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# Migration of the rural population in Russia in the 2010s

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***Abstract:*** *This study examines internal migration of the rural population in Russia during the 2010s, with particular attention to the differences between suburban and peripheral areas, and to the migration balance of settlements of different sizes. Age-specific migration patterns are explored in relation to these differences. The analysis is based on de-identified individual migrant records, which makes it possible to study migration at a detailed spatial level and to assess the impact of "auto-return" migration, thereby revealing its potential distorting effect.*
*Over the decade, rural Russia experienced a population decline of 1.5–2.5 million people due to internal migration, with peripheral villages alone lost 2.5–3.5 million residents. Rural suburbs of large cities and the more remote countryside differ fundamentally not only in the overall balance of migration, but also in their structural characteristics. Peripheral rural areas predominantly lose young people, while small villages often lose families with children. On the periphery, migration flows are directed from smaller to relatively larger settlements, reflecting the nationwide trend of upward movement along the settlement hierarchy; however, the scale of this process is considerably reduced by "auto-return" migration.*

***Keywords:*** *Russia, internal migration, rural settlements, suburbs, periphery, size of settlements, age of migrants.*

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## Introduction

For many decades, the rural population of Russia has been declining as a result of migration. In the early stages of urbanization, this is precisely what ensured a rapid, in some years (industrialization, the 1930s) explosive growth of the country's urban population (Rybakovsky et al. 1988; Zayonchkovskaya 1999). At the same time, this migration led to a change in the age and gender structure, a reduction in the population, and subsequently to the depopulation of previously populated rural areas (Ioffe, Nefedova 2004). However, over the past three decades, the role of migration in the dynamics of the rural population of Russia has changed.

Immediately after the collapse of the USSR, the migration growth of the population of Russia increased sharply; in some years it reached 1 million people, resulting mainly from the "repatriation of Russians" from the former republics to Russia. This migration influx of population during a transformational economic crisis fed not only the urban but also the rural population, as a result of which in a few years it practically compensated for the losses of the last Soviet decade. However, while the outflow of the rural population to the cities as a result of internal migration may have stopped, it was only for one or two years, after which the decline in the rural population as a result of migration resumed, in significant, if not the same, volumes.

The administrative and territorial transformations that took place in 1989-2021 increased, according to our estimates, the rural population by 2.1 million people. These transformations included both the transfer of urban settlements to rural ones and vice versa, as well as the inclusion of rural settlements (RS) within the city limits with a change in the status of the population living in them from rural to urban. There are also reverse cases, like the separation of villages from cities: for example, the Novo-Benoy rural settlement was separated from the city of Gudermes in 2017. At the same time, the rural population is declining and the flow of population to cities plays a very noticeable role in this.

But the countryside is heterogeneous, and this heterogeneity is associated not so much with the enormous size of Russia's territory, but with the peculiarities of population distribution, the influence of large cities on rural areas, the formation of rural suburbs and the preservation of a vast rural hinterland - peripheral territories. This study aims to analyze the differences in migration in rural suburban and peripheral territories in the 2010s, as well as to study the age characteristics of rural population migration taking them into account. In addition, the work attempts to answer the question of how the size of rural settlements, taking into account their suburban or peripheral location, affects their migration balance.

## Review of previous research

Individual works by Russian researchers are devoted to the issues of rural heterogeneity (Alekseev, Safronov 2017; Nefedova 2019), the complexity of distinguishing rural and urban populations in Russia (Treyvish 2016). A whole area of research is gradually being formed that studies the suburbs of large cities, including rural ones (Mahrova 2014; Grigorichev 2013; Breslavsky 2020). There are works carried out on a large-scale level devoted to the rural hinterlands (Tkachenko, Smirnov, Smirnova 2019; Averkieva, Zernov 2023). Such studies make it clear that the socio-economic and demographic differences between rural areas are very large. There is a concentration of the population and labor resources of rural areas in the parts of the country most suitable for agriculture, as well as in the largest agglomerations (Nefedova, Mkrtchyan 2017). Migration plays a large role in this process, but there is only a very general idea as to the extent of its impact on rural areas of different types and individual groups of rural

settlements (RS), not only locally, but nationwide.

