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Level and Rate of Population Ageing in the Northern Regions of Russia According to the New Retirement Age

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Abstract. The article is devoted to the peculiarities of demographic ageing in the northern regions of Russia in accordance with the new economic threshold of old age. The relevance of the research is conditioned by the gradual increase of the retirement age in Russia and preservation of the favorable retirement age in the North. The information base is the results of the population censuses and the official data of Rosstat. The dynamic and comparative statistical analysis and demographic research methods are used. Regularities of ageing of the Russian population by new retirement age in different inter-census periods are revealed. The period of 1959–1970 is characterized by "ageing from below" due to the transition to limited fertility, and "ageing from above" under conditions of increasing life expectancy of the population. The periods of 1970–1979 and 1989–2002 are characterized by "ageing from below". Within the periods of 1979–1989 and 2002–2010, there was a decrease in the level of ageing of the population in Russia. The last intercensal period of 2010–2021 is the only one for which the definition of "ageing from above" is suitable. By 1989, the North zone had a noticeably younger age structure of the population than in the country as a whole. The migration outflow that began in the late 1980s caused the increased rates of demographic ageing of the Northern regions, which also continued in 2002–2010. As a result, in Karelia and the Arkhangelsk Oblast, the share of the population above the new retirement age in 2021 already noticeably exceeds the average Russian level, while in the Sakhalin Oblast, the Komi Republic and the Murmansk Oblast, it is close to the national level.

Keywords: *age structure of the population, demographic ageing, retirement age, economic threshold of old age, northern regions of Russia*

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Introduction

Demographic ageing is an increase in the proportion of elderly and old people in the total population, caused by long-term changes in the nature of its reproduction [1, Pirozhkov S.I., p. 117]. Along with the general population growth, increased international migration and urbaniza-

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tion, the UN considers population ageing to be one of the global demographic "megatrends" [1] [2] that has a long-term impact on global development.

A number of scales based on different values of the old age threshold are used to measure the degree of demographic ageing. In Russia and the countries where a significant portion of the population retires at 60, the J. Beauje-Garnier – E. Rosset scale with the old age threshold of 60 years is the most widely used [2, Dobrokhleb V.G., p. 185]. In economically developed countries, another boundary of old age — 65 years — is traditionally used as a criterion for identifying the elderly population for statistical purposes. In recent years, the UN has increasingly applied this threshold not only to developed countries, but also to the population of the entire world [2].

Both old-age thresholds are tied to the upper limit of working age. This is logical, since it is the number of people of retirement age and their share in the population that determine the economic aspects of population ageing, and it is the transition to the working-age boundary that determines the formation of a new social status of a person with the whole complex of socio-psychological consequences of ageing. Therefore, in our previous studies on demographic ageing [3, Popova L.A.; 4, Popova L.A., Zorina E.N.; 5, Popova L.A., Zorina E.N.], we adhered to the economic threshold of old age, i.e. the age of retirement, rather than the age of 60 for both genders traditionally used in Russian studies on ageing [6, Dobrokhleb V.G., Barsukov V.N.; 7, Safarova G.L.; 8, Shabunova A.A.], or 65 as in foreign ones [9; 10; 11, d'Albis H., Collard F.; 14, Belgrave L.L., Sayed B.A.; 13, Brunow S., Hirte G.; 14, Casamatta G., Batte L.] [3]. Since 1932, when the retirement age was legislatively established in the USSR (60 years for men and 55 years for women), the retirement age in the country has not changed [15, Roik V.D.], population censuses made it possible to correctly analyze the level and rate of ageing of the population of Russia and individual regions based on the dynamics of the number and proportion of the population over working age.

