

TRANSFORMATION OF DEMOGRAPHIC CHARACTERISTICS OF THE RURAL POPULATION OF THE WARMIA AND MAZURY VOIVODSHIP

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Abstract

The aim of this study is that analyze the changes taking place in demographic processes in rural areas of the Warmia-Mazury voivodship between 2004 and 2013 year. The problems in the field of rural transformation is the subject of numerous works and research interests. Particularly noteworthy subjects related to rural transformation in terms of population, which plays an important role in the development of rural areas. In order to present the changes taking place in demographic processes used in rural areas demographic indicators selected on the basis of the literature. Selected diagnostic indicators have been analyzed in terms of their impact on the demographic development of the Warmia and Mazury, and in terms of their spatial distribution. The analysis will be include of 100 rural communities Warmia and Mazury. The results will be presented to the directions of demographic change in the region and classification of rural communities on the basis of existing demographic potential. Knowledge of demographic processes is very important in shaping the development of rural areas.

Key words: demography, natural increase, migration, Warmia-Mazury voivodship

JEL Code: J10, J11

Introduction

The demographic processes that occur currently in the Warmia-Mazury voivodship are largely influenced by the historical past. Before World War II, the Warmia and Mazury region was one of the traditional emigration areas to which both the Polish and German population migrated from the end of the 19th century (B. Michniewska-Szczepkowska, 1990). At the same time, after great migration

movements in the years 1945-1948, the number of rural inhabitants of these areas was almost twice as small as in 1939 (Eberhardt, 1989). In subsequent years, the rate of natural increase only compensated for shortages of the rural population caused by the emigration of the population from this area. During the post-war period, migration from Poland intensified or abated depending on the country's socio-political situation (Iglicka, 2001). On the basis of changes in the number of inhabitants within communes in Poland in the years 1946-1978, depopulating regions, including the Mazury and Warmia Region, were determined. This region is almost entirely located within the borders of the current Warmia-Mazury voivodship, where only 19 out of 100 rural communes of the current province were not incorporated into this region, which reflects the advancement of the depopulation process in this area (Gwiaździńska-Goraj, Jezierska Thole, 2014). The advancement of the existing process was seriously influenced by social and economic changes that occurred after 1989. Comparing the dynamics of the change in the number of the rural population in the Warmia-Mazury voivodship between 1988 and 2004, it can be seen that the decrease amounted to ca 2%. Further processes of demographic changes of rural areas of the Warmia-Mazury voivodship may also have been influenced by the membership of Poland in the European Union. The aim of this paper is to analyse changes occurring in demographic processes in rural areas of the Warmia-Mazury voivodship between 2004 and 2013. These changes were evaluated on the basis of the rate of natural increase and the migration balance making up the rate of actual increase. Selected diagnostic indexes were analysed in terms of their impact on the demographic growth of the Warmia-Mazury voivodship and in terms of their spatial distribution. On the basis of obtained results, trends of demographic changes occurring in the region and a classification of rural communes on the basis of the existing demographic potential will be presented. The knowledge of the current demographic processes is vital to the shaping of the development of rural areas.

1. Materials and Methods

For the purposes of this work, the scope of research covered rural communes of the Warmia-Mazury voivodship (100). Such defined scope of research occupies an area of 24173 km², which accounts for 97.5% of the entire province area, and is inhabited by 40.7 % of the rural population. Natural movement and migration movement are undoubtedly the factors that exert the largest impact on the progress of demographic changes in the Warmia-Mazury voivodship. It is also worth noting, however, that this area is characterised by natural, historical, social and economic differentiation. In addition, the development of rural areas is also influenced by external circumstances, such as globalisation or European integration processes. Obviously, the impact of particular factors on the progress of demographic processes is conditional upon individual predispositions of the rural commune adopted as a