Structural features of migration, which provide an idea of the differences in the situation in large cities, their suburbs and the hinterlands, are particularly reflected in the study of youth migration (Mkrtchyan 2013; Endryushko 2018). This process gained additional momentum in the 2010s, when universities and their branches outside regional capitals were actively closing (Gabdrakhmanov et al. 2022). Therefore, leaving rural areas to continue one's education elsewhere is a common strategy for rural youth. This is confirmed by sociological studies (for example, in the Altai Territory in 2003-2016), according to which, after finishing school, 70-75% of graduates from large villages, and 90-95% from small ones (Sergienko, Ivanova 2018), leave to study in cities. The importance of obtaining an education as a reason for migrating to the cities and urban-type settlements (UTS) of the Republic of Khakassia was shown by the results of a survey of 1,000 respondents conducted in 2018 (Tinikova 2020). The lack of social and educational institutions in rural areas is one of the main reasons for the departure of young people (Chuchkalov, Mishchuk, Grelya 2021). Of course, all this is happening against the backdrop of other socio-economic transformations.

On the subject of rural-urban migration, one cannot fail to mention the migration of city dwellers to the village, for example, within the framework of "rural gentrification" (Averkieva 2022), although the migration of city dwellers to the village can, of course, occur outside this process. Rural areas were considered as a "refuge" in COVID-19 (Pokrovsky, Makshanchikova, Nikishin 2020) and a new place of work for remote workers (Nikulina, Arefieva, Saraikin 2022). But such people, or migration flows, dubbed "centrifugees" by N.E. Pokrovsky (Averkieva et al. 2021), are few in number, and their influx into rural areas, into the hinterlands, is not able to reverse the outflow of rural residents to cities that has been going on for many decades. But it does exist, and in local societies, thanks to the social activity of individual migrants, it has an important impact on rural areas. However, this migration is not the topic of this study. Nor does the article look at the issues of dacha development of rural areas, and in general of "dachaization" (Treyvish 2014), which is the subject of a separate, in-depth study.

## Methodology and data

The article studies the internal migration of the rural population. For the analysis, individual depersonalized data on migration in Russia for 2011-2020, obtained from Rosstat upon special request, were used. This data can be detailed down to individual settlements. For geospatial referencing of settlements, their geographic coordinates were used. This made it possible to calculate the distance from each rural settlement to large cities in a straight line (the so-called "Euclidean distance"). At relatively short distances, it may not take into account the curvature of the earth's surface.

The distance from rural settlements to large cities was calculated in order to identify suburban settlements of large cities with a population of 100,000 people or more. Suburbs were classified as:

- for the cities of Moscow and St. Petersburg - all settlements located up to 100 km from the centers of these cities;
- for cities with a population of 750,000 people or more (or million-plus and "sub-million" cities; as of the date of the 2010 All-Russian Population Census, the cities of Perm, Krasnoyarsk, Voronezh and Saratov were classified as sub-million. By 2020, the first three of them had crossed the million mark) - up to 50 km from the center;

- for cities with a population of 500,000-750,000 and 250,000-500,000 residents - up to 30 km from the center;
- for cities with a population of 100,000-250,000 people - up to 20 km from the center.

The remaining settlements outside these radii - medium and small cities, urban-type settlements, numerous rural settlements - are classified as periphery. Thus, in this case the periphery is the area comprising settlements located outside the zone of influence of large cities. Realizing the mechanical nature of this method of delineating suburbs and periphery, we note that the suburbs identified in this way coincide quite closely with the boundaries of large urban agglomerations (Antonov, Makhrova 2019), but are not distorted by the administrative boundaries of municipalities. For cities with a population of less than 100,000 people, suburbs were not singled out. Such cities, in our opinion, most often cannot have a significant impact on the migration balance of surrounding rural settlements, at least not as significant as that of large cities. In some parts of the country, for example, in the regions of the Far North, where there are almost no large cities, their role (administrative, service, etc.) is beginning to be performed by medium and even small cities (Mkrtchyan 2024). But they still, in the overwhelming majority, do not have a migration increase in population and, therefore, cannot extend it to the settlements closest to them.

