

DIFFERENCES IN THE LEVEL OF ENTREPRENEURSHIP AMONG MUNICIPALITIES OF THE WARMIŃSKO-MAZURSKIE PROVINCE IN POLAND

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ABSTRACT

The objective of this study has been to diagnose differences in the level of entrepreneurship in municipalities of the Warmińsko-Mazurskie Province in 2010–2017. Among the 116 municipalities in this province, the highest average entrepreneurship rate was observed in the municipalities of Olsztyn, Stawiguda and Dywity; the lowest one was in Górowo Iławeckie, Kalinowo and Lelkowo. In the municipalities with the highest level of entrepreneurship, the diagnosed rates were as much as four-fold higher than the lowest ones. Compared with the average entrepreneurship rate among all Polish municipalities, as many as 93.10% of the municipalities in the Warmińsko-Mazurskie Province scored lower. The authors have also made an attempt to verify if there is any dependence between the level of investment expenses incurred by a municipality and its level of entrepreneurship. A moderate relationship has been identified, and it was stronger in the distinguished group of 15 municipalities with the lowest and 15 with the highest investment outlays.

Key words: entrepreneurship rate, business enterprises, investment outlays by a municipality

JEL codes: A110, A130

INTRODUCTION

Entrepreneurship can be defined in many ways. The subject literature provides a wide range of notions [Cherukara and Manalel 2011, Boudreaux et al. 2018]. Over the years, definitions previously coined from the viewpoint of supply that focused on who an entrepreneur was have transformed into a demand approach, where the focal point is on where and why new businesses open [Rocha 2004]. Entrepreneurship is also associated with the ability to make proper choices and to engage production means in business activity while maintaining the economic efficiency in the circumstances characterised by uncertainty and risk [Kalandaridis 2004, Siuta-Tokarska 2013]. For years, the

concept and role of entrepreneurship in the social and economic development have been an interdisciplinary subject of interest [Rispaš 1998, Bieñkowska-Gołasa 2017]. In economic sciences, entrepreneurship is analysed through the prism of benefits on a micro-scale, for individuals and single companies, and on a macro-scale, for regions or for the whole economy [Sikorska-Wolak and Krzyżanowska 2010].

In the economic domain, a company is a structural part of a complex regional system rather than an isolated entity. A decision to establish a company and conduct business is guided by macroeconomic rules [Huggins et al. 2017], where the overriding principle is to maximise the income through efficient management of resources [Zioło 2011]. In the consequence

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of investment inputs and implementation of important product and process innovations, companies exert some influence through which they either petrify or transform spatial structures in the region. They can therefore act as one of the principal determinants of the economic growth [Van Stel et al. 2005].

Entrepreneurship is an integral component of the economic growth and development [Thurik and Wenekers 1999, McMullen et al. 2008]. According to Glinka and Gudkova [2011], positive effects on the local economic and social environment are observable even when considering a single company. By providing employment opportunities, stimulating the foundation of new companies and undertaking cooperation with new business entities, a company encourages the local community to take action. On numerous occasions, the activity of local leaders gives rise to pro-development stimuli for the whole region [Glinka and Gudkova 2011].

Measures undertaken by local councils and community authorities can significantly determine the level of entrepreneurship in the region. Their decisions can indirectly encourage the establishment of new businesses [Pomianek 2018]. By stimulating the influx of new investments, the local government can secure higher budget revenues. The share of own revenues in the total budget reflects the financial standing of a local community, and is a measure applied to determine the investment capacity, economic potential and self-sufficiency of a municipality. Own revenues serve to finance the tasks which contribute to the development of a local community. In turn, investment outlays are classified as one of the tools in the expenditures policy to support entrepreneurship [Marks-Bielska and Serocka 2017].

METHODOLOGY OF THE RESEARCH

The main objective of this study has been to determine differences in the rate of entrepreneurship, to diagnose the level of investment inputs and to verify the presence of any dependence between the analysed variables in the municipalities located in the Warmińsko-Mazurskie Province in Poland.

The scope of the research covered: business entities registered in the REGON system, investment

inputs by municipalities in total, and the share of investment expenditure in the total expenditure of municipalities. Our analysis of entrepreneurship in individual municipalities was based on the entrepreneurship rate expressed as the number of business entities registered in the REGON system per 10,000 working age residents, and derived from the formula:

$$W_p = \frac{P}{L_p} \cdot 10\,000$$

where:

P – number of business companies registered in the REGON system;

L_p – number of working age population.

