Reproduction of Human Resources in Urban and Rural Areas of Russia: What the Number of Children Depends On

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Abstract. The urbanization processes in Russia have had a significant impact on the state of human resources in urban and rural areas, including the decline in the birth rate. As part of this study, the authors studied the characteristics of the births of the first and subsequent children in urban and rural areas, as well as the influence of such factors as the level of per capita incomes of the population. In the course of analysis based on averaged time data for the subjects of the Russian Federation from 2010 to 2017, a cross section was conducted. His results showed the presence of various, sometimes opposite fertility trends of the first and subsequent children among the population in urban and rural areas. So, the birth of the first child both in the city and in the village practically does not depend on the income level of the population. With respect to subsequent children, the opposite trend is observed—in the city, with the growth of income, the total birth rate of second and subsequent children decreases, while in rural areas it grows. According to the authors, these processes are influenced not only by objective factors—the proportion of women of reproductive age, but also subjective—by the features of reproductive behavior, including an increase in the age of birth of the first child in rural areas.

Introduction

The processes of urbanization taking place in Russia over the past hundred years have influenced the reproduction of human resources. The general trend of strengthening the role of large cities within the limits of one region leads to various consequences, both positive and negative. Among the latter are the desertion of rural areas, as well as a lower level of development of human capital in them, including as a result of lower incomes of the population, as well as difficult access to modern infrastructure in the field of education, health care and culture. Another trend associated with urbanization is a change in family models and the reproductive behavior of the population, which largely depends on the socio-cultural characteristics of urban and rural areas. Urbanization under conditions of accelerated industrialization involves an increasing part of women of childbearing age in production, which results in a decrease in the birth rate. For a rural family, there are economic reasons for increased fertility—the family participates in social labor, the production of goods and services, while for the urban family the production function is completely absent [1]. With each decade, indicators of the Russian family’s children decline: for example, families with one child make up in 2013 67.4% of all Russian families, with two children—26.8%, with three or more—5.8% [2].

The purpose of this study is to analyze the trends in population reproduction in urban and rural areas in Russia over the period 2010-2018.

The Impact of Urbanization on Human Resources in Urban and Rural Areas of Russia

According to Giddens, urbanization is a process that leads not only to the development of territories, but also leads to mass marginalization and social deprivation of urban residents [3]. Urbanization processes are not only the migration of the rural population to the city, but also the transfer of the urban population to the village, the transfer of rural settlements to pro-urban centers, the transfer of
“urban” production or services to rural areas, all of which of course leads to the “contamination” of the urban culture with the rural population. So, J. Tuba points out that when conducting research on Iranian families, it was found that urbanization processes influence and change the socio-cultural space not only in the city, but also in the village, with some differences in men and women [4].

As M. Lerch notes, although the role of urbanization in reducing fertility remains controversial, only a few studies have evaluated long-term fertility trends in urban and rural places of residence [5]. M. Lerch noted that the process of urbanization, which is a consequence of the demographic transition, is currently determined by developing countries on a global scale; therefore, it is extremely important to understand the mechanisms and ways of how the “diffusion” of declining birth rates from urban to rural occurs. This ratio is best described by an “inverted parabola”—the decline in fertility in all regions of the world begins in cities and in the first stages it goes faster in them (as a result, differences in the level of fertility between city and country increase). However, after a certain time lag after the start of the transition, the decline in the birth rate “spreads” to the countryside and its rates in it begin to outpace the rates of decline in the birth rate in the cities. Because of this, the differences between the two types of settlement in the birth rate are reduced. Not the last role in slowing down the birth rate in cities is played by the relocation of rural residents with higher fertility facilities to the cities and their realization of births in a new place of residence.

