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INVESTMENT ATTRACTIVENESS OF POLISH MUNICIPALITIES IN RELATION TO LOCAL ENTREPRENEURSHIP

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A b s t r a c t

The aim of this article is to identify similarities and divergences in the entrepreneurship and investment attractiveness intensity. It also seeks to define the nature of this dependence, taking into account spatial differentiation in the scale of Polish provinces. Methods of spatial and statistical analysis based on data for all Polish provinces in Poland in 2008 and 2015 have been utilized in order to prove that the location values of provinces influence the intensity of entrepreneurship, as well as prove that inverse dependence is stronger.

The analysis, while exemplifying a bilateral relationship in this respect, showed a lower value for a relationship in which entrepreneurship is a variable depending on the investment attractiveness. Entrepreneurship raises investment attractiveness around smaller industrial centers. The location, as an influencing factor of entrepreneurial development, is distinctive for the areas undergoing a succession of economic functions in urban areas.

ATRAKCYJNOŚĆ INWESTYCYJNA POLSKICH GMIN A PRZEDSIĘBIORCZOŚĆ LOKALNA

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S ł o w a k l u c z o w e: przedsiębiorczość, atrakcyjność inwestycyjna, region, lokalna przedsiębiorczość.

Abstrakt

Celem artykułu jest wskazanie podobieństw i rozbieżności w natężeniu przedsiębiorczości i atrakcyjności inwestycyjnej, a także określenie i wyjaśnienie charakteru owej zależności z uwzględnieniem zróżnicowania przestrzennego w Polsce w skali gmin. W celu dowiedzenia tezy, że walory lokalizacyjne gmin mają wpływ na natężenie przedsiębiorczości, a zależność odwrotna jest słabsza, wykorzystano metody analizy przestrzennej i statystycznej na podstawie danych dla wszystkich gmin w Polsce w latach 2008 i 2015. Analiza wykazała istnienie zależności obustronnej w tej mierze, o niższej jednak wartości dla związku, w którym przedsiębiorczość jest zmienną zależną od atrakcyjności inwestycyjnej. Przedsiębiorczość podnosi atrakcyjność inwestycyjną wokół mniejszych ośrodków przemysłowych. Lokalizacja jako czynnik oddziałujący na rozwój przedsiębiorczości jest charakterystyczna dla obszarów poddawanych sukcesji funkcji ekonomicznych w regionach miejskich.

Introduction

In the case of local development, different types of forces are involved in stimulating economic activity. Entrepreneurs who succeed in increasing the scale of their business activity and force the local environment to adapt to their needs, enhance the investment attractiveness of the environment in which they operate. Businesses that influence the change of location values of a given place, and among them those that implement organizational, technological or technical solutions transferred from their foreign partners located in developed countries, resulting from pro-quality or pro-environmental regulations in other countries, are of great importance (Ratajczak-Mrozek 2014).

Economic development may also be based on initiatives that increase the investment attractiveness of a given location. This is achieved through direct national investments in less economically developed regions, and can also be reached through active pro-investment policies of local government units. Municipalities play a particularly important role in this, as one of their tasks is to create the basic infrastructure, as well as the proper administration of citizens, investors and entrepreneurs.

Motives behind entrepreneurship, as well as the effectiveness of local communities (entrepreneurial and local government leaders) are of great importance in this process (Tödtling et al. 2013).

In the name of a common goal, effective and resourceful communities may create cooperating companies even in unattractive environments and successfully collaborate and compete beyond the local market level. This has been demonstrated by examples of initiatives such as local action groups in the Lublin region, or cluster entrepreneur associations, e.g. the Cluster of boiler producers in Pleszew. Local companies can create local growth centers, regardless of the surrounding periphery. As a result of trust-based relationships and common goals, companies can create network relationships with geographically distant partners, even stronger than in their closest environment (Gorzelak, Jałowiecki 2000, Gancarczyk, Gancarczyk 2002).

The aim of the article is to identify similarities and divergences in the intensity of entrepreneurship and investment attractiveness. It also seeks to define the nature of this dependence, taking into account spatial differentiation in the scale of Polish provinces.

Businesses led by people of working age translate into location benefits in the form of the presence of partners for other companies, which are important in establishing cooperative relationships. Entrepreneurs create local markets for other companies, which in turn creates jobs and generates tax revenues. Jobs and income stabilize the demographic situation, thus improving access to labor resources. Entrepreneurship development is conducive to the diversification of the skills of the working population, while facilitating the implementation of modern forms of labor management such as outsourcing and talent management. In conclusion, the higher the level of entrepreneurship, the higher the location benefits.

On the other hand, the more attractive an investment is, the higher the profit from doing business. Access to infrastructure, labor resources, and the prosperity of the local environment make it easier to run a business and allow it to grow (DURKA 2000). The relationship between investment attractiveness and entrepreneurship is beneficial to both sides.

However, the thesis of this paper is to state that the location values of municipalities influence the intensity of entrepreneurship and that the inverse relationship is stronger.

For the purpose of this study, the author analyzed data for the years 2008 and 2015 based on indicators of investment attractiveness for all municipalities in Poland. This was developed at the Institute of Enterprise at the Warsaw School of Economics, and was based on information from the Local Data Bank of the Central Statistical Office.

Methodical introduction

The following definitions are used to analyze the relationship between investment attractiveness and local entrepreneurship:

Potential investment attractiveness (PAI) is defined as "a set of regional location values that influence the attainment of investor's objectives (e.g. in the form of operating costs, sales revenue, net profitability, as well as the competitiveness of the investment)" (*Atrakcyjność inwestycyjna…* 2012).

It is defined as a conglomerate of features describing leading location factors. They are grouped under the following microclimates: labor resources, technical infrastructure, social infrastructure, the market and administration. The PAI1 GN index, based on 47 variables, has been utilized in this paper. It consists of the following spheres: "labor resources", "technical infrastructure", "social infrastructure", "the market", and "administration" – see Table 1. The weight-correlation method has been used for calculating the indicators (*Atrakcyjność inwestycyjna…* 2011, 2013).

