

# Comparing intraregional trends of demographic development in the Russian Near North (on the example of Arkhangelsk, Vologda, and Kostroma Oblasts)

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Received 12 December 2021 ♦ Accepted 10 January 2022 ♦ Published 9 May 2022

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**Citation:** Mokrensky DN (2022) Comparing intraregional trends of demographic development in the Russian Near North (on the example of Arkhangelsk, Vologda, and Kostroma Oblasts). *Population and Economics* 6(1): 109–122. <https://doi.org/10.3897/popecon.5.e79253>

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## Abstract

The article compares intraregional trends in demographic development of the old-developed territories of the Russian Near North: Arkhangelsk, Vologda, and Kostroma Oblasts. The author identifies trends in the fertility, mortality, and migration in 2011–2019 basing on the statistical indicators characterizing the demographic situation in municipal entities and urban districts of the old-developed areas in these regions. A comparative analysis of the demographic dynamic in the three regions confirmed the well-known conclusions about depopulation, urbanization, and migration loss in most municipalities. Steady depopulation was observed in medium-sized and small cities, including in municipal centers, where the inflow of population from the nearest periphery is decreasing. The further away from Moscow the region is, the higher the growth rate of the urban population and the rate of decline in the rural population.

## Keywords

Russian North, demographic development, migration attractiveness, population concentration, regional economy, municipal district, spatial development

**JEL codes:** J18, R11, R12, R23

On September 24, 2001, the «Concept of demographic development of the Russian Federation for the period up to 2015» was approved by the decree of the Government of the Russian Federation. It was developed based on the «Concept of National Security of the Russian Federation», the text of which emphasizes the importance of maintaining the population in the geopolitically important regions of the Russian Federation, which include the northern regions of our country. The «Concept of Demographic Policy of the Russian Federation for the period up to 2025», approved in 2007, states the need to develop socio-economic

measures to increase the migration attractiveness of that territories with population outflow which could be seen as highly important for the national interests of the Russian Federation (Decree of the President of the Russian Federation 2007). At the same time, the preservation of the population in the old-developed Russian territories is important for preserving the national cultural and historical heritage, which is highlighted in the «National Security Strategy of the Russian Federation» (Decree of the President of the Russian Federation 2021). One of these territories is the Near North of Russia.

According to the classification of V.N. Kalutskov, the territories of the Russian Near North include Novgorod, Kostroma, Vologda, Kirov, partly Yaroslavl, Arkhangelsk, Tver, Leningrad, and Pskov Oblasts. In most of these territories, where there are usually no large agglomerations, the current demographic situation at the local level plays a key role for the socio-economic development of the region. A network of small towns and rural settlements in the Near North of Russia performs a unique role as a carrier of continuity and culture, preserving the way of life, social structure, and local crafts (Kalutskov 2012; Sheresheva et al. 2017).

The author of this study examines the population of Kostroma, Vologda, and Arkhangelsk Oblasts (including the Nenets Autonomous Okrug) and uses the assumption that the territories of these regions stretched out submeridially to the north in relation to Moscow. This enables differentiating the demographic indicators depending on the distance from Moscow.

Prior to performing regional analysis, we should name some trends of demographic development of the studied territory in the last few decades. Since the 1960s and up to the present time, the population of these constituent entities of the Russian Federation has been shrinking, and most rapidly in rural areas. The population of small and medium-sized cities increased during the Soviet period but began to decline rapidly in the post-Soviet decades. Over the past sixty years, the statistics shows higher rates of urbanization in Kostroma, Vologda, and Arkhangelsk Oblasts compared to the national average (on average, from 1959 to 2019, the share of the urban population in Russia increased by 22%, while in Vologda Oblast the growth was 38%, in Kostroma Oblast — 33%, in Arkhangelsk Oblast— 24%) (Kozhevnikov 2019). During the past three decades, in most regions of the Near North, mortality has significantly exceeded fertility, and there has also been a significant outflow of young people to large cities. The life expectancy in rural areas in this territory has been and remains one of the lowest in the country. As a result, in the post-Soviet period, the population of all regions of the Russian Near North has been decreasing annually and is decreasing to the present day (Patsiorkovsky et al. 2019; Denisenko and Nikolaeva 2015; Pokrovsky and Bobylev 2005, Rossiyskiy Severnyy vektor 2006). In particular, from 1989 to 2019, the rural population of Vologda Oblast decreased by 38%, of Arkhangelsk Oblast — by 36.5%, of Kostroma Oblast — by 27%.

