



Demographic trends in Russian Arctic in the context of sustainable development

Tendencias demográficas en el ártico ruso en el contexto del desarrollo sustentable

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ABSTRACT:

During the last decade demographic trends in the Arctic are getting worse from year to year. Current tendencies of the Russian Arctic are depressed economy and instability of demographic situation (depopulation, regressive type of population structure, low rates of population growth, life expectancy at birth and fertility, negative balance of migration) which have caused misbalance in the labor market. This indicates low effectiveness of both state and regional socio-economic policies and threat for sustainable development of Russian Arctic.

Keywords: Demography, Arctic region, the Russian Federation, sustainable development.

RESUMEN:

Durante a última década, as tendências demográficas no Ártico estão piorando de ano para ano. As tendências atuais do Ártico russo são uma economia deprimida e instabilidade da situação demográfica (despovoamento, tipo de estrutura regressiva da população, baixas taxas de crescimento populacional, expectativa de vida no nascimento e fertilidade, saldo negativo da migração) que causou desequilíbrio no mercado de trabalho. Isto indica pouca eficácia tanto das políticas socioeconômicas estaduais quanto regionais e ameaças para o desenvolvimento sustentável do Ártico russo.

Palabras clave: Demografia, região ártica, Federação Russa, desenvolvimento sustentável.

1. Introduction

The exploration of the Arctic has become a global project of the century, potentially the largest investment platform of the modern world. It involves innovation technologies, logistic infrastructure, which require the cooperation of many companies, regions and countries, qualified management and technical personnel. Though worsening demographic trends, typical for the circumpolar countries (Russia, Canada, Norway, Iceland, Denmark, Sweden, Finland), are threatening sustainable development of the Arctic region. The reduction in the number of labor resources due to a decrease in the birth rate, aging of the population, and, consequently, a reduction in the number of economically active population are to result the slowdown of the economic growth.

Moreover before 1990s, the population of many countries in the Arctic region suffered from decreased public health. It made governments launch national programs resulted in a significant improvement. Thus, in Finland, the decrease in the mortality rate of men in 1970-2002 has grown

up to 65%. In Russia, this initiative was not accepted, though some positive dynamics in reducing mortality was supported by the anti-alcohol campaign.

During the last decade depopulation processes and worsening circumpolar health have become sustainable trends in the Arctic region, especially in the High North of Russia.

The article aims to review the main demographic tendencies in the Arctic zone of the Russian Federation and analyze the main reasons of depopulation processes.

2. Methodology

2.1. Demographic tendencies in the countries of the Arctic region: international comparisons

Arctic regions is the territory of the geopolitical interests of many countries in the world. That is why at present it is especially important to implement a comprehensive approach to prevent population collapse on this territory.

During the last decade transformation and gender inequalities in circumpolar health became the subject of great attention for scientists in the Arctic region (Begum, Sh. 2016; Dudarev, Alexey A. et al. 2013; Eliassen, Bent Martin et al. 2012; Emelyanova, Anastasia et al. 2012; Erke, M.G. 2014; Golubeva, Elena Iu. 2014; Johnsen, May Trude 2012; Kukarenko, Natalia 2011; Parkinson, Alan J. 2014; Singh, Kavita 2014). Demographic trends are getting worse from year to year.

Some indicators implemented in the international comparisons can indicate tendencies of the demographic situation: the ratio of dependents – people younger than 15 or older than 64 – to the working-age population – those ages 15-64 (*age dependency ratio as the proportion of dependents per 100 working-age population*), the number of live births occurring during the year, per 1,000 population (*birth rate*); the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with age-specific fertility rates of the specified year (*total fertility rate*), the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life (*life expectancy at birth*), the exponential rate of growth of midyear population from year t-1 to t, expressed as a percentage (*annual population growth rate*), population aged over 65, the number of people per square kilometer (*population density*).

Estimates of these indicators in the countries of the Arctic region are presented in the table 1.