Table 1

Components of the potential investment attractiveness index (PAI1_ GN) for the national economy

Symbol	Specification	Variable (stimulant: S, destimulant: D)	Weight
MZP	LABOR RESOURCES MICROCLIMATE		
MZP01	Percentage of non-working age population per 100 people of working age	D	1
MZP02	Rate of professional activity – number of people working per 100 people of working age	S	1
MZP03	Balance of permanent internal migration per 1000 inhabitants	S	1
MZP04	Balance of foreign migration per 1000 inhabitants	S	1
MZP05	Population of post-working age per 100 people of pre-working age	D	1
MZP06	Percentage of working-age population	S	1
MZP07	Expenditure on education and upbringing in PLN per inhabitant	S	1
MZP08	Expenditure on culture and protection of the national heritage in PLN per inhabitant	S	1
MIT	TECHNICAL INFRASTRUCTURE MICROCLIMATE		
MIT01	Percentage of population in the range of water supply	S	1
MIT02	Percentage of homes with connection to gas pipeline	S	1
MIT03	Percentage of population in the range of sewerage	S	1
MIT04	Density of the water supply network in km per 100 sq. km	S	0.333
MIT05	Density of the gas pipeline network in km per 100 sq. km	S	0.333
MIT06	Density of the sewerage network in km per 100 sq. km	S	0.333
MIT07	Percentage share of waste generated and disposed during the year to waste generated during the year	S	1
MIT08	Percentage of treated sewage to total sewage	S	1
MIT09	Expenditure on transport and communications in PLN per inhabitant	S	1
MIS	SOCIAL INFRASTRUCTURE MICROCLIMATE		
MIS01	Medical practice in rural areas and in the cities per 100 thousand inhabitants	S	1
MIS02	Total number of health care facilities per 100 thousand inhabitants	S	1
MIS03	Number of pharmacies per 100 thousand inhabitants	S	1
MIS04	Usable area of apartments in sq. meters per capita	S	1
MIS05	Number of computers with Internet access to all computers in primary schools [%]	S	1

MIS06	Number of computers with Internet access to all computers in junior high schools [%]	S	1
MIS07	Number of students per computer with Internet access in primary schools	D	1
MIS08	Number of students per computer with Internet access in junior high schools	D	1
MIS09	Number of borrowed book collections per 1000 inhabitants	S	1
MIS10	Number of inhabitants per 1 permanent cinema	D	1
MIS11	Number of spectators in permanent cinemas per 100 inhabitants	S	1
MIS12	Cubic capacity of new residential buildings in cubic meters per 100 inhabitants	S	1
MIS13	Number of inhabitants per 1 museum with branches	D	1
MIS14	Number of visitors to museums with branches per 1000 inhabitants	S	1
MIS15	Sports halls with dimensions from 36x19 to 44x22 m and 44x22 m and above per 1000 inhabitants	S	1
MIS16	Open and covered tennis courts per 1000 inhabitants	S	1
MIS17	Open and covered swimming pools per 1000 inhabitants	S	1
MIS18	Aqua parks per 1000 inhabitants	S	1
MIS19	Skate parks per 1000 inhabitants	S	1
MIS20	Length of bike paths per 1000 inhabitants	S	1
MR	MARKET MICROCLIMATE		
MR01	Population density (number of inhabitants per sq. km)	S	1
MR02	Revenue of municipal budgets from PIT per inhabitant (PLN)	S	1
MR03	Revenue of municipal budgets from CIT per thousand people employed (PLN)	S	1
MR04	Percentage share of revenue from agricultural tax in total tax revenue	D	1
MR05	Percentage share of expenditure on social assistance and other social policy tasks in municipal expenditure	D	1
MA	ADMINISTRATION MICROCLIMATE		
MA01	Land area covered by the municipal land use plan to the total land area of the municipality (%)	S	1
MA02	Funds for the municipality's own tasks obtained from other sources in PLN per inhabitant	S	1
MA03	Percentage share of own revenue in total revenue	S	1
MA04	Total asset-related spending to total current spending (%)	S	1
MA05	Percentage share of expenditure on municipal engineering and environmental protection, culture and heritage protection, public safety and fire protection	S	1

Source: own study.

Investment attractiveness index PAI1 ranges from 0 to 1. Classes have been defined for the purpose of comparative analyses. Their scope has been described by left-closed intervals with the following lower bounds:

class A: Av + S(x),
class B: Av + 0.5S(x),
class C: Av,
class D: Av – 0.5S(x),
class E: Av – S(x),
class F: 0,

where:

Av – arithmetic mean,
S(x) – standard deviation.

The entrepreneurship index is defined as the number of economic entities per every ten thousand citizens of working age. This article analyses the indices for the data from 2008 and 2015, while looking at the scale of changes and their spatial differentiation.

Statistical analysis has been performed using Pearson correlation coefficients, the Pearson correlation ratio method and cartographic analysis.

Changes in investment attractiveness from 2008–2015

The persistence of uneven economic development was particularly apparent during the period of Poland being under partitions. Equally important is the distance from the most economically developed regions of Europe (the so-called blue banana), in which innovations were and continue to be created in order to transform the socio-economic life of European societies. The further a region is situated from the innovation center, the later it receives developmental stimuli and the more difficult it is to progress. Therefore, investment attractiveness is determined by the level of economic development of particular areas of Poland. It is manifested in a traditional division into a better developed and more attractive Western Poland to investors and an underdeveloped Eastern Poland (Noworól 2007, Węcławowicz et al. 2006). At the same time, the urban agglomeration is developing more rapidly compared to rural areas, which results in a division into rich, attractive large cities and rural areas that are less appealing for investors – see Figures 1 and 2.

Increasing urbanization of rural areas has led to the enlargement of suburban zones of large cities. They also have production and service functions, as a result of the lack of investment areas in agglomeration centers and the growing demand for large plots of land suitable for mechanization and automation of logistic work investments.