basic research unit. For the purpose of analysis of changes in the distribution of the population and directions of current changes, the rate of natural increase per 1,000 inhabitants and the migration balance per 1,000 inhabitants were used. These values influence the level of population and the demographic potential to a significant extent. At the same time, the rate of natural increase and the migration balance are constituents of actual increase. The main source of information for this analysis was the data supplied by the Central Statistical Office in Poland. For factor the migration balance per 1,000 inhabitants were used information about migration for permanent residence. Relationships between the rate of natural increase per 1,000 inhabitants and the migration balance per 1,000 inhabitants was determined by Webb's classification (Zdrojewski, 1975). In this method we have four types : A, B, C, D where the sum of the values the rate of natural increase per 1,000 inhabitants and the values the migration balance per 1,000 inhabitants provide positive actual increase. For types : E, F, G, H the relation between the a/m factors provide negative actual increase. For all types of the value of actual increase depends on the value of component factors (compare tab.1). The next step was a spatial analysis of the distribution of the rate of natural increase per 1,000 inhabitants and the migration balance per 1,000 inhabitants in 2004 and 2013, which is followed by a classification of rural areas of the Warmia-Mazury voivodship (compare tab.2). This analysis of current demographic changes give us four determines directions of the progress of demographic processes in rural areas of the Warmia-Mazury voivodship: rural communes with the de-population processes, rural communes with interim characteristics demographic processes, and rural communes with favourable or very favourable current demographic processes.

2. Results and Discussion

In 2004, rural areas of the Warmia-Mazury voivodship were inhabited by 569,894 persons, which accounted for 39.9% of the population of the province. In 2013, the number of rural inhabitants increased to 589,562 persons, accounting for 40.7% of the population of the entire province. However, population changes in rural communes in the Warmia-Mazury voivodship have been spatially diversified. For the purpose of preliminary analysis of changes in the distribution of the population, the index of population changes in the years under analysis was calculated, with the value of 100 being assumed for the initial time (2004). On the basis of this index, it can be stated that the decrease of the population occurred only in 45 out of 100 rural communes, whereas in the other 55 communes it increased or remained on a similar level. The biggest increase of the population above 11% was

achieved by 11 communes situated in the direct neighbourhood of Olsztyn and large cities within the Elbląg and Ełk region. When analysing the spatial differentiation of rural areas of the Warmia-Mazury voivodship, we can distinguish the following three groups of communes: suburban communes characterised by very strong relationships with the market of large cities in the scale of the region with a dynamic increase of population, communes characterised by a decrease of population, which are situated mainly along the state border in the northern and north-western part of the region, and regions with interim characteristics situated mainly in the south-western part of the region. The obtained result was largely influenced by historical, social and economic circumstances as well as the spatial effect referring to the “core and peripheries” conception. In demographic terms, the diversification of population of rural areas of the Warmia-Mazury voivodship is influenced primarily by the natural movement of the population and migration processes making up the rate of actual increase.

The rate of natural increase is an important factor influencing the level of population. The level of births is dependent on many variables, including primarily the number of women and men of procreative age, the change of the family model and economic conditions. The number of deaths is influenced by genetic, environmental and lifestyle factors as well as the availability and level of medical care. With the invariability of other factors, an increase in the number of births results in an increase of share of the youngest population, thus weakening proportionally the share of the oldest group. On the other hand, a decrease in the intensity of births results in a decrease of the share of children, thus increasing the share of the older population groups (Rydz, 2012). In rural areas in the Warmia-Mazury voivodship, the rate of natural increase per 1,000 inhabitants was 2.6 in 2004. In the scale of the country, this year is considered to be characterised by the increasing trend of the number of births as compared to the earlier period. The obtained result may have been influenced by the fact that women born in the years of the last baby boom (the beginning of the 1980s) represented the age of highest or high fertility, which led to the growing number of births. Moreover, the increase in the number of births during this period may result from the increase of fertility among women in the age group above 30 years, which is caused by the postponement of the decision to expand the family. Young people often decide to obtain a specific level of education and economic stabilisation before starting and expanding a family. When analysing the rate of natural increase per 1,000 inhabitants in rural areas between 2004 and 2013, we can clearly notice general tendencies on a national scale. The visible increase in the number of births from 2004 is followed by a dynamic decrease after 2008, with the smallest value for the period under analysis obtained in 2013. In rural areas in 2004, the highest value was achieved by the Susz commune (8.4) natural increase per 1,000 inhabitants, whereas the lowest value was achieved by the Frombork commune (-4.8) natural increase per 1,000 inhabitants. Communes with a high rate of natural increase were situated mainly in the western and south-western part of the province, whereas the lowest natural increase occurred in communes in its northern part. The spatial distribution of the rate of natural increase per 100 inhabitants was significantly influenced