In order to verify the presence of any dependence between the analysed variables, the Pearson's linear correlation coefficient and determination coefficient (R^2) serving to determine the model's adjustment were applied. Statistica was used to analyse the collected data.

The article contains an analysis of the tested variables in all 116 municipalities located in the Warmińsko-Mazurskie Province, including: 16 urban, 67 rural and 33 mixed, i.e. urban and rural municipalities. The time scope spanned the years from 2010 to 2017. The upper time limit was dictated by available secondary data, while the lower one was determined by the record high investment outlays expended by the local governments in the Warmińsko-Mazurskie Province after 1989, which amounted to 1.35 billion PLN in 2010 [Statistics Poland 2018]. Secondary data were obtained from the Local Data Bank at the Statistics Poland.

LEVEL OF ENTREPRENEURSHIP IN MUNICIPALITIES OF THE WARMIŃSKO-MAZURSKIE PROVINCE IN 2010–2017

The Warmińsko-Mazurskie Province is one of the least developed regions in Poland and in the European Union. In the recent years, the level of economic development has increased steadily, although at a slower pace than in the EU's richer regions. The main causes of backwardness are the relatively poor

technical and transportation infrastructure as well as industrial facilities, and low investment inputs in the whole province over many past years. Despite considerable disproportions, following Poland's accession to the EU, the Warmińsko-Mazurskie Province gained 11 p.p. higher in the average GDP per capita relative to the EU-28 countries between the years 2004 and 2015 (38% in 2004 vs to 49% in 2015) [Urząd Marszałkowski Województwa Warmińsko-Mazurskiego 2018].

There were 125,377 business entities active in the Warmińsko-Mazurskie Province in 2017 and registered in the REGON system. This corresponded to just 2.91% of all business entities in Poland. Since 2012, the number of companies in Warmińsko-Mazurskie Province has increased steadily. Figure 1 shows the average entrepreneurship rate in 2010–2017 in Poland, according to provinces.

Taking into account the average values of the entrepreneurship rate in 2010–2017, the Warmińsko-

-Mazurskie Province with its 1,314.45 business entities per 10,000 persons of the working age population was on the 13th position in Poland (one place lower than in the ranking list including only the companies registered in the REGON). During the analysed time period, the highest entrepreneurship rate average values were noted in the provinces which for years have scored the highest in this respect, i.e. the Mazowieckie Province (2,229.24), Zachodniopomorskie Province (2,002.63) and Pomorskie (1,896.02).

Considering the level of entrepreneurship in particular municipalities in the Warmińsko-Mazurskie Province in 2010–2017, attention is drawn to large disparities between these administrative units (Fig. 2). The difference in the average value of entrepreneurship between the municipality with the highest and the one with the lowest rate was as much as 1,551.65 business entities per 10,000 working age population, i.e. 328.01%.