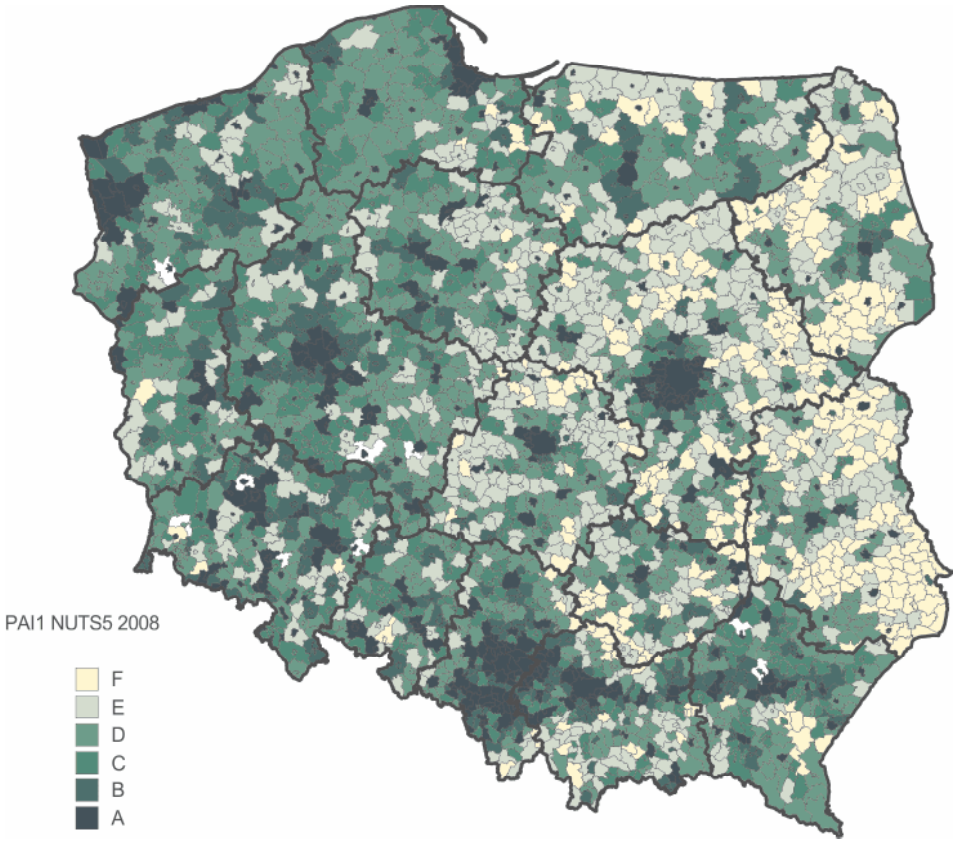

Fig. 1. Investment attractiveness of Polish municipalities in 2008
Source: own study based on research results from Institute of Enterprise, Warsaw School of Economics.

These conclusions are also justified in regard to the spatial differentiation of investment attractiveness of municipalities in the years 2008–2015. In the years 2008–2015 the most attractive investment municipalities included the following agglomerations: Warsaw, Katowice, Cracow, Lodz, Poznan, Szczecin and Trojmiasto (Gdansk, Gdynia, Sopot), which is connected to the numerous location values of large cities and their urban complexes.

The municipalities considered to be the least investment-attractive were a part of Eastern Poland, especially Lubelszczyzna, Podlasie, Eastern Mazovia and Eastern Podkarpacie.

In the analyzed period, changes in the obtained classes of investment attractiveness of individual municipalities were noticed. They can be the subject of comparisons, due to the fact that they are based on arithmetic means from a given period and multiples of ½ of standard deviation. Increased investment attractiveness of a given municipality by one or two classes in 2015 (in relation

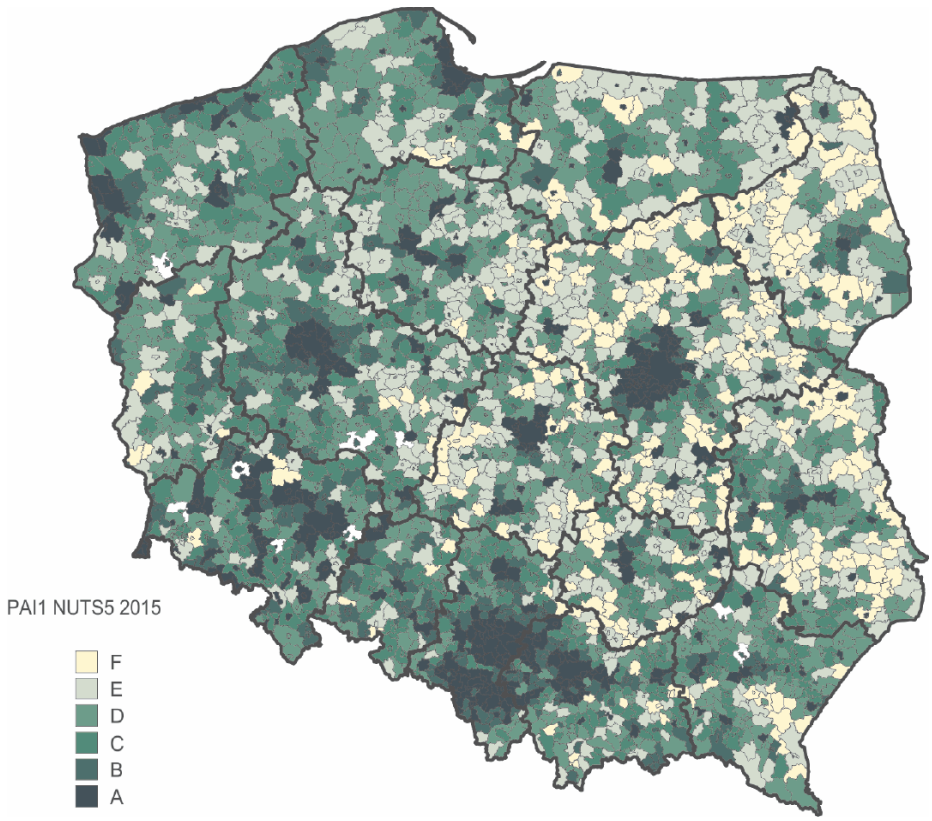

Fig. 2. Investment attractiveness of Polish municipalities in 2015
Source: own study based on research results from Institute of Enterprise, Warsaw School of Economics.

to 2008) means that in 2015 this unit increased its relative assessment of investment attractiveness, i.e. compared to the average attractiveness rating from 2008, by half or by one standard deviation. The change of the investment attractiveness class of a given municipality from a higher position in the initial period (in 2008) to a lower position in 2015 can be described analogically. It is also possible to interpret these ratios in such a way that maintaining the highest class A in both periods allows one to indicate a municipality that in both analyzed periods was characterized by above average location values in the statistical sense, as the investment attractiveness index in both periods under study is higher than the arithmetic average increased by the standard deviation.

Changes of the attractiveness classes of Polish municipalities in the years 2008–2015 are shown in Figure 3.

