of the financial situation on the level of socio-economic development.*

** In a given year, the regression equation and statistically significant independent variables at the significance level α = 10%, ** α = 5%.*

Source: *Own study.*

The last phase of the analysis was to verify the potential relationships between the financial situation and the level of development in relation to individual municipalities in the years 2004-2017. Based on the results, it was found that a statistically significant linear functional relationship between the dependent and the explanatory variable and a statistically significant relationship between the partial regression coefficient and the dependent variable occurred only in Kosakowo, Mielno and Trzebiatów (Table 4). This result does not represent any regularity - the Mielno and Kosakowo were characterized by a relatively high degree of development and financial situation, while the Trzebiatów was the opposite (Table 1). Moreover, the analysis showed that the relationship was positive in each of the cases, and the level of socio-economic development was a stronger determinant of the mutual relationship (Table 2).

Moreover, the analysis showed that the relationship was positive in each of the statistically significant cases. The stronger determinant of the mutual relationship was the level of socio-economic development, which to some extent coincides with the conclusion from the analysis of the relationship between both categories on an annual basis (Table 2).

5. Discussion and Conclusions

The results confirm the general opinion created by researchers, according to which the financial situation is an important factor influencing and maintaining the level of socio-economic development (Sobczyk, 2005; Stanny and Strzelczyk, 2017; Sobko and Klonowska-Matynia, 2018; Ossowska and Ziemińska, 2010). However, the conducted study does not make it possible to state whether Sobczyk (2005), Wojewódzka (2010), Ossowska and Ziemińska (2010), who claim that the absolute basis for creating local development are the finances of municipalities. To verify this, the analysis would have to be extended to include other potential determinants of shaping socio-economic development, which should significantly broaden the research perspective. There is no doubt, however, that the work confirms the general conclusions created by Stanny and Strzelczyk (2017), Sobko and Klonowska-Matynia (2018) oraz Sobczyk (2005) and confirms the inseparable relationship between both categories.

The conducted analysis confirmed that between the financial situation and the socio-economic development in coastal rural areas in Poland in the years 2004-2017 there was a statistically significant relationship of a bilateral nature. Moreover, the results of an extensive analysis of the relationship between the socio-economic development and the level of the financial situation showed that despite the existence of a statistical relationship in the analyzed period (Table 2), such a relationship has not been proven for each class (Table 3) and each individual municipality (Table 4). In the case of the study taking into account the classes, a

significant relationship did not occur in the extreme panels (in the best and worst classes), but only in the average classes. This may mean that the relationship between both categories was present only in municipalities with an average level of development and financial situation. Although the results may partially suggest that the level of socio-economic development was the stronger determinant of the bilateral relationship (Table 2, Table 4), the study did not provide an unequivocal solution to this issue.

References:

Act of July 24, 1998. On the introduction of a three-tier state division. Journal of Laws, 1998, No. 96, item 603 with amendments.

Adamowicz, M. 2003. Skala lokalna w terytorialnym podziale kraju. In: Strategie rozwoju lokalnego: Aspekty instytucjonalne, Adamowicz, M. (ed.), Wydawnictwo SGGW, Warszawa PL.

Azam, M., Emirullah, Ch. 2014. The role of governance in economic development. International Journal of Social Economics, 41(12), 1265-1278.

Biczkowska, A. 2014. Zróżnicowanie przestrzenne poziomu rozwoju wielofunkcyjnego w strefie oddziaływania Wrocławia. In: Zintegrowany rozwój obszarów wiejskich w świetle polityki Unii Europejskiej. Wielofunkcyjność obszarów wiejskich, Jezierska-Thoele, W A., Biczkowski M. (ed.), Wydawnictwo UMK, Toruń.

Bury, P., Dziekański, P. 2012. Porównanie wybranych elementów budżetów gmin województwa świętokrzyskiego. In: Gospodarka lokalna drogą rozwoju regionu, Dziekański, P. (ed.), Wydawnictwo Nauka, Edukacja, Rozwój, Ostrowiec Świętokrzyski.

