Demographic processes in rural areas of Belarus: geographical structure and spatial dynamics

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Abstract. The study presents the spatiotemporal regularities and shifts in geo-demographic development of rural areas of Belarus at the multiscale level. Trends in rural population size dynamics for the period of 1959–2009 are detected and characterised. In accordance with the trends in the dynamics of the rural population of Belarus spatial regularities were identified. The geo-demographic territory of Belarus is typified on character of demographic dynamics and natural movement processes of rural population. We have identified three types of districts by the nature of the rural population dynamics for the period of 1970–2009: stable, growing and shrinking; and three types of natural population movement dynamics for the same period in accordance with spatial and temporal heterogeneity of the rural depopulation.

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1. Introduction

It is distinctive for rural population of Belarus to have a complicated historical way of development. Population size was changing on the score of political, socio-economic and ecological factors. The aim of this study is to identify and present the spatiotemporal regularities of geo-demographic transformation of rural areas of Belarus in order to substantiate the territorially differentiated regional demographic policy as well as to insure sustainable development of the Republic of Belarus.

2. Trends in rural population size dynamics

Natural increase or decrease, migratory movement, losses caused by war and other political influences (deportation, repression), losses caused by the effects...
of the Chernobyl disaster and losses caused by the wave of emigration, caused historical population dynamics of Belarus in the 20th century. The distinctive features of the periods between censuses and the main types of population trends were identified. Identification was based on the analysis of the factors of the rural population dynamics, the rate of population size (increase/decrease) and rural population proportion in the total population size of Belarus (Antipova, 2008).

The period of 1959–1970 is characterised by the dominant influence of economic factors. Urbanisation played a special role as a significant factor during this period. This period is the first sustained period of the negative rural population dynamics on macro-geographical level. Micro-geographical level of research indicates the first wave of rural demographic disaggregation and the territorial lack of homogeneity of demographic dynamics. So, the districts with a positive population size dynamics were elicited in the background of the general Belarus rural population decline (0.1% per year) as a result of migratory outflow. There was 69.2% of rural population in the structure of Belarusian population in 1959. Thus, the rural population played a basic role in the demographic space frame formation in Belarus during this period.

The period of 1970–1979 is characterised by an increased rate of rural population decline (1.5% per year), the second wave of rural demographic disaggregation, the demographic space frame of settlement violation, and the overall restructuring. The urbanisation transition was completed for the first time on the macro-geographical level and a natural decrease of the rural population started. The period of 1979–1989 is distinguished by the further decline and the spatial redistribution of demographic potential are characteristic for rural population during this period. Ecological disturbance under the influence of the Chernobyl disaster and the socio-economic development of the country did not change tendencies of the dynamics of rural population significantly at this stage. Negative rural population dynamics was not increasing.

The period of 1989–1999 changed the usual demographic course in the country due to the impact of transformational factors. There were political and socio-economic changes during these years: the disintegration of the Soviet Union, the transition of the USSR republics towards independent development, restructuring and reforming the economy and social sphere. Socio-economic crisis changed the living conditions of people. This caused the birth in the dynamics and spatial distribution of the population, and the nature of demographic reproduction.

The process of urbanisation slowed down markedly. The scale of rural-urban migration changed. Changes in population reproduction were followed by the disturbances in the migration process. Radiophobia (exaggerated fear of ionising radiation, in particular, fear of X-rays) and insecurity, unemployment and poverty caused a sharp decline of fertility. Deterioration of living conditions and health contributed to the increase of mortality. In the end, natural decrease began to grow instead of natural increase, and universally embraced not only strongly aged rural population, but also relatively young urban population (Manak, 1992; Manak, Antipova, 1998).

The major trends in rural population size dynamics of the period are: (a) rural areas of Belarus was characterised by a stable negative dynamics (1.2% per year), but the peak of the highest annual rate of decrease (2% per year) was recorded in the late 1980s; (b) only a few of the districts remained on a micro-geographical level with a positive or stable dynamics of the rural population as acceptors areas of demographic capacities. These districts were usually located in the zone of city influence (Brest, Gomel, Minsk). This type of districts was not a type of the zone of city influence, but with low agricultural or recreation potential, as well as in the zone of 'special Chernobyl region'; (c) large (support) cities attracted rural migrants during the whole research period; (d) the capital region is a centre of dispersed settlement and areas with high agricultural or recreational potential, as well as in the zone of the Mogilev region – 1.9%, in the Grodno region – 2.2%, in the Minsk region – 1.9%, in the Mogilev region – 2.5%.

