The demographic potential of Russia’s Arctic and Subarctic regions by the example of Arkhangelsk Region

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Abstract. The article analyzes the demographic potential of Russia’s Arctic and Subarctic regions by the example of Arkhangelsk Region on the basis of population dynamics, fertility and mortality, urban and rural population ratio from the moment of the foundation of the region in 1937 and up to 2017.

1. Introduction
Basic Principles of the State Policy of the Russian Federation in the Arctic by 2020 and Beyond define the Arctic as the northern part of the Earth, including the deep-water Arctic basin, shallow shelf seas with islands and adjacent parts of continental Europe, Asia and North America. The Arctic zone of the Russian Federation includes territories constituting about a third of the entire area of the Arctic. The Arctic zone of the Russian Federation is a part of the Arctic, which includes totally or partially the Republic of Sakha (Yakutia), the Murmansk and Arkhangelsk regions, the Krasnoyarsk Territory, the Nenets, the Yamalo-Nenets and Chukotka autonomous districts, determined by the State Commission under the USSR Council of Ministers for the Arctic of April 22, 1989, as well as the lands and islands specified in the Decree of the Presidium of the USSR Central Executive Committee of April 15, 1926 “On declaring lands and islands located in the Arctic Ocean to be the USSR territory” and the internal seas, the territorial seas, the exclusive economic zone and the continental shelf of the Russian Federation adjacent to these territories, lands and islands, within which Russia has sovereign rights and jurisdiction in accordance with international law [10].

In the Arctic, industrial gas reserves correspond to 80% of all the reserves in the country; up to 90% of recoverable hydrocarbon resources are concentrated there. There are also reserves of many strategically important non-ferrous and precious metals, biological, aquatic and other resources. Thus, the Arctic zone has the necessary potential to meet the social and economic needs of Russia's development in the 21st century.

Plans for the Russian Federation to become one of the five largest economies in the world, ensuring sustainable natural growth of the country's population are among the priority national development goals of the Russian Federation by 2024, presented in the Presidential Decree “On National Goals and Strategic Development Goals of the Russian Federation by 2024” No. 204 of May 7, 2018 [13]. The main strategic document of the country determined, in turn, the main activities of the Russian Government by 2024, where the key actions are identified, including “the implementation of special measures to stimulate fertility in the subjects of the Russian Federation with low birth rates, taking into account monitoring and evaluating the impact of existing measures with a demographic focus, and analysis of demographic processes” [9]. In this regard, the issues of studying the demographic
processes of the subjects of the Russian Federation and the Arkhangelsk region in particular are relevant.

It is also necessary to carry out a comprehensive build-up of competitive advantages of the Arctic zone of the Russian Federation in order to strengthen Russia's position in the Arctic, international security, and maintain peace and stability in the Arctic region [10].

The relevance of considering the demographic potential is determined by its influence on all spheres of social, economic and political relations of the Russian Federation, the interrelation and coordination of the functioning of economic entities. This topic is of particular relevance in the Arctic and Subarctic regions, which are considered as a source of natural resources for the implementation of national projects.

Under the demographic potential we understand:
- demographic potential (human resource) - a set of knowledge, skills, abilities and motivations of a person that have economic value. Demographic potential increases as a result of a kind of investment (education, reproduction, migration, etc.) and decreases as a result of wear, both physical and moral;
- the demographic potential of the regional economy, which includes the possibilities of population reproduction and human development, characterized by social development indicators, quality of life, average life expectancy, adult literacy rate, real gross domestic product per capita;
- the demographic potential is considered in the context of the human potential ideology. The quantitative and qualitative potentials of population reproduction are the condition, the basis and the goal for the development of the society and the state [15].

The Arkhangelsk region, before its foundation as a region in 1937, already had a rich history. The resolution of the All-Russian Central Executive Committee of the USSR of September 23, 1937 “On the division of the Northern region into the Vologda and Arkhangelsk regions” laid the foundation for the Arkhangelsk region with the administrative center in the city of Arkhangelsk. According to the census, in 1939 there were 1,108,7 thousand people in the region, in the city of Arkhangelsk – 289,6 thousand people. Forest industry was the leading branch of the national economy.

