

SHRINKING RURAL AREAS AS DEMOGRAPHIC PROBLEM AREAS – THE EXAMPLE OF POLAND AND AUSTRIA

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ABSTRACT

Aim: The work focuses on demographic problem areas perceived as important types of problem zones. The study aimed to identify rural demographic problem areas in Poland and Austria. **Methods:** The study covered rural areas identified based on the DEGURBA classification. Data from statistical offices in both countries for the years 2002–2018 was used. When identifying demographic problem areas, changes in the population and the development of selected demographic indicators were taken into account, for which their limit values were set (decisive for including a territorial unit <LAU 2> in a problem area). **Results:** The studied countries differ in the intensity of depopulation and spatial extent. In both countries, it was found that the number of problematic phenomena increases with the decrease in the rural population. In Poland, 4% of communes classified as rural areas were recognized as problem areas, while in Austria, problem areas covered 9% of communes. **Conclusions:** The demographic potential is closely related to the socio-economic development of rural areas, which for many communes in the surveyed countries may constitute a barrier to their development in the future.

Key words: depopulation, problem areas, rural areas, demographic potential

JEL codes: F22, J11, O18, R10

INTRODUCTION

Among the many issues raised in the literature on the development of rural areas, there is the problem of rural population outflow, which occurs in many countries in Europe and across the world. The process of depopulation, shrinking regions/rural areas [Cena and Fernandez-Cavada 1986, Stockdale 2002, Kotowska and Józwiak 2003, Mann 2004, Bucher et al. 2005, Kuczabski and Michalski 2013, Kinugasa et al. 2013, Li 2015, Penzes et al. 2015, ESPON 2017, Johnson and Lichter 2019, Mickovic et al. 2020, Živanovic et al. 2022], or rural exodus are indicated [Gonda-Soroczyńska 2006, Pinilla et al. 2008, Wesołowska

2016, Wesołowska and Jakubowski 2018]. It should be noted, however, that the problem of population decline in rural areas and the causes of population decline is a very complex and spatially diverse phenomenon. As indicated earlier, rural areas are commonly considered areas with a decreasing population [Borawska and Brodziński 2014] and a strongly progressing population aging process [Rakowska 2016]. However, in the case of rural areas located in the vicinity of urban agglomerations [Biegańska and Szymańska 2013; Wojewódzka-Wiewiórska 2021] and areas attractive to nature, there has been an increase in urban residents' interest in settling in recent years – which may translate into an increase in population in these areas.

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Depopulation, i.e., the process of outflow of population from a certain area in the long term [Eberhardt 1989, Szukalski 2015], is combined with other negative phenomena from the point of view of the development of a given area, which allows distinguishing problem areas. Problem areas are part of the geographical space, characterized by many negative socio-economic phenomena that lead to internal anomalies [Zagożdżon 1988]. In a spatial unit that has the character of a problem area, there is an abnormality of one or many elements of space [Bański 2011]. In addition, development difficulties result from the accumulation of negative phenomena in a given area [Domański 1987, Zagożdżon 1988, Markowski 1996, Rosner 2002, Pastuszka 2019]. Demographic issues are one of the features of problem areas, where they appear together with other specific features of a geographical, economic, socio-cultural or political-administrative nature [Pastuszka 2019]. They can also be the basis for identifying population problem areas or areas with demographic depression [Zagożdżon 1988, Bański 2002, Śleszyński et al. 2017, Pastuszka 2019, Wojewódzka-Wiewiórska 2021]. Their features include accelerated outflow of the population (including the young and well-educated), low population density, an unfavorable age structure, and a high proportion of elderly people in the total population. In addition to quantitative changes, there are also qualitative changes [Wesołowska 2016] particularly visible at the local level [Wojewódzka-Wiewiórska 2019].