Cabaleiro-Casal, R., Buch-Gómez, E.J., Vaamonde Liste, A. 2014. Financial situation and political parties in local governments: Empirical evidence in the Spanish municipalities. Investigaciones Europeas de Dirección y Economía de la Empresa 20. https://dx.doi.org./10.1016/j.iedee.2013.11.001.

Carmeli, A. 2003. Introduction: Fiscal and Financial Crises of LocalGovernments. Interminal Journal of Public Administration, 26(13), 1423-1430.

Clark, T.N. 1994. Municipal Fiscal Strain: Indicators and causes. Government Finance Review, 10(3).

Constitution of the Republic of Poland of April 2, 1997, Journal of Laws No. 78, item 483 as amended, art. 163.

Czapiewski, K.Ł. 2010. Koncepcja wiejskich obszarów sukcesu społeczno-gospodarczego i ich rozpoznanie w województwie mazowieckim. Studia Obszarów Wiejskich, 22.

De Gooijer, J.G. 2017. Elementss of Nonlinear Time Series Analysis and Forecasting. Cham: Springer Publishing.

Dylewski, M., Filipiak, B., Gorzałczyńska-Koczkodaj, M. 2004. Analiza finansowa w jednostkach samorządu terytorialnego. Municipium, Warszawa.

Feltynowski, M. 2009. Planowanie przestrzenne a rozwój społeczno-gospodarczy w gminach wiejskich województwa łódzkiego. Foila Pomeranae Universitatis Technologiae Stetinensis, Oeconomica, 268, 35-44.

Fleszer, D. 2017. Local development and municipal authorities. Annuals of the Administration and Law, 17(1), 129-143.

Gabrusewicz, W. 2005. Podstawy analizy finansowej. PAN, Warszawa.

George, A., Seber, F., Lee, A.J. 2003. Linear Regression Analysis. A. John Wiley & Sons Publication, New Jersey.

GUS. 2018. Wskaźniki do oceny sytuacji finansowej jednostek samorządu terytorialnego w latach 2015-2017. Warszawa.

Hausner, J. 2008. Rozwój społeczno-gospodarczy. In: Zarządzanie Publiczne, Hausner J. (ed.), Scholar, Warszawa.

Heffner, K., Stanny, M. 2007. Zróżnicowanie gmin wiejskich ze względu na poziom rozwoju społeczno-gospodarczego. In: Zróżnicowanie poziomu rozwoju społeczno-gospodarczego obszarów wiejskich a zróżnicowanie dynamiki przemian, Rosner A. (ed.), IRWiR PAN, Warszawa.

Hybel, J. 2010. Regionalne zróżnicowanie sytuacji finansowej gmin w latach 2005-2009. Ekonomika i Organizacja Gospodarki Żywnościowej, 86, 29-39.

Kamińska, A., Janulewicz, P. 2009. Klasyfikacja gmin wiejskich województwa lubelskiego na podstawie rozwoju społeczno-gospodarczego. Foila Pomeranae Universitatis Technologiae Stetinensis, Oeconomica, 275, 31-42.

Khim-Sen Liew, V., Zubaidi Baharumshah, A., Tai-Leung Chong, T. 2003. Are Asian real exchange rates stationary? Economics Letters, 3. doi:https://doi.org/10.1016/ j.econlet.2003.10.021.

Kisman, Z.A., Tasar, I. 2014. The key elements of local development. Procedia Economics and Finance, 15, 1689-1696.

Klepacki, B., Kusto, B. 2009. Ocena kondycji finansowej gmin województwa świętokrzyskiego. Ekonomia i Organizacja Gospodarki Żywnościowej, 77, 127-135.