Table 1
Demographic profiles of the countries in the Arctic region, 2016*

	<i>Russia</i>	<i>USA</i>	<i>Canada</i>	<i>Norway</i>	<i>Sweden</i>	<i>Denmark</i>	<i>Finland</i>	<i>Iceland</i>
Population density (per square kilometer)	143.38	326.47	36.63	5.33	9.92	5.71	5.54	0.33
Population growth (annual %)	0.19%	0.78%	0.85%	1.03%	1.06%	0.71%	0.33%	1.04%
Age dependency ratio (% of working-age population)	44.59%	51.54%	48.21%	52.77%	60.40%	56.16%	59.65%	52.18%
Population aged 65 and above (% of total)	13.65%	15.16%	16.55%	16.60%	20.20%	19.33%	21.02%	14.08%

Birth rate (per 1,000 people)	13.30	12.40	10.90	11.40	11.70	10.20	10.10	12.50
Fertility rate, total (births per woman)	1.75	1.84	1.60	1.75	1.88	1.69	1.71	1.93
Life expectancy at birth, total (years)	70.91	78.74	82.14	82.10	82.55	81.10	81.39	82.86

* Official data of Health Nutrition and Population Statistics, World Bank
<https://data.worldbank.org/data-catalog/health-nutrition-and-population-statistics>

Most of the Arctic countries have low rates of population density. The number of people per square kilometer doesn't reach even 6 in Iceland, Finland, Denmark, Sweden and Norway. Meanwhile, annual population growth rates at these isolated territories are extremely slow (0.19–1.06%). Birth and fertility rates are one of the worst in the world (less than 13.30 per 1,000 population and 1.93 births per woman, correspondingly). It is not enough for extended reproduction and causes depopulation processes. Age dependency ratio and indicator of population aged over 65 reveal the tendency for aging population and hard financial load of the population at working age in all the Arctic countries. On the contrary, high positions in the international life expectancy at birth rating indicate high quality of life and effective social policy. Though, in Russia, it is the lowest among the Arctic countries (70.91) – about 10 years less compared with another Arctic countries.

2.2. Public health: financing and efficiency

Financing directly correlates with the quality of health (Weed, D.L. 1999). In many developed countries, the share of health care costs, according to the World Health Organization, exceeds 8% of GDP, in the EU – 9.9%. It results in high level of medical infrastructure, high-tech medicine, access to medical services, a high number of doctors and medical staff per capita, etc.

In 2014, there was a trend to reduce medical costs (% of GDP) in European OECD countries, which in 2013 were the leaders in this indicator in Europe: in the Netherlands – 10.9% (2013 – 11.8%), France – 11.5% (11.6%), Switzerland – 9.3% (11.4%), Portugal – 9.5% (10.2%). Can this be considered a consequence of a deep social and economic crisis in the European Union or a shift in emphasis in public policy?

At the same time, the European countries of the Arctic region significantly strengthened their positions in medicine: in Denmark, this indicator increased in 2017 up to 10.8% (2013 – 8.1%), in Iceland – 8.9% (8.2%), in Norway – 9.7% (7.7%), in Finland – 9.7% (7.8%), in Sweden – 11.9% (7.0%). In 2017, the Arctic countries of the North American continent revised the structure of their budgets in favor of medical development: the United States – 17.1% (2013 – 16.9%), Canada – 10.2% (6.6%). This is an obvious trend of strengthening the Arctic vector of geopolitics, the desire of the states to take a strong position in the Arctic region. The Russian Federation, having increased the index from 5.4% to 7.1% (Figure 3), has entered the mainstream of the "all-arctic" trend of increasing the share of health care costs, although it still lags far behind the OECD countries.

In 2014, the Russian Federation took part in the world ranking on the effectiveness of the health care system (Health Care Efficiency Index) for the world's leading countries of the agency Bloomberg for the first time and took the last place (22.5 points). There were no Arctic countries among the leaders. Three years ago, Russia closed the rating, being on the 51st place, in 2016 it moved to the 55th. In the WorldFactBook ranking Russia took the 103d place.

Though, if an increased emphasis on public health has become a trend in the Arctic countries, then in none of the Arctic regions of the Russian Federation a strategy for improving health and

quality of life has been implemented. It is keeping on a trend of worsening health in old age, the quality of life, healthy urban planning, health impact assessment. When will the cities of the Russian North become healthy cities of equal opportunities, with a supportive environment that meets the expectations and needs of all residents?