Researching the issue of population outflow from rural areas in the context of demographic problem areas seems particularly interesting and important. Rural areas in the European Union (EU) cover 83%. Rural space in European countries is subject to constant, dynamic technical and functional transformations. Taking into account the results of previous studies, it can be concluded that specific demographic changes are taking place in the areas covered by depopulation (i.e., aging of the population, migration involving a decrease in the percentage of young people in the population, which results in further depopulation of the area [Weiß 2002, Glasgow and Brown 2012]. Knowledge of these changes is important because demographic potential is considered to be one of the most important factors of socio-economic development and low

potential and problems such as, for example, the aging of the population may constitute a barrier to development and cause disproportions in development. This is important for rural areas, which are definitely less developed than other areas (especially cities) [Grosse 2004, Halamska 2015, OECD 2020, Publications Office of the European Union 2022]. Recognition of the ongoing demographic processes permits the search for effective ways to counteract unfavorable changes related to the loss of population potential [Borawska and Brodziński 2014, Wesołowska and Jakubowski 2018]. It also gives the opportunity to assess the economic situation, which is the basis for designing various socio-economic activities in the field of the labor market, social security systems [Borawska and Brodziński 2014], and for making appropriate decisions within EU policy [Jakubowski and Bronisz 2019].

The work concerns the demographic potential of rural areas in two countries (i.e., Poland and Austria). The aim of the study is to identify rural demographic problem areas. To achieve the main objective, research tasks were formulated: (1) to determine demographic changes at the local level, including identifying areas of depopulation; (2) to identify negative demographic phenomena occurring in rural areas. Based on the analysis of five highlighted indicators (criteria), areas characterized by the concentration of negative demographic trends were identified, forming problem areas in rural areas in the surveyed countries. The advantage of the work is conducting analyses in local terms, where rural areas in countries with different levels of development (less and highly developed) were compared. The study verified the hypothesis that in Austria, depopulation processes are more advanced in rural areas, and rural areas are more often problem areas than in Poland because they are characterized by negative demographic phenomena other than population outflow.

METHOD

The study concerns Poland and Austria. The studied countries differ in terms of their level of development. Poland is classified as a less-developed EU country, while Austria is classified as a highly developed country [Pawlas 2015, Publications Office of the

European Union 2022], which is confirmed by various values of indicators such as GDP per capita and HDI (Table 1). Despite a significant difference in the size of the population in the surveyed countries, the percentage of the rural population is similar and amounts to 40% in Poland and 42% in Austria.

The paper uses the definition of rural areas according to the DEGURBA classification [Statistics Poland 2020], which represents the objective trend of delimiting rural areas [Rakowska 2019]. This classification is not based on differentiating units based on an administrative criterion, which allows for international comparative analyses. Moreover, it complements the national definitions of rural areas, covers the urban-rural continuum and can be applied to existing/available datasets (European Union, FAO, UN-Habitat, OECD, The World Bank). Rural areas are sparsely populated areas which, in the case of Poland, include 1,870 communes and, in the case of Austria, 1,710 units.

The data source was the Local Data Bank of Statistics Poland [2019] and data from Statistics Austria [2019]. The time range of the work covers the years 2002–2018. Due to the different methods of collecting statistical data in the surveyed countries, data as of December 31, 2001 and 2017 was used for Poland, and data for Austria as of January 1, 2002 and 2018. The selected time range is related to the availability of statistical data and their possible comparisons in the surveyed countries in the longest possible time horizon.

When identifying demographic problem areas, changes in the population and the development of selected indicators were taken into account, for which their limit values were set – decisive for including an administrative unit in a problem area [Jakubowski and Bronisz 2017, 2019]. Based on earlier research [Eberhardt 1989, Strzelecki 1995, Wesolowska 2016, Wojewódzka-Wiewiórska 2021], the study adopted depopulation areas as units characterized by a decrease in population by more than 5% in a longer time horizon. Areas in which the population decreased by more than 15% in the analyzed period were considered areas of extreme depopulation. The following indicators were analyzed: (1) population change in 2002–2018 (2002 = 100%); (2) share of the working-age population in the total population in 2018; (3) number of women per 100 men in 2018; (4) total migration balance (annual average in 2002–2018); (5) natural increase balance (annual average in 2002–2018). The following values were defined as the limit values for individual indicators: (1) 95%; (2) 60%; (3) 93 women per 100 men; (4) balance – 20 people per year.