The long-term demographic trends of Russia and the Arkhangelsk region in particular, are of a wave-like character, which is primarily due to the dire consequences that the whole country experienced during the Great Patriotic War of 1941–45. During this period, about 300,000 people were mobilized from the Arkhangelsk region to the army and the fleet. After the war, industrialization and the development of production in the Arkhangelsk region leveled the demographic situation, and by 1959 the population reached 1,267,200 people.

**Diagram 1.** Population dynamics in the Arkhangelsk region (1939-2017), thousand people.

The population decline in the Arkhangelsk region started in 1900. According to the All-Russian population census, conducted in 1989, the population made up 1,569,700 people. According to the following census, in 2002 the population was already 1,336,500 people. For the period between 1989 and 2002, the population decreased by 233,200 people (14.85% since 1989). These processes are primarily associated with such factors as natural population decline, negative migration balance, as
well as more accurate methods of conducting the census itself since 2002. Thus, in Soviet times, the census structure also included the population of many closed military cities, even on the shores of the Arctic. These facts are presented in Table 1.

Table 1 Population dynamics of the Arkhangelsk region by types of settlements (1939-2010). [8]

| Types of settlements | According to the population census | | |
|----------------------|------------------------------------|---|---|---|---|---|---|
|                      | Population size in surveyed settlements | 1939 | 1959 | 1989 | 2010 | In percent compared with 1939 | 1939 | 1959 | 1989 | 2010 |
| Urban settlements    |                                    |     |     |     |     |                             |     |     |     |     |
| Cities               |                                    | 388625 | 511572 | 955381 | 823443 | 100,0 | 131,6 | 245,8 | 211,9 |
| Urban-type settlements (workers' settlements) | 44530 | 156615 | 196760 | 104241 | 100,0 | 351,7 | 441,9 | 234,1 |
| Rural settlements    |                                    |     |     |     |     |                             |     |     |     |     |
| Villages             |                                    | 514048 | 341999 | 176812 | 116347 | 100,0 | 66,5 | 34,4 | 22,6 |
| Small villages       |                                    | 39130 | 49918 | 71940 | 55507 | 100,0 | 127,6 | 183,8 | 141,8 |
| Outposts             |                                    | 5587 | 314 | - | - | 100,0 | 5,6 | - | - |
| Farms                |                                    | 3448 | 1047 | 70 | 46 | 100,0 | 30,4 | 2,0 | 1,3 |
| Settlements of all types | 70561 | 159378 | 160754 | 123268 | 100,0 | 225,9 | 227,8 | 174,7 |
| Railway villages     |                                    | 15507 | 7890 | 6097 | 2913 | 100,0 | 50,9 | 39,3 | 18,8 |
| Other types of settlements | 27866 | 1639 | 183 | 598 | 100,0 | 5,9 | 0,7 | 2,1 |
| New settlements      |                                    | 1901 | 124 | - | - | 100,0 | 6,5 | - | - |
| Outskirts            |                                    | 6881 | - | - | - | - | - | - | - |
| Plots (incl. forest) |                                    | 3228 | 5878 | - | - | 100,0 | 182,1 | - | - |

According to population censuses from 1939 to 2010, the number and proportion of the urban population in the Arkhangelsk region was constantly increasing. If in 1939 the urban population made up 39.2%, and the rural population - 60.8% respectively, in 1970 the urban population had a share of 65.8%, and in 2010 it reached 75.7%. The trend towards an increase in the number and proportion of the urban population to the rural population in the Arkhangelsk region continues. So, as of January 1, 2018, according to the data of Arkhangelsk Statistics Agency, the share of the urban population in the Arkhangelsk region exceeded 78%, the share of the rural population is 22% respectively [14].

The main source of constant growth of the urban population in the Arkhangelsk region in the Soviet period was the influx of rural residents into the cities due to the redistribution of labor resources between industry and agriculture. To a much lesser extent, the urban population grew due to the natural increase.

Diagram 2. The ratio of the urban and rural population in the Arkhangelsk region (in percent).