2.3. Demographic “background” of the Russian Arctic

The arctic region covers 35 % of the total area of Russia and includes all or part of several regions of the Russian Federation: 4 regions of the Russian Federation (Murmansk Oblast (Region), Nenets Autonomous Okrug (District), Yamalo-Nenets Autonomous Okrug (District), Chukchi Autonomous Okrug (District) are entirely within the Russian Arctic; 4 regions (Arkhangelsk Oblast (Region), Respublika Komi, Krasnoyarsk Kray (Territory) and Respublika Sakha/Yakutiya) are each about 1/3 within the Arctic. In 2016, the total population of the Arctic zone of the Russian Federation was about 2.378 million people (almost 50% of total population in the Arctic). During the last decade yearly decrease of the population has reached 4%.

Depopulation processes are a natural consequence in the context of the historical process of population formation in the northern territories of Russia. The population has mainly formed due to migration processes, and not its own natural reproduction. The development of industrial and social infrastructure directed the migration flow to the northern regions. Though, in the 1990s, it was replaced by a migration outflow due to the initiation of the governmental programme of resettlement people to other regions of Russia. This caused the misbalance of population structure by sex and age and instability in the regional labor market.

Economic and environmental factors (40-50%) have the most significant impact on public health and reproduction processes. The influence of geophysical features of the territory (15-20%), biological factors – genetic and constitutional features (15-20%) and the quality of the health care system (8-10%) is much less (Castells, M. 2000). It explains high rates of depopulation processes in the Arctic region of Russia in the 1990s as caused by socioeconomic and political crisis in the USSR and later in the Russian Federation. Instability and increased poverty resulted in rigid intra-family regulation of childbearing (one child per family), postponing the birth of the first child, increasing the average age of the mother at the birth of children. It wasn't declared to be the main course of the state demographic policy as in China in 1982. But the outcomes were similar: aging of population, disproportion by sex and prospective population collapse.

To compare the subjects of the Federation included into the Arctic zone of the Russian population the complex of international indicators was implemented: population growth rate (total and separately – urban and rural population), the coefficients of migratory population increase, fertility rates, life expectancy at birth (total and separately – women and men).

3. Results

3.1. Demographic “gap” in the Arctic region of Russia: review

Currently, negative dynamics of population occurs practically in all Arctic regions of the Russia (Table 2).

Table 2
Resident population of the land territories of the Arctic zone
in the Russian Federation* (estimated as of January, 1)

	2014	2015	2016	2017	Growth rate (2014- 2017), %
<i>Arctic zone of the Russian Federation</i>	2400580	2391631	2378234	2371655	98,80
Respublika Komi	84707	82953	81442	80061	94,52
Respublika Sakha/Yakutiya	26447	26194	26107	26190	99,03

Oblast (Region) without Nenets Autonomous Okrug (District)	608040	48584	606986	48114	605464	47403	603902	46853	99,32	96,44
Murmansk Oblast (Region)	714445	56613	709548	56733	704954	57219	700406	57215	98,03	101,06
Nenets Autonomous Okrug (District)	30478	12547	31118	12255	31738	12100	31832	12105	104,44	96,48
Chukchi Autonomous Okrug (District)	34110	16445	34522	16018	34720	15437	34892	14930	102,29	90,79
Yamalo-Nenets Autonomous Okrug (District)	452569	87102	452570	87415	446903	87201	448822	87227	99,17	100,14

*Official data of the Federal service of the Russian statistics in the Russian Federation.

In the Arctic region, outflow of population is caused both the negative balance of migration and the change in the structure of the population. The resettlement of rural population into urban agglomerations leads to the desolation of rural areas and negatively affects the development of the region's self-sufficiency in terms of food security. In turn, the urban population (mostly young people under 25) migrates to other regions (Table 4) searching for a better life and promising work. So the deficit of highly qualified personnel is actualized.

