

Rural area marginalisation: searching for tendencies. Case study: the Western fringes of Poland

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Abstract. The aim of this paper was to evaluate the intensity of rural area marginalisation. As a study region, Western periphery of Poland has been chosen. The spatial scope of the research covers three border voivodeships: Dolnośląskie, Lubuskie and Zachodniopomorskie, however, the study was conducted at the local level, including 310 rural and rural-urban gminas (administrative region of the 3rd order in Poland). The statistical data were derived from the Central Statistical Office from the period of last two decades. Results revealed the differences in the level of rural area marginalization and were analysed in terms of agricultural and socio-economic aspects.

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1. Introduction

The marginalisation of rural area is understood as an extensification or in extreme state -abandonment of agricultural activity, which is linked with the decay of rural communities. This phenomenon was broadly discussed when the Common Agricultural Policy (CAP) was reshaped at the beginning of the 1990s of the last century (Reform of the Common Agricultural Policy, 1991). Marginalisation was coincident with a deterioration in farming production in areas with less-favourable natural conditions. On the other hand, the reason for marginalisation was, paradoxically, the overproduction of agricultural goods. However, the problem with overproduction was solved by the implementation of compulsory farmland set-aside programmes which was the beginning of the creation of permanent land abandonment in most Western European countries.

It needs to be pointed out that that peripheral location of a given area in a natural way serves a crucial role in the initiation of marginalisation processes (Pinto-Correia, Breman, 2008), because remote areas are prone to underdevelopment and weakening of socio-economic conditions.

The idea of remoteness concerns a diverse spatial scale: local, regional and global. Using the accessibility index, for the European continent (the regional level), have been distinguished, inter alia, central and peripheral regions (Fourth Report ..., 2007). Poland has been categorised in the latter group, together with all Eastern European, Nordic and Mediterranean states. For these countries the GDP was estimated at less than 40% of the average for EU.

Although marginalisation affects numerous rural regions in Europe, the course of this phenomenon, its nature and dynamism is different between countries as well as within each country itself. For example, in Poland it can be distinguished in several rural economically backward regions c.f. Szymańska, Biegańska, 2011. One of them is land placed along the Eastern border, the so-called “Eastern Wall”. That rural region suffers from underdevelopment. The main reason for this was the government’s neglect in the post-war period, which in consequence led to countryside depopulation and farming abandonment. During that time, the Western fringes of Poland, as opposed to the Eastern lands, were in a more

privileged position (Zróznicowanie przestrzenne..., 2010). The Western borderland was a part of the so-called “Regained Territories” and the main goal of rural area recovery was establishing there state agricultural farms. However, the system transformation, at the beginning of the 1990s, brought harmful consequences. Many of unprofitable state farms went bankrupt and uncultivated farmland was converted into follows. This was the initiation of rural decline and only the Polish accession to the EU and the obtaining of financial support improved that situation (Markuszewska, 2013).

The objective of this study was to evaluate the degree of the rural area marginalisation of the Western periphery of Poland. Attention was drawn to the fact that the concept of peripherality concerns lands located on the outer fringes, close to the national border. During the investigation, the following research questions were posed: (a) to what extent does the peripheral location of the study area determine the weakening of the importance of the production role of agriculture? (b) in what scope does the border location of the study region influence on rural area decay? It is worth explaining that the study was focused on the current state, being a result of past changes, rather than the making of any future predictions.

2. Methods and study area

In the opinion of the author, it is vital to distinguish two processes that both together, are associated with the marginalisation of rural area. The first one relates to the abandonment of agricultural activity (agriculture extensification), which is expressed, for example, by a gradual discontinuance of intensive agrarian activity or an increase in the acreage of follow farmland. This course of change is being observed in all European countries, where agricultural activity is becoming progressively less important or marginal in relation to other economic activities or land use (Wiggering et al. 2006; Pinto-Correia, Breman, 2008). Another symptom of rural area marginalisation is a deterioration of socio-demographic and infrastructure conditions (community marginalisation), manifested inter alia, by depopulation and a worsening of the living condition of ru-

ral gminas. It should be highlighted that social and economic decline do not always go together with agriculture extensification, because social decay is not always a result of the influence of agricultural factors.

Taking into consideration this methodological approach, during the investigation aspects relating to agrarian production and the socio-economic situation were analysed separately. In both cases, for the evaluation of marginalisation tendency, different diagnostic features were selected, however, the selection of indicators was dependent on the avail-

ability of statistical data. Worthy to notice is that the aim was to search for areas potentially prone to marginalisation and therefore, only the determinants of agriculture development were considered. Additionally, input data prepared in this way, provides a basis in the decision-making process about spatial planning and management policy.

As for agricultural marginalisation, indicators were used relating to: the natural conditions, farmland management, economic factors, organisational and technical conditions as well as the agriculture land potential (Fig. 1).