The processes of industrialization have been going on in Russia for over a hundred years. As a result, the share of the rural population at the beginning of 2018 in the Russian Federation was 25.6%. In the period under review, it fell from 38,209 thousand people. at the beginning of 2010 to 37553.5 thousand people at the beginning of 2018. However, in some regions of the Russian Federation, the share of the rural population exceeds half of the population—these are the Republic of Adygea (52.8%), Kalmykia (54.6%), Dagestan (54.8%), Karachay-Cherkesskaya (57.3%) and Chechenskaya (65.1%).

The leading factor in reducing the number of rural population is the negative natural increase, the second most important is the factor of migration. The dynamics of the rural population is multidirectional in different territories of the Russian Federation. For example, in 2016, with a general decline in the number of the rural population, it increased in the North Caucasus region (by 5.3).

The main feature of the age structure of the rural population is the increased (compared to the urban population) proportion of younger and older ages and a reduced proportion of people of working age. The proportion of people of working age tends to decrease: in 2011 this figure was 59.1%, in 2017—54.3%. The same reduction in the share of the working age population is also observed in urban areas, but here the indicator is higher than in rural areas: 62.3% in 2011 and 57.2% in 2017. The countryside differs from urban areas by a higher proportion of the population. younger than working age: 20.2% in 2017 against 17.7% in cities.

In the ratio of men and women, there is some difference between the urban and rural population. In rural areas, the ratio of men and women is less disproportionate than in the city: 1077 women per 1,000 men in the village versus 1187 in the city (2017). At the same time, the disproportions in the countryside continue to decrease, while the ratio in the city remains. The village is characterized by a reduced share of women of working age, which continues to decline (819 women per 1,000 men, against 948 women per 1,000 men in the city), which is associated with the labor migration of women to the cities.

Trends in Changing the Birth of the First and Subsequent Children in Urban and Rural Areas of Russia

The birth rate in recent years shows the opposite dynamics in urban and rural areas. If in the countryside the birth rate decreases every year (from 14.1‰ per 1000 inhabitants in 2011 to 12.2‰ in 2016), in the city, on the contrary, it grows (from 12 in 2011 to 13, 1 in 2016). In 2015, the birth rate
in urban areas for the first time in many years became higher than the birth rate in the countryside, and in 2016 this trend continued.

Consider the peculiarities of the birth of the first and subsequent children in urban and rural areas in the subjects of the Russian Federation. First, it is necessary to note the difference in the births of the first and subsequent children in different regions of Russia: the standard deviation of the total fertility rate in 2017 was for the first, second and third children 0.09, the fourth - 0.05, the fifth and subsequent—0.03 The highest values of the total fertility rate in the regions of Russia were observed in the Tyva Republic—0.984 for the first child, 1.078 for the second, 0.697 for the third, 0.153 for the fifth and subsequent. By the total coefficient of birth of a fourth child, the Republic of Ingushetia is leading—0.321.

In this study, static and econometric approaches were used. Due to the limited time series of Russian statistics, this analysis was carried out on the basis of a cross section of averaged time data from 2010 to 2018. The use of the cross section allowed leveling the absence or fragmentation of statistical data. The following statistical series by regions of Russia for the period 2010-2018 were selected as the object of observation: the average number of children born first, second, third, fourth, fifth and subsequent children; per capita cash incomes; urban and rural population.

In the analysis of changes in the birth rate in urban and rural areas of Russia, two periods were considered—2010-2014 and 2015-2018. The influence on the birth of the first and subsequent children of such factors as residence in urban and rural areas, as well as the level of average per capita incomes of the population in all the subjects of the Russian Federation was studied. For this, regression models were compiled and the coefficient of determination $R^2$ for the order of births was determined.

In the period 2010-2014 in urban and rural areas in the regions of Russia, the opposite tendencies of the birth of the first and subsequent children are observed. In almost all regions of the country, the birth of the first child among the citizens did not depend on the average per capita income. However, with regard to making a decision on the birth of the second child, the opposite dependence is observed—with the increase in the level of incomes, the number of second births decreases (coefficient of determination $R^2 = 0.1018$). In the future, with respect to 3 and subsequent children, this dynamic increases - the coefficient of determination for the third child $R^2 = 0.3847$, the fourth and subsequent—0.2492.