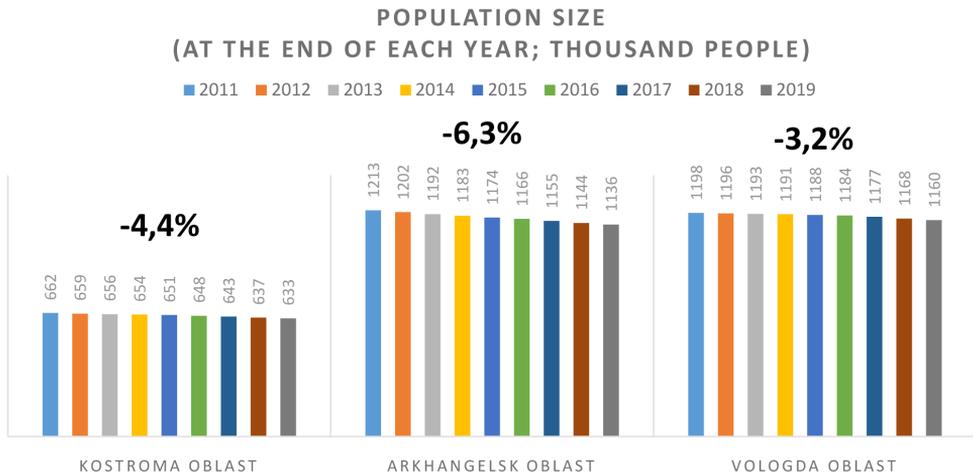
This research note regards a period of eight years, from 2011 to 2019. The rationale for the timespan choice is as follows: firstly, only since 2010 there are sufficiently complete statistical data on municipalities (then also municipal districts or MD) of these regions; secondly, due to the change in the methodology of accounting for migrants introduced in 2011, it is better to compare data on migrations in municipalities starting from this year. The observation ends in 2019 to exclude the impact of changes caused by the COVID-19 pandemic.

The author carries out statistical and graphical analysis using municipal statistics of Rosstat comparing Kostroma, Vologda, and Arkhangelsk Oblasts and their municipal entities. Of all types of municipal entities, the study analyzes municipal districts and urban districts. At the same time, the author accounts for changes in the geographical boundaries of municipal entities in the considered period. To determine the current intraregional trends of

demographic development at the level of municipal and urban districts, the study regards indicators characterizing the dynamics of natural and migration population movement.

### Population size

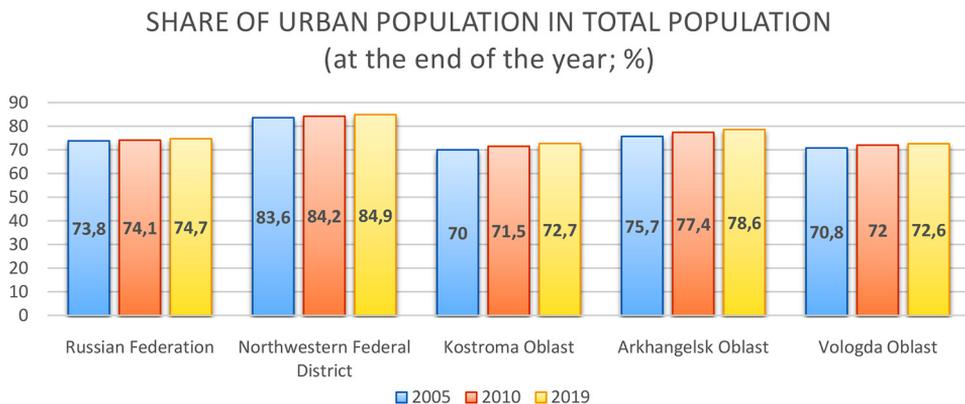
The dynamics of the population size in Arkhangelsk, Vologda, and Kostroma Oblasts for the period from 2011 to 2019 is shown in Fig. 1.



**Figure 1.** Population dynamics, 2011-2019. *Source:* Compiled by the author based on Rosstat data.

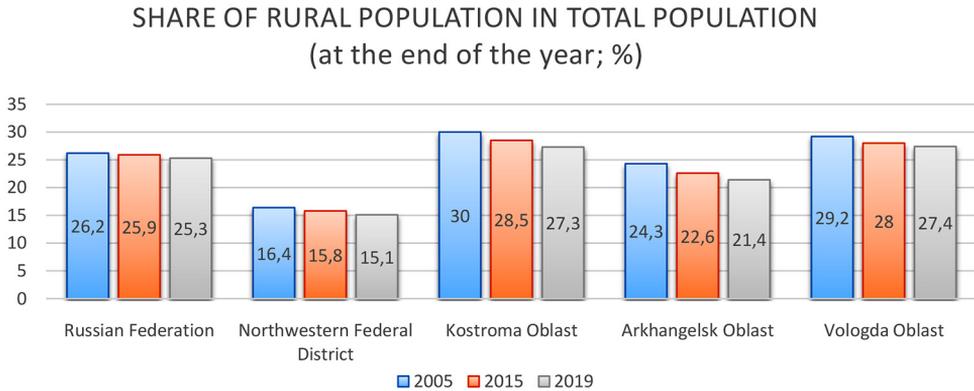
A population decline occurs in all three regions under review. The most significant rates of the population decline were observed in Arkhangelsk Oblast, where total population decreased by 6.3% over the specified period (from 1.213 million people to 1.136 million people), while for Kostroma Oblast the rate of decline was 4.4%, for Vologda Oblast — a little over 3%.