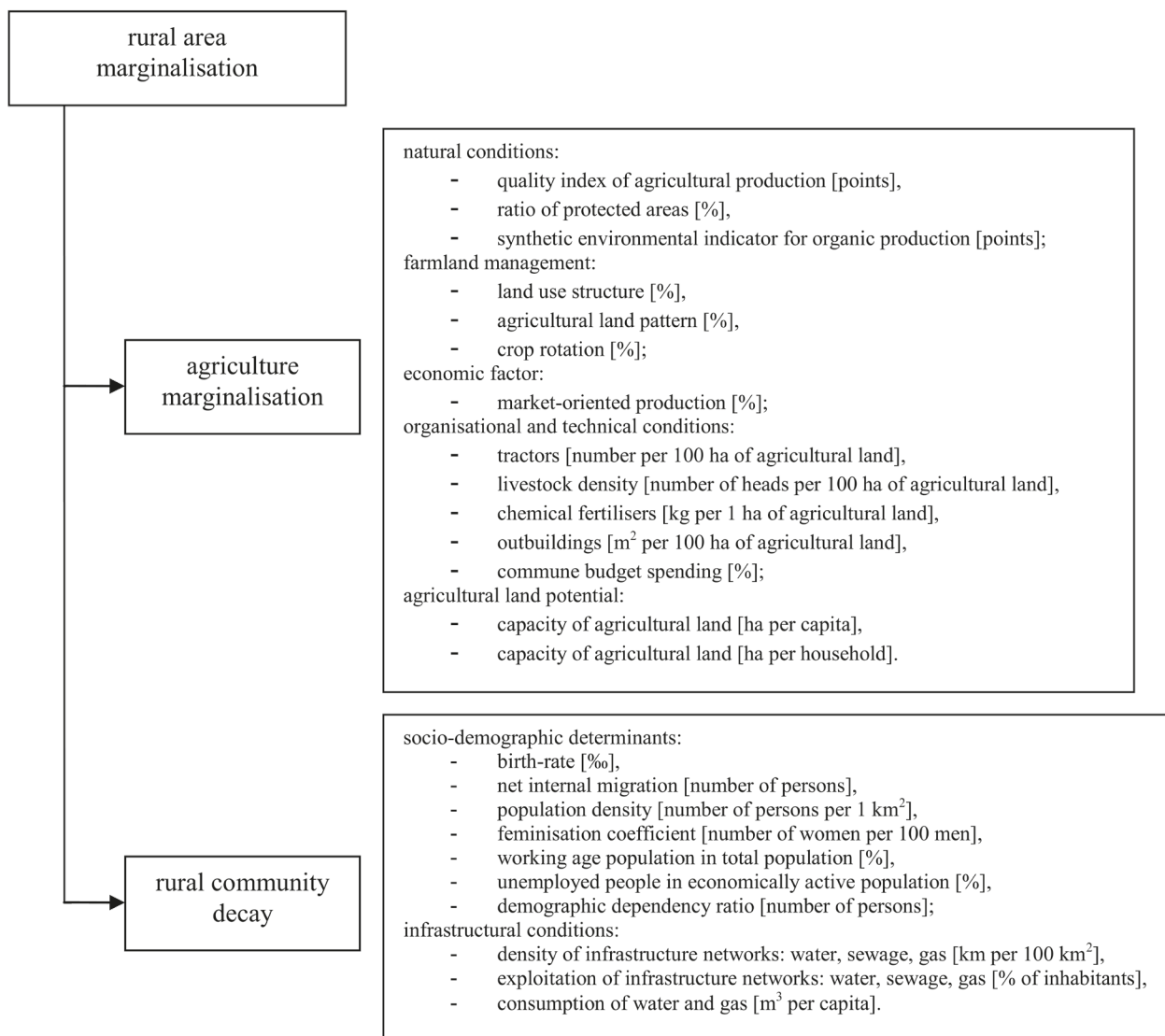


Fig. 1. Indicators characterising the marginalisation of rural areas

Source: Compiled by the Author

In the field of natural conditions, the following sub-indicators were selected: the quality index of agricultural production, the ratio of protected areas and the synthetic environmental indicator for organic production. During the investigation, it has been assumed that the most favourable condition for agriculture marginalisation have areas with: the lowest value of quality index of agricultural production, the highest share of natural value areas and simultaneously the highest suitability for organic farming. Farmland management relates to agricultural land stewardship and includes: land use, agricultural land pattern and crop rotation. Highly prone to farming abandonment are those gminas with the lowest proportion of agricultural land, the highest acreage of set-aside farmland and the lowest share of industrial crops. In the scope of economic conditions, the most important input data was the value of the market-oriented production. In turn, the organisational and technical conditions relate to: spending of the gminas' budgets on agriculture and farmers' invested capital including: number of tractors, livestock density, consumption of chemical fertilizers and capital endowment in outbuildings. It has been assumed that gminas prone to agriculture marginalisation are distinguished by the lowest values of above indexes.

In addition, the agricultural land potential, expressed by the capacity of agricultural land per capita and per household, has been taken into consideration. Another group of diagnostic features concerns rural community decay. In the category of socio-demographic determinants several sub-indicators were selected: birth-rate, net internal migration, population density, the feminisation coefficient as well as ratios relating to employment: proportion of working age population in the total population, share of unemployed people in economically active production and demographic dependency ratio. In relation to infrastructural conditions, the following were analysed: the density and exploitation of infrastructure networks (water, sewage, gas) as well as the consumption of water and gas.

Finally, 27 sub-indicators were taken into consideration. Separately, in each of the two aspects of rural area marginalisation, the diagnostic features were standardised and classified into five ranges according to a normal distribution using the *Statistica* software. Next, for each class a sufficient grade

of marginalisation susceptibility was assigned: from the most favourable (5) to the least favourable (1), where gminas with the highest values (5 and 4), were the most prone to marginalisation. Afterwards, in each group of diagnostic features the sub-indicators were averaged out and subjected to data clustering. As a result of grouping, the following types of gminas have been distinguished: those with the uttermost degree, with a high degree, with a medium degree, with a low degree and those very liable to marginalisation.

The statistical data were derived from various fields of sources, but generally came from the Central Statistical Office (<http://www.stat.gov.pl/bdl>) and, depended on availability, covering the period 2010-2012. Additionally, for making comparisons, statistical data from the last two decades have also been used.

The spatial scope of the research covers three border voivodeships (administrative region of the 1st order of Poland): Dolnośląskie, Lubuskie and Zachodniopomorskie, where the basic study was conducted at the local level of gminas, and only for the purpose of making comparisons the regional voivodeship level was used. The study included 310 rural and rural-urban gminas, where in the latter the urban parts were excluded.

3. Results and discussion

3.1. Agriculture marginalisation

3.1.1. Natural conditions

The results revealed that in the study region the natural conditions are relatively favourable to plant cultivation, except 11 gminas with rugged terrains (e.g.: gminas in poviats (administrative regions of the 2nd order of Poland): Wałbrzyski, Kłodzki, Jeleniogorski), where the value of the index of agricultural production was less than 80 points. In the vast majority of gminas (191 cases), the value of the analysed index ranges from 80 to 110 points. However, in the Zachodniopomorskie voivodeship, in several gminas the index significantly exceeds 120 points, maximum reaching up to 170 points, which is explained by the occurrence of rich soils.

As for the share of protected areas, in only 27 gminas did the contribution exceed 80% of the

total land, these were the highest quantities. The analysed gminas can be found, for instance, in the following poviats: Jeleniogórski, Górowski, Milicki (in the Dolnośląskie voivodeship), Międzyrzecki (the Lubuskie Voivodeship) and Gryfiński (in the Zachodniopomorskie voivodeship). However, in as many as 155 gminas the share of protected areas is the lowest, not exceeding 20%. This means that this situation creates only a slight risk of agriculture marginalisation, and on the other hand, is in favour to implement intensive farming.

The synthetic environmental indicator for organic production is useful in the assessment of agriculture marginalisation, because a real growth

of organic farming may slow down the role of intensive production, and open the opportunity to strengthen farming extensification. This considerably concerns the study area, because a relatively large number of gminas have good conditions for establishing organic production (100 cases), especially the Dolnośląskie voivodeship, which accounts for half of this value. Generally, a spatial concentration of this category of gminas can be observed, belonging to the poviats: Górowski, Jaworski, Milicki, Strzelecki and Wrocławski (in the Dolnośląskie voivodeship), Choszczeński, Gryfiński, Myśliborski and Pырzycki (in Zachodniopomorskie) and Strzelecko-Drezdeński (in Lubuskie).

