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SOCIO-ECONOMIC DEVELOPMENT OF COMMUNES IN THE WEST POMERANIAN VOIVODESHIP

ROZWÓJ SPOŁECZNO-GOSPODARCZY GMIN WOJEWÓDZTWA ZACHODNIOPOMORSKIEGO

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Summary: In recent years Poland has undergone a dynamic socio-economic development, which has not been the same in all territorial units of the country. The level of development of individual communes in the Zachodniopomorskie (West Pomeranian) Voivodeship was examined on the basis of the data on public finances, municipal and housing economy, health protection, the environment, the labour market, education and entrepreneurship. Communes were divided into groups with a similar level of socio-economic development with the use of statistical methods (k-means method and discriminant analysis). Variables regarding the number of business entities, the average number of people per one flat and the budgetary income of communes per capita had a decisive impact on the study of the level of development of communes in the Zachodniopomorskie Voivodeship. The purpose of this work is to show the diversity of socio-economic development of communes in the voivodeship according to selected features. The knowledge of the level of this development may help local government bodies in creating the socio-economic policy of the analyzed areas.

Keywords: communes, discriminant analysis, socio-economic development.

Streszczenie: W ostatnich latach nastąpił dynamiczny rozwój społeczno-gospodarczy Polski. Rozwój ten nie jest jednakowy we wszystkich jednostkach terytorialnych kraju. Na podstawie danych dotyczących finansów publicznych, gospodarki komunalno-mieszkaniowej, ochrony zdrowia, środowiska, rynku pracy, szkolnictwa oraz przedsiębiorczości badano poziom rozwoju poszczególnych gmin w województwie zachodniopomorskim. Za pomocą metod statystycznych (metody k-średnich i analizy dyskryminacyjnej) podzielono gminy na grupy o podobnym poziomie rozwoju społeczno-gospodarczym. Decydujący wpływ na badanie poziomu rozwoju gmin województwa zachodniopomorskiego miały zmienne dotyczące liczby podmiotów gospodarczych, przeciętnej liczby osób na 1 mieszkanie i dochodów budżetu gmin na 1 mieszkańca. Celem tej pracy jest ukazanie zróżnicowania rozwoju społeczno-gospodarczego gmin województwa zachodniopomorskiego ze względu na wybrane cechy. Znajomość poziomu tego rozwoju może wspomóc organy samorządów terytorialnych w kreowaniu polityki społeczno-gospodarczej analizowanych obszarów.

Słowa kluczowe: gminy, analiza dyskryminacyjna, rozwój społeczno-gospodarczy.

1. Introduction

Socio-economic development is a process of positive changes, both quantitative and qualitative, in the economic, social, cultural, and political spheres. (Miszczuk, 2007). In local communities (communes), this process is further shaped by the residents' aspirations for self-determination of their own fate, maintaining the separateness and diversity of communities. According to Rogowska (2010), the development of individual areas depends primarily on the degree of utilization of the conditions existing there. Bocian (2011), however, indicates an increase in those elements that are associated with the improvement of the quality of life, environmental protection, and wide access to cultural goods, science, education, health protection and safety.

In the literature on the subject there are several divisions of factors affecting local socio-economic development, one of which takes into account modern and traditional conditions (Dominiak and Hauke, 2018). Modern factors include innovation, knowledge, the ability of its practical application, adaptability and creativity. Traditional conditions point to human resources, capital and natural resources. Another division indicates internal (endogenous) and external (exogenous) conditions (Warczak, 2015). External conditions are global and result from the political, cultural, legal, institutional, economic policies of the state or international organizations. In turn, internal conditions result from resources located in a given area, economic potential and favorable environmental and spatial conditions. In conditions of progressing globalization, there are a number of feedback loops between the external and internal conditions (e.g. through grants, subsidies). Korenik (1999) divides development factors into the following:

- Economic: labour resources, natural resources, fixed assets, science, technology, modern management styles, innovation, internal market, human capital, and social capital.
- Social: age and the occupational structure of the population, birth rate, migration, education and upbringing, health care, social security system, the dissemination of culture, the development of tourism, sport, cultural values, traditions, education.
- Spatial: location factors, concentration factors, cross-border cooperation.
- Ecological: the preservation and consolidation of ecological balance, the rational management of natural resources.
- Political and political system: the nature of authorities, the scope and competencies of authorities, the manner of exercising power, its acceptance by society, applicable legal regulations and international relations.
- Technical: appropriate infrastructure, technical and research facilities, high-tech industry, process and product innovation.