From 2010 to 2019, the share of the urban population in the total population increased in Arkhangelsk Oblast from 75.7% to 78.6%, in Vologda Oblast — from 70.8% to 72.6%, and in Kostroma Oblast — from 70% to 72.7% (see Fig. 2).



**Figure 2.** Share of urban population, 2010-2019. *Source:* Compiled by the author based on Rosstat data.

The share of the urban population ranged from 72.6% in Vologda Oblast to 78.6% in Arkhangelsk Oblast, and in the latter this indicator exceeded the national average. The growth in the share of urban population in these regions corresponds to the average Russian rate and the indicator for the Northwestern Federal District as a whole; however, Arkhangelsk Oblast stands out for the fastest urbanization. Vologda Oblast (27.4%) and Kostroma Oblast (27.3%) have a higher share of rural population when compared to the country average (25.3%), Arkhangelsk Oblast (21.4%), and the Northwestern Federal District (15.1%; see Fig. 3).



**Figure 3.** Share of rural population, 2010, 2015, 2019. *Source:* Compiled by the author based on Rosstat data.

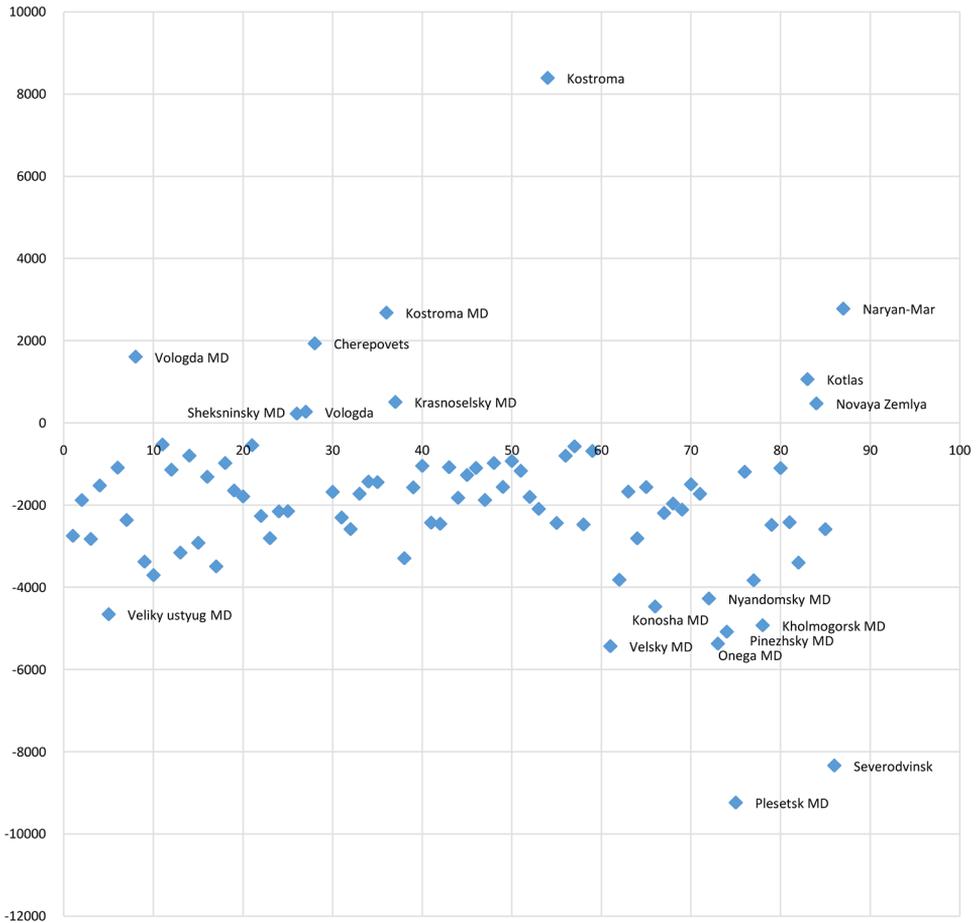
In 88% of all municipal entities of Arkhangelsk, Vologda, and Kostroma Oblasts for the period from 2011 to 2019, we observe a decrease in the population size (Fig. 4).