On January 1, 2019, the law on a gradual increase in the retirement age came into force in Russia [4], according to which the upper limit of working age for men will increase to 65 years, and for women — to 60 years by 2028. The All-Russian population census conducted as of October 1, 2021, classified men aged 61.5 years and older and women aged 56.5 years and older as the population of older working age [5]. Previous censuses included men aged 60 years and older and women aged 55 years and older in this category. The upcoming and subsequent censuses will include men aged 65 years and older and women aged 60 years and older in the population of older working

[1] Report of the Secretary-General on the review and appraisal of the Programme of Action of the International Conference on Population and Development and its contribution to the follow-up and review of the 2030 Agenda for Sustainable Development (E/CN.9/2019/2). URL: http://www.un.org/ (accessed 21 December 2023).
[2] United Nations, Department of Economic and Social Affairs, Population Division (2022). World Population Prospects 2022. URL: https://population.un.org/wpp/ (accessed 21 December 2023).
[3] Srivastava A., Nandita S. Aging in India: Comparison of Conventional and Prospective Measures, 2011. medRxiv. The preprint server for health science, 2022, 25 p. DOI: 10.1101/2022.04.11.22273700 (preprint).
[4] Federal Law No. 350-FZ of 3.10.2018 "On amendments to certain legislative acts of the Russian Federation on the appointment and payment of pensions". URL: http://www.consultant.ru/document/cons_doc_LAW_308156/ (accessed 21 December 2023).
[5] Official website of Rosstat. URL: https://rosstat.gov.ru/ (accessed 21 December 2023).

age, in accordance with the new retirement age. Thus, the continuity of research on the regularities of ageing of the population of Russia and its regions by the economic threshold of old age in different periods of time is disrupted — it is necessary to bring them to a single criterion. The purpose of this article is to identify the characteristics of demographic ageing in the northern regions of Russia in accordance with the new retirement age.

Research methods

The methodological basis of the study is the general scientific methods of analysis, synthesis, comparison and generalization. The work uses a systems approach, dynamic and comparative analysis, statistical and demographic research methods, and a tabular data visualization technique. The theoretical basis of the study is the scientific works of leading demographers, sociologists and economists devoted to the study of demographic ageing. The information base was the results of population censuses and official data from Rosstat.

Research results

Demographic ageing is traditionally distinguished by "ageing from below", which occurs due to a gradual reduction in the number of children due to a decline in the birth rate, and "ageing from above", caused by an increase in the number of old people as a result of a reduction in mortality in old age with a relatively slow increase in the number of children [1, Pirozhkov S.I., p. 117]. The direction and intensity of migration processes have a significant impact on changes in the age structure of the population: since people of active working age are characterized by the greatest territorial mobility, the migration inflow of the population contributes to the rejuvenation of the age structure, and the outflow — to the ageing of the population. The rate of ageing may also depend on the characteristics of the demographic history of the country, increasing during periods when generations born in years of high birth rates reach the threshold of old age [4, Popova L.A., Zorina E.N., p. 8].

In Russia as a whole, the proportion of the population above the new retirement age (men aged 65 and older and women aged 60 and older) has increased more than 2.5 times over the past 60 years: from 8.0% in 1959 to 20.3% in 2021 [6] (Table 1). The share of the population of these ages in the adult population (16 years and older) has increased more than 2 times during this time: from 11.4% to 24.4%.

Table 1

Age structure of the Russian population based on census data according to the new retirement age, % [7]

Year	Population aged 0–15 years	Men aged 16–64 years and women aged 16–59 years	Men aged 65 years and older and women aged 60 and older	Proportion of men 65 years and older and women 60 years and older in the population 16 years and older
1959*	29.9	62.1	8.0	11.4

[6] Official website of Rosstat. URL: https://rosstat.gov.ru/ (accessed 21 December 2023).
[7] Source: calculated by the authors on the basis of Rosstat data. URL: https://rosstat.gov.ru/

1970*	28.6	60.9	10.5	14.7
1979*	23.3	64.3	12.4	16.2
1989*	24.5	64.2	11.3	15.0
2002	18.1	65.6	16.2	19.8
2010	16.2	67.9	16.0	19.0
2021	16.8	62.9	20.3	24.4

* RSFSR

Our statistical and demographic analysis of the level and rate of ageing of the Russian population according to the new retirement age revealed that different inter-census periods are characterized by different patterns of ageing according to the new economic threshold of old age.

