

DYNAMICS OF MEDICO-DEMOGRAPHIC PROCESSES IN THE INDUSTRIAL REGION OF RUSSIA

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INTRODUCTION

Demographic processes are seen as a reaction of the population to the conditions in which it exists, as well as a conscious desire to adapt to these conditions in accordance with the needs. At the same time, external conditions, as well as social comprehensively and simultaneously influence people's behavior. [1].

The events of the nineties in Russia markedly worsened the demographic situation and caused concern about the future demographic development of the state. Throughout the eighties the population growth was moderate and was characterized by an excess of the share of births over the share of the deceased. By the beginning of the nineties, social and economic difficulties in the transition period have contributed to a sharp decline in the birth rate, and some increase in mortality, and since 1992 the number of eath exceeded the number of birth. (depopulation) [6, 7, 8].

Since 2006, Russia a favorable dynamics has seen in the main demographic indicators, characterized by a trend of increasing natural population growth. In 2013, for the first time in recent decades, positive natural population growth was noted, and in 2014 this trend continued with a slight decrease in 2017. (-0.08%) [2, 3, 4, 5].

PURPOSE OF THE STUDY

The purpose of this study is to investigate the demographic situation in one of the regions of the Russian Federation (Astrakhan region) over a period of 27 years.

MATERIAL AND METHODS OF INVESTIGATION

The object of the study was the population of the Astrakhan region (the general population) for the period from 1990 to 2016. In the analysis of the dynamic series of indicators, a regression analysis (simple regression) of an equation of the type $y = a + bx$ was applied.

RESULTS OF THE STUDY

The Astrakhan region since 1990 to 1997 increased by 20,951 people. Further by 2006, it was

decreased by 18,323 people, but by 2017 a new wave of growth had increased the population by 16,349 people, having practically reached the level of 1997. Thus, as of January 1, 2017, the total population was 1,018,866 people. However, growth of population in some years took place in separate years due to the positive balance of migration, but not of progressive regime of reproduction. So, in the first half of the 1990s, the influx of migrants into the region, compensated for the beginning of population decline. But since 1996, the positive balance of migration was no longer able to compensate for the natural decline in population. For the period from 2006 to 2011 the migration flow began to increase again and by 2011 the increase was 3945 people. Nevertheless, the last years from 2012 to 2017 the balance of migration became negative and was (-4958), and in 2017 (-967 people). In general, from 2006 to 2017, strong and reliable trend of decrease of migration growth (the correlation coefficient (r) is 0,71, the determination coefficient (R^2) is 51,2%, the significance factor (p) is 0,01.

For 1990–2017 years type of age structure of the population can be estimated as regressive, characterized by the prevalence of persons over 50 years old over children (0–14 years). Due to the decrease in the share of migrants (and these are usually persons of working age), the proportion of people of working age in the Astrakhan region (men 16–59 years and women 16–54 years) has started to decrease significantly since 2008 and by 2016 amounted to 593,336 people, which is 38084 people lower compared to 2008. At the same

time, the share of pensioners annually increased (the growth rate during the observation period was 128,9%).

The turning point in the dynamics of structural demographic indicators was 2009. So, from 1990 to 2008 the share of children (0–14 years) among the entire population of the Astrakhan region decreased from 24,46% to 15,89%, respectively. The proportion of people of working age increased during this period – from 55,97% to 62,70%. At the same time, the proportion of people over working age over the entire period of observation from 1990 to 2016 steadily increased from 17,25% to 21,98%.

As a result of the processes described above, the demographic burden of children per 1000 able-bodied population first decreased from 437,1 in 1990 to 253,5 in 2008, and then increased to 308,9 in 2016. Demographic burden by persons older than working age, on the contrary increased throughout the observation period from 308,24 in 1990 to 376,14 in 2016. As a result, the overall demographic burden on the able-bodied population decreased from 745,3 to 685,1 dependents per 1000 able-bodied population.

One of the significant factors for the formation of a normal mode of reproduction of the population is the number of women of reproductive (fertile) age (15–49 years). From 1990 to 2016 years. the number of this category of persons decreased from 306230 people (30,42%) to 241989 people (23,72%). At the same time, the decline occurred annually (with some exceptions) with a rate of decline of 77,9%.

In the Astrakhan region, the birth rate in 2016 was 14,0 ‰, which according to WHO criteria is characterized as "low". In comparison with 1990 (15,0 ‰) the birth rate decreased by 7,0%.

The dynamics of the birth rate in 9 of the 11 districts of the Astrakhan region for the period from 1990 to 2016. characterized by a growth trend: in two regions — Volodarski and Kharabalinski — a pronounced and statistically significant growth trend (r from +0,79 to +0,84, R^2 from 63,0% to 71,4%). Seven regions were characterized by poorly expressed growth tendency. In other areas, the birth rate was stabilized in dynamics.

The mortality rate in the Astrakhan region in 2016 was 12,0 ‰, which according to WHO criteria is characterized as "medium". In comparison with 1990 (10,4 ‰) the death rate increased by 13,4%.

The dynamics of mortality rate in 8 of 11 districts of the region during the period from 1990 to 2016 was characterized by a growth trend: in two — Krasnoyarski and Limanski — a pronounced and statistically significant growth trend (r from +0,71 to +0,83, R^2 from 50,4% to 69,7%). Six regions were characterized

by poorly expressed growth tendency. In other areas, mortality was stabilized in the dynamic.

Thus, the demographic situation in the Astrakhan region should be considered unsatisfactory. There was a decrease in migration growth, number of women of fertile age. The type of age structure of the population can be estimated as regressive, characterized by the prevalence of persons over 50 years old over children (0–14 years). Demographic load of able-bodied population persons increased is more senior than working-age. Level of birth rate is characterized as "low", and a mortality rate as "medium". If not to undertake cardinal measures, then the demographic situation in the area will worsen.

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