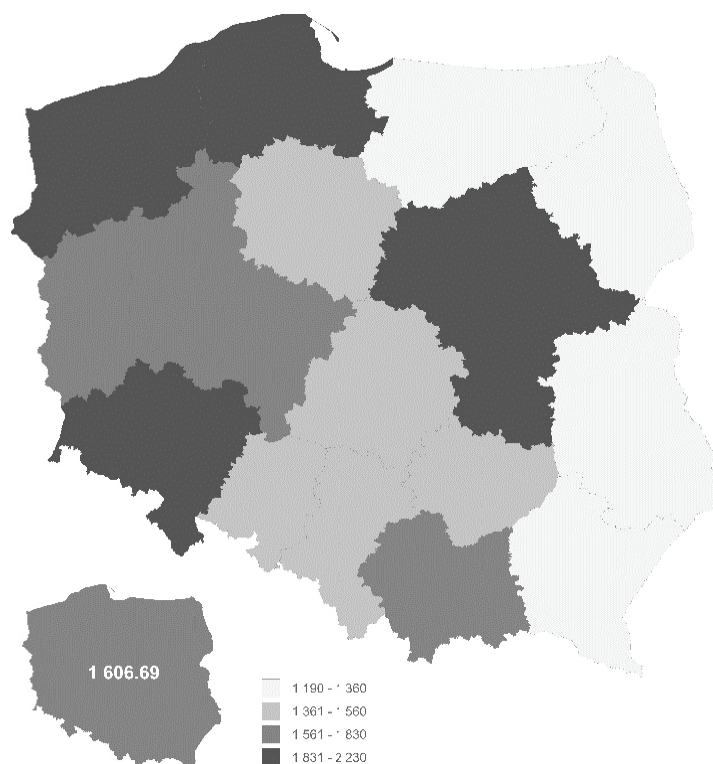


Fig. 1. The average value of entrepreneurship rates in individual provinces in Poland between 2010 and 2017

Source: Developed by the authors, based on data from the Local Data Bank of Statistics Poland.

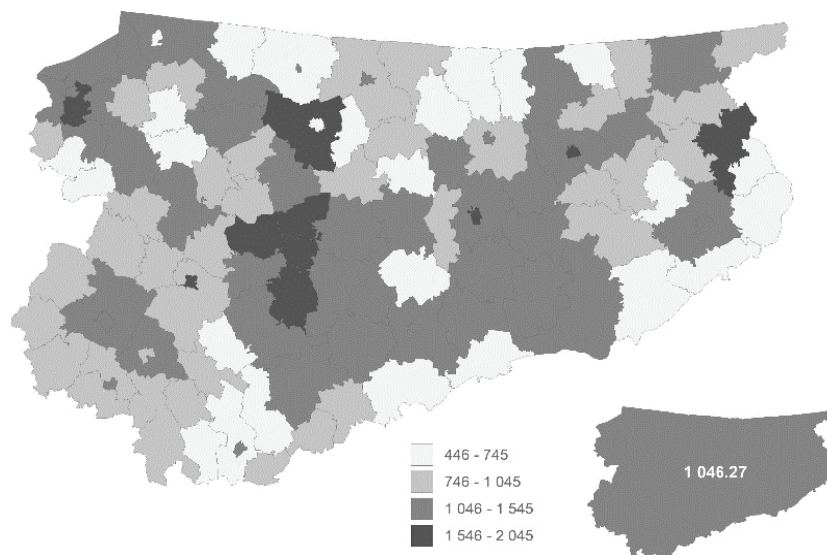


Fig. 2. Average value of the entrepreneurship rate in municipalities of the Warmińsko-Mazurskie Province in 2010–2017
Source: Developed by the authors, based on data from the Local Data Bank of Statistics Poland.

The average value of the entrepreneurship rate for a single municipality in the Warmińsko-Mazurskie Province in 2010–2017 was 1,046.27. Comparing the values achieved for particular municipalities in that time period, it was found that the average rate in 52 municipalities was higher than the mean for a single municipality, while for 64 ones it was lower.

With the average value for the whole country, which is 1,606.69, as many as 108 municipalities in Warmińsko-Mazurskie Province (93.10%) were characterised by lower values of this indicator. Table 1 contains data regarding the average value of the entrepreneurship rate in 2010–2017 in all municipalities of the Warmińsko-Mazurskie Province.

Table 1. Municipalities in the Warmińsko-Mazurskie Province with the highest average entrepreneurship rate in 2010–2017

Position in the Province	Municipality	Entrepreneurship rate
1	Olsztyn (1)	2 024.70
2	Stawiguda (2)	2 023.81
3	Dywity (2)	1 872.07
4	Giżycko (1)	1 772.70
5	Mragowo (1)	1 712.95
6	Olecko (3)	1 696.48
7	Jonkowo (2)	1 638.05
8	Ostróda (1)	1 612.13
9	Elbląg (1)	1 591.36
10	Lidzbark Warmiński (1)	1 571.94

1 – urban municipality; 2 – rural municipality; 3 – mixed rural and urban municipality.

Source: Developed by the authors, based on data from the Local Data Bank of Statistics Poland.