- Local: the development of self-government, unique values of the area, the development of initiatives and the forms of social activity.

The level of development of individual communes in the Zachodniopomorskie (West Pomeranian) Voivodeship was examined in this paper concerning selected factors concerning public finances, municipal and housing economy, health protection, environment, the labor market, education and entrepreneurship. The purpose of this work is to study the diversity of socio-economic development of communes in this region in terms of the selected features.

2. Material and research method

The Zachodniopomorskie (West Pomeranian) Voivodeship consists of 114 communes, including 11 urban communes, 48 rural communes and 55 urban-rural communes. On the basis of CSO (GUS, 2018) data on the socio-economic development of communes of the voivodeship in 2018, a set of diagnostic variables was created (Table 1).

The choice of variables was determined by the literature indications and data availability. In order to unify the units, the variables were standardized. The variables: x_4, x_{12}, x_{13}, x_{25}, x_{26} (destimulants) were changed into stimulants (Aczel, 2000). The k-means method was used (Sobolewski and Sokołowski, 2017) to determine the number of groups (k) and the initial allocation of communes to individual groups (clusters), based on all variables. For k = 2, ..., 6 the groups of gravity centres, the Euclidean distances of communes from the center of a given group and the distances of communes between groups were calculated. Finally, the communes were divided into four groups, because then the sum of the distances of the communes from the centre of the given group was definitely smaller than the sum of the distances of the communes between the groups (Kaufman and Rousseeuw, 2005). Each commune was assigned to the cluster whose centre it is closest to. This initial division was used in the discriminant analysis, which not only classifies objects (communes) into individual groups but also allows to rank groups from the one with the highest level of socio-economic development in descending order to the lowest. The assumptions of discriminant analysis show that the data (included in the form of diagnostic variables) should represent a sample from a multidimensional normal distribution, they should not be completely redundant, the matrix of variance and co-variance of variables should be homogeneous in groups and the mean of variables in groups should not be correlated with variances (Radkiewicz, 2010). Some of these assumptions are not met by variables: x_2, x_3, x_5, x_9, x_{10}, x_{14}, x_{16}, x_{21}, x_{25}, x_{28}, x_{29}. In addition, only variables with high discriminatory power are used in the discriminant analysis. The Lambda Wilks and F tests (Khattre and Naik, 2000) limited the list of variables to: x_1, x_4, x_7, x_{11}, $x_{15,}$ x_{18}, x_{27}. Based on these variables, the classification and

Table 1. The set of diagnostic variables

Category	Variables	Variable name
Finance	x_1	The income of commune budgets per capita (PLN)
	x_2	The expenses of commune budgets per capita (PLN)
Municipal and housing economy	x_3	Average usable floor space of a flat (m^2)
	x_4	Average number of people per flat
	x_5	Dwellings equipped with water supply (%)
	x_6	Flats with bathroom (%)
	x_7	Flats with central heating (%)
	x_8	Users of water supply installations to the general population (%)
	x_9	Users of sewage system to the general population (%)
	x_{10}	Users of gas fittings to the general population (%)
Human health and social work	x_{11}	Total number of medical consultations per year per capita
	x_{12}	Beneficiaries of social assistance to the general population (%)
	x_{13}	Children up to 17 years of age receiving allowance in relation to the total number of children at this age (%)
Entrepreneurship	x_{14}	Entities entered in the register per 1000 population
	x_{15}	Entities of the national economy per 10000 inhabitants of working age
Environmental protection	x_{16}	Waste collected per year per capita (t)
	x_{17}	Waste collected selectively per year per capita (t)
	x_{18}	The share of parks, green areas and housing estate green areas in the total area (%)
	x_{19}	Population using waste water treatment plants for the total population (%)
	x_{20}	Water consumption per capita (m^3)
Education and upbringing	x_{21}	Gross enrollment rate in primary schools (%)
	x_{22}	Gross enrollment rate in secondary schools (%)
	x_{23}	Number of students per 1 unit in primary schools
	x_{24}	Number of children in kindergartens per 1000 children aged 3-5 years
	x_{25}	The number of children aged 3-5 years per one place in kindergarten
Human capital	x_{26}	The share of the unemployed in the number of people of working age (%)
	x_{27}	Working age population to total population (%)
	x_{28}	Population growth
	x_{29}	Net migration rate