- In 1959–1970, there were both “ageing from below”, in the context of the population’s transition to having few children, and “ageing from above”, due to the increase in the life expectancy as part of the completion of the first stage of the epidemiological revolution.
- The inter-census period of 1970–1979, against the backdrop of a continuing decline in the birth rate, is characterized by “ageing from below”, restrained by the achievement of working age by numerous generations of the post-war compensatory rise in the birth rate and the beginning of migration growth.
- The period of 1979–1989 is characterized by a decrease in the proportion and size of the population over the new retirement age, caused by an increase in the birth rate under the influence of the pro-family demographic policy of the 1980s, a decrease in mortality among the working-age population as a result of the anti-alcohol campaign of 1985, as well as the attainment of older ages by the generations born in the 1920s, who suffered significant losses during the Great Patriotic War.
- The inter-census period of 1989–2002 is characterized by the highest rates of ageing. This is based on a decrease in the birth rate throughout almost the entire period and an extremely high mortality rate in the working-age population — two mutually reinforcing “ageing from below” are observed. The demographic history also contributed to the ageing of the population during these years, since among the population reaching old ages, the generations that had suffered enormous losses during the war were gradually replaced by generations that did not take part in it. At the same time, external migration slightly restrained the rate of ageing.
- Within the period of 2002–2010, there was a slight decrease in the number and proportion of the population over the new retirement age in Russia, which, in our opinion, was due to the legacy of the mortality crisis of the 1990s and the increased registration of Russian citizenship by migrants from neighboring countries in the context of the improvement of Russian migration legislation.
- The last inter-census period 2010–2021 is, in fact, the only one in Russia for which the definition of “ageing from above” is appropriate. With the recovery of the positive trend in life expectancy (after a two-year decline in the context of the COVID-19 pandemic, the

indicator increased to 72.7 years in 2022 [8]) and the forthcoming structural increase in the birth rate in the nearest future, "ageing from above" has a chance to become sustainable in Russia.

Differences in demographic processes in Russia's regions cause significant regional disparity in the level and rates of population ageing. Due to the high birth rate, the Republic of Ingushetia is characterized by the youngest age structure, despite the highest life expectancy rate in the country. According to the 2021 census [9], only 6.6% of the region's population was older than the new retirement age, compared to 20.3% in the country as a whole. Low birth rates and good life expectancy indicators in Moscow and St. Petersburg determine a significant level of demographic ageing of the capitals, even in the context of a stable migration inflow of the working-age population: 21.0% of the population in Moscow and 21.5% in St. Petersburg is older than the new economic threshold of old age. The large-scale migration outflow of young people determines the most significant national level of population ageing in the Kirov Oblast (24.8% in 2021).

In the North zone (the article considers 13 subjects of the Federation, the territories of which are entirely related to the Far North and equated areas, for which information for dynamic analysis is available) migration is also a determining factor in the level and rate of population ageing. Due to the long history of migration character of population formation, the North had a noticeably younger age structure by 1989 than Russia as a whole. The shares of children and working-age people in almost all northern subjects exceeded the Russian average. Only in the Republic of Tyva, the specific weight of the working-age population against the background of a very significant share of children was slightly lower than the average for the RSFSR [4, Popova L.A., Zorina E.N., p. 12].

Accordingly, the percentage of retirement ages in the northern regions was significantly lower than the Russian average. Only in Karelia and the Arkhangelsk Oblast, the specific weight of the population above the new retirement age in 1989 was comparable with the all-Russian level: 10.7% each compared to 11.3% for the RSFSR as a whole [10] (Table 2). In the Chukotka and Yamalo-Nenets Autonomous okrugs, the proportion of older people was 10 times less than the Russian average, in the Khanty-Mansi Autonomous Okrug and the Magadan Oblast — 5.5 times lower, in the Kamchatka Krai, the Sakha (Yakutia) and Tyva republics, the Nenets Autonomous Okrug, the Murmansk and Sakhalin oblasts and the Komi Republic it was 3.4 to 1.7 times lower.