Out of the 116 municipalities in this province, the highest average rate of entrepreneurship in 2010–2017 was noted in the urban municipality of Olsztyn (2,024.70), rural municipality of Stawiguda (2,023.81) and in the rural municipality of Dywity (1,872.07). In the two former municipalities, Olsztyn and Stawiguda, this indicator was more than double the average value for the whole province. The summary of the municipalities of the province by level of entrepreneurship shows that the most dominant administrative units are the one concentrated around the main economic centre of the province – Olsztyn. These municipalities have for years maintained a high level of entrepreneurship, owing to their higher investment attractiveness than attributed to the other municipalities in the province.

A decisions to set up a business in any of the three municipalities mentioned above is guided by their location in the vicinity of state roads and their increasingly better transport accessibility. The main determinant of the economic activities development in selected municipalities is the proximity to the major province city. Olsztyn is the main centre of socio-economic development of the Warmińsko-Mazurskie Province with a well-developed R&D base. The presence of the University of Warmia and Mazury in Olsztyn as well as some other research and development centres ensures a supply of qualified human resources and the con-

centration of R&D activities in the province’s capital city. In addition, Olsztyn is a seat for several business environment institutions, such as: Olsztyn Science and Technology Park, the Warmia and Mazury Regional Development Agency, or the Warmia and Mazury Special Economic Zone, which provide services supporting entrepreneurs. It is worth noticing that the entrepreneurship rate in the above municipalities has been increasing steadily year after year over the past decade, which justifies the conclusion that this growing trend will continue.

For the municipalities with the lowest entrepreneurship rates, the average value of this indicator was as much as fourfold lower than the highest rate in the province. The data regarding the average value of the entrepreneurship rate in 2010–2017 in municipalities situated in the Warmińsko-Mazurskie Province are presented in Table 2.

The lowest average values of the entrepreneurship rate in the Warmińsko-Mazurskie Province in 2010–2017 were recorded in the rural municipality Górowo Iławckie (473.05), rural municipality Kalinowo (572.13) and rural municipality Lelkowo (574.78). The municipalities Górowo Iławckie and Lelkowo lie in the area adjacent to the Kaliningrad Zone, which belongs to the Russian Federation. Most of the municipalities with the lowest entrepreneurship

Table 2. Municipalities of the Warmińsko-Mazurskie Province with the lowest average rate of entrepreneurship in 2010–2017

Position in the Province	Municipality	Entrepreneurship rate
116	Górowo Iławckie (2)	473.05
115	Kalinowo (2)	572.13
114	Lelkowo (2)	574.78
113	Kozłowo (2)	613.66
112	Rychliki (2)	624.47
111	Działdowo (2)	638.29
110	Wilczęta (2)	653.15
109	Kolno (2)	670.07
108	Kiwity (2)	670.91
107	Barciany (2)	672.69

1 – urban municipality; 2 – rural municipality; 3 – mixed rural and urban municipality.

Source: Developed by the authors, based on data from the Local Data Bank of Statistics Poland.

rate are the administrative units with a low level of wealth, ongoing negative demographic changes (a decrease in the number of population, negative migration balance, ageing of the society), characterised by a low rate of employment. In addition, the negligible investment appeal of these municipalities is aggravated by their peripheral location and poor transport accessibility. Most of these units are located in areas marginalised due to the dissolution of state farms. This caused severe negative economic and social consequences for the local communities. Any initiatives in the local communities to engage in business activities are hindered by the so-called acquired helplessness, widespread among former state farm workers and their families [Marks-Bielska 2006]. However, it is worth mentioning that in the recent years the situation in these municipalities relative to the analysed factors and the level of entrepreneurship has been slowly but gradually improving.

INVESTMENT EXPENDITURE AS A DETERMINANT OF ENTREPRENEURSHIP IN MUNICIPALITIES OF THE WARMIŃSKO- MAZURSKIE PROVINCE IN 2010–2017

The measures taken by local authorities in order to implement own and delegated tasks determine the level and pace of local development. This is evident especially with respect to economic, social and environmental aspects. The financial policy of municipalities should ensure an integrated local development, as well as contribute to the improved quality of life in the local community. Authors of definitions of local development often emphasise the capacity of a municipal economy to create wealth for the local residents through efficient use of local resources or their reallocation to more efficient sectors. By undertaking various investment projects, local authorities strive to enhance the economic growth. Investment outlays which they incur are one of the business support instruments [Marks-Bielska and Serocka 2017]. The average level of investment inputs in 2010–2017 in all municipalities of the Warmińsko-Mazurskie Province can be seen in Figure 3.