by the aforementioned economic conditions and the spatial aspect. Communes situated in the northern part of the region are characterised by a relatively low level of social and economic growth and, at the same time, by peripheral location towards the capital of the region as well as the state and now the European Union. A border can be seen to play a key role in the social and economic development of border regions. But in this case for several decades, Poland's north-eastern border was a spatial barrier hindering any development of the border regions, which were thus afflicted by unfavourable demographic processes and growing peripheral position (Bański, Janicki, 2013). The communes that obtained highest values are mainly suburban communes and communes situated in the western part of the province that are characterised by a higher growth of entrepreneurship. When evaluating the general statistical distribution within the total number of communes, it must be noted that only 17% out of 100 rural communes obtained the negative value. In 2013, the rate of natural increase per 1,000 inhabitants in rural areas of the Warmia-Mazury voivodship varied from -6.4 in the Janowo commune to 8.4 in the Stawiguda commune. However, although maximum and minimum values from two years under analysis are similar, the average value for rural areas dropped to 0.9%. The analysis showed that the number of communes where the value of natural increase per 1,000 inhabitants was below zero increased almost twice in 2013 as compared to 2004. At the same time, the change of the rate of natural increase was spatially diversified, with earlier trends being reinforced. In comparison to 2004, communes with the lowest rate of natural increase occupy a larger area in the northern and north-eastern part of the voivodship, whereas the high rate of natural increase is represented by communes situated mainly in the western part of the voivodship.

Another important factor determining the level of population is migration movement. However, for the purposes of the analysis, the knowledge of the population flow balance, i.e., the migration balance, is of biggest importance. Migration is difficult to analyse: the process is complex, the data poor, and the theory unsatisfactory. Its many factors include unpredictable policy change. But some conclusions can be reached (Coleman, 2008). In rural areas in the Warmia-Mazury voivodship, the migration balance per 1,000 inhabitants was negative for the entire period under analysis apart from the year 2010. This may have resulted from the retardation of the migration process connected with the economic crisis after 2008. Currently, the economic factor is increasingly often the main reason for migration, and the decision to emigrate depends on the differentiation of incomes and living conditions between Poland and target countries. For this reason, the accession of Poland to the European Union and opening up to new labour markets. Post-2004 labour migration from Poland turned out to be one of the most spectacular migratory movements in contemporary European history. This outflow on a massive scale is surmised to impact on demographic, economic, and social phenomena both in Poland and in the receiving countries. Recently, a stronger propensity to migrate is observed among young and relatively well-educated people who, at the same time, originate from economically backward areas characterized by limited employment opportunities (Kaczmarczyk,