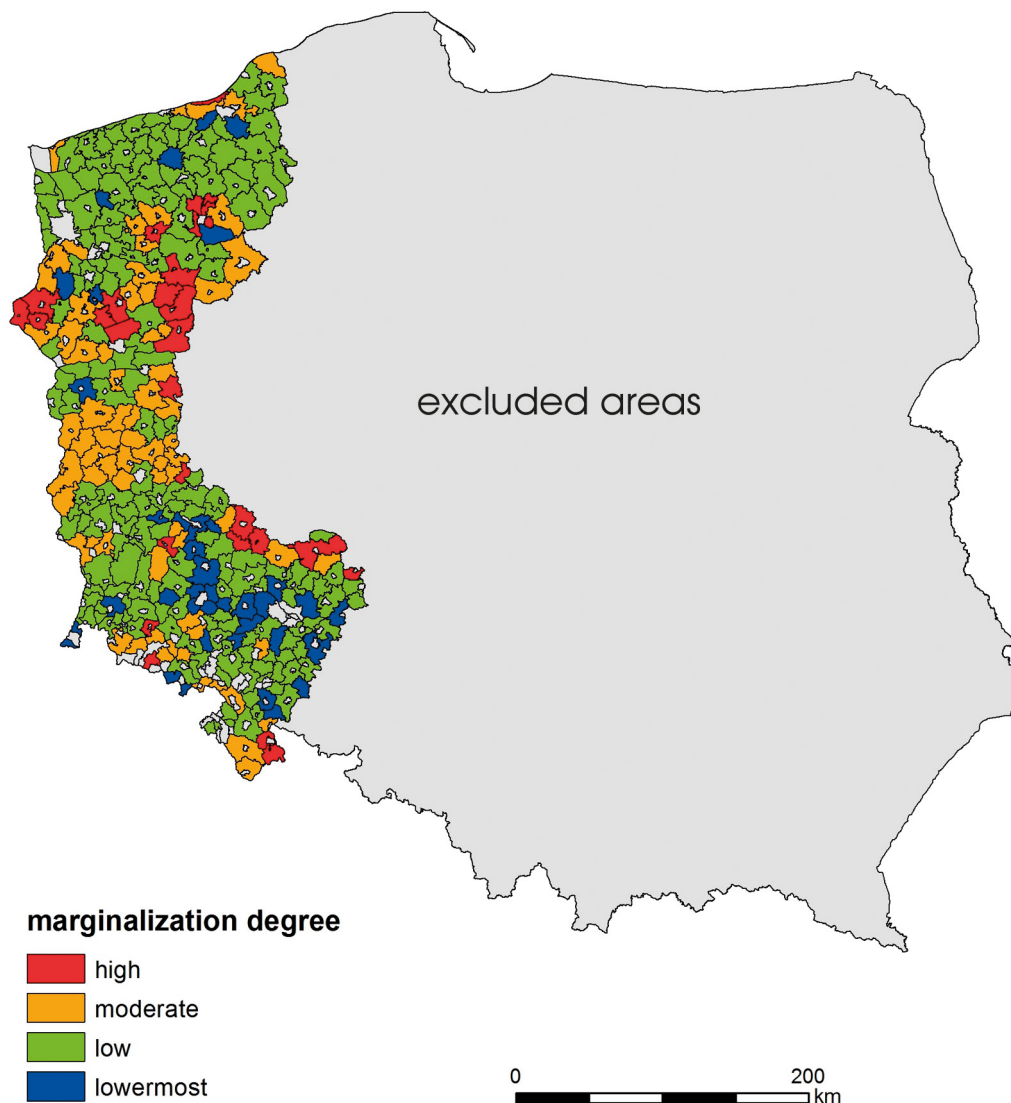


Fig. 2. Agriculture marginalisation in relation to natural conditions

Source: Compiled by the Author

Referring to the aggregated indicator of natural conditions, about 80% of the analysed units show great potential for agriculture growth (Fig. 2). Only several gminas are prone to potential marginalisation: Góra, Jemielno, Łądek Zdrój, Międzybórz, Milicz, Podgórzyn, Przemków, Stronie Śląskie, Wąsosz, Wleń (in the Dolnośląskie voivodeship), Dobiegiew, Drezdenko, Kłodawa, Kolsko, Pszczew (in the Lubuskie voivodeship), Cedynia, Barlinek, Bierzwnik, Chojna, Ińsko, Mielno, Moryń, Nowogródek Pomorski, Ostrowice, Złocieniec (in the Zachodniopomorskie voivodeship). In these cases, on the low value of the analysed index influence: a significant share of protected areas as well as a large share of areas highly suitably for organic farming can be found.

3.1.2. Farmland management

In the field of farmland management, agriculture marginalisation is manifested by: a high proportion of woodlands as a total of a gmina's area, a significant share of set-aside land in the total of agricultural land, and a predominance of undemanding plants in crop rotation.

As for land use, the relationship between the share of farmland and woodland, as two predominant land use types in a given gmina, has been taken into account. As a result, the following categories of gminas have been distinguished: highly agrarian (with more than 80% share of agricultural land), agrarian (where the share is ranged from 60 to 80%), agro-sylvan (where the share of agricultural land does not exceed 60%), sylvan-agrarian (with the participation of forest from 40 to 60%) and sylvan (with the contribution of forested from 60% to 80%). From the research point of view, only in those gminas, where forested areas have a significant share (occupying from 40 to 80% of the gmina's land) can it be said that there is a limitation of agrarian activity. This situation applies to 80 cases, where a half of them goes to the Lubuskie voivodeship; the largest share of woodland is observed in the Żagański and Żarski poviats. The explanation for this is an occurrence of large forest complexes, among others the Dolnośląskie Forests. In contrast, agrarian and highly agrarian types dominate in the Dolnośląskie voivodeship: 67 gminas, which gives a half of the total number of gminas in this voivodeship.

In the case of agricultural land patterns, the most important are two diagnostic features: the share of arable land in comparison with other categories of agricultural land as well as the share of fallow farmlands in the total cultivated land. Following the methodological approach areas prone to agricultural marginalisation are those, where arable land does not exceed 20% in favour of other types of agricultural land. This situation can be found in 13 gminas, mostly located in the mountain regions, where the natural condition is not conducive to farming (gminas of the poviats: Kłodzki and Wałbrzyski, for example). When considering the spatial dispersion of the analysed gminas, high concentration is linked with wetlands and upland areas. On the other hand, the best conditions where arable lands cover more than 80%, are observed in 108 gminas, where the majority of them fall in the Dolnośląskie voivodeship.

Analysing the contribution of set-aside areas in the total arable land, it seems that nowadays there is no data demonstrating the massive abandonment of farmland that used to be observed at the beginning of the 1990s. Nevertheless, currently the problem of set-aside areas concerns 23% of the study units, in particular in the Zachodniopomorskie voivodeship. Generally, the highest share of set-aside land, exceeding 10%, can be found in the following gminas: Jelcz-Laskowice, Olszyna, Wąsosz (in the Dolnośląskie voivodeship), Bobrowice, Krosno Odrzańskie, Łagów, Nowogród Bobrzański, Przewóz, Słubice, Wymiarki (in the Lubuskie voivodeship), Dobra Szczecińska, Manowo, Nowogródek Pomorski, Polanów, Stepnica, Świeszyno (in the Zachodniopomorskie voivodeship). In these areas only local factors influence the situation, such as: the poor economic condition of a gmina, a lack of interest in farming development and unfavourable natural conditions. And even though, from 2004 the acreage of set-aside land decreased there, the above gminas have been classified into the group of those, most liable to marginalisation.

In relation to crop rotation, special attention was paid to the share of industrial plants, such as: sugar beet and oilseed rape, as good indicators of intensive agriculture. Results revealed that only in 24 gminas was the share of industrial plants in crop rotation the highest and ranged from 30 to 50%. The vast majority of gminas (197) are distinguished

by a very low share, less than 20%, however, in this group there are 116 gminas (37% of the total share), where the index value does not exceed 10%. This indicates a serious limitation for intensive farming development. Nevertheless, a long-term study of changeability trends proves that fluctuation is associated with demand for certain plants due to the influence of regional or global factors. Thus, the small share of industrial crops does not have to indicate the permanent withdrawal of intensive production, but it may be a result of temporary lack of demand for sugar beet and oilseed rape.

As for the aggregated indicator of farmland management, analysis of the spatial distribution of gminas (Fig. 3) shows a clear concentration of the gminas with the lowermost marginalisation degree. One patch stretches on the south from Wrocław and the second one on south-eastern from Szczecin. The explanation for this is the fact that these areas are the least wooded in the study region. On the other hand, gminas prone to marginalisation correspond with the occurrence of forested areas (in the Lubuskie voivodeship), or set-asides (in Zachodniopomorskie), or mining and post-mining areas (in Dolnośląskie).