Table 1 shows municipal entities with positive population dynamics for the specified period. Among them are 5 cities, 1 city district and 4 municipal districts. The table shows that the increase was observed mainly in regional centers, large cities, as well as in the municipal districts closest to them. Thus, the center-peripheral model of the development of municipalities, developed by D. Friedman, could be applied to the studied old-developed areas of the Russian Near North.

**Table 1.** Municipal districts (MD), urban districts, and cities of Arkhangelsk, Vologda, and Kostroma Oblasts with positive population dynamics in 2011-2019

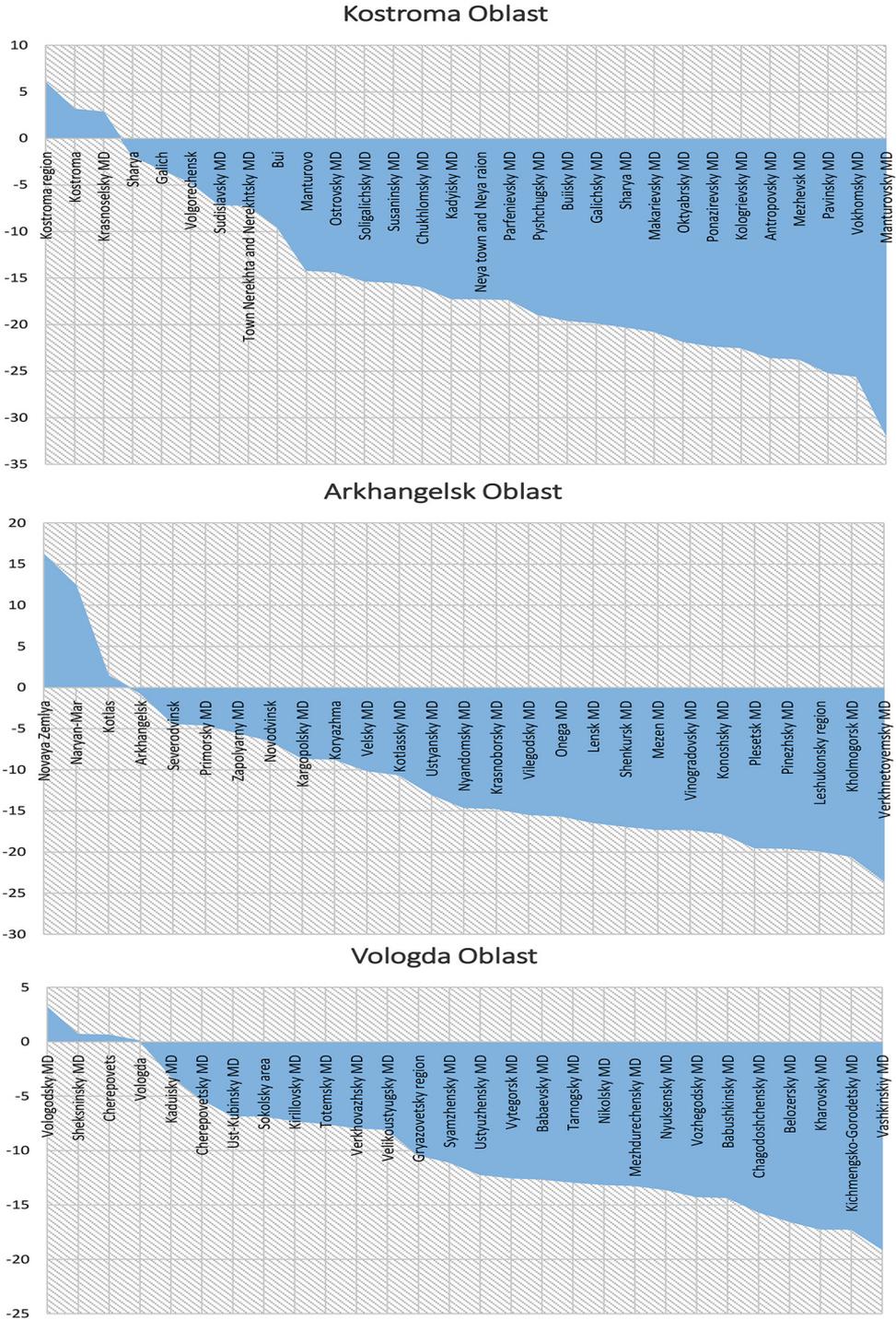
REGION	Municipalities with population growth in 2011-2019			
Vologda Oblast	Vologda	Cherepovets	Vologda district	Sheksninsky district
Kostroma Oblast	Kostroma	Kostroma district	Krasnoselsky district	
Arkhangelsk Oblast	city of Naryan-Mar (Nenets Autonomous District)	city of Kotlas	City district Novaya Zemlya	

*Source:* Calculated by the author based on municipal data of Rosstat, (Kalabikhina and Mokrensky 2017).