Okólski, 2008). Between 2004 and 2005, we can observe an increase in the total negative migration balance by almost 100% in rural areas in the Warmia-Mazury voivodship. The decreasing trend of the migration balance remained till 2007; from that year, we can observe a slow retardation of such high level of emigration in relation to the level of immigration, which should probably be attributed to the beginning of the economic crisis affecting also European countries. After the visible decrease in the number of immigrants, we can observe a return of the increasing tendency of the negative migration balance from 2010. This situation may be influenced, on the one hand, by economic conditions, which continue to be more favourable, anyway, and, on the other hand, by the general improvement of the economic situation in the place of destination of migration movement. However, when analysing data concerning migration movements, we should realise that persons staying abroad even for many years did not affect de-registration from their address of permanent residence in Poland in connection with their permanent departure to another country. This means that the process of intensification of foreign migrations may be higher than indicated in statistical data. In 2004, the highest value of the migration balance per 1,000 inhabitants in rural areas was achieved by the Dywity commune (3.6) and the lowest one was achieved by the Elbląg commune (-2.1), with the average value of -0.9 for rural areas of the Warmia-Mazury voivodship. The analysed index was characterised by a large degree of spatial differentiation in the structure of communes in 2004. The highest positive values were achieved by communes situated in the direct neighbourhood of Olsztyn as well as large cities within the Elbląg and Ełk region and the Giżycko region. The lowest index of the migration balance per 1,000 inhabitants occurred in communes concentrated mainly in the northern and eastern part of the province. In 2013, the difference between the influx and outflow of population was the largest for the entire period under analysis, and the migration balance per 1,000 inhabitants was -2.0. The highest value of the a/m index among rural communes of the Warmia-Mazury voivodship was achieved by the Stawiguda commune (3.2), whereas the lowest value was achieved by the Lelkowo commune (-1.8). The spatial distribution of the a/m index shows the reinforcement of previous trends based on the concentration of rural areas with the highest migration balance in the neighbourhood of large cities of the region. The balance in other communes was negative, and the lowest index of the migration balance per 1,000 inhabitants was achieved by communes situated mainly in the northern and eastern part of the province located on the periphery. As many studies show, migration is always linked to the level of human development in a particular zone and it is likely that people living in the more central parts of a region move earlier and under different circumstances than those living on the margins (Hilman, 2010).

The rate of natural increase and migratory movement make up the rate of actual increase, on which the level of population depends. For the purpose of presenting the impact of those two factors on each other, an analysis of types of population growth was carried out according to Webb's method (Zdrojewski, 1995).

Tab. 1: Types of population growth (according to the typology Webb) rural areas of Warmia and Mazury Province

| Types | | | 2004 | 2013 |
|-------|------|-----------|--------------------------|------|
| | | | Number of rural communes | |
| A | PR + | +PN> - SM | 56 | 35 |
| B | | +PN> + SM | 22 | 13 |
| C | | +PN< + SM | 1 | 2 |
| D | | -PN< + SM | 0 | 0 |
| E | PR - | -PN> + SM | 1 | 6 |
| F | | -PN> - SM | 15 | 28 |
| G | | -PN< - SM | 1 | 8 |
| H | | +PN< - SM | 4 | 8 |

PR – actual increase, *PN* – natural increase, *SM* – migratory movement

Source: Own elaboration

According to the classification carried out in 2004 and 2013, rural communes of the Warmia-Mazury voivodship were represented mainly by three types: A, B and F. Types A and B are characterised by favourable conditions for population growth, because they are marked by an actual positive increase as opposed to Type F. In 2004, as many as 79% of rural communes of the Warmia-Mazury voivodship achieved the positive rate of natural increase, with only 29% of communes achieving the negative rate of actual increase. The situation when both factors are positive should be regarded as the most favourable relationship between the migration balance and the rate of natural increase. This kind of relationship occurs for Type B, where the positive rate of natural increase exceeds the positive migration balance, or for Type C, where, on the contrary, the positive migration balance exceeds the positive rate of natural increase. In 2004, 23 rural communes concentrated mainly in the neighbourhood of Olsztyn and in important urban centres and communes of high tourist attractiveness were classified as Type B and C. In 2004, over 50% of communes were qualified as Type A, where the positive rate of natural increase exceeds the negative migration balances, which should be regarded as a favourable fact. Another significant group consists of communes qualified as Type F, where the negative migration balance exceeds the negative rate of natural increase. The analysis of their spatial distribution shows that as many as 11 out of 15 communes are situated in the northern part of the province in the border zone. When comparing changes that occurred between 2004