The article's division of the territory of Russia into large cities and their suburbs, on the one hand, and the periphery, on the other, is quite rough. Such a division was made so as to assess the population flow on a national scale, to identify key differences in the migration balance of rural settlements located in the sphere of direct influence of large cities and outside it. The author is aware that in Russia, along with the centers and their suburbs and periphery, there are "semi-suburbs" and "semi-periphery", but the justification for their identification and the assessment of the migration balance of the rural settlements classified as such were not included in the scope of this work.

The data used make it possible to separately consider migration with and without taking into account auto-return, whose distorting effect on migration to Russia is already known from certain works (Mkrtchyan 2020; 2023); this study assesses its impact on the migration of the rural population.

Rural settlements included, among others, settlements, villages and hamlets that are part of urban districts, including the federal cities of Moscow and St. Petersburg. This is an important methodological remark that has a significant impact on the size of the rural population and the results of its migration. Until very recently, the population of settlements, villages and hamlets of the so-called "New Moscow" was considered rural, with a population according to the current records at the beginning of 2022 of 220,800 people. According to the Russian Population Census of 2020 (RPC-2020), actually conducted as of October 1, 2021, it has increased significantly (up to 411,500 people), but has ceased to be rural (oddly enough, Rosstat did not report on this rather large-scale change in the municipal-territorial structure). In this work, the population of settlements, villages and hamlets of the Novomoskovsky and Troitsky districts of Moscow is classified as rural. Also, in order for the data for the two "capitals" to be comparable, the population of intracity settlements of St. Petersburg with a total number of residents (according to RPC-2010) of 120,600 people is classified as rural. We understand that in the case of Moscow this is absolutely justified, since the migration of the rural population of "New Moscow" was taken into account in the period under review as the migration of the rural population. In the case of St. Petersburg, this migration was considered migration of the urban population, so such

attribution overstates the migration of the rural population in this large-city agglomeration and in the suburbs of large cities in Russia in general. However, this does not fundamentally affect the population flow between the suburbs and large cities.

The grouping of the rural population by the size of settlements is given for the beginning of the study period, i.e., based on the data of the 2010 Russian Population Census. This introduces certain methodological limitations into the study: on the one hand, individual RS, especially in the suburbs, have increased their population many times over and have become cities (Murino and Kudrovo in the Leningrad Region); on the other hand, in many RS, primarily on the periphery, the number of residents decreased during this period, and by the end of the 2010s they had moved to another "size" group of settlements. In addition, some of the settlements ceased to exist, while others re-emerged. There is no solution that would fully take into account all the changes taking place, but all these restrictions do not fundamentally change the picture of the migration processes analyzed in the article.

According to the 2010 Russian Population Census, the rural population of Russia was 37.5 million people, according to the 2020 Census - 37.1 million. Taking into account the above-described methodological approaches, according to our calculations, the rural population was 38.5 million[1] and 37.6 million people, respectively. Of these, 9.3 million people lived in the suburbs of large cities in 2010, and 29.2 million lived outside them, on the periphery. In 2021, the number of rural residents in the suburbs increased to 11.7 million people, while on the periphery it decreased to 25.9 million.

The paper attempts to minimize the impact of administrative-territorial transformations (ATT), or municipal-territorial transformations (MTT) on the composition of the rural population and the number of settlements. Thus, quite numerous RS in the Zabaikalsky Krai (for some unknown reason, apparently explained by some local conditions, the villages here were literally divided in two and immediately after the 2020 Census "united" again) and in the Republic of Karelia, those that separated from other RS in the intercensal period were also considered together with the "parent" RS. But it was impossible to take into account all such changes, especially if they concerned very small RS with a population of several people.