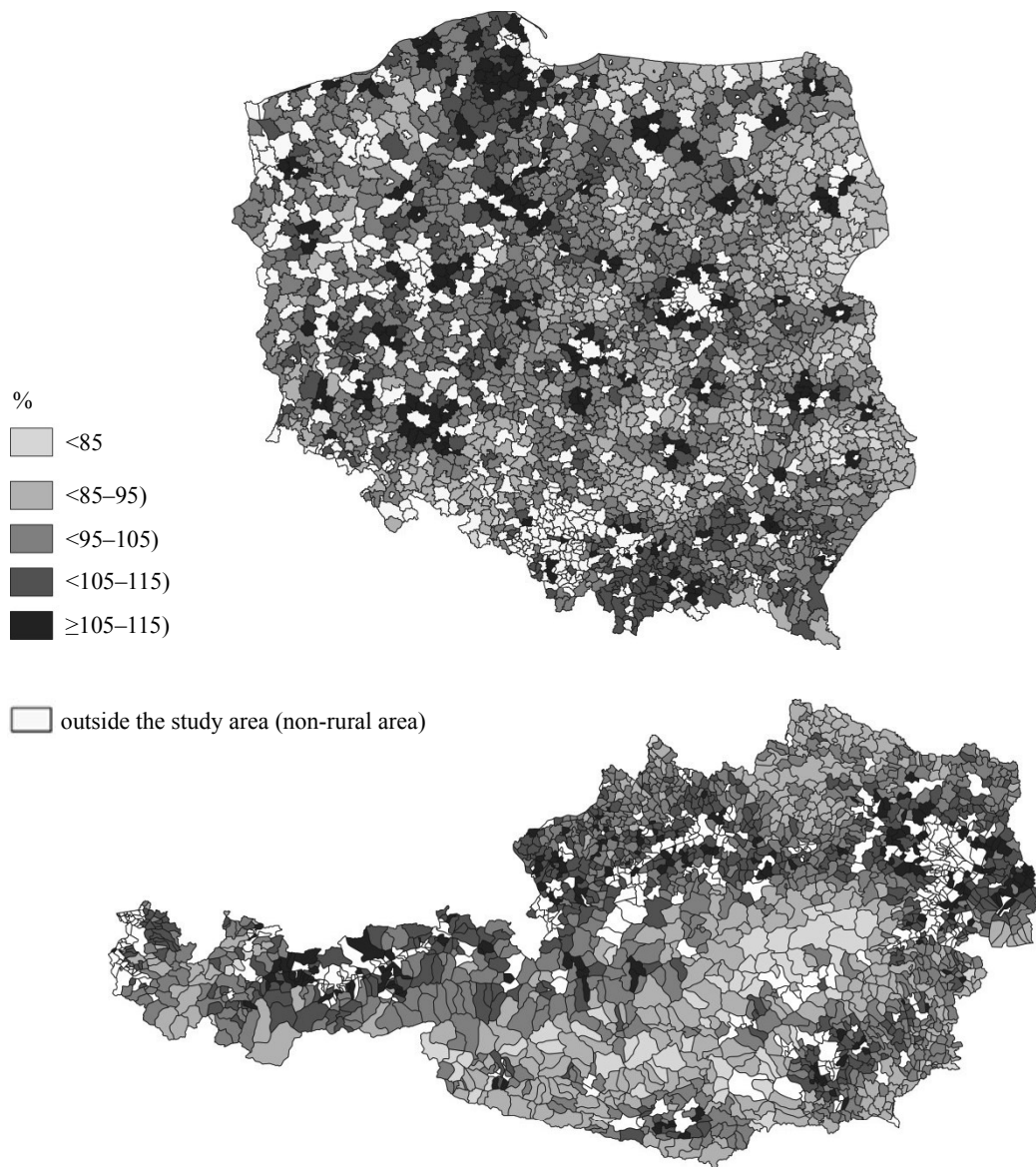
RESULTS AND DISCUSSION

Rural areas in Poland and Austria are experiencing depopulation processes (Fig. 1). The percentage of communes representing rural areas and characterized by a population decline of over 5% is 29.4% in Poland, while in Austria, it is 25.7% (Table 2). In the analyzed period, extreme depopulation, i.e. a decrease in popu-

Table 1. Characteristics of the studied countries as a research area

Specification	Poland	Austria
Number of LAU2 units (rural areas according to DEGURBA)	1,870	1,710
Population (on January 1, 2018)	37,976,687	8,822,267
Rural population (% of total population) (2018)	40	42
Land area (km ²) (2020)	306,130	82,520
Real GDP per capita (EUR) (2021)	13,580	36,950
HDI (2019)	0.880 – position 35	0.922 – position 18
Share of farmland in land area (%) (2016)	46.9	32.4

Source: own elaboration based on [UNDP 2020, Eurostat 2020, 2022, The World Bank 2022].