**Figure 4.** Change in the population of municipal entities, 2011-2019. *Source:* Compiled by the author based on Rosstat data, (Kalabikhina et al. 2019)

In contrast to Arkhangelsk and Vologda, the population of Kostroma increased relatively steadily during the observation period (Fig. 5) — largely due to the relocation of the population from the peripheral territories of the region. The municipal entities of Vologda and Kostroma Oblasts lost the population faster. The highest rates of population growth were observed in Novaya Zemlya, Naryan-mar, Arkhangelsk Oblast, Kostroma district of Kostroma Oblast and Vologda district of Vologda Oblast, and the highest rates of population loss were registered in Manturovsky district of Kostroma Oblast, Verkhnetoyemsky district of Arkhangelsk Oblast, and in Vashkinsky district of Vologda Oblast.



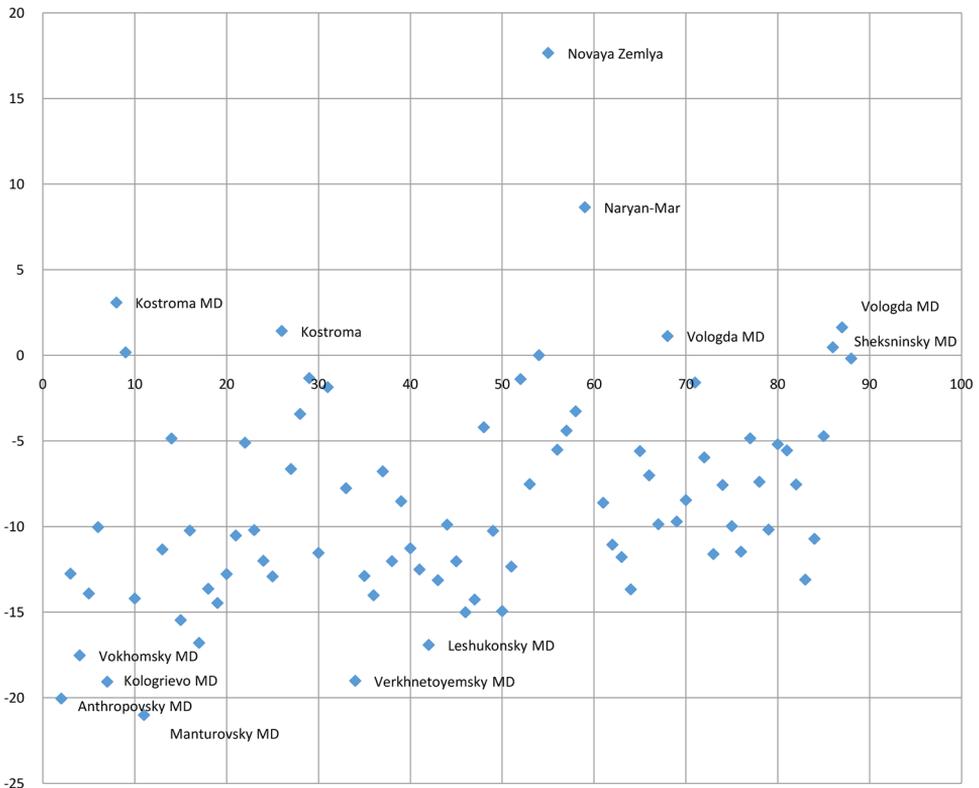
**Figure 5.** Rate of population growth (decline) in municipal entities, 2011-2019, %. *Source:* Compiled by the author based on Rosstat data.

### Natural population change

Let’s consider the natural population change in the municipal entities of the selected three regions (see Fig. 6).

Only in 7 of the 108 municipal entities (about 7%) there was observed a natural population growth: in Arkhangelsk Oblast, this is the city district of Novaya Zemlya (17‰) and Naryan-Mar (8.6‰); in Vologda Oblast — city of Vologda (1.6‰), Vologda MD (1.1‰), and Sheksninsky MD (0.5‰); in Kostroma Oblast — Kostroma MD (3.0‰), city of Kostroma (1.4‰), and Krasnoselsky MD (0.17‰).

The highest natural population decline was noted in the municipal entities of Kostroma Oblast: Manturovsky, Antropovskiy, and Verkhnetoyemskiy municipal districts. Thus, based on the data on the natural movement of the population, it can be concluded that the population growth was mainly observed in urban districts and cities of the studied regions, as well as in the municipal districts closest to them, while the greatest population decline was recorded in peripheral municipal districts without large settlements.



**Figure 6.** Average rate of natural population growth (decline), 2011-2019, ‰. *Source:* Compiled by the author based on Rosstat data.