There is a visible decrease in the number of municipalities that have the lowest ranking of attractiveness. It is due to the increase of location values, and thus advanced them to a higher class by one or two levels. It is particularly

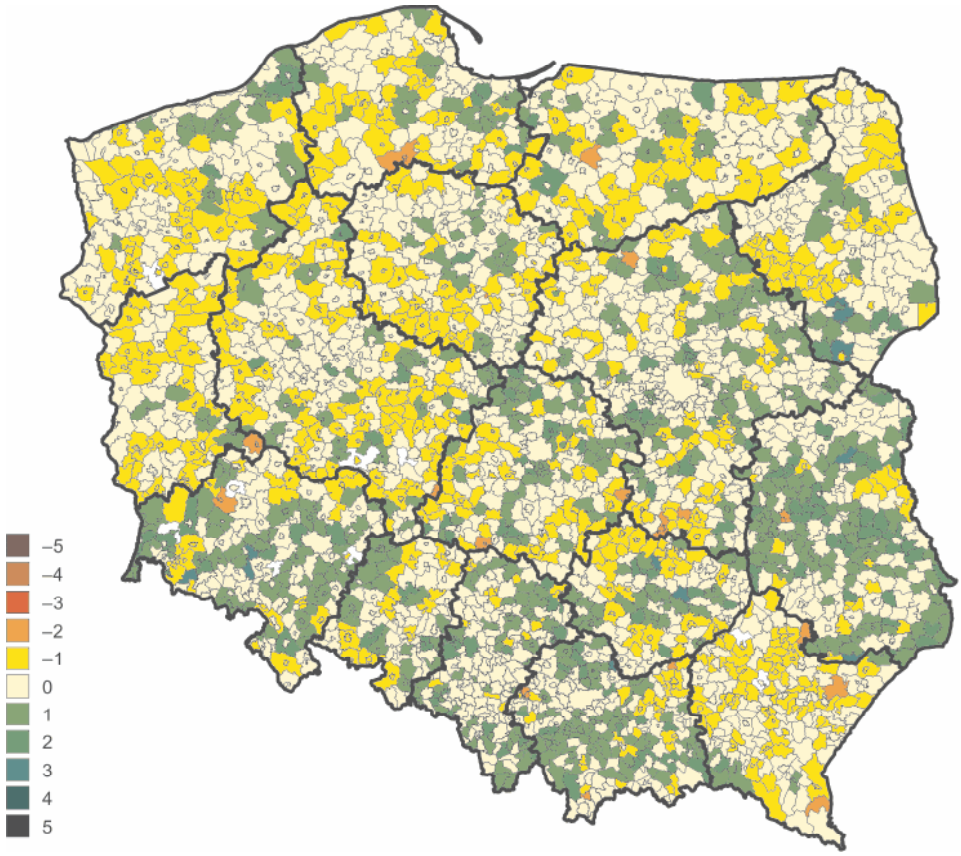

Fig. 3. Changes in investment attractiveness of municipalities in Poland in 2008–2015
Source: same as in Figure 2.

noticeable in the Lubelskie province and in the southern region of the Podlaskie province, as well as in many rural municipalities of Malopolskie province and the eastern part of Mazowieckie province. No new cluster of municipalities within the lowest class of attractiveness has been noticed.

In the case of areas with the highest investment attractiveness, there were no significant changes in spatial distribution and concentration. High investment attractiveness of the largest Polish agglomerations is maintained.

However, a slight reduction in the investment attractiveness around Szczecin is evident. The areas of the highest investment values around Upper Silesia, Cracow and Warsaw have slightly expanded. There has also been an increase in the investment attractiveness of the municipalities within Lublin's influence, as well as the zone connecting the Wroclaw agglomeration with the area around Legnica.

A question arises as to how the changes in the investment attractiveness of Polish municipalities are related to changes in the entrepreneurial attitudes of Poles, measured by the indicator of entrepreneurship.

Changes in entrepreneurship in Polish municipalities in the years 2008–2015

In order to grasp the logic of this dependence in Polish municipalities, one should analyze the spatial diversification of entrepreneurship. Similar to the case of potential investment attractiveness, in order to assess the intensity of entrepreneurship in Polish municipalities, we have used a division into classes from F to A, based on the arithmetic mean and a multiple of the standard deviation. Entrepreneurship indicators calculated in this way are presented in Figures 4 and 5.

The entrepreneurship factor is only partly related to the location of large cities and their suburban areas. In both studied periods, the highest indicators of entrepreneurship have been recorded in metropolitan type agglomerations, i.e. formed by one city constituting the center of the agglomeration. The Warsaw,

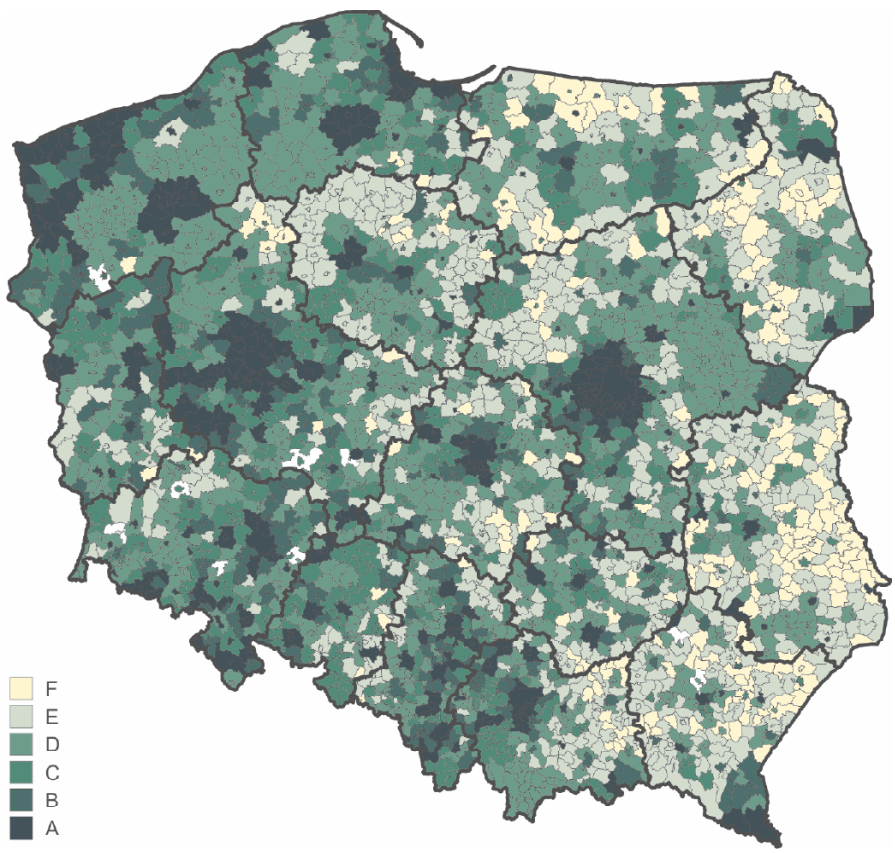

Fig. 4. Entrepreneurship indicators in 2008 according to municipalities
Source: own study.