Table 2

Share of population above the new retirement age (men aged 65 and older and women aged 60 and older) in the northern regions of Russia according to census data, % [11]

	1989 *	2002	2010	2021
Russian Federation	**11.3**	**16.2**	**16.0**	**20.3**
Republic of Karelia	10.7	15.2	15.9	23.3

[8] Official website of Rosstat. URL: https://rosstat.gov.ru/ (accessed 21 December 2023).
[9] Ibid.
[10] Ibid.
[11] Source: calculated by the authors based on Rosstat data. URL: https://rosstat.gov.ru/

Komi Republic	6.5	10.6	11.6	19.0
Arkhangelsk Oblast	10.7	14.5	15.1	22.0
Nenets Autonomous Okrug	5.1	8.5	8.9	14.6
Murmansk Oblast	5.4	9.8	12.0	18.0
Khanty-Mansi Autonomous Okrug	2.1	4.4	5.7	12.3
Yamalo-Nenets Autonomous Okrug	1.2	2.5	3.6	9.0
Republic of Tyva	4.9	6.2	6.5	7.7
Republic of Sakha (Yakutia)	4.0	7.0	7.8	12.5
Kamchatka Krai	3.3	7.9	11.0	15.9
Magadan Oblast	2.1	7.0	9.6	15.6
Sakhalin Oblast	6.4	10.7	12.2	19.6
Chukotka Autonomous Okrug	1.0	3.4	4.9	9.8

* RSFSR

The migration outflow of population from the northern territories that began three and a half decades ago caused the increased rates of demographic ageing of the North zone (Table 3). In the period between the censuses of 1989 and 2021, the share of the population above the new retirement age in the total population of Russia increased by 80%. At the same time, in the Chukotka Autonomous Okrug, there was an almost tenfold increase in the percentage of older ages (from 1.0% to 9.8%), in the Yamalo-Nenets Autonomous Okrug and the Magadan Oblast, their share increased by 7.5 times, in the Khanty-Mansi Okrug — almost 6 times, in the Kamchatka Krai — almost 5 times, in the Murmansk Oblast, the Sakha Republic (Yakutia) and the Sakhalin Oblast — more than 3 times, in the Komi Republic and the Nenets Autonomous Okrug — almost 3 times, in Karelia and the Arkhangelsk Oblast — more than 2 times [12]. Only in Tyva, which has a high birth rate and very low life expectancy, in 1989–2021 there was a less significant increase in the proportion of older ages (by 57%) than in the country as a whole.

Table 3

Growth rates of the share of the population over the new retirement age (men aged 65 and older and women aged 60 and older) in the northern regions of Russia in the inter-census periods, % [13]

	1989–2002	2002–2010	2010–2021	**In total for 1989–2021**
Russian Federation	**43.4**	**-1.2**	**26.9**	**79.6**
Republic of Karelia	42.1	4.6	46.5	**117.8**
Komi Republic	63.1	9.4	63.8	**192.3**
Arkhangelsk Oblast	35.5	4.1	45.7	**105.6**
Nenets AO	66.7	4.7	64.0	**186.3**
Murmansk Oblast	81.5	22.4	50.0	**233.3**
Khanty-Mansi AO	109.5	29.5	115.8	**485.7**
Yamalo-Nenets AO	108.3	44.0	150.0	**650.0**
Republic of Tyva	26.5	4.8	18.5	**57.1**
Republic of Sakha (Yakutia)	75.0	11.4	60.3	**212.5**
Kamchatka Krai	139.4	39.2	44.5	**381.8**
Magadan Oblast	233.3	37.1	62.5	**642.9**
Sakhalin Oblast	67.2	14.0	60.7	**206.3**
Chukotka AO	240.0	44.1	100.0	**880.0**