Table 4

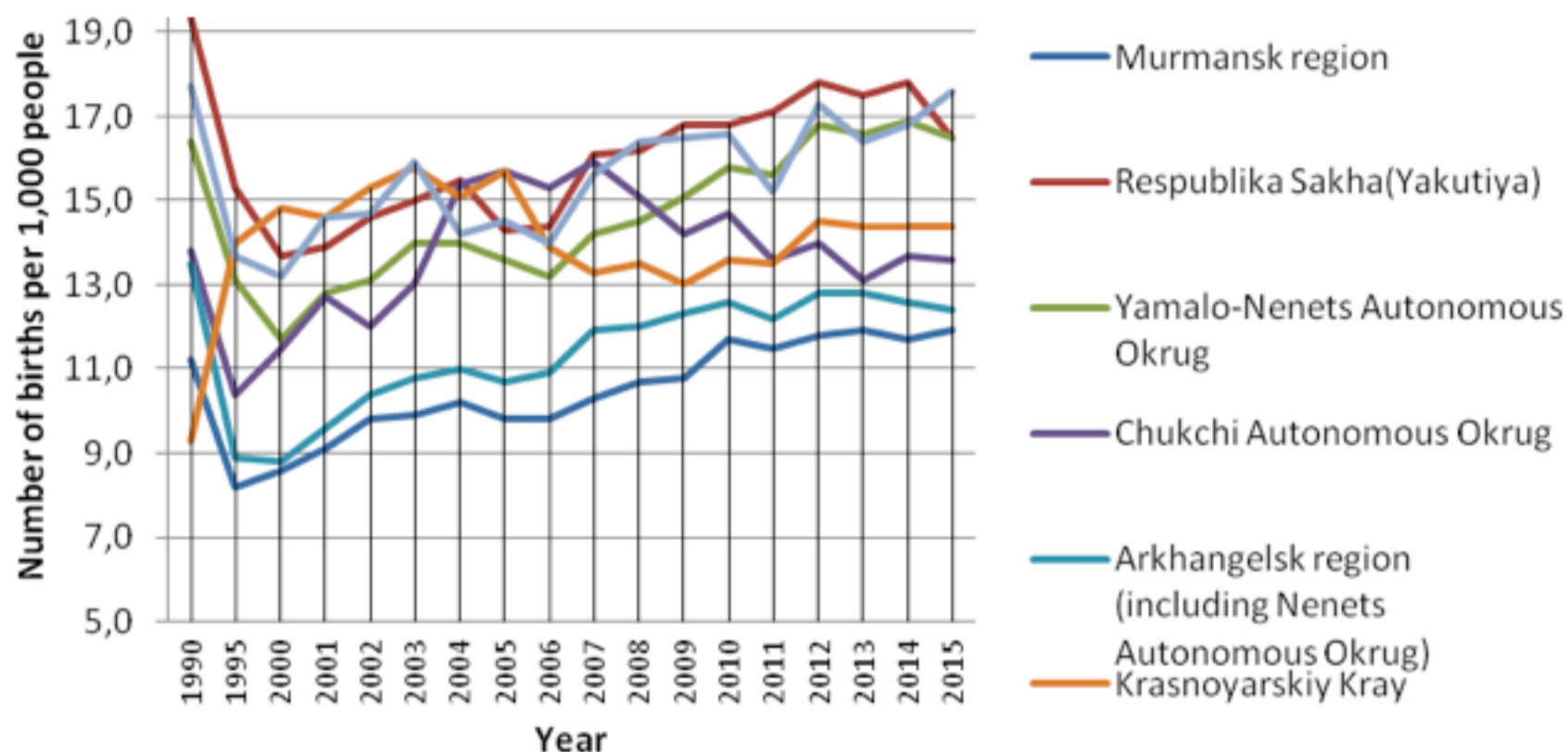
The coefficients of migratory population increase of the Arctic zone in the Russian Federation*

	2015	2016
Arctic zone of the Russian Federation	-9,6	-5,9
Respublika Komi	-22,0	-18,0
Respublika Sakha/Yakutiya	-9,3	-3,8
Krasnoyarsk Kray (Territory)	-6,8	-8,8
Arkhangelsk Oblast (Region) without Nenets Autonomous Okrug (District)	-3,3	-3,1
Nenets Autonomous Okrug (District)	-3,6	-2,8
Murmansk Oblast (Region)	2,3	-7,3
Yamalo-Nenets Autonomous Okrug (District)	-5,7	-5,7
Chukchi Autonomous Okrug (District)	-237,8	-69,8

The main reasons of depopulation in the Arctic region are not only migration processes, but also low rates of growth of the birth rate, unfavorable dynamics of morbidity and chronic diseases, including professional ones.