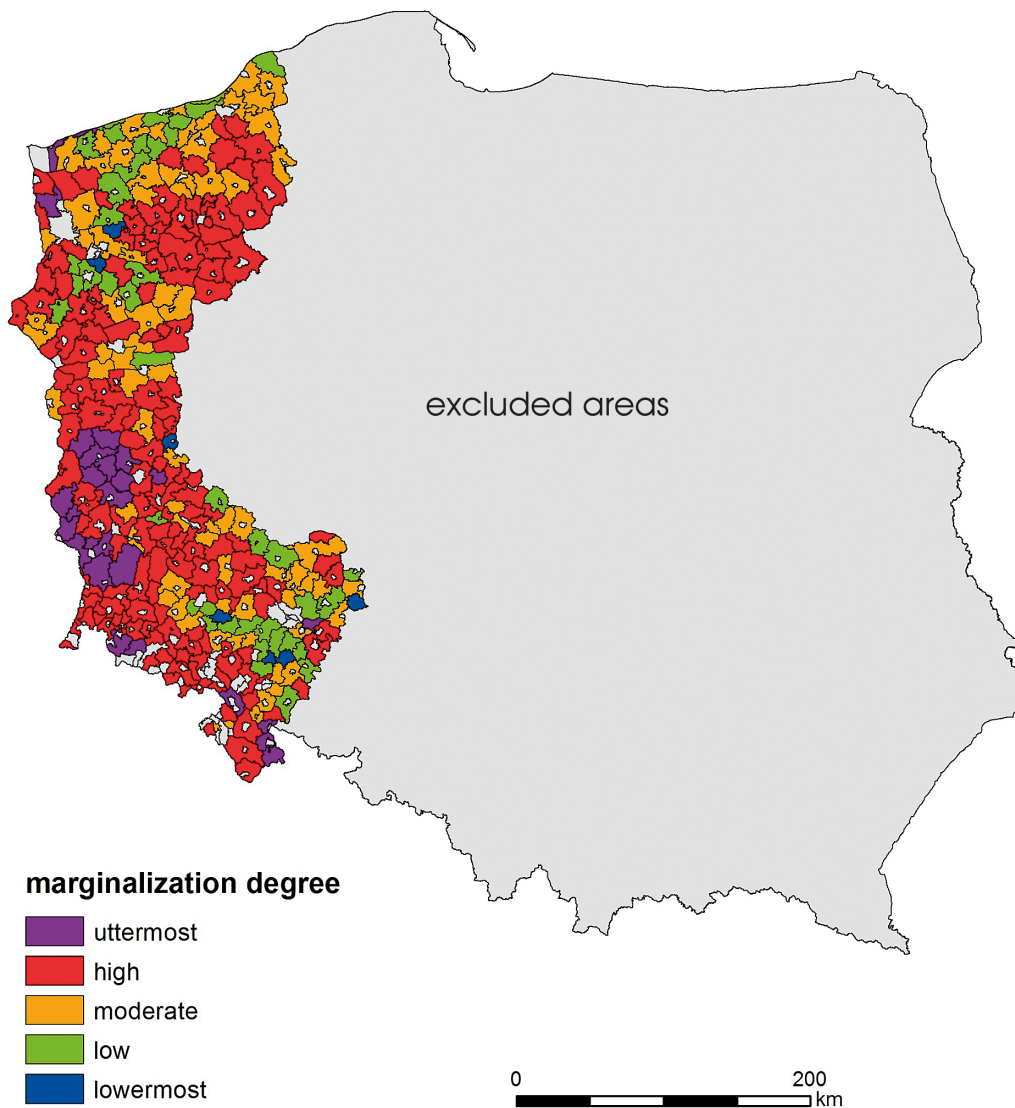


Fig. 3. Agriculture marginalisation in relation to farmland management

Source: Compiled by the Author

3.1.3. Economic factor

In the field of economic condition, the marketability index has been taken into consideration. This index provides information about the percentage share of total agrarian production delivered for market. Usually, market-oriented holdings are typical for specialised and intensified farming. However, a low value of this indicator does not always have to be a sign of agriculture marginalization, because in a given region a significant number of self-sufficient farms can operate, producing on their own needs.

Only in a small number of gminas did the degree of market-oriented production show the high-

est values, between 60 and 80%. In most cases these are gminas located in the Dolnośląskie voivodeship, however, no spatial concentration can be seen there. In many more gminas, 40 cases, the market-oriented production value is estimated at a share of 50-60%. Here the areas are located at a close distance to towns or densely populated areas.

In contrast, in the vast majority of gminas, almost 200 cases, the amount of the analysed index does not exceed 40%. The lowest values, reaching as low as 10% of total production delivered for market, can be found in several gminas, especially in the poviats: Krośnieński, Zielonogórski, Żagański and Żarski in the Lubuskie voivodeship, where farming is neglected.

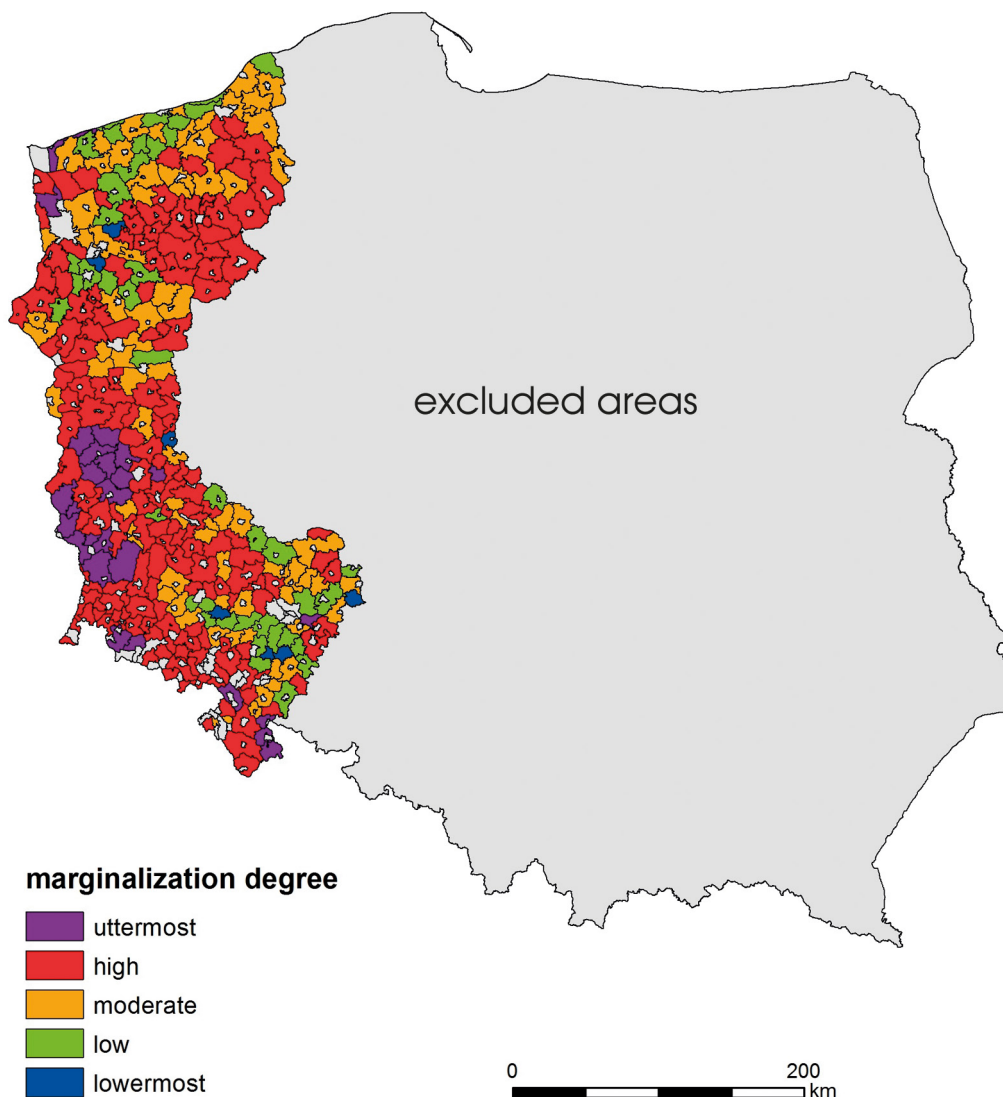


Fig. 4. Agriculture marginalisation in relation to economic factor

Source: Compiled by the Author

Analysing the spatial distribution of gminas with extreme values of the ratio (Fig. 4), the uttermost marginalisation degree is observed in the Lubuskie voivodeship and the reason for this are unfavourable conditions for farming development or a significant number of hobby self-sufficient farms. As opposed to this, areas with low and the lowest marginalisation degree are linked with the occurrence of highly market-oriented farms. They surround two the largest cities in the study region: Szczecin and Wrocław.

3.1.4. Organisational and technical conditions

Capital expenditures incur on agrarian activities and stimulate rural development. Therefore, in searching for agriculture marginalisation, the following features have been taken into account: number of tractors, capital investment in outbuildings, chemical fertilizers utilisation and livestock density. All indicators have been referred to the unit area of agricultural land. Additionally, the spending of municipal budgets' on agriculture has been included into the research.