## Fertility

The estimates of the total fertility rate for municipal entities is not available in open sources, which is why within this analysis we compare the crude birth rate (CBR) and the crude mortality rate (CMR), using the three-year moving average to smooth out the dynamics of the indicators. These coefficients do not account for the age structure of municipal entities, but they can give a general idea of intraregional differentiation in terms of fertility and mortality. For the period from 2012 to 2014, the crude birth rate exceeded the total mortality rate in Vologda, Nikolsk, Vologda Municipal District and Cherepovets (Vologda Oblast), and in Naryan-Mar, Arkhangelsk, Primorsky and Polar municipal districts, Work Settlement Iskateley, Severodvinsk (Arkhangelsk Oblast) (see Fig. 7).

In 2012-2014, in the municipal entities of Arkhangelsk Oblast, there was noticeably less differentiation in the ratio of CMR and CBR than in the Kostroma and Vologda Oblasts. In 2015-2017, there was no obvious difference between the Arkhangelsk Oblast and other two regions, however, the gap between the CMR and the CBR increased for almost all municipal entities (see Fig. 8).

In 2015-2017, the excess of the crude birth rate over the crude mortality rate remained in such municipal entities as Vologda, Nikolsk, and Cherepovets of Vologda Oblast and the Zapolyarny Municipal District, Rabochiy Poselok Iskateley, and Naryan-Mar of Arkhangelsk Oblast.

## Migration

Next, we will analyze the distribution of municipal entities of the three regions by the migration rate (see Fig. 9).

Based on the data on the migration rates, it can be concluded that 16 municipal entities (19% of their total number) had a positive migration balance, 69 — a negative migration balance. Urban districts and urban settlements, as well as municipal districts at regional centers, where the statistics registers the greatest migration increase (i.e., Novaya Zemlya, Naryan-Mar, city of Kostroma, and Kostroma, Vologda, and Sheksninsky districts), were particularly distinguished. At the same time, the greatest migration outflow was observed in such areas as Verkhnetoyemsky, Pavinsky, Antropovskiy, Pinezhskiy, Vokhomskiy, and Kholmogorskiy districts. Thus, the population in these regions is still moving to cities, urban districts, and surrounding municipal areas, while peripheral (rural) municipal areas are losing their residents.

Table 2 presents a classification of the municipal entities according to the dynamics of natural and migration increase/loss for the period from 2011 to 2019.