Fertility dynamics is unstable, and a trend to decreasing birth rates became more evident last years (Figure 1). In 2015, in Russian fertility rating Respublika Sakha/Yakutiya ranked 6, Yamalo-Nenets Autonomous Okrug – 10, Nenets Autonomous Okrug – 11, Krasnoyarsk Kray – 26, Chukchi Autonomous Okrug – 36. The worst position had Murmansk region – 65.

Figure 1
Fertility dynamics in the Arctic regions of the Russian Federation in 1990-2015*



*Official data of the Federal service of the Russian statistics in the Russian Federation and its territorial authorities.

Both fertility rates and decrease of reproductive health aggravate the demographic situation and can cause depopulation collapse in Russian Arctic.

Contemporary negative tendencies in men's health become stronger from year to year. World Health Organization stated the fact of men's health gap in 2013-2014 only: "In most parts of the world, health outcomes among boys and men continue to be substantially worse than among girls and women, yet this gender-based disparity in health has received little national, regional or global acknowledgement or attention from health policy-makers or health-care providers" (Baker, Peter et al. 2014). It was a response to research done on male health problems in different countries all over the world (Barker, Gary 2010; Hawkes, Sara et al. 2013; Hinote Brian P. et al. 2012; Hippisley-Cox 2009; Jamison, Dean T et al. 2013; Juel, Knud et al. 2008; Lim, Stephen et al. 2012; Wang, Haidong et al. 2012; White, Alan et al. 2011; WHO 2016).

At present, 78% of the total number of urological patients are boys, young men and men. According to the Scientific Center for Obstetrics and Gynecology of the Russian Federation Ministry of Health there are 7-8 million infertile women and 3-4 million men in Russia. The structure of infertility is 45% – women and 40% – men (Apolikhin, Oleg I. et al. 2015).

More than 50% of teenage boys have a disease, which in the future could limit the realization of reproductive function. According to the Center for Child and Adolescent Andrology, 21% of boys have a risk of reproductive disorders, and 14% – a high risk of infertility. Experts predict that over the next 10 years number of men aged 18-27 years will be reduced by more than 1/3 (by 3.8 million) (Rybal'chenko Sergey I. 2015). That's why issues of male reproductive health became a special subject for discussion at the IX International congress on reproductive medicine in January 2015 in Moscow.

Currently, there are no state programs for the protection of men's reproductive health and support of responsible fatherhood. Discussion of legislative aspects of male health regulation

included into the draft of "Reproductive health concept of population in the Russian Federation 2016-2025" started in the State Duma in September 2016 only.

Decline in men's reproductive health (45% of approved cases of male infertility) in Russia threatens decrease of birth rates and population maintenance.

Though, the growing problem with reproductive health is not the only reason forcing young families avoid planning the birth of children. We are sure that the size of the minimum monthly allowances – 67USD (as of 18.02.2018) made many women decline to have a child. It is about 3 times less compared with subsistence minimum per capita in the northern regions of Russia and 11 times less an average monthly wage. In this case, a woman would prefer to keep on working.

Moreover in 2015, life expectancy at birth in the northern regions did not exceed 71 years, which is lower than a national average level. In the Russian Federation life expectancy of men (65.92) was 10.79 years less compared to women (76.71). In the Arctic regions of Russia this gap was rather considerable either. The dynamics of this indicator for men and women in Figures 2-3 shows that women live much longer than men and difference in life expectancy at birth of men and women is rather significant: from -9.4 in Nenets Autonomous Okrug to -15.3 in Chukchi Autonomous Okrug.