As for the mechanisation ratio, expressed by the number of tractors per 100 hectares of agriculture land, the lowest value is observed in the Zachodniopomorskie voivodeship. Here in three-quarters of the analysed gminas, the average value does not exceed 4 tractors per 100 ha. On the other hand, in the Lubuskie and Dolnośląskie voivodeships the tractors' saturation is definitely higher with the maximum reaching up to 13 items. However, in this case, a low value of the index does not have to be evidence of marginalisation. For example, in the Zachodniopomorskie voivodeship the number of farms is 48 thousand, whereas in the Dolnośląskie voivodeship, which covers a similar area to Zachodniopomorskie, the number is around 107 thousand. Bearing in mind that usually each holding is equipped with a minimum of one tractor, a tiny saturation in the Zachodniopomorskie voivodeship is not surprising.

In the case of capital investment in outbuildings, the situation is similar to the above-mentioned, namely that building saturation depends on the number of households in a given area. Again in the Zachodniopomorskie voivodeship the lowest values have been noted: in 85% of gminas the analysing in-

dex does not exceed 2 thousand square meters per 100 hectares of agricultural land. A higher building saturation has been observed in the Lubuskie voivodeship, where in 13.5% of gminas the index exceeds 3 thousand square meters per 100 hectares. A similar situation is in the Dolnośląskie voivodeship, where the share in this category is about 11%.

With regard to chemical fertiliser utilisation, in 73 gminas the consumption is the lowest, not exceeding 50 kilograms per hectare. In this case, the share of gminas in each of the voivodeships is similar. In contrast, the highest utilisation, reaching up to 250 kilograms per hectare, and in a few cases even 330 kilograms, has been observed in 93 gminas, where 60% of them fall in the Dolnośląskie voivodeship. It should be noted that analyzing the value of this ratio over the past two decades, some fluctuations have been observed. At the beginning of the 90s, when Polish agriculture was affected by an economic crisis, the use of fertilisers reduced drastically. Only the economic growth, at the turn of the century, was beneficial for farmers. Nowadays the consumption is around 130 kilograms per hectare.

In relation to livestock density, in 75% of the total number of gminas, the value does not exceed 30 heads per 100 hectare of agricultural land. Only in 77 gminas is the number higher, reaching 100 heads, and in just a few cases the highest value is obtained, 350 heads. Taking into consideration the fact that livestock farming is much more capital-intensive than the planting direction, it can be said that there has been a noticeable extensification of agriculture in the study region.

In terms of the spending of municipal budgets on agriculture, generally the expenditures are extremely low, in many cases (63 gminas) less than 1%, and over 90% of the study units are below the threshold of 10%. This underinvestment proves the minor importance of farming in local development, which over a long-time perspective could influence on the backwardness of rural areas. The gminas distinguished by the highest expenditure are the following: Janowice Wielkie (23%), Marciszów (47%), Paszowice (22%), Stara Kamienica (48%) in the Dolnośląskie voivodeship, Lubrza (61%) in the Lubuskie voivodeship, Osina (30%), Ostrowice (42%), Radowo Małe (22%), Stare Czarnowo (40%) in the Zachodniopomorskie voivodeship.

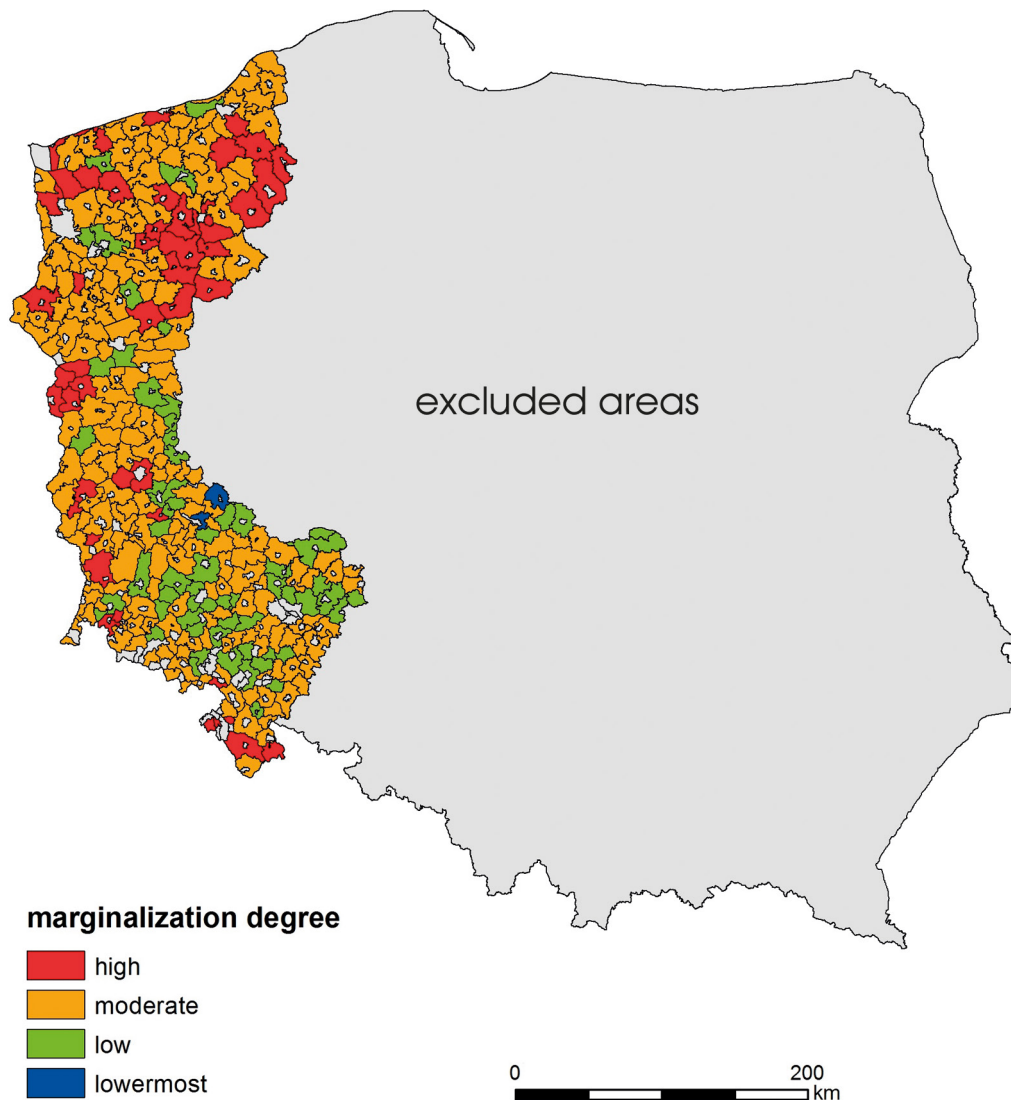


Fig. 5. Agriculture marginalisation in relation to organisational and technical conditions

Source: Compiled by the Author

In relation to the aggregated indicator of organisational and technical condition, the spatial distribution of gminas with a high marginalisation tendency can be found in the Zachodniopomorskie voivodeship (Fig. 5). Here the number of farms, an important determinant influencing on the ratio value, is the lowest. Due to the number of holdings, gminas with a low marginalisation degree are concentrated in the Dolnośląskie voivodeship.

3.1.5. Agricultural land potential

With reference to the agriculture land potential, the following features have been used: the capacity of agricultural land per capita and per farm.

As for the potential of agricultural land per capita, in the smallest category - reaching to 0.5 hectare per one person, 29 gminas have been classified, where the Dolnośląskie voivodeship has the predominant share. In contrast, the highest rate of this indicator - between 2 and 5 hectares, is observed in the Zachodniopomorskie voivodeship. Here 43 gminas (42% of all units of this voivodeship) have been classified in this category, while in Dolnośląskie - only 3 gminas, and in Lubuskie - 6 gminas.

With regards to the acreage of agricultural land per one household, the largest number of gminas with the lowest values of this index, not exceeding 10 hectares, have been recorded in the Dolnośląskie voivodeship: 80 cases, involving more than 60%

of the total units in this voivodeship. In the Lubuskie voivodeship, in this category there are 41 gminas (55% of the total units), while in Zachodniopomorskie – only 7. In contrast, the highest value, from 40 to 60 hectares per one household, can be found in only a few cases, however, none is observed in the Dolnośląskie voivodeship.