The scale of the migration outflow from the northern territories, the majority of which falls on the working age, increased until the second half of the 1990s: some researchers call 1999 the

[12] Official website of Rosstat. URL: https://rosstat.gov.ru/ (accessed 21 December 2023).
[13] Source: calculated by the authors based on Rosstat data. URL: https://rosstat.gov.ru/

year of the second change in the population dynamics of the North, since after the default of 1998, due to the sharp fall in the exchange rate of the ruble, the opportunities of exporting industries significantly expanded, and the attractiveness of the northern regions began to increase again [16, Pchelintsev O.S., Shcherbakova E.M., Nozdrina N.N., Minchenko M.M., p. 121]. For Russia as a whole, in the 1990s, on the contrary, the maximum volumes of migration inflow of population from neighboring countries were characteristic [4, Popova L.A., Zorina E.N., p. 17]. Therefore, in the inter-census period of 1989–2002, there was a very significant excess of the average Russian growth rate of the proportion of the population over the new retirement age in the northern regions. The exceptions were the Republic of Tyva with a high birth rate and a very low life expectancy rate, as well as the Arkhangelsk Oblast and Karelia, where, as in Tuya, migration played a less significant role. Moreover, such an excess was observed in the context of a significant lag behind the all-Russian level of the life expectancy of the population in almost all northern territories (except for the Khanty-Mansi Autonomous Okrug), as well as a traditionally high birth rate in a number of regions of the Asian North (in the republics of Tyva and Sakha (Yakutia), the Yamalo-Nenets and Chukotka Autonomous okrugs) and the Nenets Autonomous Okrug [14], which contributed to a reduction in the scale of “ageing from below”.

In the inter-census period of 2002-2010, there was a slight decrease in the proportion of the population over the new retirement age in Russia as a whole (by 1.2%). One of the reasons for this, in our opinion, is the increased acquisition of Russian citizenship by migrants from the former Soviet republics, as indicated by a fairly noticeable increase in the proportion of the working-age population in the country during this period (from 65.6% to 67.9%). For all northern regions without exception, in 2002–2010, an increase in the percentage of the population over the new economic threshold of old age is characteristic. At the same time, in Yakutia, the Nenets and Yamalo-Nenets Autonomous okrugs, the rate of decline in the proportion of children during this period turned out to be more significant than the national average, which indicates an intensification of the demographic transition among the indigenous peoples of the North. In almost the entire European North and in a number of regions of the Asian North, “ageing from below”, i.e. due to the birth rate, was more intense in 1989–2010 than the Russian average [15].

In 2010–2021, the ageing of Russia's population is observed in the context of an increase in the share of the population below working age, which, as noted, corresponds to the model of “ageing from above”. Accelerated growth of the birth rate in the first years of implementation of the regional maternity capital and its increased levels already in the period of its initial decline led to the fact that the proportion of children in Russia as a whole increased by 3.7%: from 16.2% to 16.8% (Table 4).

[14] Official website of Rosstat. URL: https://rosstat.gov.ru/ (accessed 21 December 2023).
[15] Ibid.

Table 4

Change in the share of children in the northern regions in the inter-census period 2010–2021 [16]

	Share of population aged 0–15 years, %		Growth (loss) rate for 2010–2021, %
	2010	2021	
Russian Federation	**16.2**	**16.8**	**3.7**
Republic of Karelia	16.0	17.1	6.9
Komi Republic	17.7	18.8	6.2
Arkhangelsk Oblast	16.7	17.9	7.2
Nenets AO	22.7	22.5	-0.9
Murmansk Oblast	16.2	18.2	12.3
Khanty-Mansi AO	20.4	21.6	5.9
Yamalo-Nenets AO	22.0	22.8	3.6
Republic of Tyva	30.5	32.7	7.2
Republic of Sakha (Yakutia)	23.3	24.0	3.0
Kamchatka Krai	17.1	19.4	13.5
Magadan Oblast	16.8	17.0	1.2
Sakhalin Oblast	16.7	16.2	-3.0
Chukotka AO	22.4	22.4	0.0