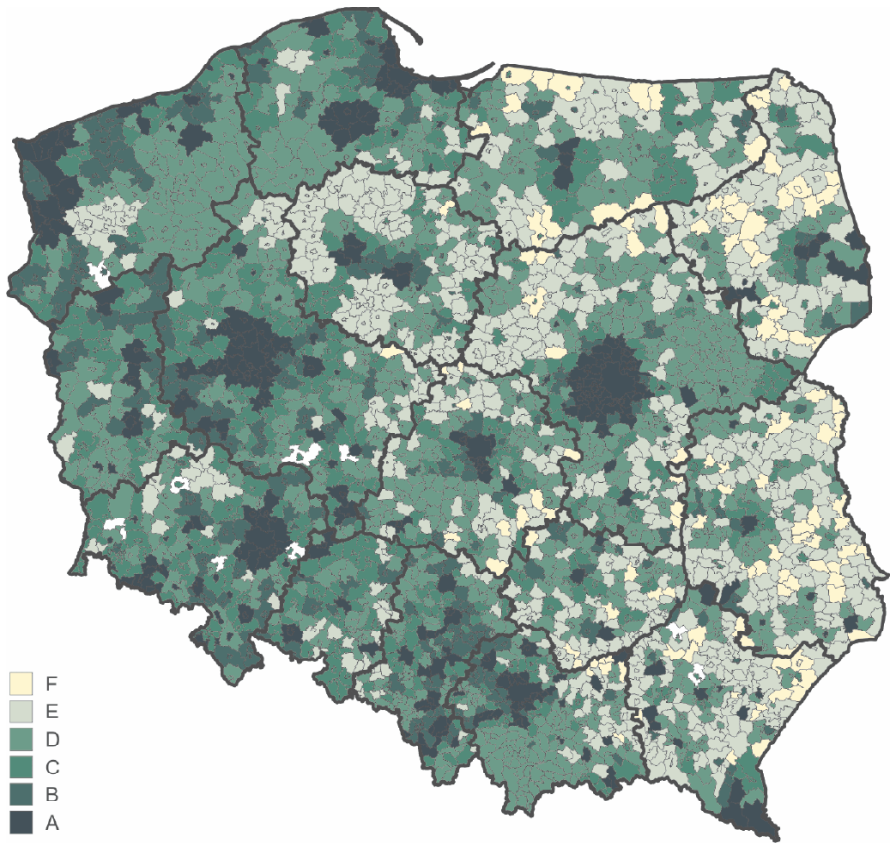

Fig. 5. Entrepreneurship indicators in 2015 according to municipalities
Source: own study.

Poznan, Wroclaw, Trojmiasto and Szczecin agglomerations stand out. Smaller clusters, albeit of an equally high class of entrepreneurship, have been formed in the Lodz, Cracow and Katowice agglomerations.

High entrepreneurship was also found in the tourist regions, particularly in the municipalities of Western Pomerania, as well as the municipalities of Bieszczady, Karkonosze and the Kaszubskie Lakeland.

Entrepreneurship indicators expressed in terms of classes decreased in the years 2008–2015 in Western Pomerania, in the maritime area and especially in the Lakeland; as well as in the southern part of the Kujawsko-Pomorskie province. The assessment of entrepreneurial activity in the eastern part of the Mazowieckie province increased – cf. Figure 6.

The preliminary analysis of cartograms shows that there is a fundamental convergence between changes in the spatial differentiation of investment attractiveness and entrepreneurship in municipalities. These changes were caused by

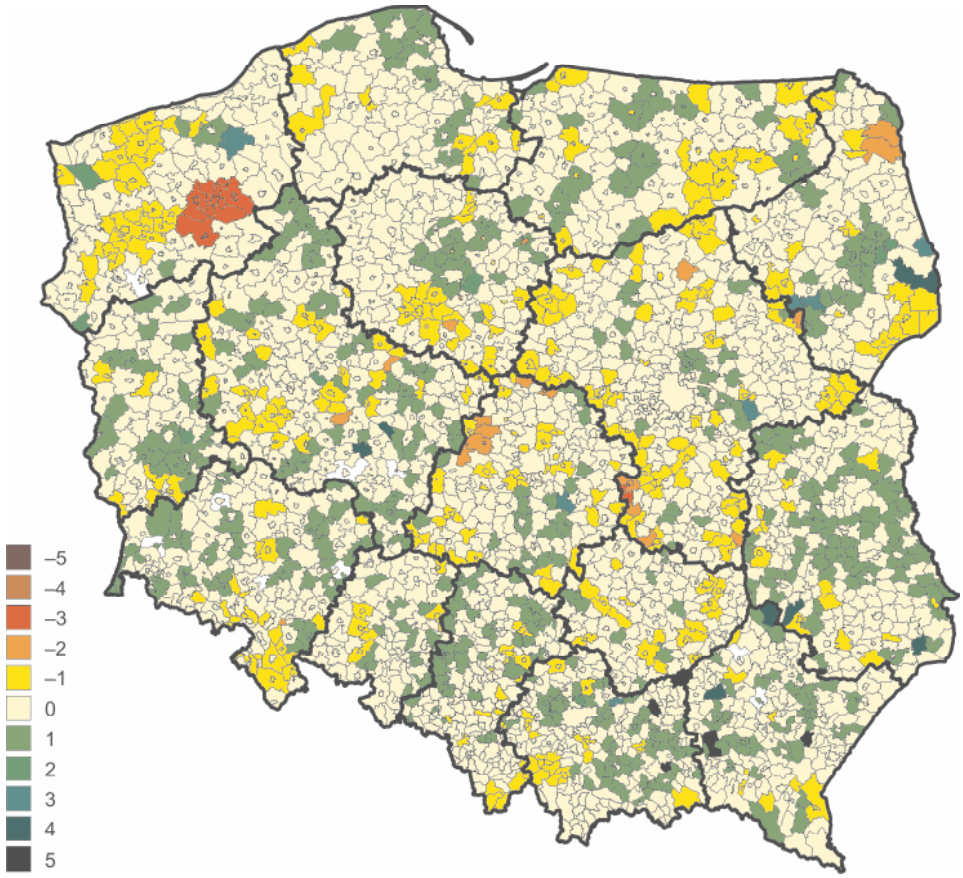

Fig. 6. Changes of the entrepreneurship class indicator in Poland in the years 2008-2015 according to municipalities

Source: own study.

occurrences that took place mainly in the micro-enterprise sector. Medium-sized companies became relatively numerous in the largest agglomerations. One can observe a fall in entrepreneurship in Western Pomerania, the northern part of Lubuskie province, and the southern part of the Malopolskie province, while the growth of the entrepreneurship class was noticed in the municipalities located in the eastern part of the Warminsko-Mazurskie province, and in the eastern part of the Mazowieckie province. This could be related to international exchange, which was fostered by good transport infrastructure, as well as tourism-related initiatives.