In 2010–2017, the average investment inputs incurred by the municipalities in Warmińsko-Mazurskie

Province reached 7.94 million PLN per municipality. The difference between the municipality with the highest and the one with the lowest investment expenditure reached as much as 199.09 million PLN. Among 10 municipalities of the Warmińsko-Mazurskie Province with the highest average investment outlays in 2010–2017, the first places were occupied by the largest urban municipalities (as many as 7 are actually towns). In Olsztyn, the average investment expenditure was 200.09 million PLN annually and corresponded to 20.39% of total expenditure. This was above the average investment outlays by a municipality in the province (the difference of 192.15 million PLN) and by as much as 113.88 million PLN more than the average investment expenditure incurred by the urban municipality of Elbląg (86.21 million PLN) – Table 3. The dominant investments in the analysed period were: the development of transportation systems (including the construction of three tram lines in Olsztyn), municipal management investments and investments into education.

In the group of municipalities with the lowest average investment outlays in 2010–2017, most were rural ones, although the last place was occupied by a mixed, urban and rural administrative unit (Table 4).

The urban and rural municipality of Miłakowo, in the time period from 2010 to 2017, allocated the lowest average amount of funds from its budget to investments. The investment expenditure of the municipality equalled 997.96 thousand PLN and corresponded to 4.91% of total budget expenses, which was nearly eight-fold less than the average investment inputs per municipality in the province.

In order to explore the presence and power of a dependence between investment inputs (which are a growth stimulant) and the level of entrepreneurship in the municipalities of the Warmińsko-Mazurskie Province in 2010–2017, the Pearson's linear correlation coefficient was calculated. Two variables were used in the calculations: average amount of investment expenditure and average value of the entrepreneurship rate for particular municipalities in 2010–2017.

When analysing the research results consisting of the coefficients of the Pearson's correlation between investment expenditure and level of entrepreneurship in municipalities in Warmińsko-Mazurskie Province over

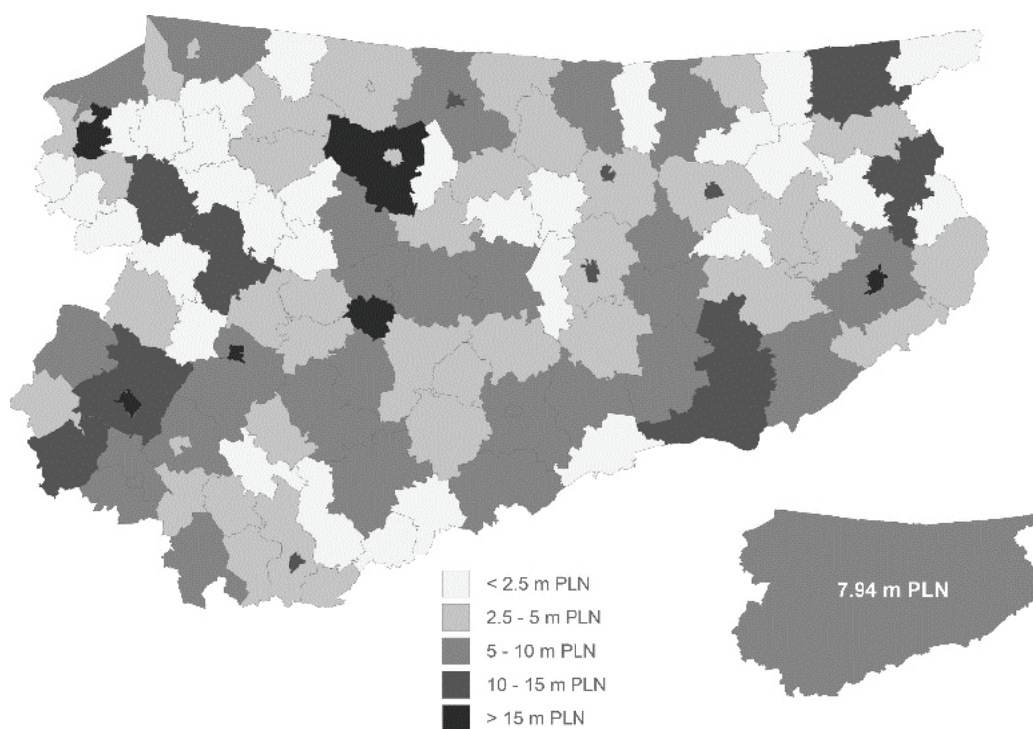


Fig. 3. Average investment outlays in municipalities of the Warmińsko-Mazurskie Province in 2010–2017
Source: Developed by the authors, based on data from the Local Data Bank of Statistics Poland.