Source: own elaboration.

discriminatory functions were estimated. The number of classification functions in the general form:

$$K_g = c_{g0} + c_{g1}x_1 + c_{g2}x_2 + ... + c_{gj}x_j \qquad g = 1, 2, ..., k$$

where: K_g – classification function for g-th group,
c_{g0} – constant for g-th group,
c_{gj} – coefficients at j-th discriminant variable for g-th function,
x_j – standardized values for j-th discriminatory variable,
is equal to the number of groups. A given commune should be assigned to the group for which it will have the highest classification value.

The discriminant function according to Stanisz (2007) is described by the formula:

$$D_{ig} = e_0 + e_1x_{1_{ig}} + e_2x_{2_{ig}} + ... + e_px_{pig}$$

where: D_{ig} – the value of the canonical discriminatory function for i-th commune in g-th group, $i = 1, ..., 114$ and $g = 1, ..., 4$,
e_j – the coefficients of the canonical discriminant function determined on the basis of the properties of this function, for $j = 1, ..., p$,
p – the number of discriminatory variables,
x_{jig} – the values of j-th diagnostic variable for i-th commune in g-th group.

The maximum number of estimated functions is equal to the number of variables with high discriminatory power or the number of groups minus one (whichever is smaller). From among them, the function with the highest eigenvalue and the highest percentage share in the overall intergroup variance should be selected. This function allows to create groups of similar level of development and rank them.

3. Classification results

The initial and final number of communes in individual groups is presented in Table 2.

Table 2. Number of communes

Groups	K-means method	Discriminant analysis
I	5	6
II	7	6
III	25	23
IV	77	79

Source: own study using the Statistica program.

The classification of communes into groups, differing in terms of socio-economic development, was determined by the classification functions of discriminant analysis. The results of the estimations of these functions are presented in Table 3.

Table 3. Classification functions for four groups

Variables	Groups			
	I	II	III	IV
Constant	-41.887	-9.857	-5.724	-1.058
x_1	7.309	-0.792	-0.865	-0.243
x_4	6.118	1.709	-0.268	-0.516
x_7	1.885	2.742	1.337	-0.741
x_{11}	1.299	-3.434	2.923	-0.689
x_{15}	9.891	4.273	0.242	-1.44
x_{18}	-3.806	-1.063	0.296	0.284
x_{27}	1.904	2.040	-1.839	0.236

Source: own work using the Statistica program.

Table 4. Classification of communes to groups

Group	Communes (*)
I	Rewal (2), Dziwnów (3), Międzyzdroje (3), Ustronie Morskie (2), Mielno (3), Świnoujście (1)
II	Kołobrzeg (2), Biesiekierz (2), Świeszyno (2), Dobra (Szczecińska) (2), Kołbaskowo (2), Kobylanka (2)
III	Białogard (1), Choszczno (3), Drawsko Pomorskie (3), Goleniów (3), Nowogard (3), Gryfice (3), Gryfino (3), Kamień Pomorski (3), Kołobrzeg (1), Barlinek (3), Myślibórz (3), Police (3), Pyrzyce (3), Darłowo (1), Sławno (1), Stargard (1), Szczecinek (1), Borne Sulinowo (3), Świdwin (1), Wałcz (1), Łobez (3), Koszalin (1), Szczecin (1)
IV	Białogard (2), Karlino (3), Tychowo (3), Bierzwnik (2), Drawno (3), Krzęcin (2), Pełczyce (3), Recz (3), Czaplinek (3), Kalisz Pomorski (3), Ostrowice (2), Wierzchowo (2), Złocieniec (3), Maszewo (3), Osina (2), Przybiernów (2), Stepnica (3), Brojce (2), Karnice (2), Płoty (3), Trzebiatów (3), Banie (2), Cedynia (3), Chojna (3), Mieszkowice (3), Moryń (3), Stare Czarnowo (2), Trzcińsko-Zdrój (3), Widuchowa (2), Golczewo (3), Świerzno (2), Wolin (3), Dygowo (2), Gościno (3), Rymań (2), Siemyśl (2), Będzino (2), Bobolice (3), Manowo (2), Polanów (3), Sianów (3), Boleszkowice (2), Dębno (3), Nowogródek Pomorski (2), Nowe Warpno (3), Bielice (2), Kozielice (2), Lipiany (3), Przelewice (2), Warnice (2), Darłowo (2), Malechowo (2), Postomino (2), Sławno (2), Chociwel (3), Dobrzany (3), Dolice (2), Ińsko (3), Marianowo (2), Stara Dąbrowa (2), Stargard (2), Suchań (3), Barwice (3), Biały Bór (3), Grzmiąca (2), Szczecinek (2), Brzeżno (2), Połczyn-Zdrój (3), Rąbino (2), Sławoborze (2), Świdwin (2), Człopa (3), Mirosławiec (3), Tuczno (3), Wałcz (2), Dobra (3), Radowo Małe (2), Resko (3), Węgorzyno (3)