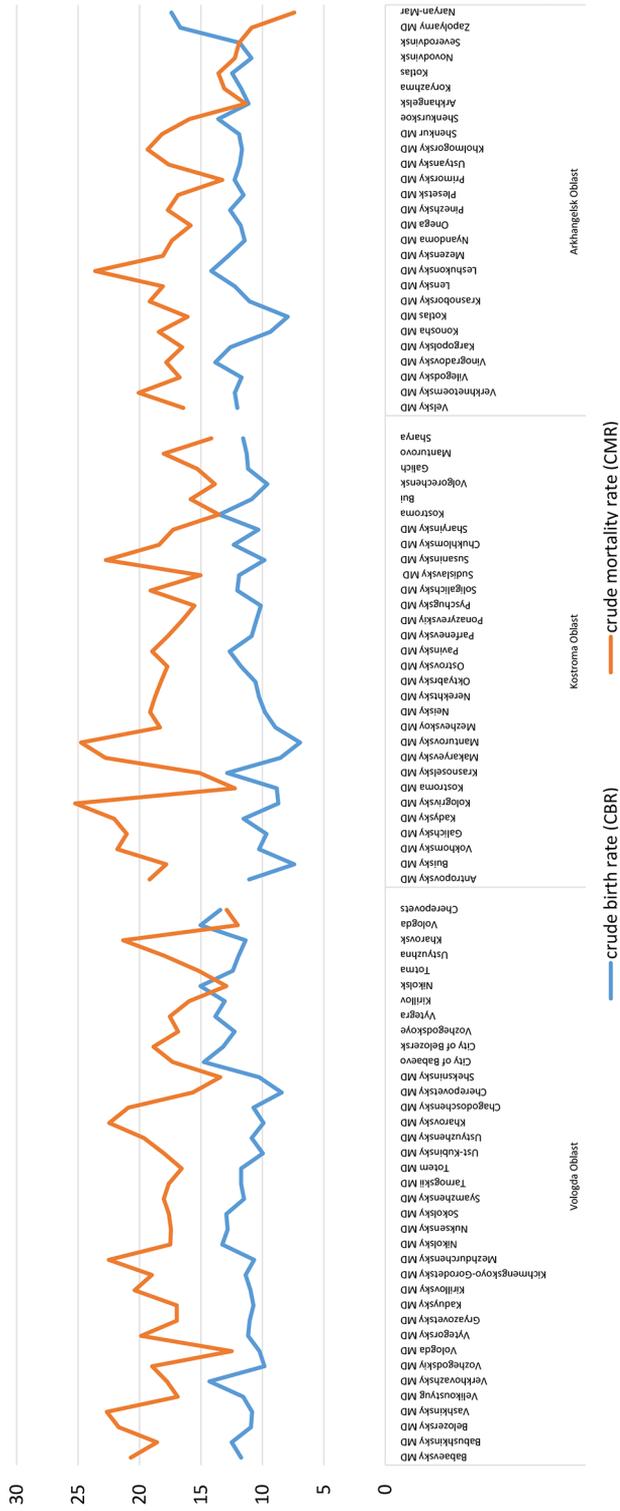
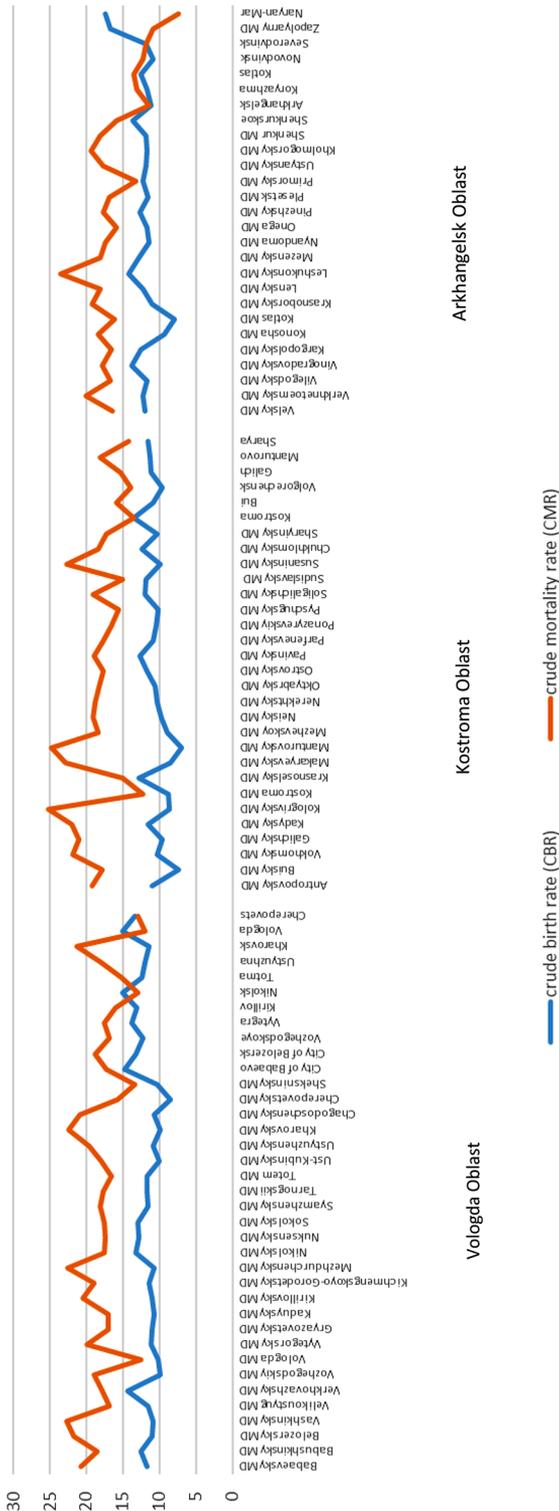
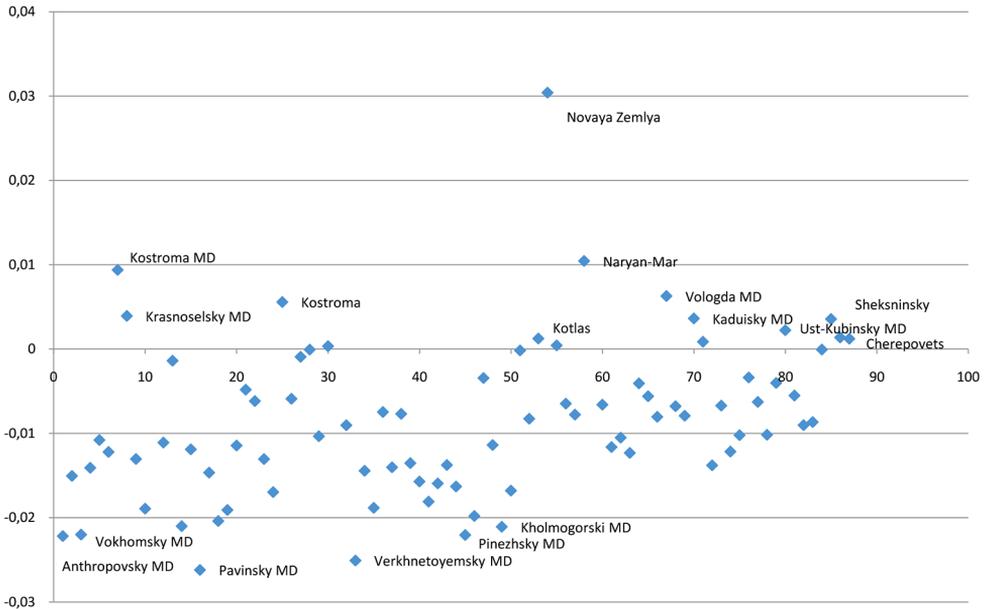