The dynamics of the urban-rural population ratio in the Arkhangelsk region reflected the development trends of the Soviet industry: launching of forest and woodworking, pulp and paper,
The volume of industrial production exceeded the volume of agricultural production more than 14 times.

Another feature of the demographic processes in the Arkhangelsk region, as well as in the Russian Federation as a whole, is the demographic aging of the population (absolute and relative increase in the number of elderly people). According to statistics for 2017, every seventh northerner (or 13.8 %) is 65 years old or older. In the Arkhangelsk region, a regressive type of population structure is maintained, consisting of a low proportion of the child population and a high proportion of people of the retirement age.

In the population structure of the Arkhangelsk region, in the group younger than the working-age people, the number decreased by 2.1 times in 2010 compared with 1989. The working-age population decreased by 24.4% in 2010 compared with 1989, while the number of people older than working-age population increased by 9.9%.

Under the conditions of a regressive type of population structure, reduced generation reproduction, the indicator of life expectancy in the Arkhangelsk region is becoming one of the most important. This indicator had a decline from 1990 to 2005, and only since 2005 has gained a positive trend. In 2016, the indicator for the Arkhangelsk region population made up 70.80 years for men and women. In 2015, it was 70.70 years for men and women, 64.84 years for men and 76.70 years for women.

In recent decades, the Arkhangelsk region belongs to the territories with both migration and natural population decline. According to statistics for 2017, population decline rates are recorded in percentage terms: due to migration activity - 74.4%, due to natural population loss - 25.6%.

| Table 2. Dynamics of the population in the Arkhangelsk region by districts (1939-2010). |
|---|---|---|---|---|---|
| Region | 1939 | 1959 | 1979 | 2010 | 2010 to max. | 2010 to 1939 |
| NAO | 676843 | 564894 | 418120 | 298653 | 40,1 | 44,12 |
| Total by districts | 634851 | 540777 | 386641 | 276299 | 38,9 | 43,52 |
| Velsky | 33114 | 46486 | 31303 | 24961 | 53,7 | 75,38 |
| Verkhnetoemskiy | 26886 | 33685 | 24850 | 17060 | 50,6 | 63,45 |
| Vilegodsky | 27207 | 23002 | 16729 | 11158 | 37,3 | 41,01 |
| Vinogradovsky | 25977 | 24306 | 14935 | 10735 | 34,1 | 41,33 |
| Kargopol | 29741 | 24306 | 12428 | 8252 | 27,7 | 27,75 |
| Konoshsky | 30934 | 16184 | 14531 | 13674 | 44,2 | 44,20 |
| Kotlassky | 31711 | 24929 | 13941 | 11932 | 21,8 | 37,63 |
| Kransoborsky | 23909 | 30329 | 20506 | 13815 | 45,6 | 57,78 |
| Lensky | 19376 | 28267 | 15591 | 8785 | 31,1 | 45,34 |
| Leshukonsky | 16419 | 16791 | 15788 | 7979 | 47,5 | 48,60 |
| Mezensky | 13781 | 9318 | 7948 | 4173 | 27,3 | 30,28 |
| Nyandomsky | 30128 | 17304 | 12465 | 7888 | 26,2 | 26,18 |
| Onegsky | 18962 | 13152 | 14522 | 11131 | 37,7 | 58,70 |
| Pomezskiy | 17573 | 28718 | 36137 | 26978 | 74,7 | 153,52 |
| Plesetsky | 32178 | 24923 | 33611 | 15622 | 46,5 | 48,55 |
| Primorsky | 24250 | 45517 | 26007 | 26327 | 57,8 | 108,56 |
| Ustyansk | 35015 | 42447 | 25655 | 21274 | 50,1 | 60,76 |
| Kholmogorsky | 30128 | 47196 | 32959 | 25061 | 53,1 | 83,12 |
| Shikursky | 19064 | 25654 | 15305 | 9494 | 29,1 | 49,80 |