Figure 2
Dynamics of life expectancy at birth of women in the Arctic regions of the Russian Federation in 1990-2015, years*

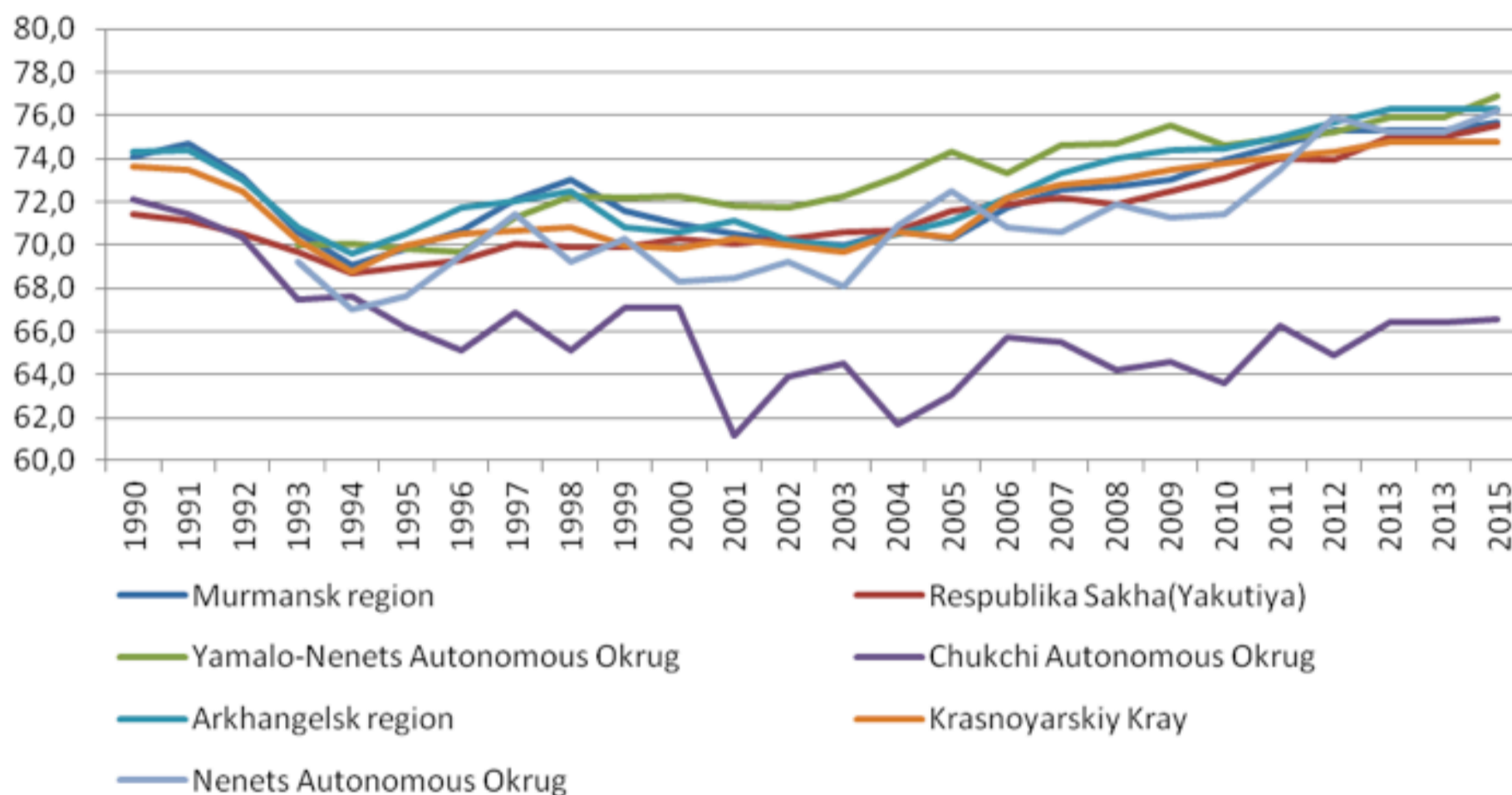
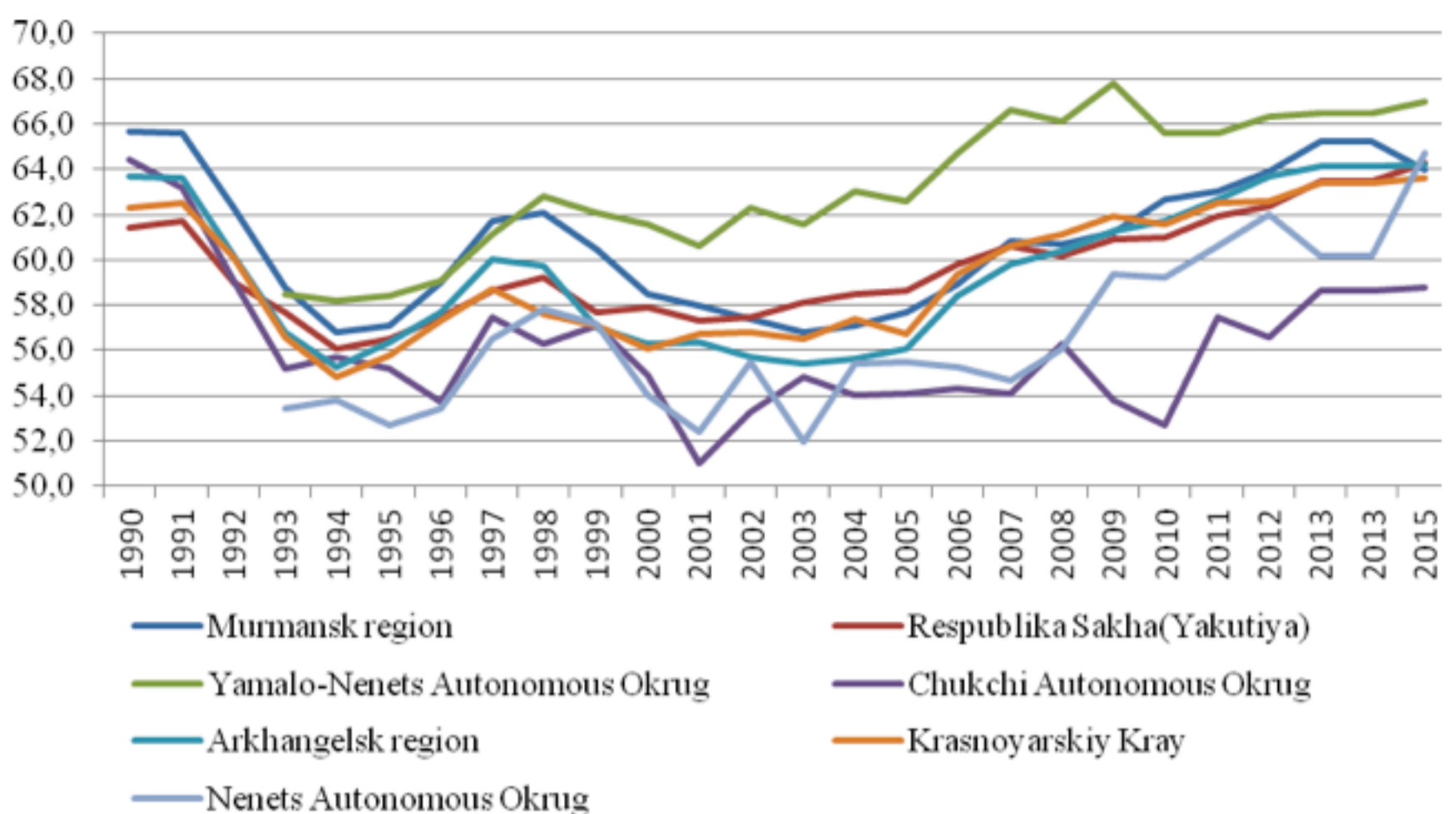