The spatial distribution of gminas is shown in Figure 6. It is clearly seen that those gminas most

prone to marginalisation are located in the southern part of the study region in contrast to the least favourable to marginalisation concentrated in the northern part. In both cases, the explanation for the ratio value is the population density, the number of holdings and the agricultural land resources. For this reason, the situation is unfavourable in densely populated areas, where additionally the number of farms is significant.

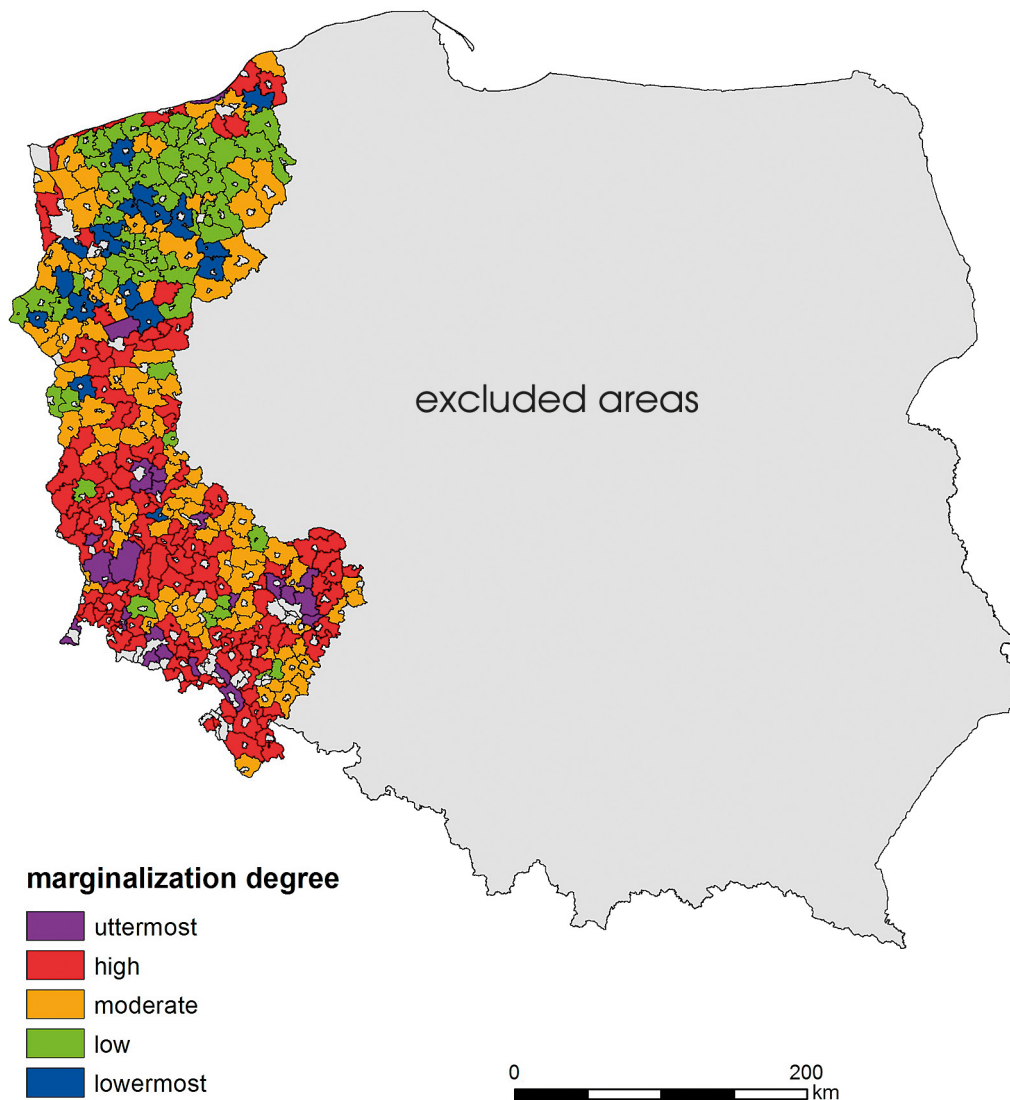


Fig. 6. Agriculture marginalisation in relation to agricultural land potential

Source: Compiled by the Author

3.2. Rural community marginalisation

3.2.1. Socio-demographic determinants

Demographic factors have a leading role in the development of the settlement processes in rural areas (Antipova, 2013) as well as an influence on the socio-economic development of the countryside (Biegańska, 2013). Due to the fact that one of the main symptoms of rural area marginalisation is depopulation, the birth-rate and net internal migration have been chosen as the foremost indicators expressing a marginalisation tendency. However, rural depopulation implies a number of negative economic consequences, leading to countryside decline. Therefore, other indicators have been taken into account: population density, feminisation coefficient and employment rate.

As for the birth-rate, it has been assumed that only gminas, which are marked by steadily decreasing and high negative values of the index (birth rate $>-2\%$), have a tendency to marginalisation. This category includes a quite considerable group of gminas in the Dolnośląskie voivodeship: 44 cases concentrated in the following poviats: Kłodzki, Świdnicki, Wałbrzyski, Ząbkowicki, Złotoryjski. In the Zachodniopomorskie voivodeship this phenomenon concerns 13 gminas, whereas in Lubuskie - 12 cases, however, no clear spatial concentration can be seen there. Nevertheless, in a relatively large number of gminas, 90 cases, a rising value of the birth ratio has been observed recently, reaching more than $+2\%$.

In the case of net internal migration, several gminas are distinguished by a strong population outflow (>-30 person). In the Zachodniopomorskie voivodeship, this issue concerns 44 gminas, where a clear spatial concentration is observed in the following poviats: Białogardzki, Drawski, Łobeski, Stargardzki and Wałecki. Another 42 gminas have been found in the Dolnośląskie voivodeship and the next 12 in Lubuskie, however, without any spatial concentration. The results showed that one third of the total gminas' number is undergoing a steady depopulation, which creates the basis for rural area decay. On the other hand, the best condition (more than 100 persons) can be found in 30 gminas, of which more than a half goes to the Dolnośląskie voivodeship. Here the concentration is seen around cities and towns.

It should be added that both of the above mentioned processes: a steady birth-rate decrease and a strong population outflow are linked to each other. In 27 of the gminas of the study region both phenomenon appeared simultaneously. These areas are distinguished by a weakening of economic activity, which in turn entails emigration by young people. As a consequence, it leads to a decline of the birth-rate and an increase in the ageing process of the area.

With reference to population density, sparsely populated rural areas, with less than 20 persons per square kilometre, were found in 54 gminas, among which 32 are located in the Zachodniopomorskie voivodeship, 19 in Lubuskie and 3 in Dolnośląskie. It should be added that in the above voivodeships the average rural population density is estimated at respectively: 75, 73 and 146 persons per square kilometre. As opposed to this, densely populated areas are concentrated close to major urban centres, which is not surprising, because of the wider range of job opportunities there.

In relation to the feminisation coefficient, the least favourable situation can be observed in the Zachodniopomorskie voivodeship, where in 33 gminas the rate ranges from 90 to 96 women per 100 men (the average for this voivodeship is 99). A clear spatial concentration is observed in the poviats: Białogardzki, Drawski and Pyrzycki. Into this category, 11 gminas in the Dolnośląskie voivodeship (where the average value for feminisation coefficient in rural areas is 102) have also been included and 13 gminas in Lubuskie (where the average value of the feminisation coefficient is 100). The highest value of this index was found in 54 gminas, among which a half of them are located in the Dolnośląskie voivodeship in urban-rural gminas in close distance to main cities.

Another group of indicators relates to rural area employment. Firstly, the share of the active-working population in the total population was analysed. The average value ranged from 60 to 72% and is relatively aligned in each of the analysed voivodeships.