Explanation: (*) – urban communes (1), rural communes (2), urban-rural communes (3).

Source: own study using the Statistica program.

The values of all classification functions were calculated for each commune. A given commune was assigned to the group for which it had the highest classification value. The strong impact on the allocation of communes to groups: I, II and IV came from the number of entities of the national economy per 10000 inhabitants of working age (x_{15}). For groups II, III and IV the number of medical advice given (x_{11}) and the percentage share of flats with central heating (x_7) also mattered. Socio-economic development also depended, especially in group I, on the budgetary income of communes per capita (x_1) and on the number of working-age population (x_{27}) (except for group IV). This is indicated by the highest, absolute values of the coefficients appearing at these variables.

Stec (2013), researching the socio-economic development of Polish voivodeships, also indicated local needs, local resources, and economic entities as the main determinants of this development. In contrast, Zioło (2007) and Zygmunt (2015) emphasize in their studies the special role of enterprises in activating both the local, regional and global economy.

The allocation of communes of the Zachodniopomorskie Voivodeship to the appropriate groups obtained by means of the classification function is presented in Table 4.

4. The analysis of groups based on the discriminant function

Based on variables with high discriminatory power, three discriminant functions (4 groups minus 1) were estimated. The function having the form of:

$$D = 0.396x_1 + 0.404x_4 + 0.262x_7 + 0.147x_{11} + 0.556x_{15} - 0.357x_{18} + 0.089x_{27}$$

has the highest eigenvalue (5.147) and explains 66.68% of the intergroup variance. The variables having the greatest impact on the value of this function are the variables regarding the number of business entities (x_{15}), the average number of people per one flat (x_4) and the budgetary income of communes per one inhabitant (x_1). Based on this function, canonical values (the values of the discriminant function) were determined for each commune and the average for each group. The canonical values of the groups (Table 5) indicate their diversity and the level of development.

Table 5. The average values of the discriminant function for groups

Group	Average canonical values
I	8.666
II	1.841
III	0.759
IV	-1.019

Source: own work using the Statistica program.

The highest level of socio-economic development in terms of the studied features occurs in group I, which is significantly different from other groups. As the canonical mean values decrease, this level deteriorates. The differentiation of territorial units of the Zachodniopomorskie (West Pomeranian) Voivodeship is confirmed by the research by Wiśniewski (2015), Sompolska-Rzechuła (2011) and Kloska (2007).

Table 6 presents the average values of discriminatory variables in individual groups.

Table 6. Groups characteristics

Group	x_1	x_4	x_7	x_{11}	x_{15}	x_{18}	x_{27}
I	10291.62	1.68	91.58	7.61	4395.67	0.32	61.77
II	5528.79	2.67	91.18	2.02	2449.35	0.06	64.10
III	4883.21	2.85	86.22	8.90	2040.03	1.22	60.23
IV	4660.07	3.12	73.70	3.81	1374.55	0.07	62.95
Total	5156.82	2.94	78.06	4.94	1724.39	0.31	62.40

Source: own work using the Statistica program.