Kloha, P., Weissert, C.S., Kleine R. 2005. Someone to Watch Over me: State Monitoring of Local Fiscal Conditions. The American Review of Public Administration, 35(3), 1423-1430. https://dx.doi.org./10.1177/ 0275074005277435.

Klóska, R. 2012. Statystyczna analiza poziomu rozwoju społeczno-gospodarczego w Polsce – w ujęciu regionalnym. Zeszyty Naukowe Wyższej Szkoły Bankowej w Poznaniu, 12, 127-135.

Kogut-Jaworska, M. 2011. Instrumenty pobudzenia rozwoju gospodarczego na obszarach lokalnych. In: Rozwój lokalny i regionalny. Teoria i praktyka, Szewczuk, A., Kogut-Jaworska, M., Zioło, M. (ed.), Wydawnictwo C.H. Beck, Warszawa.

Kot, J. 2001. Rozwój lokalny – jego istota, cele i czynniki. In: Ekonomiczne i środowiskowe aspekty zarządzania rozwojem miast i regionów, Makowiecki, T., Stawasz D. (ed.), Uniwersytet Łódzki, Łódź.

Kubiczek, A. 2014. Jak mierzyć dziś rozwój społeczno-gospodarczy krajów? Nierówności Społeczne a Wzrost Gospodarczy, 38(2), 40-56.

Marciniak, S. 2005. Makro- i mikroekonomia. Podstawowe problemy. Wydawnictwo naukowe PWN, Warszawa.

Nasiłowski, M. 2004. System rynkowy. Podstawy mikro- i makroekonomii. Wydawnictwo Key Text, Warszawa.

Ossowska, L., Ziemińska, A. 2010. Kondycja finansowa gmin wiejskich i miejsko-wiejskich województwa pomorskiego. Journal of Agribusiness and Rural Development, 4(18), 73-85.

Parysek, J.J., Wojtasiewicz, L. 1978. Metody analizy regionalnej i metody planowania regionalnego. Studia PWN, LXIX, 25-26.

Perroux, F. 1961. L'économie du XXe siécle. PUG, Paris.

Pike, A, Rodriguez-Pose, A., Tomaney, J. 2007. What kind of local and regional development and for whom? Regional Studies, 41(9), 1253-1269.

Rakowska, J. 2011. Zróżnicowanie poziomu rozwoju gmin polski wschodniej. Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu, 13(2), 392-397.

Rivenbark, W.C., Roenigk, D.J. 2011. Implementation of financial conditio analysis in local government. Public Administration Quarterly, 35.

Salomon, J. 2005. Zróżnicowanie rozwoju wielofunkcyjnego obszarów wiejskich województwa świętokrzyskiego. Infrastruktura i Ekologia Terenów Wiejskich, 1, 95-105.

Savin, N.E., White, K.J. 1977. The Durbin-Watson Test for Serial Correlation with Extreme Sample Sizes or Many Regressors. Econometrica, 8.

Schumpeter, J. 2005. Development. Journal of Economic Literature, 43(1), 108-120.

Sobczyk, A. 2005. Rozwój lokalny – wybrane problemy finansowania. Ekonomia i Organizacja Gospodarki Żywnościowej, 81, 125-136.

Sobko, R., Klonowska-Matynia, M. 2018. Sytuacja finansowa nadmorskich gmin w Polsce. In: Trzy dekady samorządu terytorialnego w Polsce, Brzozowska, W.K. (ed.), Wydawnictwo Naukowe Uniwersytetu Szczecińskiego, Szczecin.

Sobko, R., Klonowska-Matynia, M. 2019. Dependencies Occurring Between the Basic Macroeconomic Indicators in Eurozone. Journal of Economic and Social Development, 6(2), 76-83.

Sohl, S., Peddle, M.T., Thurmaier, K., Wood, C.H., Kuhn, G. 2009. Measuring financial position of municipalities: Numbers do not speak for themselves. Public Budgeting & Finance, 29(3). https://dx.doi.org./10.1111/j.1540-5850.2009.00937.x.