and 2013, we can conclude that, in the case of 36 communes, there was no shift to the qualification type that would result from the change of actual increase from the positive value to the negative value or vice versa. In the case of 8 communes, there was a shift from types characterised by a negative actual increase to a positive actual increase, and the situation was quite the reverse in as many as 37 communes. The number of rural communes that achieved a positive rate of actual increase decreased from 79 to 50 in 2004. This result was caused mainly by a lower rate of natural increase, which resulted in a shift of communes from Type A to Type F and G, where the negative rate of natural increase occurs together with the negative migration balance. In the spatial analysis of rural communes depending on the obtained type, we can observe a concentration of communes qualified as Types B and C mainly in the neighbourhood of Olsztyn. On the other hand, rural communes qualified as Type A prevailed in the western and south-western part of the province, whereas communes from Types F, G and H prevailed in the northern and eastern part.

On the basis of the analysis of current demographic changes occurring in rural areas in the Warmia-Mazury voivodship between 2004 and 2013, the following criteria were adopted:

Class 1 – specified as areas endangered by de-population processes, where a negative rate of actual increase was recorded in rural communes both in 2004 and in 2013

Class 2 – specified as areas with interim characteristics, where the rate of actual increase was positive in 2004 and negative in 2013

Class 3 – specified as areas with interim characteristics, where the rate of actual increase was negative in 2004 and positive in 2013

Class 4 – specified as areas with favourable current demographic processes, where communes achieved a positive rate of actual increase in 2004 and 2013, but one of the constituents, i.e., the rate of natural increase or the migration balance, was negative

Class 5 – specified as areas with very favourable current demographic processes, where an increase of population occurred between 2004 and 2013 and, at the time same, communes achieved a positive rate of actual increase in 2004 and 2013, with both constituent values, i.e. the rate of natural increase and the migration balance, being positive.

Tab. 2: Types of rural communities - directions of demographic change in the Warmia-Mazury voivodship between 2004 and 2013

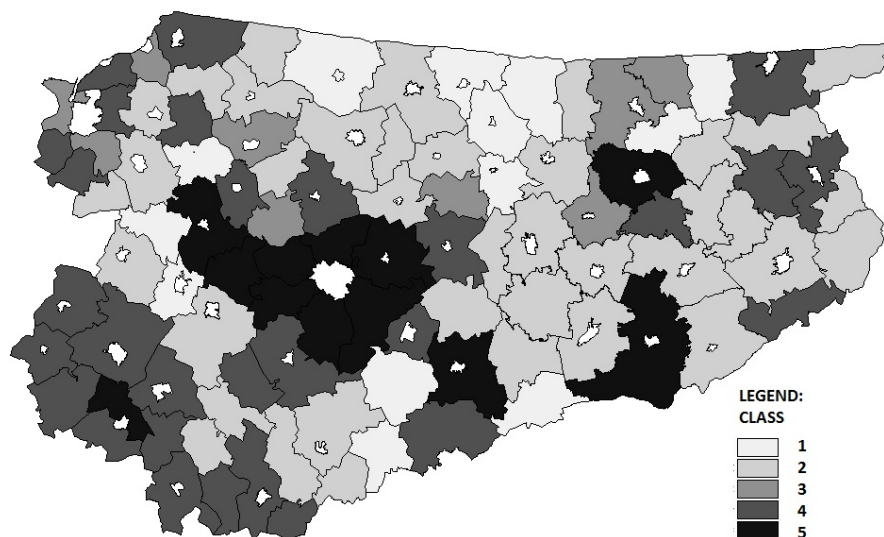
| Classes | directions of demographic change | PR – actual increase | | Number of rural communes |
|---------|---|----------------------|------------|--------------------------|
| | | 2004 | 2013 | |
| 1 | de-population processes | negative | negative | 13 |
| 2 | interim characteristics | positive | negative | 37 |
| 3 | | negative | positive | 8 |
| 4 | favourable current demographic processes | positive | positive | 32 |
| 5 | very favourable current demographic processes** | positive** | positive** | 10 |

** 5 additional class of communes where in 2004 and 2013 values, the rate of natural increase and the migration balance, being positive.