Divergences between investment attractiveness and entrepreneurship in Polish municipalities in the years 2008 and 2015

In order to find the relationship between investment attractiveness and entrepreneurship, it is possible to consider differences between investment attractiveness classes and entrepreneurship in the given municipalities and changes in these differences, which occurred between 2008 and 2015. To this end, the classes of investment attractiveness and the classes of entrepreneurship were compared. This was possible due to the division of both variables into six

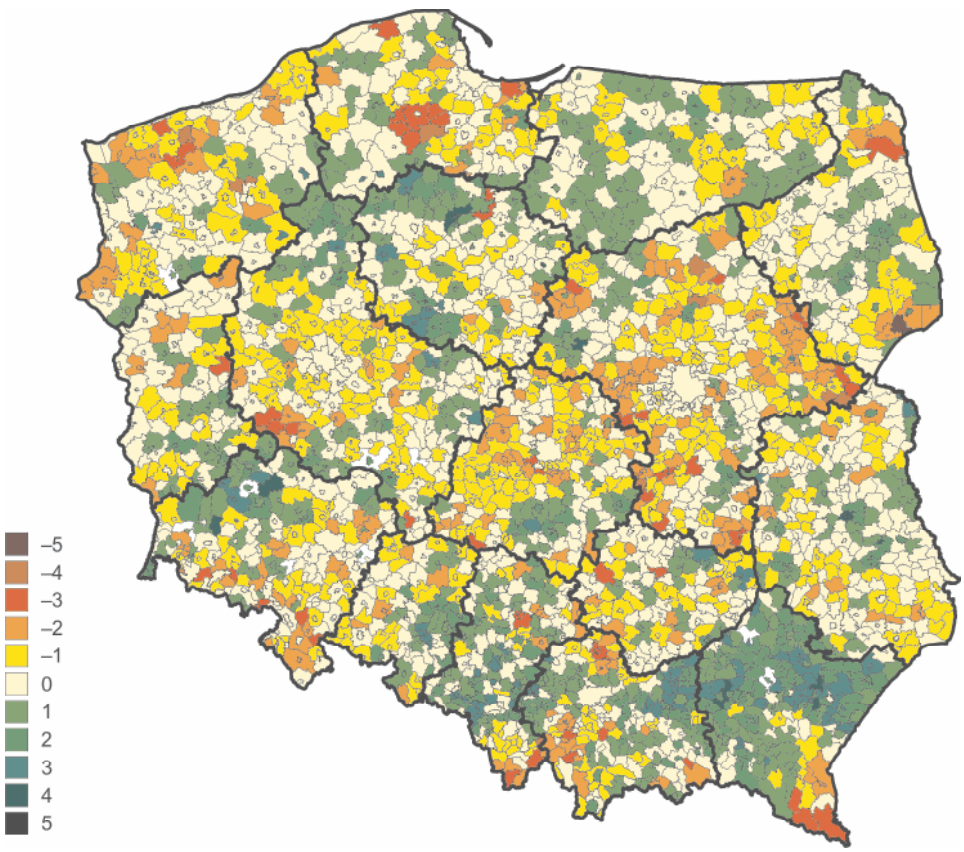

Fig. 7. Discrepancies between assessments of investment attractiveness and entrepreneurial classes in the year 2008 in Poland according to municipalities

Source: own study.

categories, based on the mean and standard deviation from the analyzed period. If the attractiveness class in a given year was higher than the entrepreneurship class, it means that there is an untapped investment potential available in this municipality. In the opposite case, it can be stated that entrepreneurship "uses" the investment potential of a given municipality and that it needs additional investments to adjust it to the needs of a local business.

Entrepreneurship is usually higher than the investment potential in tourist areas, which is apparent in both studied periods e.g., in Bieszczady, the Kaszubskie Lakeland, the coastal areas of Western Pomerania and the Tatry Mountains, see Figure 7 (the same trend has been observed in earlier years: *Innowacyjność jako czynnik wzrostu…* 2010).

Untapped investment potential is, however, characteristic of the northern part of the Podkarpackie province. This means that, despite the location values, entrepreneurship still faces barriers to development. The same is true for

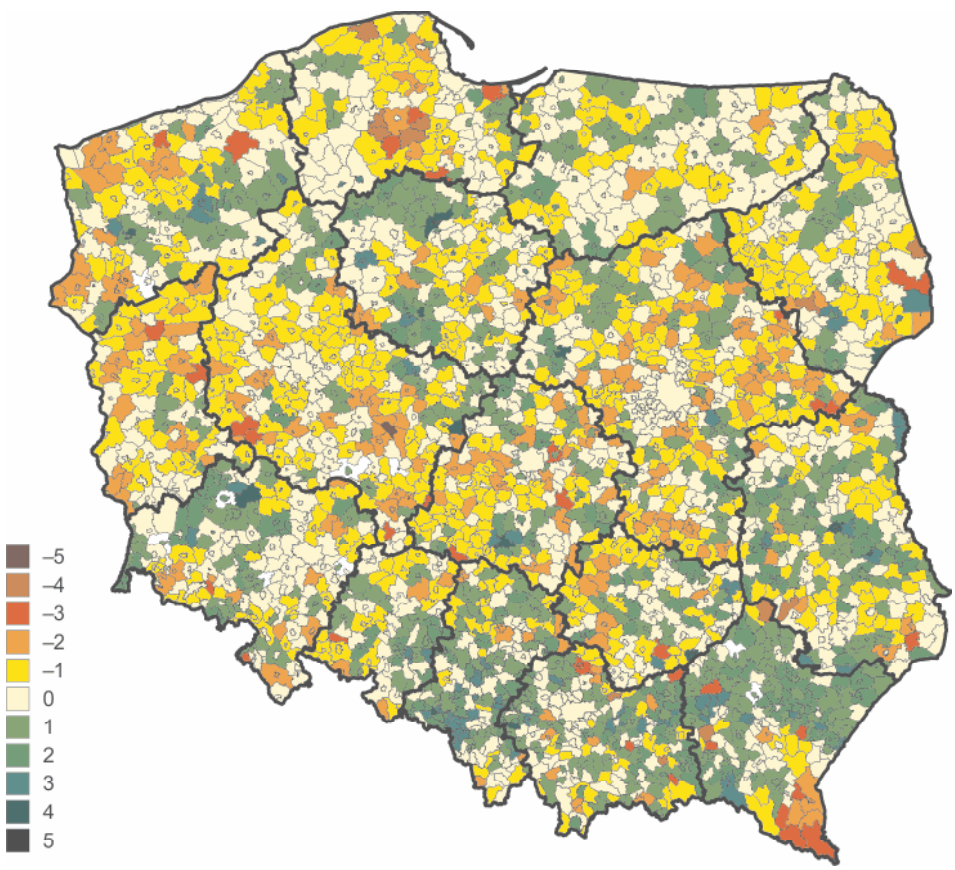

Fig. 8. Discrepancies between assessments of investment attractiveness and entrepreneurship classes in the year 2015 in Poland according to municipalities

Source: own study.

industrial centers which still do not benefit from the development of the economic base and its diversification. This concerns the Legnica-Glogow District, the Grudziadz area, the lignite mining facilities in Belchatow, Bogatynia, and the Puchacz municipality in the Lublin region, which have specialized in hard coal mining.