Standar, A., Kozera, A. 2019. The role of local finance in overcoming socioeconomic inequalities in Polish rural areas. Sustainability, 11, 5848. doi:10.3390/su11205848.

Standar, A., Średzińska, J. 2008. Zróżnicowanie kondycji finansowej gmin województwa wielkopolskiego. Journal of Agribusiness and Rural Development, 4(10), 135-145.

Stanny, M. 2012. Poziom rozwoju społeczno-gospodarczego obszarów wiejskich w Polsce – pomiar zjawiska złożonego. In: Rozwój wsi i rolnictwa w Polsce. Aspekty przestrzenne i regionalne, Rosner, W.A. (ed.), IRWiR PAN, Warszawa.

Stanny, M., Strzelczyk, W. 2017. Pomiar kondycji finansowej jednostek samorządu lokalnego – kwerenda międzynarodowa. Nierówności Społeczne a Wzrost Gospodarczy, 49, 372-383.

Stasiak, A., Janiszewska, D. 2019. Zróżnicowanie kondycji finansowej gmin powiatu człuchowskiego w latach 2013-2017. Zeszyty Naukowe Wydziału Nauk Ekonomicznych, 23, 109-119.

Suchecki, B., Lewandowska-Gwarda, K. 2010. Klasyfikacja, wizualizacja i grupowanie danych przestrzennych. In: Ekonometria Przestrzenna. Metody i modele analizy danych przestrzennych, Suchecki, W.B. (ed.), C.H. Beck, Warszawa.

Szewczuk, A., Zioło, M. 2008. Zarys ekonomiki sektora publicznego. Uniwersytet Szczeciński, Szczecin.

UNDP. 1990. Human Development Report. Oxford University Press.

UNDP. 2012. Krajowy Raport o Rozwoju Społecznym. Polska 2012. Rozwój regionalny i lokalny. Biuro Projektowe UNDP w Polsce, Warszawa.

Wang, G.C., Jain, C.L. 2003. Regression Analysis Modelling & Forecasting. Graceway Publishing Company, New York.

Wang, X., Dennis, L.M., Tu, Y.S.J. 2007. Measuring financial condition: A study of US states. Public Budgeting & Finance, 27(2). https://dx.doi.org./10.1111/j.1540-5850.2007.00872.x.

Wojewódzka, A. 2005. Ocena kondycji finansowej gminy – na przykładzie gminy Lesznowola. Roczniki Naukowe SERiA, 7(4), 199-210.

Wosiek, M. 2013. Regionalne zróżnicowanie sytuacji finansowej gmin w warunkach dysproporcji rozwojowej w Polsce. Nierówności społeczne a wzrost gospodarczy, 34, 144-158.

Wysocki, F., Lira, J. 2003. Statystyka opisowa. Wydawnictwo Akademii Rolniczej w Poznaniu, Poznań.

Yan, X., Gang Sun, X. 2009. Regression Analysis. Singapore: World Scientific Publishing.

Yigit, S., Mendes, M. 2016. Usage of Multidimensional Scaling Technique for Evaluating Performances of Multivariate Normality Tests. Journal of Applied Science and Technology, 1. doi:https://doi.org/10.9734/BJAST/2016/26256.

Zarębski, M. 2002. Bariery i możliwości wielofunkcyjnego rozwoju obszarów wiejskich (na przykładzie regionu konińskiego). Wydawnictwo UMK, Toruń.

Zhang, A. 2006. Advanced Analysis of Gene Expression Microarray Data. Singapore: World Scientific, Singapore.

Ziemiańczyk, U. 2010. Ocena poziomu rozwoju społeczno-gospodarczego gmin wiejskich i miejsko-wiejskich w województwie małopolskim. Infrastruktura i Ekologia Terenów Wiejskich, 14, 31-40.