Source: Own elaboration

On the basis of the adopted criteria, a rural commune of the Warmia-Mazury voivodship could be qualified to one of the following five classes: from Class 1 – the least favourable conditions for demographic growth to Class 5 – the most favourable conditions for demographic growth. Out of 100 analysed rural communes, 13 communes were qualified as Class 1, 37 communes were qualified as Class 2, 8 communes were qualified as Class 3, 32 communes were qualified as Class 4, and 10 communes were qualified as Class 5. When analysing the spatial differentiation of rural communes of the Warmia-Mazury voivodship, we can see that demographic changes progressed in both directions between 2004 and 2013. On the one hand, there is a spatial concentration of rural communes with favourable trends for demographic growth and, on the other hand, there is a spatial concentration of rural communes with de-population characteristics. The presented population changes result mainly from the relationship between the rate of natural increase and the migration balance, but factors such as the historical past, the level of social and economic growth and the spatial aspect resulting from location are also significant. Of course, it must be remembered that the influence of particular factors and their impact on the demographic growth of each commune is different. Unfavourable demographic changes occur mainly in communes situated in the northern part of the province, which achieved a negative rate of actual increase resulting from the negative rate of natural increase and migration balance in the years under analysis.

Fig.1: Classification of rural communities - directions of demographic change in the Warmia-Mazury voivodship between 2004 and 2013



Source: Own elaboration

These communes were qualified as class 1 also because of the following characteristics: high unemployment, poorly developed entrepreneurship and peripheral location towards the capital of the region and central administrative centres. On the other hand, there is a large group of communes with very favourable conditions for demographic growth, which were qualified as class 4 and 5. These communes are situated mainly in the south-western part of the province and are characterised by a high level of enterprise development and a relatively low level of unemployment, which also has a favourable effect on the value of natural increase and the migration balance. Communes qualified as Type 2 and 3 were specified as communes with interim characteristics. A more favourable direction of demographic growth could be observed for Type 3 communes, where the rate of actual increase rose from the negative value to the positive value between 2004 and 2013. Except certain communes, this situation took place mainly in the western and south-western part of the province, whereas communes in which the rate of actual increase dropped from the positive value to the negative value were situated mainly in the northern and eastern part of the province.

Conclusion

On the basis of the above research, the presence of certain demographic trends can be ascertained in rural areas of the Warmia-Mazury voivodship between 2004 and 2013. The evaluation of these changes was carried out on the basis of the change of actual increase resulting from the relationship between its constituents (the rate of natural increase and the migration balance) in the years under analysis. For this purpose, rural communes were qualified to one of the six classes on the basis of

adopted classification criteria. Demographic changes between 2004 and 2013 progressed in both directions. On the one hand, there was a reinforcement of de-population processes concentrated mainly in the northern part of the Warmia-Mazury voivodship located in the border zone and away from larger urban centres with a low level of social and economic growth. On the other hand, we can observe a distinct separation of a group of companies qualified as class 4 and 5, which were characterised by a positive rate of actual increase and favourable social and economic conditions in the period under analysis. The current demographic changes occurring in rural areas of the Warmia-Mazury voivodship were influenced to a very large extent both by the decreasing rate of natural increase and the growing level of emigration resulting from opportunities to obtain better living conditions outside the province under analysis. For this reason, it is very important to undertake actions in order to stop de-population processes and to improve the living conditions of inhabitants of rural areas of the province for the purpose of achieving a more sustainable demographic growth of the region.

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