Due to the different ways of collecting statistical data in the surveyed countries, data for Poland as of December 31, 2001 and 2017 was used; data for Austria as of January 1, 2002 and 2018

Fig. 1. Population changes in rural areas in Poland and Austria at the commune level in 2002–2018 (2002 = 100%)

Source: own elaboration based on Statistics Poland and Statistics Austria data

lation by over 15%, occurred in 2.5% of communes in Poland and 3.8% in Austria. In both Poland and Austria, there are spatial differences in terms of population changes and, in both countries, rural areas located in the vicinity of large cities [Biegańska and Szymańska, 2013; Wisbauer and Klotz, 2019] are characterized by high dynamics of population growth.

Depending on the changes in the population, selected indicators describing the demographic potential of rural areas in the surveyed countries were analyzed. Rural areas defined as depopulated (where the outflow of the population in the analyzed period was at least 5%) in both countries are characterized by unfavorable development of selected indicators in relation

Table 2. Selected average values of indicators describing rural areas in Poland and Austria depending on changes in population

Population change 2002–2018 (2002 = 100%)	Indicator				
	Structure of rural areas (% of communes)	Share of the working-age population in 2018 (%)	Number of women per 100 men in 2018	Migration balance 2002–2018* (annual average, persons)	Natural increase 2002–2018 (annual average, persons)
Poland	100	65.49	100.53	5.38	2,55
<85	2.46	61.52	101.90	-11.46	-27.46
<85–95)	26.95	64.63	100.67	-20.27	-16
<95–105)	44.55	65.75	100.24	-9.88	1.58
<105–115)	16.47	66.12	100.47	17.71	22.25
≥115	9.57	66.57	101.25	131.71	33.14
Austria	100	59.34	99.83	2.69	5.68
<85	3.8	56.05	98.13	-12.72	-32.82
<85–95)	21.87	57.78	99.71	-6.18	-16.22
<95–105)	36.73	59.26	99.63	0.09	0.28
<105–115)	26.14	60.46	100.09	8.66	20.9
≥115	11.46	61.12	100.72	19.45	42.82

*Due to the lack of data for Poland, excluding 2015; areas identified as depopulation are in bold

Source: own elaboration

to other rural areas (Table 2). They have the lowest percentage of working-age population, negative migration balance and negative birth rate. The values of indicators in Austria, apart from the migration balance [Wisbauer and Klotz, 2019], are more unfavorable than in Poland.

It should be remembered that the identified unfavorable quantitative phenomena are also accompanied by unfavorable changes of a qualitative nature [Borawska and Brodziński 2014, Wesołowska and Jakubowski 2018, Wojewódzka-Wiewiórska 2021], concerning both the community and various dimensions of the local economy. Getting to know them would make it possible to better show these areas as problem areas, which indicates the need to conduct in-depth research identifying unfavorable phenomena.

In the next stage of the research, an analysis of negative problem phenomena occurring in rural areas was carried out depending on the changes in the population in 2002–2018, including the determination of the number of phenomena (Fig. 2). In Poland, rural ar-

reas without negative demographic phenomena prevail – the percentage of such communes is 67.1% of the total. Communes where at least one problematic phenomenon has been identified account for 28.8% of all rural areas. On the other hand, in Austria, rural areas predominate – where one problem phenomenon was identified, the lack of these phenomena was recorded in the case of 38.2% of communes. In both countries, it is clearly visible that the number of problematic phenomena increases along with the decrease in the rural population. The demographic potential of communes is high in the group of communes characterized by population growth, which is particularly visible in Poland. Rural areas in which the largest population loss was found due to the accumulation of other negative demographic phenomena are definitely problem areas. The situation is definitely less favorable in the case of Austria.