In accordance with the dynamics trend of the rural population of Belarus characterised by the constant downsizing for the period of 1970–2009, we identified the following spatial regularities: (a) permanent long-term negative rural population dynamics is distinctive for peripheral districts with low agricultural potential or with large natural systems; (b) periodic reduction of the rural population starts later in transition areas with high agricultural or recreational potential, as well as in the zone of 'special Chernobyl region'; (c) large (support) cities attracted rural migrants during the whole research period; (d) the capital region is an attractive area for dispersed settlements and areas with high agricultural or recreational potential, as well as in the zone of the Mogilev region – 1.9%, in the Grodno region – 2.2%, in the Minsk region – 1.9%, in the Mogilev region – 2.5%.

Changes in population reproduction were followed by the disturbances in the migration process. This period is characterised by a second evolution wave of rural population change of this share of districts in the total rural population. The increase of the rural population was observed in the districts of the Mogilev region and districts along the line of Mogile-Babruysk have an increasing share of the population more than twice.

The change of this share of districts in the total rural population potential of demographic space frame formation in Belarus during this period. This territory was affected by the Chernobyl catastrophe and reduced the share of population of Belarus.

The absolute decrease values are minimal among districts of this type. Thus, the centre of gravity of the rural population shifted in two directions: zonal – from northeast to southwest, and azonal – to the suburbs of large cities. The second vector is becoming more and more significant with each passing year and the share of the population of suburban areas is increasing faster and more intensely than the homogeneous agricultural areas.

Table 1. Characteristics of districts types by the nature of the rural population dynamics

<table>
<thead>
<tr>
<th>Type</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>22</td>
<td>18.85</td>
<td>36.59</td>
<td>19.97</td>
</tr>
<tr>
<td>Type 2</td>
<td>60</td>
<td>49.62</td>
<td>42.44</td>
<td>48.72</td>
</tr>
<tr>
<td>Type 3</td>
<td>36</td>
<td>31.53</td>
<td>20.97</td>
<td>31.31</td>
</tr>
</tbody>
</table>

Explanation: A – number of districts; B – share of population (%); C – share of area (%); D – urbanisation rate (%).

The natural decrease in rural population of Belarus began in the late 1970s as a whole. It was recorded in 1975 in the Vitebsk, Grodno and Mogilev regions, while in the Minsk region in 1980, and the Brest and Gomel regions in 1985. Meso-level differences in the completion of the first ‘demographic transition’ can be clearly seen from northeast to southwest from the agro-extensive areas to agro-intensive areas (Pirozhnik, 1986). The Minsk region is an exception. It is the region with the highest socio-economic development, concentrating role of a large urban centre and relatively more stable demographic development (Fakeyeva, 2008).

The direction of the population distribution axis is explained by the territorial differentiation of population losses in the Great Patriotic War (eastern front of WWII). In the pre-war period the population on the territory of Belarus was located fairly evenly and relatively more stable demographic development (Fakeyeva, 2008).

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The stable suburban subtype 2.3 includes five urban industrial districts, where more than 8% of rural population lives and the proportion of the demographic potential of these areas is constantly increasing.

Type 3. Depressive. It contains 47 districts which represent 39% of the area and concentrate about 28.9% of the rural demographic potential. These districts are characterised by low fertility and high mortality during the whole research period. Already in 1970 the Conditional Depopulation Index (CDI) was less than one in the regions of this type, indicating narrowed type of the population reproduction of the population. Depopulation Index rose up to 3.03 in 2009.

3.1. Depressive northeast subtype contains 39 districts, which are home to 22.6% of the population and where the proportion of the demographic potential is declining. Most of them are represented by the northern lakeland area; they have a low demographic and agricultural potential. Districts of this subtype reduced their demographic potential throughout the study period. This process cannot be stopped in a natural way due to sudden disturbances in the age structure.

3.2. West depressive subtype includes eight districts, concentrating around 6.4% of the demographic potential and occupying 6% of the rural areas, located on the Neman Lowland and Lida Plain. These are the districts with high agricultural, tourist and recreational potential, which are characterised by later onset of depopulation, but fertility decline occurred rapidly and more intensively with the average national growth rate of mortality.

4. Conclusions

The spatial and temporal analysis of the rural population dynamics conducted for the period of 1970–2009 enabled the authors to formulate the following conclusions:

- the dynamics of rural population of Belarus has an evolutionary character. The increasing reduction in the population size is the main modern trend; on the other hand, it shows the centre-periphery polarisation properties on the micro-geographic level;
- economic and geographical characteristics of the rural population dynamics in Belarus testifies geographically differentiated type of rural districts in the country’s demographic space formation, which is determined by a strong presence of suburban and suburban-ring districts, and by weak presence of the peripheral districts.

The main spatial and temporal trends in the rural population natural movement in the period of 1970–2009 are:

- the demographic depression area is expanding in the direction from northeast to southwest; the southern Polesye districts are characterised by the highest stability of the zonal demographic parameters;
- the demographic space is fragmented under the influence of the development of urban settlement network and the improvement of demographic parameters in suburban districts.

References


Manak, B.A. 1992: Naselstvenaia Belorusii: regional’nya asasiblastriz vissayen (Population of