Next, the share of unemployed people in the economically active population was analysed. The highest share, over 15%, affects 80 gminas, where a half of them go to the Zachodniopomorskie voivodeship. In turn, the lowest value of the unemployment ratio, less than 7%, is observed in 31 gminas

of the Dolnośląskie voivodeship, in 21 gminas in Lubuskie and in only 3 gminas in Zachodniopomorskie. It should be noted that even if over the last two decades the unemployment rate has been steadily decreasing, there are still areas where this issue is significant.

Finally, demographic dependency ratio was analysed. The highest values, more than 57 people in the non-productive age per 100 persons of productive age, were found in 36 gminas, where the share in each of the voivodeships is equal. The best con-

dition, when the value of the index is less than 50, was found only in small number of gminas.

Analysing the values of aggregated indicator (Fig. 7) it seems that the lowermost marginalisation degree is observed in those gminas surrounding regional development centres, such as: Wrocław, Szczecin, Zielona Góra, Gorzów Wlkp. and Kołobrzeg. The further from urban areas, the higher the marginalisation degree, however, the rural area most likely to socio-demographic decay are located in sparsely populated gminas.

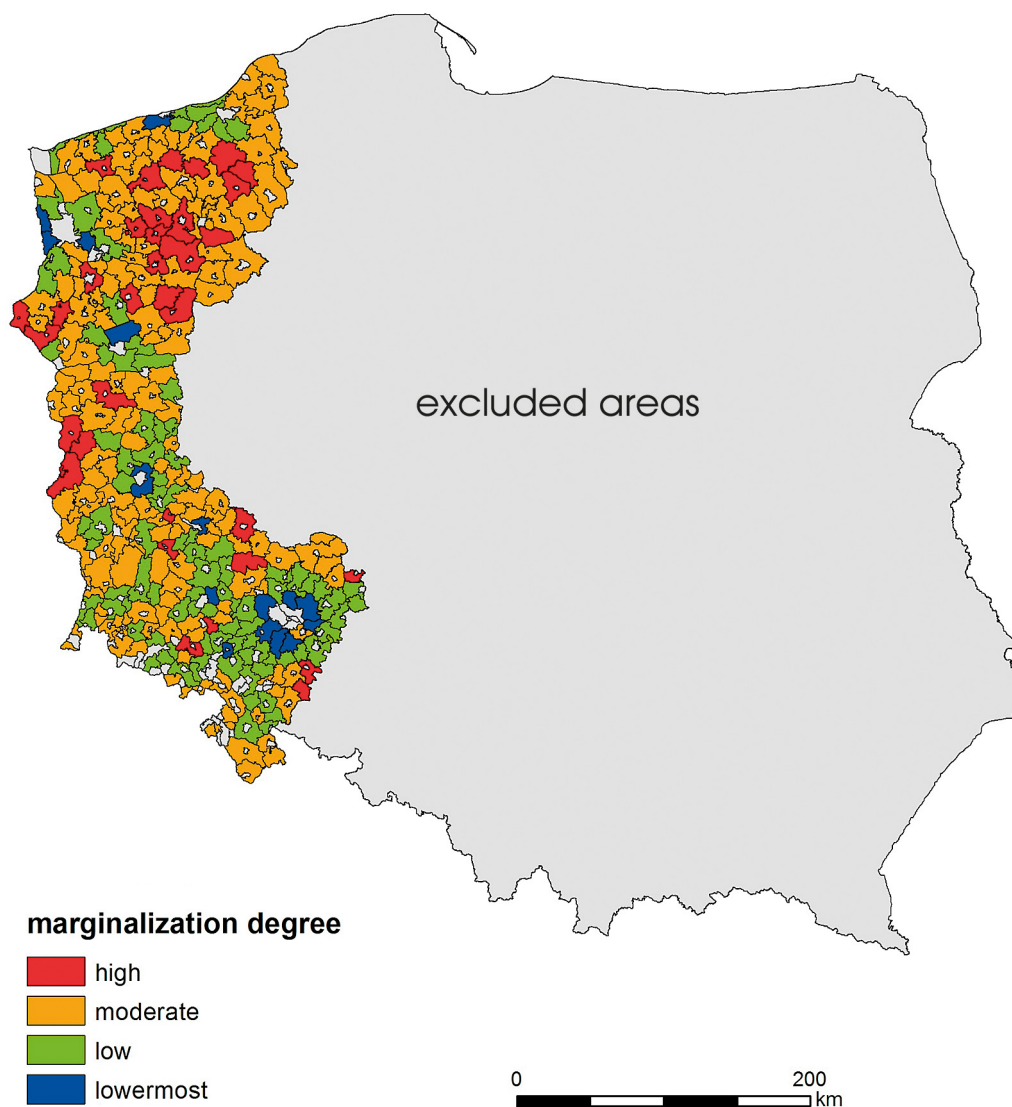


Fig. 7. Rural community decay in relation to socio-demographic determinants

Source: Compiled by the Author

3.2.2. Infrastructural conditions

For the evaluation of the infrastructural conditions, the following diagnostic features were chosen: the density and exploitation of infrastructure networks (water, sewage, gas) as well as the consumption of water and gas.

With regards to the density of the water supply system, in 54 gminas the value of the index is the lowest, less than 20 kilometres per 100 square kilometres (13 in the Dolnośląskie voivodeship, 18 in Lubuskie, 23 in Zachodniopomorskie). On the other hand, the highest value of this ratio, between 100 and 300 kilometres, was found in the most densely populated gminas (14 cases), of which 90% go to the Dolnośląskie voivodeship (here the population density is estimated at 146 inhabitants per square kilometre).

With relation to the density of sewage system, a slight underdevelopment is observed. This is due to the fact that establishing this kind of installation involves logistical and procedural inconvenience, because a sewage system must be connected to a wastewater treatment plant (Bański, Wesołowska, 2010). In 64 gminas of the Dolnośląskie voivodeship, the network density does not exceed the lowest value, 10 kilometres per 100 square kilometres. In the Lubuskie voivodeship - 51 gminas have been classified in this category and in Zachodniopomorskie - 53 gminas. It should be noted that the share of gminas decreases proportionally to the increasing density of the sewage network. For example, the category of sewage system density from 40 to 100 kilometres per 100 square kilometres, is represented by 25 gminas, whereas the highest density (from 100 to 200 kilometres per 100 square kilometres) is observed only in 10 gminas (Czernica, Kobierzyce, Mysłakowice, Podgórzyn, Warta Bolesławiecka in the Dolnośląskie voivodeship; Dobra Szczecińska, Kołobrzeg, Mielno, Rewal, Ustronie Morskie in Zachodniopomorskie).

As for the density of the gas network, in all of the analysed voivodeships the share of gminas with the lowest density, to 20 kilometres per 100 square kilometres, fluctuates around 80%. Additionally, there is a vast majority of gminas (96 in the Dolnośląskie voivodeship, 50 in Lubuskie, 68 in Zachodniopomorskie) not equipped with a gas distribution network. Nevertheless, the lack of this installation in areas with a loosened settlement pattern is jus-

tified, because that investment would be unprofitable there. On the other hand, the highest density of gas installation was only found in a small number of gminas, reaching to 200 km per 100 square kilometres, for instance, in Kołobrzeg and Dobra Szczecińska.

With respect to the exploitation of the infrastructure networks, the lowest share of inhabitants that use the water distribution system (to 50% of a gmina's population) was observed only in 16 gminas, including 14 from the Dolnośląskie voivodeship. However, there are some gminas, where waterworks are not established at all, for example in Dziwnów, in the Zachodniopomorskie voivodeship. The best condition, where all inhabitants can use waterworks, has been found in 110 gminas (35% of the total number), where almost a half goes to the Dolnośląskie voivodeship.

In the field of the exploitation of sewage systems, the situation is much worse. 65% of the studied units found themselves in three categories of the lowest share of inhabitants (a maximum of 40% of the total gmina's population). Here the share is evenly distributed in three voivodeships. This category also concerns gminas, where this system does not exist (39 cases). On the other hand, 26 gminas have full access to sewage systems of which 13 are in the Zachodniopomorskie voivodeship, 11 in Dolnośląskie and 2 in Lubuskie.