In 7 out of 13 northern territories, there is a more significant increase in the share of the population below working age, which restrains the growth of the ageing rate. At the same time, in a number of northern regions, most of which are regions with traditionally high birth rates, there is a less significant increase in the percentage of children (Magadan Oblast, Republic of Sakha (Yakutia), Yamalo-Nenets Autonomous Okrug), zero growth (Chukotka Autonomous Okrug) or even a decrease (Nenets Autonomous Okrug, Sakhalin Oblast), indicating the continued activation of the demographic transition among the indigenous peoples of the North, contributing to the acceleration of population ageing in these regions.

As a result of all these changes, according to the 2021 census, in two northern regions, Karelia and the Arkhangelsk Oblast, the share of the population over the new retirement age is already noticeably higher than the average Russian level (Fig. 1).

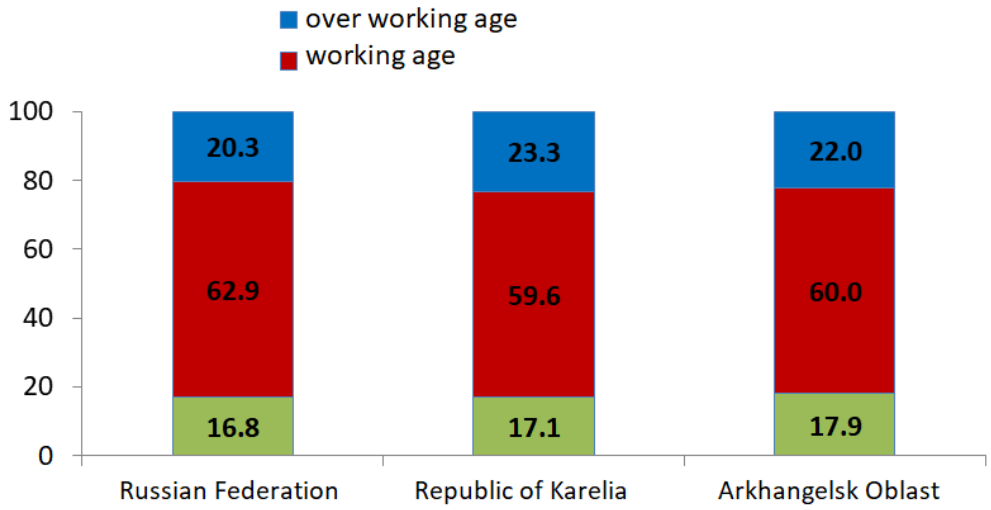

Fig. 1. Age structure of the population of the Russian Federation, the Republic of Karelia and the Arkhangelsk Oblast in 2021 according to the new retirement age, %.

[16] Source: calculated by the authors based on Rosstat data. URL: https://rosstat.gov.ru/

In the Sakhalin Oblast, the Komi Republic and the Murmansk Oblast, it is close to the national level. At the same time, the sectoral system of economic activity and discomfort of living conditions in the North impose special requirements to the health characteristics of the population, and, accordingly, to its age structure.

In addition, it should be taken into account that since 1993, a preferential retirement age has been applied throughout the North, including areas equivalent to the Far North. For citizens with 15 years of work in the Far North or 20 years of work in areas equivalent to the Far North, with an insurance record of 20 years for women and 25 years for men, it provides the opportunity to apply for a pension 5 years earlier than in the country as a whole [17]. When the retirement age was raised, the northern privilege was retained.