Table 3. Municipalities of the Warmińsko-Mazurskie Province with the highest average investment expenditure in 2010–2017

Position in the Province	Municipality	Investment expenditure (million PLN)	Share in total expenditure (%)
1	Olsztyn (1)	200.09	20.39
2	Elbląg (1)	86.21	15.62
3	Ełk (1)	30.21	16.45
4	Iława (1)	20.20	17.85
5	Lidzbark Warmiński (1)	17.85	28.30
6	Ostróda (1)	17.50	15.87
7	Gołdap (3)	14.93	18.37
8	Giżycko (1)	13.66	14.02
9	Olecko (3)	13.34	16.38
10	Morąg (3)	13.16	14.88

1 – urban municipality; 2 – rural municipality; 3 – mixed rural and urban municipality.

Source: Developed by the authors, based on data from the Local Data Bank of Statistics Poland.

Table 4. Municipalities of the Warmińsko-Mazurskie Province with the lowest average investment expenditure in 2010–2017

Position in the province	Municipality	Investment expenditure (million PLN)	Share in total expenditure (%)
116	Miłakowo (3)	1.00	4.91
115	Kiwity (2)	1.05	8.59
114	Gronowo Elbląskie (2)	1.06	5.86
113	Markusy (2)	1.09	7.22
112	Lelkowo (2)	1.14	9.32
111	Milejewo (2)	1.18	9.60
110	Krukłanki (2)	1.21	10.13
109	Miłki (2)	1.27	8.40
108	Godkowo (2)	1.34	10.92
107	Pozezdrze (2)	1.44	11.68

1 – urban municipality; 2 – rural municipality; 3 – mixed rural and urban municipality.

Source: Developed by the authors, based on data from the Local Data Bank of Statistics Poland.

the analysed period, a dependence emerged between the analysed variables. The Pearson's correlation coefficient obtained for all municipalities in the province, which was 0.43, indicates a moderate relationship between these two traits [Sobczyk 2006], while the determination coefficient (R^2) equal 0.19 informs us that 19% of the variation is explained by an increase in investment inputs and the remaining 81% is explained by other factors, not considered in this research. With respect to the 15 municipalities with the highest and 15 with the lowest investment expenditure, the values of the above coefficients are higher – the Pearson's correlation coefficient equalled 0.59 and suggested a stronger relationship between the two variables. In turn, an increase in investment expenditure in these

30 municipalities explains 35% of the variation in the entrepreneurship rate (Table 5).

Investments implemented by municipalities are one of the basic determinants of the scope and pace of local development processes. The level of investment inputs, which determines for example the condition of technical infrastructure, not only affects the level of services offered to residents but also constitutes an important aspect in the process of localisation of business companies. An evaluation of the benefits derived from implemented investment projects is often a complicated process, which requires a multi-dimensional approach including the long-term character of investments, the consequences of which may appear in more distant future [Satoła 2017].

Table 5. The Pearson's correlation coefficient for investment inputs and entrepreneurship rate in municipalities of the Warmińsko-Mazurskie Province in 2010–2017

Investment inputs – entrepreneurship rate	All municipalities	15 municipalities with the highest and 15 municipalities with the lowest investment expenditure
Pearson's correlation coefficient	0.43	0.59
Determination coefficient (R^2)	0.19	0.35

Source: Developed by the authors, based on data from the Local Data Bank of Statistics Poland.