In group I, average values regarding the budgetary income of communes per one person (x_1), flats with central heating (x_7), the number of medical consultations (x_{11}) and the number of entities the national economy were the largest and the number of persons per flat was the smallest. These features determined the allocation of communes to this group. All communes in this group are coastal resorts, whereas group II included prosperous rural communes. The highest commune budget income per capita in 2018 was achieved by the Rewal commune (PLN 14287.92) and the lowest by Lipiany (PLN 3805.21) belonging to group IV. The number of entities of the national economy per 10000 residents in group I is also definitely higher than other groups. The average number of people per flat in groups: II, III, IV was comparable. An unfavourable municipal situation can be noticed in group IV communes, where on average about 74% of flats were equipped with central heating. The small number of medical advice received per capita and a very low share of parks, green areas and housing estate green areas in the total area of communes in group II is explained by the fact that only rural communes are present in this group. There, the number of healthcare points is lower than in cities, and green areas are replaced by domestic gardens. However, the share of the working age population to the total population in group II communes is the highest. This may result from the location of these communes in close proximity to Szczecin and Koszalin. Today, young people are eager to choose suburban villages for their place of residence (Bański, 2014; Staszewska, 2012; Zimnicka and Czernik, 2007).

The diversity of the level of socio-economic development of communes in the Zachodniopomorskie Voivodeship is not sporadic. Waśniewska (2015) studied the

socio-economic development of the communes of the Wielkopolskie Voivodeship based on surveys. Their analysis shows that rural and urban-rural communes are struggling with greater economic problems than urban communes. Ziemiańczyk (2010) also noted the disparities in the socio-economic development of the communes of the Małopolskie Voivodeship, and pointed to the less developed eastern part of the voivodeship and the economically stronger western part. According to Bański and Czapiewski (2008), the dynamic socio-economic development of the country is accompanied by spatial polarization processes, i.e. development differences between rich or upcoming areas and poor areas are growing. In contrast, Wakuła (2017) and Pawlus (2010) examining the economic development of voivodships classified the Zachodnioopomorskie Voivodeship to the group with a medium level of development. Mazowieckie came out best in the ranking, and the so-called "Eastern Wall" voivodeships (Lubelskie, Świętokrzyskie, Podkarpackie) appeared to be the weakest ones.

5. Conclusion

The aim of this study was to examine the diversity of the level of socio-economic development of communes of the Zachodniopomorskie (West Pomeranian) Voivodeship in terms of selected features. Factors influencing the development of communes indicated in the literature of the subject were used to develop a set of diagnostic variables. Based on selected variables, communes were initially placed (by the k-means method) into four groups. The assumptions of discriminant analysis significantly reduced the number of variables. Information regarding the number of business entities, the average number of people per one flat and the budgetary income of communes per capita had a decisive impact on the study of the level of development of communes in the Zachodniopomorskie Voivodeship. The research conducted in the paper allowed to separate groups of communes with a similar level of socio-economic development and to rank them. The knowledge of the level of socio-economic development of communes can help in undertaking investment and social activities by local government authorities.

The analyses show that:

- Only 12 communes were qualified into the first two groups with a higher level of socio-economic development.
- The income of commune budgets per capita in the Zachodniopomorskie Voivodeship varies (ranging between PLN 3805.21 and PLN 14287.92).
- The average number of entities of the national economy per 10000 inhabitants of working age in group I communes is more than three times higher than in group IV communes. The highest was recorded in Rewal (6013.5) and the lowest in Krzęcin (902.9).
- The greatest number of medical consultations was given to residents of group III (in the commune of Sławno there is an average of 13.55 consultations per capita

a year), the least to residents group IV (in the rural commune of Wałcz there is on average only 0.13 consultations per capita a year).

- In many cases there are large disparities in terms of the examined features between neighbouring communes, e.g. the coastal communes of Świnoujście (group I) and Wolin (group IV), Rewal (group I) and Trzebiatów (group IV) have similar internal conditions (location, economic potential and favorable environmental and spatial conditions), but different levels of socio-economic development.

References

Aczel, A. D. (2000). *Statystyka w zarządzaniu.* Warszawa: Wydawnictwo Naukowe PWN.

Bański, J. (2014). Perspektywy rozwoju polskiej wsi – wybrane zagadnienia. *Wieś i Rolnictwo*, (4), 13-25.

Bański, J., and Czapiewski, K. (2008). *Ekspertyza. Identyfikacja i ocena sukcesu społeczno-gospodarczego na obszarach wiejskich.* Warszawa: Instytut Geografii i Przestrzennego Zagospodarowania PAN.

Bocian, A. F. (2011). Makroekonomia wzrostu – uwarunkowania globalne. *Optimum. Studia Ekonomiczne*, *1*(49), 18-40.

Dominiak, J., and Hauke, J. (2018). Badanie wpływu nowoczesnych usług na poziom rozwoju społeczno-gospodarczego z wykorzystaniem dwustopniowej analizy współzależności. *Studia Ekonomiczne. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach*, (367), 59-75.