In the analyzed period, however, the difference between the relatively high rating of investment attractiveness and the indicator of entrepreneurship in some tourist regions and border areas was reduced – cf. Figure 8.

This especially applies to the coastal areas of Central Pomerania, as well as to the Suwalki Lake District.

Entrepreneurship as a factor supporting investment attractiveness vs. investment attractiveness as a factor supporting entrepreneurship

In order to assess if there exists a relationship between the investment attractiveness indicator and the entrepreneurship indicator (without the division into classes), a statistical test has first been used to find statistical dependence. In addition, the correlation between the PAI indicator and the entrepreneurship indicators for micro, small and medium enterprises was taken into account. There might have been a situation of attracting companies of a certain size to the given municipality, or conversely – numerous companies registered by local residents could have initiated the increase of location values of a given area in response to their needs both in the seed stage and in the development phase. Due to the absence of large companies in many municipalities, this group of companies was omitted in the study. The Pearson correlation coefficient amounts to 0.59 to 0.65 at a significance level of $p < 0.001$ for all tests, which, according to J. Guilford's scale, means high correlation (PUŁASKA-TURIN 2011).

This applies not only to the relationship between the assessment of investment attractiveness and the overall indicator of entrepreneurship, but also to the relationship between the investment attractiveness of municipalities and entrepreneurship in relation to micro, small and medium enterprises.

Compared to the 2008 data, correlation coefficients have been reduced in all the conducted tests. This may indicate a growing disparity between location values and entrepreneurial attitudes of local residents. This means that either financial streams for business development are growing, i.e. in the result of obtained subsidies (money that needs to be spent), or the expectations of entrepreneurs are too optimistic compared to socio-economic reality. Organizational changes may also occur as a result of organizational changes in leading local companies, cutting down their organizational structures through outsourcing. This, however, is not a common case, as indicators for the entire population of municipalities continue to maintain their high level.

On the other hand, in areas with low entrepreneurial activity, the problem with unused potential may be associated with a growing risk of doing business, especially in relation to the emigration of young people and the aging population. It may also be related to mental barriers and a weakened absorption of innovation, poorly-educated regional markets and a low participation in commodity exchange with other countries.

An analysis of correlation coefficients does not provide a basis for determining which direction of dependence is stronger, i.e. which variable is to a greater extent the explanatory one, and which is the explained variable. Pearson correlation coefficients (*Bazy danych…* 2007) have been used to answer this question.

Based on the data for the year 2015, it was found that the dependence of investment attractiveness on entrepreneurship is statistically higher – the index was 0.4998, whereas the reverse dependency was only 0.1532.

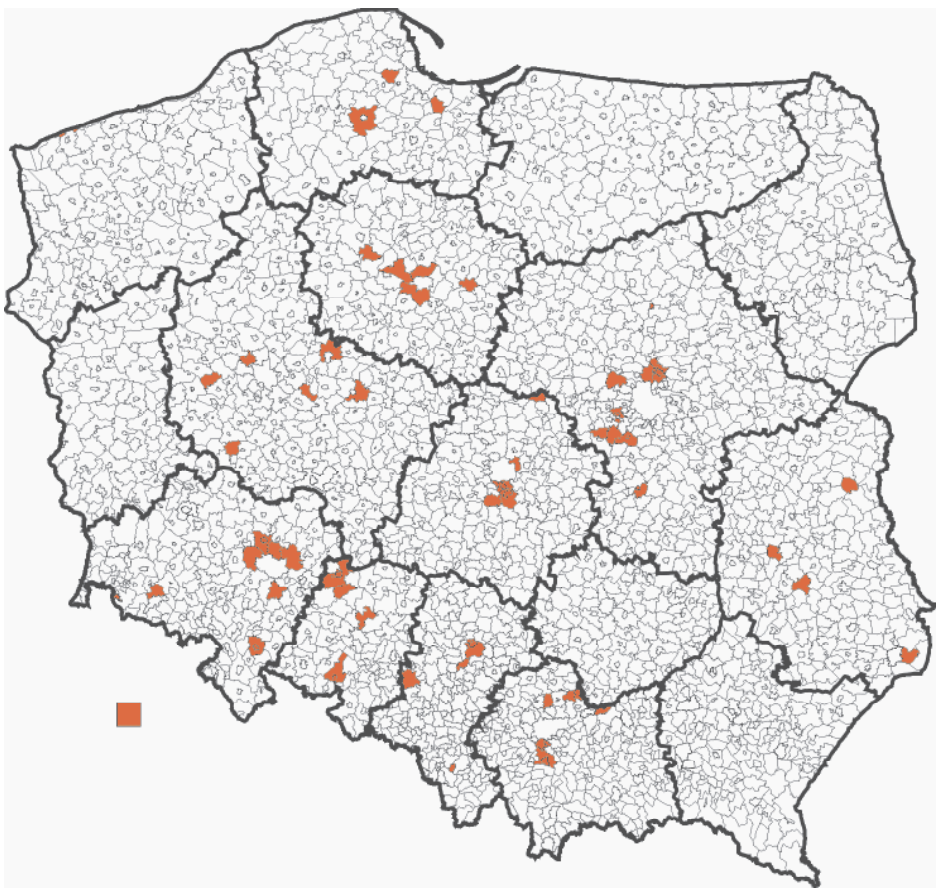

Fig. 9. Location of municipalities with entrepreneurial bases for increasing investment attractiveness in years 2008-2015

Source: own study.

This implies the heterogeneity of this dependence, which may be conditioned by the geographical location features, the proximity of other units, or the type of unit (urban, rural, urban-rural).

In order to verify this by using methods that take into account the specificity of the geographical location, cartographic analysis was used based on the following assumptions.

In the municipalities, entrepreneurship may influence the increase of investment attractiveness if the following three conditions are met:

– entrepreneurship index class> investment attractiveness class in 2008;

– entrepreneurship index class in the period under study has increased or remained at the highest level (A);

– attractiveness index increased during the analyzed period.