CONCLUSIONS

1. For many years now, entrepreneurship has been an interdisciplinary research subject. Business companies can create one of the principal factors contributing to the local development and stimulating local communities. The municipal authorities, by undertaking successful efforts to attract an influx of new investments and establishment of new economic entities, raise budget revenues of the municipality. Investment inputs are allocated mainly to: roads, waterworks and sewage systems, technical infrastructure, school buildings, health centres, etc. They can improve the attractiveness of a municipality, thereby having a significant influence on decisions regarding the localisation of new companies.
2. In 2017, active businesses located in the Warmińsko-Mazurskie Province corresponded to just 2.91% (125,377 companies) registered in the REGON system in whole Poland. The calculated value of the entrepreneurship rate in 2010–2017 in the Warmińsko-Mazurskie Province equalled 1,314.45 business entities per 10,000 working age population (13th position in Poland). The highest values were scored by the Mazowieckie Province (2,229.24), Zachodniopomorskie Province (2,002.63) and Pomorskie Province (1,896.02).
3. Compared to Poland's average entrepreneurship rate (1,606.69), as many as 93.10% (108) municipalities in Warmińsko-Mazurskie Province scored lower. The lowest entrepreneurship rates were noted in the poorest rural municipalities, lying in areas formerly dominated by large-scale state farms, where the following can be observed: a low employment rate, negative demographic changes, and low level of social activity. Examples are the municipalities of Górowo Iławeckie (473.05), Kalinowo (572.13) and Lelkowo (574.78). The municipalities with the highest entrepreneurship rates in 2010–2017 were: the urban municipality of Olsztyn (2,024.70) and the rural municipalities of Stawiguda (2,023.81) and Dywity (1,872.07).
4. The average investment outlays allocated by the municipalities in the Warmińsko-Mazurskie Province in the analysed time period equalled 7.94 million PLN. On a ranking list of the municipali-

ties with the highest investment expenditure, the first places were occupied by the largest urban municipalities. The town of Olsztyn, with its investment inputs of 200.09 million PLN annually, corresponding to 20.39% of total expenditure from the council budget, surpassed the second highest municipality, the urban municipality of Elbląg, by as much as 113.88 million PLN. The lowest investment expenditure in 2010–2017 was incurred by the rural and urban municipality Miłakowo. It was nearly eight-fold lower than the average investment outlays calculated for a municipality in the province, and equalled 997.96 thousand PLN (4.91% of the total expenditure of this municipality).

5. Our analysis of the Pearson's correlation coefficients calculated for the dependence between investment expenditure and entrepreneurship rate in the municipalities of the Warmińsko-Mazurskie Province in 2010–2017 showed the presence of a moderate correlation between these two traits (0.43). The coefficient calculated for 15 municipalities with the highest and 15 with the lowest investment expenses demonstrated a stronger correlation between investment expenditure and entrepreneurship rate in the distinguished group (0.59).
6. The Warmińsko-Mazurskie Province in 2010–2017 was characterised by one of the lowest entrepreneurship rates in Poland. From the point of view of local government, it is important that the actions they pursue can affect the level of entrepreneurship. Consequently, local authorities should strive to shape optimal conditions for the development of economic entrepreneurship.

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ZRÓŻNICOWANIE POZIOMU PRZEDSIĘBIORCZOŚCI GOSPODARCZEJ W GMINACH WOJEWÓDZTWA WARMIŃSKO-MAZURSKIEGO

STRESZCZENIE

Celem badań była diagnoza zróżnicowania poziomu przedsiębiorczości gospodarczej w gminach województwa warmińsko-mazurskiego w latach 2010–2017. Spośród 116 gmin województwa najwyższy średni wskaźnik przedsiębiorczości odnotowano w gminach: Olsztyn, Stawiguda i Dywity, a najniższy w gminach: Górowo Iławeckie, Kalinowo i Lelkowo. W gminach charakteryzujących się najwyższym poziomem wskaźnika jego wartość była nawet czterokrotnie większa od wartości najmniejszych. W porównaniu ze średnią wartością dla gmin w kraju, aż 93,10% gmin województwa warmińsko-mazurskiego osiągało mniejsze wartości. W opracowaniu podjęto także próbę zidentyfikowania istnienia zależności między poziomem wydatków inwestycyjnych gmin i poziomem przedsiębiorczości. Wykazano istnienie umiarkowanej współzależności obu cech, przy czym była ona silniejsza dla wyszczególnionej grupy 15 gmin z najmniejszymi i 15 gmin z największymi wydatkami inwestycyjnymi.

Słowa kluczowe: wskaźnik przedsiębiorczości, przedsiębiorstwa, wydatki inwestycyjne gminy