Figure 7. Comparison of the crude birth rate and the crude mortality rate, 2012–2014, %. Source: Compiled by the author based on Rosstat data.



**Figure 8.** Comparison of the crude birth rate and the crude mortality rate, 2015-2017, %<sub>00</sub>. *Source:* compiled by the author based on municipal data of Rosstat



**Figure 9.** Migration rate, average for the period 2011-2019, %. Source: Compiled by the author based on municipal data of Rosstat, (Kalabikhina et al. 2019)

**Table 2.** Municipal entities grouped according to the dynamics of natural and migration population growth (decline) in 2011-2019

Type of municipal entity	Region	Number of municipal entities of this type	Share of municipal entities of this type in the Oblast
Municipal entities natural population growth and positive migration balance	Kostroma Oblast	0	0
I (+/+)	Arkhangelsk Oblast	3	11
	Vologda Oblast	2	7
	Kostroma Oblast	25	83
Municipal entities with natural population decline and negative migration balance	Kostroma Oblast	25	83
II (-/-)	Arkhangelsk Oblast	21	78
	Vologda Oblast	21	75
Municipal entities with natural population growth and negative migration balance	Kostroma Oblast	0	0
III (+/-)	Arkhangelsk Oblast	2	7
	Vologda Oblast	0	0

Type of municipal entity	Region	Number of municipal entities of this type	Share of municipal entities of this type in the Oblast
Municipal entities with natural population decline and positive migration balance	Kostroma Oblast	5	17
IV (-/+)	Arkhangelsk Oblast	1	4
	Vologda Oblast	5	18

Source: calculated by the author.

Only 7% of the municipal entities of the three considered regions show both natural and migration population growth; 2% had natural population growth and negative migration balance; 13% had natural population decrease and positive migration balance; 78% of all 85 municipal entities had natural population decline and negative migration balance. 83% of the municipal entities of Kostroma Oblast experienced population decline due to both natural and migration loss of population. Positive dynamics of natural population movement and migration increase were not recorded simultaneously in any municipality of Kostroma Oblast. Over 75% of municipalities in Arkhangelsk and Vologda Oblasts experienced decline in their population due to both natural and migration loss of population. Natural population growth and migration decline were not recorded simultaneously in any municipality of Vologda Oblast. Considering the above-mentioned, the worst intraregional trends in demographic development of the three regions included in this study were observed in Kostroma Oblast.

## Conclusions

Despite the importance of preserving the population in the studied territory, stated in some national strategic documents, the statistics shows depopulation in Arkhangelsk, Vologda, and Kostroma Oblast in 2011-2019. This process has been going on in these regions since the 1960s.

The share of the urban population increased in all three regions. The further the region is from Moscow, the higher the rate urbanization. In Arkhangelsk Oblast, the share of the urban population grows faster than in the country on average. Population increase was observed mainly in regional centers, large cities, as well as in the municipal districts closest to them; 88% of municipalities in the three regarded regions lost their population. The fastest population decline was observed in the municipal entities of Arkhangelsk Oblast: namely, in the city of Severodvinsk and the Plesetsk municipal district. Population of these regions keeps moving to cities, urban districts, and surrounding municipal areas, while peripheral (rural) municipal areas lose their residents, which negatively affects the potential for preservation of the unique culture of the inhabitants in the old-developed regions of the Russian Near North.

Comparison of the crude birth and mortality rates by three-year moving averages showed that in 2012-2014, the gap between CMR and CBR increased for almost all municipal entities compared to 2015-2017, which is most likely due to a change in the age structure of the population.

In 78% of all 85 municipalities considered, there was a natural and migration population decline. Only 7% of the municipalities of the three regions are characterized by a natural population growth. Negative trends in demographic development have been identified in over 80% of the municipal entities of Kostroma Oblast and in more than 75% of the municipal entities in the Arkhangelsk and Vologda Oblasts. The rate of population decline is higher in the regions located farther from Moscow.

## Acknowledgements

The paper presents the results of the research carried out within the project supported by the Russian Science Foundation No. 19-18-00562 “Socio-ecological determinants of lifestyle transformation and social development of modern rural communities in conditions of depopulation (on the example of the regions of the Near North of Russia)”.

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