Investment attractiveness in municipalities may influence the growth of entrepreneurships if the following three conditions are met:

– entrepreneurial index class < investment attractiveness class in 2008;

– investment attractiveness index class in the period under study has increased or remained at the highest level (A);

– attractiveness index increased during the analyzed period.

The comparison results, considering the above assumptions are presented in Figure 9.

Based on the established assumptions, fifty eight Polish municipalities that meet all of the previously mentioned criteria have been selected. These are municipalities located in the immediate vicinity of large cities such as Warsaw, Wroclaw, Lodz and Cracow, as well as the neighboring Bydgoszcz and Torun. This exemplifies the importance of the production and service function shift from large cities to the suburban areas. Free space, as well as lower costs of doing business, is conducive to the creation of new facilities, which use, in their operational processes, competitive advantages connected with economies of scale and with automation processes. The creation of new or the modernization of already existing communication routes is also favorable.

Figure 10 shows the locations of municipalities in which investment attractiveness influenced entrepreneurship.

Table 1

The Pearson correlation index of municipalities investment attractiveness (PAI1) and entrepreneurship – p <0.001 in the years 2008 and 2015, taking into account the size of companies, with a confidence level of $p < 0.001$

Entrepreneurship	2008	2015
Entities in total including:	0.629	0.595
Micro	0.619	0.589
Small	0.521	0.520
Medium	0.629	0.594

Source: own study.

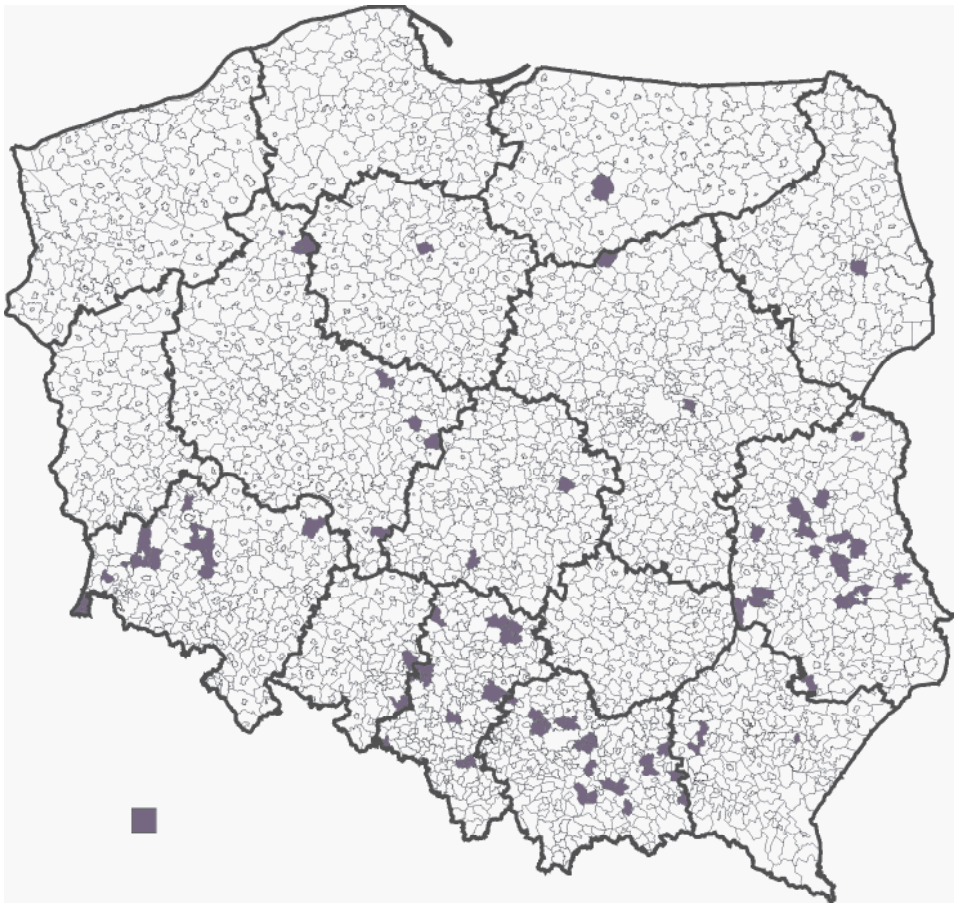

Fig. 10. The location of municipalities characterized by an increase of entrepreneurship caused by the growth or maintenance of the highest investment attractiveness class in the years 2008–2015

Source: own study.

According to the results of the procedure utilized, seventy-four municipalities have been selected that have raised or maintained an assessment of potential investment attractiveness during the analyzed period. The vast majority of such municipalities are located along the trans-regional communication routes and/or near industrial centers such as Legnica-Glogow the Copper District, the Bogdanka mine in Puchacz in the Lubelskie province, or the mines and power plants of Konin and Turek.

Conclusions

Spatial differentiation of municipal investment attractiveness does not show significant changes in the analyzed period. A high investment attractiveness of highly urbanized areas, industrial, and tourist centers has continued to be maintained. However, there is a visible one class promotion of investment attractiveness assessment of the numerous economically underdeveloped rural municipalities in the Lubelskie province and in the mountain regions of the Malopolskie province. Also the eastern part of the Dolnoslaskie province stands out in this respect due to the strong influence of numerous special economic zones.

Furthermore, the spatial diversification of the entrepreneurship index has not changed significantly during the studied period. However, one can notice a decrease in the intensity of entrepreneurship in regions that have exceeded their development thresholds. This applies, for example, to coastal centers in the Zachodniopomorskie province. Entrepreneurship intensity shows a great convergence with the spatial diversification of investment attractiveness. Nonetheless, spatial divergence (understood as a divergence in the intensity of both phenomena in a given place) of areas is still visible, especially in suburban zones of large cities and in areas with strong tourist functions. Divergence areas were subject to slight variations during the period under study, usually not exceeding half the standard deviation. While in 2008, the zones with above-average entrepreneurial intensity "spilled significantly" beyond the centers of the agglomerations, especially the Warsaw and Poznan zones. In 2015, spatial concentrations of municipalities with above-average ratings of both investment attractiveness and entrepreneurship became similar, especially in the Warsaw agglomeration. However, there still remains a visible discrepancy with respect to the Katowice agglomeration, where entrepreneurship is maintained at a much lower level compared to the investment attractiveness ratings.

Studies have shown that there is a two-way relationship between investment attractiveness and entrepreneurship – both processes lead to local development.

Location values of municipalities stimulate entrepreneurship near industrial centers or towns in the early stages of suburbanization.

Entrepreneurship has an influence on changes in investment attractiveness, especially in suburban areas of big cities (particularly those with a strong succession of citygenic functions) and near new or modernized national roads and highways.

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