| Table 3. Natural movement of the population in the region in 2012–2017. [6] |
|---|---|---|---|---|---|---|
| Demographics | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| 1. Fertility (per 1000 population) | 12,6 | 12,7 | 12,5 | 12,2 | 11,8 | 10,5 |
| 2. Mortality (per 1000 population) | 13,8 | 13,4 | 13,4 | 13,6 | 13,7 | 13,1 |
| 3. Natural increase (per 1000 population) | -1,2 | -0,7 | -0,9 | -1,4 | -1,9 | -2,6 |
| 4. Marriages (per 1000 population) | 8,1 | 8,4 | 8,3 | 7,7 | 6,3 | 7,0 |
| 5. Divorces (per 1000 population) | 4,9 | 5,4 | 5,3 | 4,4 | 4,3 | 4,3 |
Natural increase of the population in the Arkhangelsk region was replaced by the natural decline in 1993. In 2005, it reached 7.1 per 1,000 people. From 2005 to 2013, there was a positive trend in the natural decline rate in the population of the Arkhangelsk region from 7.1 in 2005 to 0.7 per 1,000 in 2013.

Diagram 3. Natural population decline in the Arkhangelsk region in 1997–2017. (per 1,000 people)

Since 2013, a negative population growth trend has been observed; in 2017, the natural decline was 2.6 per 1,000 people.

Diagram 4. Dynamics of population fertility and mortality in the Arkhangelsk region. (per 1,000 people)

In 2017, according to statistics, the total mortality rate of the population in the Arkhangelsk region was 13.1 per 1,000 people, the birth rate made up 10.5 per 1,000 people. The birth rate in 2017 decreased to the level of 2016 from 12.6 to 13.1 per 1,000 people, as a percentage - by 11%. This is due, inter alia, to a decrease in the number of women of childbearing age (15-49 years).

In the period of 1993-1995, in the Arkhangelsk region, as well as throughout Russia, the low phase of the demographic wave coincided with complex socio-economic events. The monetary income of many families decreased, the family structure changed, the trend towards small families appeared, the number of divorces increased, single-parent families became more numerous, the level of reproductive health became worse, and the number of abortions was high. This in turn reinforced the fertility decline during this period.

Since the beginning of 2000s, the indicators describing the demographic situation in the Arkhangelsk region were generally characterized by positive changes. Since 2000, there has been a tendency of gradual increase in the number of births, as well as the birth rate. Since 2005, the birth rate has been enhanced by the implementation of the Concept of the Demographic Policy of the Russian Federation by 2025, approved by the Decree of the President of the Russian Federation of October 9, 2007 No. 1351.
2. Conclusion

Having considered the demographic processes in the Arkhangelsk region from 1939 to 2017, we can distinguish a number of features indicating the adverse demographic development of the region. They are as follows: stable depopulation in recent decades reflected in the natural and general population decline, low birth rates that do not provide simple population reproduction, as well as high mortality of the working-age population, unfavourable dynamics of health indicators and population aging. Arkhangelsk region has the population decline due to migration and a low standard of living.

The Arkhangelsk region occupies the 74th position in the rating of regions concerning the assessment of complex indicators reflecting the actual state of living conditions and the socioeconomic factors. The rating is prepared by the rating agency “RIA Rating” of the media group MIA “Russia Today”. When calculating the rating, 72 indicators of quality of life were analyzed based on the data of Rosstat (Russian Statistics Agency), the Ministry of Healthcare of Russia, the Ministry of Finance of Russia, the Central Bank of Russia and other open sources [11]. This is one of the reasons for the observed low birth rate in the Arkhangelsk region. Changes in the social attitudes of the population, including reproductive ones, which are manifested in the mass distribution of small families, cast doubt on the fact that this situation can be resolved by itself without taking a set of measures aimed at breaking the negative trend. It is necessary to take special measures to stimulate fertility, taking into account the monitoring and evaluation of the effectiveness of existing demography-focused measures, the formation of vocational training mechanisms, increased housing affordability for families with children, stimulating the migration redistribution of the working population, creating new jobs with decent wages, developing rural settlements.

The Arctic and Subarctic regions of Russia have significant potential and resources for the implementation of national projects and should be an active participant in Russian economic and political processes, ensuring a high level of well-being and quality of life of the population, competitiveness of business and development of the whole state.

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