The number of firstborn born among the rural population in this period, on the contrary, was significantly lower. At the same time, the higher the income of rural residents, the smaller the number of firstborn born in the region ($R^2 = 0.0706$). With respect to the second and subsequent children, the opposite trend was observed—with the growth of incomes, the number of births increased: for the births of the second child, the coefficient of determination was $R^2 = 0.1$, the third—0.385, the fourth and subsequent—0.35.

For the period 2015-2017, structural changes have occurred in relation to the birth of second children in rural areas. In most regions, the number of births of second children practically does not change from the value of per capita incomes—the coefficient of determination is 0.0129 for urban and rural areas. With regard to the third and subsequent children, the situation has remained unchanged since the previous period: the townspeople - the higher the income, the less births, the villagers have the opposite.

At the same time, a number of regions of the Russian Federation, which are knocked out of the general trend, are the Republics of Tyva and Ingushetia. In these regions, the total birth rate in order of birth does not depend on the level of income.

These trends are confirmed by changes in the total total fertility rate. It remains substantially higher in rural areas than in cities. In 2016, it was 2.06 for the village, and 1.67 for the city. The total fertility rate after the steady growth of the 2000s began to decline, starting from 2015 in the countryside and from 2016 in the city (although the decline for the city is still small—from 1,678 in 2015 to 1,672 in 2016).
Factors Affecting the Trends in the Birth of the First and Subsequent Children in Urban and Rural Areas of Russia

First of all, in our opinion, the differences in the reproduction of human resources in urban and rural areas are due to the number of women of reproductive age from 15 to 49 years. The share of women of reproductive age in rural areas at the beginning of 2018 was 22.67% of all women of reproductive age in Russia. The largest proportion of women of reproductive age living in rural areas (more than 50%) was observed in the following subjects of the Russian Federation: the Republic of Adygea (50.7%), the Republic of Kalmykia (51.6%), the Republic of Dagestan (50.9%), Karachayevo-Cherkess Republic (55.9%), Chechen Republic (64.2%), Altai Republic (63.9%). In a number of subjects, the share of rural women of reproductive age is less than 10% of rural women (in Moscow, Sevastopol, the Khanty-Mansiysk Autonomous Okrug and the Murmansk region).

The change in the dynamics of the total birth rate in order of births in rural areas can also be due to a change in the age of birth of the first child, which in recent years has tended to increase (2010—23.45 years, 2015—23.86 years) [6].

The question of the relationship between household incomes and the total fertility rate is quite debatable [7]. In Russia, there is a differentiation of average per capita incomes of the population both between regions and between urban and rural areas. The share of the population with incomes below the subsistence minimum in 2016 ranged from 42.1% in the Republic of Tyva to 7.4% in the Yamalo-Nenets Autonomous District [8]. At the same time, the share of poor households living in cities was 64%, in rural areas—36% [9] with a lower total share of the rural population. However, the results of our study showed the relationship between the birth of the second and subsequent children and the average per capita income.

Conclusion

During the twentieth century, there was a process of urbanization and industrialization, which was reflected in the growth of cities, a decrease in the number of rural settlements and their size. The processes of urbanization have a negative impact on the processes of reproduction of human resources in rural areas. If in the twentieth century, a rural family was characterized by large families, today, despite measures of state support for large families, in some regions it is striving for nuclearization. The study showed the relationship between the birth of children of different priority in urban and rural areas of Russia. With the growth of incomes of the rural population there is an increase in the birth rate of the second, and, especially the third and subsequent children. At the same time, the rural population postpones the birth of the first child, which in turn leads to a decrease in the total fertility rate and the total number of children born. Accordingly, in order to keep the birth rate in rural areas, and possibly increase it, the state needs to focus on reducing the protogenetic interval, through social, housing programs for young families.

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