Figure 3. Dynamics of life expectancy at birth of men in the Arctic regions of the Russian Federation in 1990-2015, years*



*Official data of the Federal service of the Russian statistics in the Russian Federation and its territorial authorities.

Besides, in the Arctic regions of Russia according to the ratio of men and women in sex and age distribution the proportion of men decreases since the age of 40 but this is the top-period of labour productivity. The share of men in the total population at the age of over 70 is less 30%.

The perception of Arctic region as "the territory of discomfort" urge people to leave it. Subjective ratings of 85 Russian regions prove that the Arctic residents are not satisfied with quality of life: Yamalo-Nenets Autonomous Okrug has 24th position, Krasnoyarsk Krai – 43, Murmansk Oblast – 48, Respublika Komi – 59, Nenets Autonomous Okrug – 68, Arkhangelsk Oblast without Nenets Autonomous Okrug and Respublika Sakha/Yakutiya share the 71st position, Chukchi Autonomous Okrug – 77. This indicates the low effectiveness of social politics and make these territories unattractive especially for urban population which is more mobile.

3.2. Demographic trends in the indigenous peoples of Russian Arctic

The reverse demographic situation is observed in the indigenous small-numbered peoples of the North: their population is growing.

In the USSR, since 1920s, 26 indigenous peoples of the North were officially recognized. Their total number was 129.6 – in 1959 and 181.5 – in 1989 (Obedkov, A.P. 2011).

As of 2009, there were 40 small indigenous peoples of the North in 40 regions of the Russian Federation (Order of the Government of the Russian Federation No. 132-r of 04.02.2009 "On the Concept of Sustainable Development of Indigenous Peoples of the North, Siberia and the Far East of the Russian Federation"). According to the 2002 All-Russia Population Census, the total number of small-numbered peoples of the North was 244.0 people.

On the whole, there is a positive dynamics of demographic processes among the small peoples of the North. The number of Orok (Ulta) increased 2.5 times, Nenets, Selkup, Khanty, Yukagirs, Negidal, Tofalars, Itelmen, Kets and others – by 20-70%.

These trends over past 15 years can be accounted for the implementation of three federal targeted programs and subprograms on the socio-economic development of indigenous peoples in the North.

Reproductive health of indigenous women in the Arctic region is characterized by a higher birth rate and a low level of abortion, but there is a high level of spontaneous abortion due to extreme conditions of living in the tundra. It demands developing the programmes of reproductive health support, as well as for female indigenous tundra population, mobile ambulance providing

evacuation and re-evacuation of pregnant and children by sanitary aviation from remote, inaccessible Arctic territories.

In recent years, within the framework of the development of public-private partnership, the practice of concluding agreements with state authorities of the subjects of the Russian Federation, local self-government bodies, communities of small peoples of the North, regional and local authorities for large industrial companies, including the fuel and energy complex, associations of small peoples, separate national households (owners of "patrimonial lands") has been formed. It allowed to set up off-budget funds for a loan support of small-numbered peoples of the North.

4. Conclusions

Unfortunately, the current tendencies of the Russian Arctic are depressive nature of the economy, unstable demographic situation, depopulation processes. The regressive type of population structure has been maintained. Misbalance in the labor market has been caused by migration processes and high mortality rates of men in all age groups compared with women, especially at working age. This is the basis for stating the low effectiveness of both state and regional socio-economic policies.

The stereotype of the perception of Arctic region as a place for temporary stay (with the aim of earning income hiring for shift work or earning a "northern pension" with subsequent moving to other regions) has been generated. It results in low motivation of people living in the Arctic region of Russia to improve this territory and threats its sustainable development.

To prevent depopulation collapse in the Arctic region of Russia the Government should:

- Develop subsidizing programmes for youth.
- Implement extra social guarantees for young and large families, increase minimum monthly allowances for women with children under 1.5 years old.
- Ensure the high quality of life of people living in the Arctic region, develop subsidizing programmes to increase food security in the North: provide rural territories, remote from territorial centers, with food and basic household things and change fish catch quotas for indigenous peoples.
- Increase funding of public health up to 8% (% of GDP) and per capita.
- Develop the programmes of reproductive health support, as well as for female indigenous tundra population.

The main prerequisite for stabilizing the demographic situation in the Arctic region is overcoming the socio-economic crisis and economic growth. It will result in improvement of the quality of life of the population in the Arctic.

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