To identify rural demographic problem areas, the values of all five indicators were analyzed at the commune level. A given administrative unit was consid-

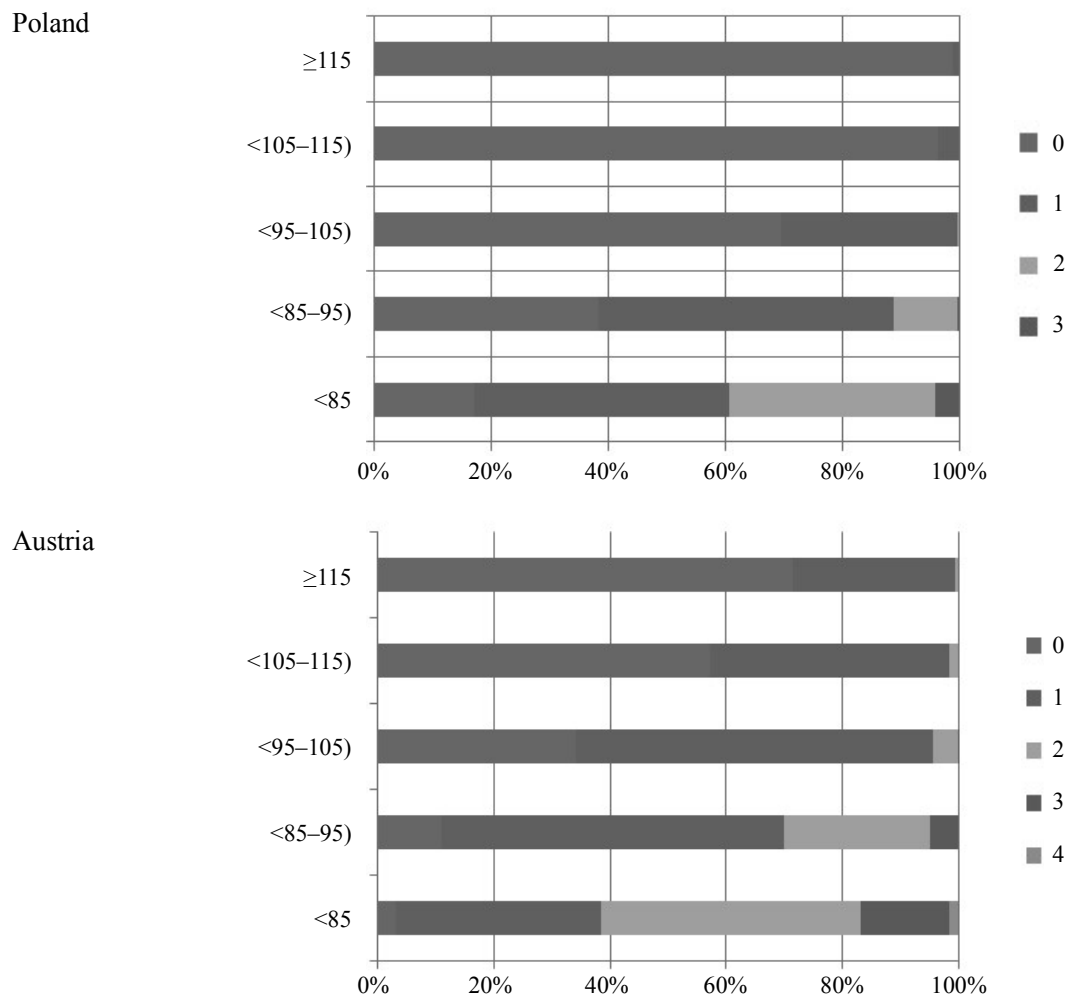


Fig. 2. Number of negative demographic phenomena in rural areas depending on population changes in Poland and Austria in 2002–2018 (2002 = 100%) (% of communes)

Source: own elaboration

ered a demographic problem area if at least three of the analyzed indicators exceeded the limit values. [Jakubowski and Bronisz 2019]. In the case of Poland, 74 communes (i.e., 4% of all communes recognized as rural areas) were identified as problem areas, of which four negative phenomena were observed for three communes (Fig. 3). Taking into account the large number of communes that were considered depopulated rural areas, it can be concluded that the frequency of occurrence of other phenomena in Poland is not high in comparison to Austria. On the other hand, in Austria, problem areas cover 153 communes recognized as rural areas (i.e., 9% of the total), with three negative phe-

nomena identified in 124 units (7.3%), 28 communes diagnosed four phenomena (1.6%), one commune has all five phenomena.