The worst condition is shown in the exploitation of the gas system. In 212 gminas (68% of the total number of gminas) the share does not exceed 10% of the gminas' population, where 93 cases were found in the Dolnośląskie voivodeship, the 53 in Lubuskie and 66 in Zachodniopomorskie. However, in this category a large amount of gminas are not connected to a gas installation network. The best situation, where all inhabitants can use a gas distribution system, was found in 36 gminas: 14 in the Zachodniopomorskie voivodeship, 8 in Dolnośląskie and 4 in Lubuskie.

As for water consumption, the lowest value of this index, not exceeding 10 cubic meters per capita, was found in only 11 gminas of the Dolnośląskie voivodeship. Also a relatively low number of gminas were classified in the next category, where the consumption reaches to 20 cubic meters: 40 gminas in Dolnośląskie, 18 in Lubuskie, 9 in Zachodniopomorskie. On the other hand, the highest value

of this ratio (up to 60 cubic meters per capita) was found in 14 gminas, among which 11 are in the Zachodniopomorskie voivodeship.

Finally, the gas consumption issue. In 176 gminas the consumption presents the lowest value, reaching to 10 cubic meters per capita: 81 gminas in the Dolnośląskie voivodeship, 57 in Zachodniopomorskie and 38 in Lubuskie. The highest value of the analysed index, from 100 to 600 cubic meters

per capita, was found in 44 gminas, where a half of them were in the Zachodniopomorskie voivodeship.

As for the values of the aggregated indicator (Fig. 8), the degree of infrastructure equipment depends largely on the people resources (Szymańska, Biegańska, 2012), which in relation to sparsely populated areas can show backwardness. For this reason, the worst condition is observed in the Lubuskie voivodeship.

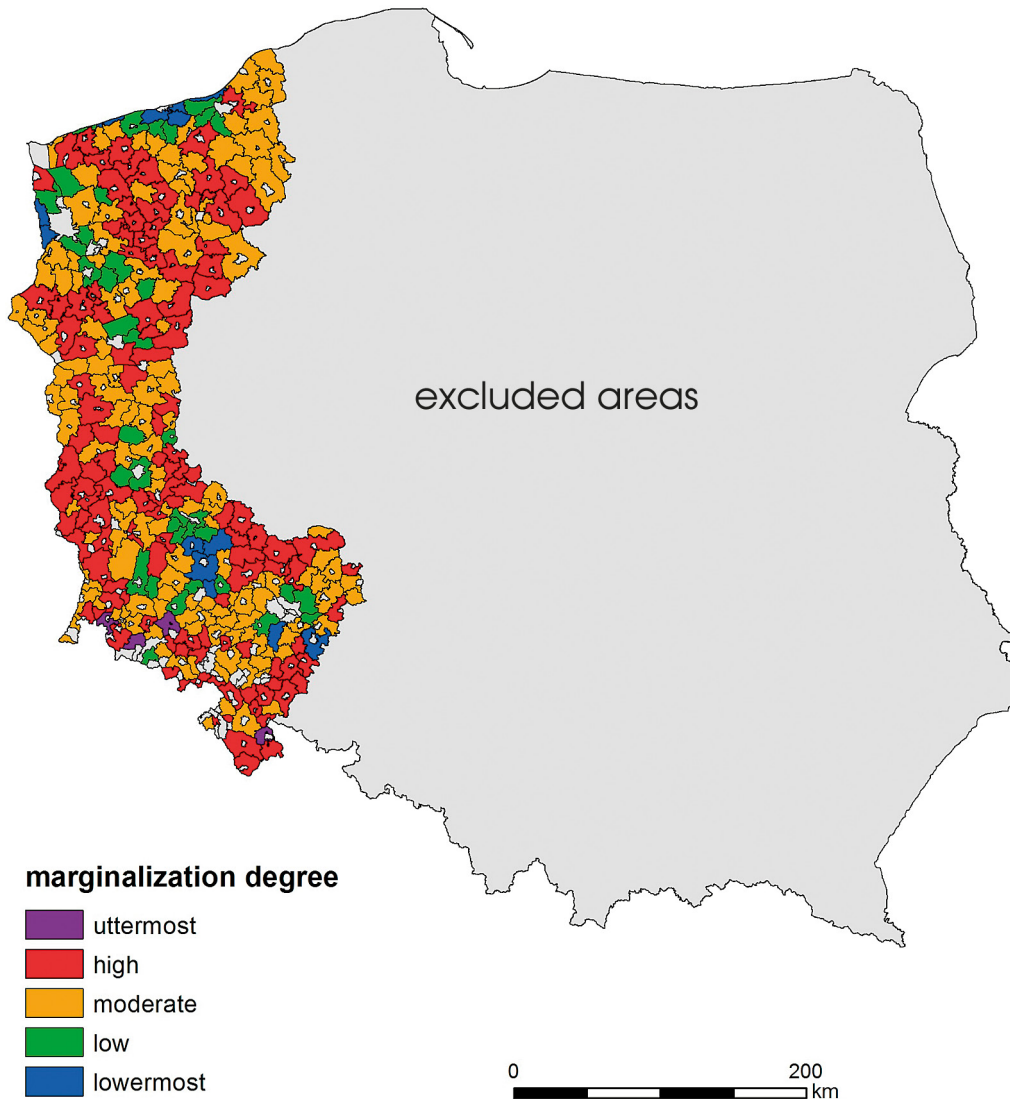


Fig. 8. Rural community decay in relation to infrastructural conditions

Source: Compiled by the Author

4. Conclusion

In light of the above findings, the following can only be said about the locally acting symptoms

of the rural area marginalisation of the Western fringes of Poland. The results revealed that areas prone to rural marginalisation are those with less favourable natural conditions and with ongoing depopulation.

To some extent, the economic delay of the Western frontier, in comparison to the neighbouring better prosperous region of the Wielkopolskie voivodeship, is a result of the deliberate negligence of the borderland according to its strategic geopolitical location.

In addition, it should be noted that the marginalisation of rural area of Western Poland is less negative than this ongoing phenomenon in the Eastern part of the country (Leszczewska, 2010). The marginalisation of the rural area of Eastern Poland observed over the post-war period was a result of urban development and the industrialisation of neighbouring land. In contrast, the first clear symptom of the marginalisation of the Western fringes was in the decade of the 1990s. However, here the starting point of agricultural extensification was the collapse of the state farms (Jasiulewicz, 2011). Also in terms of the socio-demographic aspects, the Western periphery is much more advantageous than the Eastern one, where depopulation and an imbalance of the age structure is an acute problem (Bański, 2007).

Additionally, it must be kept in mind that the economic activity of a given region, including a temporary decline of agrarian activities, strongly depends on external factors. For this reason, even if some disturbing symptoms of the weakening of intensive agrarian activity are observed, it does not necessarily mean permanent abandonment, because in this way farming is adjusting to new conditions (Brouwer, 2006; Markuszewska, 2013). Besides, marginalisation has a multilayered nature, and despite the fact that marginalisation can be observed locally, the general trend may actually be intensification, and the opposite, in a region affected by marginalisation, there can be locally poles of intensification (Pinto-Correia, Breman, 2008). Thus, only analysis of the diagnostic features relating to a specific field can show a more insightful view of the different aspects of marginalisation.

It is worth to noting that the marginalisation of rural area in Poland is quite different from a similar phenomenon observed in other countries located on the edge of Europe, as for example the Mediterranean states (Portugal, Greece) or the Scandinavian countries (Finland, Sweden) (Vihinen et al., 2005). It is a consequence of dissimilar historical, economic and political conditions. Furthermore, even

considering the same diagnostic features, it would turn out that the marginalisation trends in different countries are difficult to compare, which confirms the argument about the leading role of local conditions. Accordingly, rural marginalisation has no uniform model; it works differently in different regions, depending on specific circumstances intensifying the nature and course of this phenomenon.

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