Accordingly, in the Republic of Karelia and the Arkhangelsk Oblast, even with the final transition to a higher retirement age in Russia, more than one third of the adult population (16 years and older) will have the right to stop economic activity in connection with retirement if they have the necessary length of work experience (Table 5). In the Komi Republic, the Sakhalin and Murmansk oblasts, about 30% of the adult population will be eligible for old-age pensions in accordance with the new northern economic old-age threshold, while in the Kamchatka Krai, the Nenets Autonomous Okrug and the Magadan Oblast — up to 27% [18].

Table 5

Age structure of the population of the northern regions of Russia in accordance with the new northern economic old-age threshold (men aged 60 and older and women aged 55 and older) based on the data of the 2021 census, % [19]

	Population aged 0–15 years	Men aged 16–64 years and women aged 16–59 years	Men aged 65 years and older and women aged 60 and older	Proportion of men 65 years and older and women 60 years and older in the population 16 years and older
Republic of Karelia	17.1	52.3	30.6	36.9
Komi Republic	18.8	55.2	26.0	32.0
Arkhangelsk Oblast	17.9	53.1	29.0	35.3
Nenets AO	22.5	56.7	20.8	26.8
Murmansk Oblast	18.2	57.5	24.3	29.7
Khanty-Mansi AO	21.6	59.9	18.6	23.7
Yamalo-Nenets AO	22.8	62.5	14.7	19.0
Republic of Tyva	32.7	55.2	12.1	18.0
Republic of Sakha (Yakutia)	24.0	57.8	18.2	23.9
Kamchatka Krai	19.4	58.6	22.0	27.3
Magadan Oblast	17.0	60.9	22.1	26.6
Sakhalin Oblast	16.2	57.8	26.0	31.0
Chukotka AO	22.4	61.7	15.9	20.5

[17] Law of the Russian Federation of February 19, 1993 No. 4520-1 "On state guarantees and compensation for persons working and living in the regions of the Far North and equated localities, when assigning and recalculating pensions". URL: https://www.consultant.ru/document/cons_doc_LAW_1786/ (accessed 21 December 2023).
[18] Official website of Rosstat. URL: https://rosstat.gov.ru/ (accessed 21 December 2023).
[19] Source: calculated by the authors based on Rosstat data. URL: https://rosstat.gov.ru/

Only in five regions of the Northern zone the share of adults who receive the right to pension provision in accordance with the new northern retirement age is lower than the share of old-age pensioners in the adult population in Russia as a whole (24.4%, see Table 1). In the Republic of Sakha (Yakutia) and Khanty-Mansi Autonomous Okrug it is less than 23%, in the Chukotka and Yamalo-Nenets okrugs and Tyva — up to 18–20% of the population over 16 years old.

Conclusion

Due to the long history of migration character of population formation, by 1989, the northern regions had a noticeably younger age structure than in Russia as a whole. The migration outflow, which began in the late 1980s, led to an increased rate of demographic ageing in the North, despite the low life expectancy of the population in most northern territories and a high birth rate in a number of them, even in the conditions of intensified demographic transition among the indigenous peoples of the North. As a result, in Karelia and the Arkhangelsk Oblast, the share of the population above the new retirement age in 2021 is already noticeably higher than the national average, while in the Sakhalin Oblast, the Komi Republic and the Murmansk Oblast it is approaching the national level.

At the same time, the economic threshold for old age in the North is 5 years lower than in the country as a whole. In accordance with the preferential retirement age in Karelia and the Arkhangelsk Oblast, over a third of the adult population, with the necessary work experience, will have the right to cease economic activity, in the Komi Republic, the Sakhalin and Murmansk oblasts — about 30% of the adult population, in the Kamchatka Krai, the Nenets Autonomous Okrug and the Magadan Oblast — up to 27%. Only in Yakutia, the Khanty-Mansi, Chukotka, Yamalo-Nenets Autonomous okrugs and the Republic of Tyva, the share of adults who receive the right to pension provision at the new northern retirement age is lower than the share of old-age pensioners in Russia as a whole.

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