In Poland, all communes recognized as a demographic problem area are characterized by depopulation – similarly to Austria, where only one problem commune did not struggle with depopulation but the outflow of the population was close to 5% (the population in 2018 was 95.67% of the population in 2002).

When analyzing the results of the research obtained for Poland and Austria in the field of depopulation and demographic problem areas, significant differences in the level of development of regions, different paths

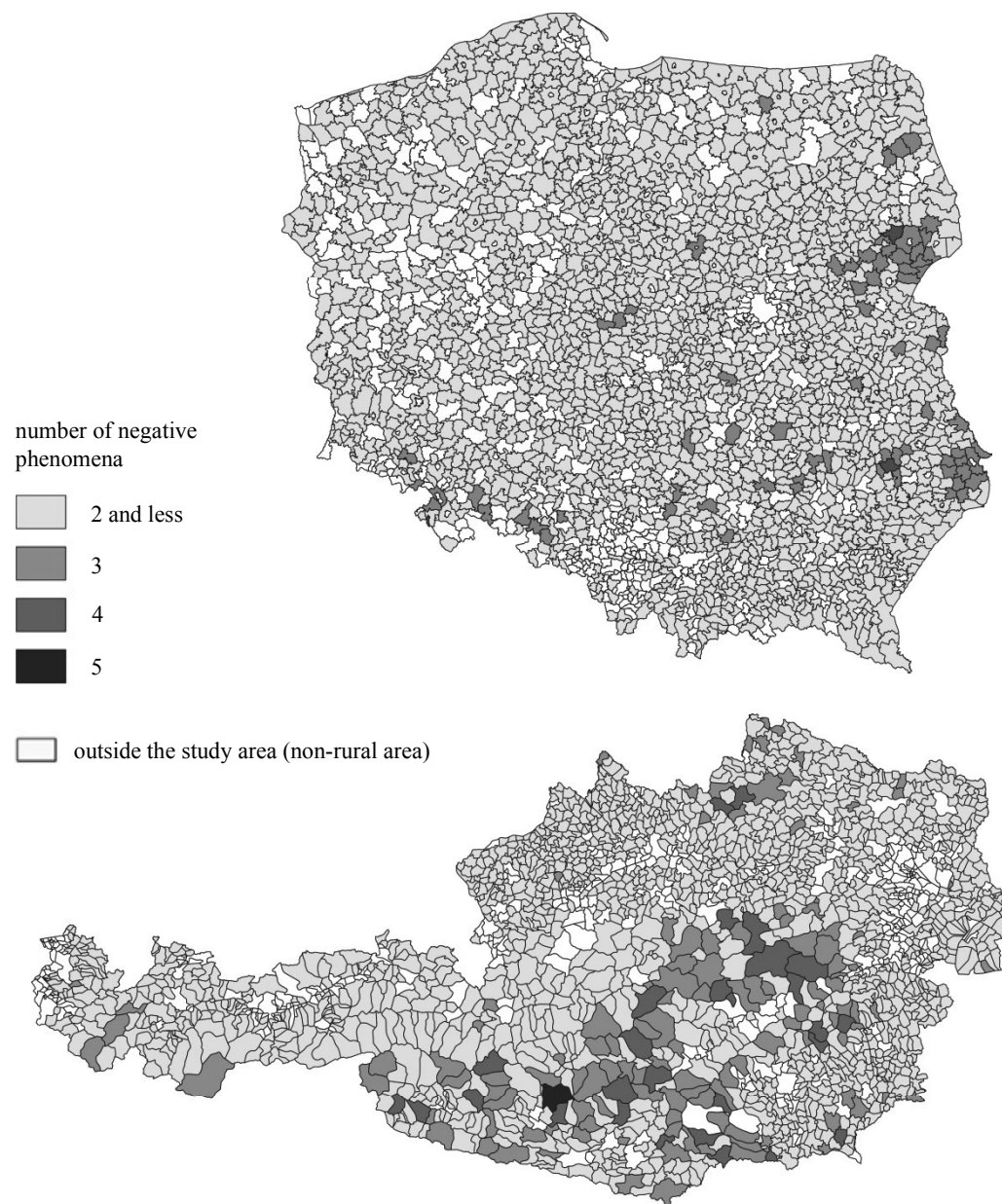


Fig. 3. Rural demographic problem areas in Poland and Austria at the commune level (taking into account the outflow of population in 2002–2018; 2002 = 100%)