Główny Urząd Statystyczny [GUS]. (2018). *Bank Danych Lokalnych*. Retrieved from https://bdl.stat.gov.pl/BDL/dane/podgrup/temat

Kaufman, L., and Rousseeuw P. (2005). *Finding groups in data: an introduction to cluster analysis.* New York: Wiley.

Khattre R., and Naik D. N. (2000). *Multivariate data reduction and discrimination with SAS software*. New York: John Wiley& Sons Inc.

Kloska, R. (2007). Wyniki badań poziomu rozwoju społeczno-gospodarczego powiatów województwa zachodniopomorskiego. *Zeszyty Naukowe Uniwersytetu Szczecińskiego. Ekonomiczne Problemy Usług*, *47*(11), 165-172.

Korenik, S. (1999). *Rozwój regionu ekonomicznego na przykładzie Dolnego Śląska*. Wrocław: Wydawnictwo Akademii Ekonomicznej we Wrocławiu.

Miszczuk, A. (2007). *Gospodarka samorządu terytorialnego*. Warszawa: Wydawnictwo Naukowe PWN.

Pawlus, I. (2010). Zastosowanie wielowymiarowej analizy porównawczej do oceny poziomu rozwoju społeczno-gospodarczego województw Polski. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, (113), 673-683.

Radkiewicz, P. (2010). Analiza dyskryminacyjna. Podstawowe założenia i zastosowanie w badaniach społecznych. *Psychologia Społeczna*, *5*(2-3), 142-161.

Rogowska, M. (2010). Determinanty rozwoju lokalnego. *Zeszyty Naukowe Uniwersytetu Szczecińskiego*, 620, *Ekonomiczne Problemy Usług*, 353-361.

Sobolewski, M., and Sokołowski, A. (2017). Grupowanie metodą k-średnich z warunkiem spójności. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, *468*(28), 215-222.

Sompolska-Rzechuła, A. (2011). Przestrzenne zróżnicowanie poziomu rozwoju społeczno-gospodarczego na przykładzie gmin miejsko-wiejskich województwa zachodniopomorskiego. *Folia Pomeranae Universitatis Technologiae Stetinensis. Oeconomica*, (62), 89-95.

Stanisz, A. (2007). *Przystępny kurs statystyki*, t. 3. Kraków: Wydawnictwo StatSoft Polska.

Staszewska, S. (2012). Przekształcenia urbanistyczne osiedli wiejskich strefy podmiejskiej dużego miasta. *Barometr Regionalny*, *3*(30), 53-68.

Stec, M. (2013). Determinanty rozwoju społeczno-gospodarczego województw Polski. *Nierówności społeczne a wzrost gospodarczy*, (34), 95-106.

Wakuła, M. (2017). Regionalne zróżnicowanie rozwoju gospodarczego w Polsce. In M. Cisek, B. Suchodolski (Eds.). *Determinanty i wyznaczniki ekonomiczno-społecznego rozwoju regionów*. Siedlce: Wydawnictwo Uniwersytetu Przyrodniczo-Humanistycznego, 127-138.

Warczak, M. (2015). Endogeniczne i egzogeniczne czynniki rozwoju gospodarczego z perspektywy finansów gminy. *Współczesna Gospodarka*, *6*(4), 111-122.

Waśniewska, A. (2015). Wybrane społeczno-gospodarcze uwarunkowania rozwoju gmin w Polsce. *Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania*, *40*(1), 275-285.

Wiśniewski, E. (2015). Przestrzenne zróżnicowanie poziomu rozwoju gospodarczego powiatów województwa zachodniopomorskiego. *Przedsiębiorczość i Zarządzanie*, *16*(4), 97-113.

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

Zimnicka, A., and Czernik, L. (2007). *Kształtowanie przestrzeni wsi podmiejskiej. Raport z badań obszaru oddziaływania miasta Szczecin*. Szczecin: Wydawnictwo Hogben.

Zioło, Z. (2007). Rola przedsiębiorczości w aktywizacji gospodarczej – zarys modelu. *Przedsiębiorczość – Edukacja*, (3), 10-17.

Zygmunt, J. (2015). Przedsiębiorczość jako czynnik rozwoju regionalnego na przykładzie województwa opolskiego. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, (393), 184-192.