Source: own elaboration based on Statistics Poland and Statistics Austria data

of economic development of countries and other conditions of development – including historical ones – should be taken into account. They could have influenced the course of depopulation processes in these countries (i.e., the intensity of these processes, their duration and spatial extent, as indicated in the literature

[Eberhardt 1989]). It seems that depopulation processes in Austria could have been observed earlier than in Poland, as evidenced by the works of Leidmair [1983] and Wich [1982] describing functional changes in rural settlements caused by the processes of depopulation of mountainous areas of Austria [Eberhardt 1989].

CONCLUSIONS

1. Based on the research, it can be concluded that depopulation is a serious problem in rural areas in Poland and Austria. The studied countries differ in the intensity of depopulation processes and spatial extent. In rural areas, where the phenomenon of depopulation occurs, numerous negative phenomena accumulate – which gives grounds for recognizing them as demographic problem areas or areas with low demographic potential;
2. In rural areas in Austria, depopulation processes are more advanced than in Poland – which confirmed the hypothesis put forward at the beginning of the work. At the same time, rural areas in Austria are much more likely to be problem demographic areas, as other negative demographic phenomena characterize them. The percentage of communes with depopulation is 29.4% in Poland, while in Austria, it is 25.7%. However, in Austria, communes classified as problem areas account for 9% of all rural areas (4% in Poland). In addition, every third commune in Austria (34.85%) struggling with depopulation is a demographic problem area, while in Poland, the share of such communes is 13.45%;
3. The existence of demographic problem areas can be considered in the context of uneven development processes in space, where a relatively low level of rural development may result in changes in rural settlement. On the other hand, the demographic potential of a given area is closely related to its socio-economic development – which, in the case of a large part of the rural areas of the analyzed countries, may constitute a barrier to their development in the future. This is the basis for the need for future research in this field.

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KURCZĄCE SIĘ OBSZARY WIEJSKIE JAKO DEMOGRAFICZNE OBSZARY PROBLEMOWE – PRZYKŁAD POLSKI I AUSTRII

STRESZCZENIE

Cel: Praca koncentruje się na demograficznych obszarach problemowych, które są postrzegane jako ważny rodzaj obszarów problemowych. Celem pracy była identyfikacja wiejskich demograficznych obszarów problemowych w Polsce i w Austrii. **Metody:** Badaniem objęto obszary wiejskie wyodrębnione na podstawie klasyfikacji DEGURBA. Wykorzystano dane urzędów statystycznych obydwu krajów za lata 2002–2018. Przy wyodrębnianiu demograficznych obszarów problemowych wzięto pod uwagę zmiany liczby ludności oraz kształtowanie się wybranych wskaźników demograficznych, dla których ustalono ich wartości graniczne, decydujące o zaliczeniu jednostki terytorialnej (LAU 2) jako obszaru problemowego. **Wyniki:** Badane kraje różnią się intensywnością depopulacji i zasięgiem przestrzennym. W obydwu krajach stwierdzono, że wraz ze spadkiem liczby ludności wiejskiej, zwiększa się liczba występujących zjawisk problemowych. W Polsce za obszary problemowe uznano 4% gmin sklasyfikowanych jako obszary wiejskie, z kolei w Austrii obszary problemowe obejmują 9% gmin. **Wnioski:** Potencjał demograficzny jest ściśle związany z rozwojem społeczno-gospodarczym obszarów wiejskich, który dla wielu gmin w badanych krajach może w przyszłości stanowić barierę ich rozwoju.

Słowa kluczowe: depopulacja, obszary problemowe, obszary wiejskie, potencjał demograficzny