It is possible to single out a group of settlements that did not have a population according to the 2010 census, but during the intercensal period, a population appeared in them. The total size of this population on the periphery is estimated at 22,800 people. These may be a few revived villages or settlements, territories separated from other settlements that have become independent, and newly emerged settlements. There are also such settlements in the suburbs; as of the date of the 2020 Census (October 1, 2021), the number of their residents was 31,100 people, but not all of them are RS (for example, Innopolis near Kazan). Of course, a significant part of the population of these newly formed or revived settlements is the result of migration.

## Results

The rural areas of Russia are experiencing a migratory population decline which, even if interrupted, is not interrupted for long, and the figures shown by statistics are not always completely reliable. For a more or less long period, in various official statistical publications, one

[1] Taking into account the Republic of Crimea and Sevastopol.

can find data on the migration increase (decrease) of the rural population which differ dramatically. This is especially true for data for the 1990s. The only thing that can be said with certainty is that if there is a migration increase in the rural population, it is provided by international migration. The strongest contribution to the discrepancy in estimates is also made by recalculations from the results of population censuses, and they can have a reverse effect (Table 1).

**Table 1. Net migration of the rural population of Russia in 1989-2021 with and without adjustments from the results of the Russian Population Census of 2002, 2010 and 2020 (2021), thousand people**

| Period | Before adjustments from census results | After adjustment in 2002 and 2010 | Adjustment |
|---|---|---|---|
| 1989-2002 | 700.6 | 684,2 | -16.4 |
| 2003-2010 | -243.8 | -813.8 | -570.0 |
| 2011-2021 | -793.1 | -266.3 * | 389.0 * |

*Sources: Demographic yearbooks of Russia 2002, 2005, 2009, 2021, 2023; Population and migration of the Russian Federation in 2002. Statistical bulletin; Population and migration of the Russian Federation in 2010; Population and migration of the Russian Federation in 2021.*

*Note: * – Data excluding 2014, the adjustment for which was not published.*

Under these conditions, it is possible to assess the results of rural population migration only for medium-term data periods that are homogeneous in terms of the applied collection and processing methods. In this article, the period selected was 2011-2020, for which there are data that can be spatially accurately mapped.

## Migration of the suburban and peripheral rural population

For 2011-2020, rural areas annually lost 138,700 people due to internal migration, but when excluding auto-return, these losses increased to 257,600 (Table 2). Auto-return reduced the outflow from peripheral villages, and in suburban villages, on the contrary, it slightly reduced the increase. Without taking into account auto-return, suburban rural settlements annually increased their population by 1% due to internal migration, while peripheral ones lost 1.3%. It turns out that rural suburbs are, along with large cities, the country's most attractive settlements for migration, while the rural periphery has the greatest outflow.

**Table 2. Net migration of the suburban and peripheral rural population of Russia in migration within Russia, 2011-2020, average per year**

| | Total | | Without auto-return | | Auto-return | |
|---|---|---|---|---|---|---|
| | thous. people | per 1,000 | thous. people | per 1,000 | thous. people | Per 1,000 |
| Rural areas - total | -138.7 | -3.6 | -257.6 | -6.8 | 118.8 | 3.1 |
| Suburban settlements | 97.3 | 9.3 | 105.4 | 10.0 | -8.1 | -0.8 |
| Peripheral settlements | -236.1 | -8.6 | -363.0 | -13.2 | 126.9 | 4.6 |

*Source: Calculations based on data provided by Rosstat upon request.*

As follows from earlier studies (Mkrtchyan 2023), auto-return in the first half of the 2010s was less pronounced than in the second half of the decade, so in recent years its impact on the balance of the peripheral rural population has been the greatest. Calculations show (Table 3) that in the early 2010s the impact of auto-return on reducing the losses of the peripheral rural population was rapidly increasing; by 2016, auto-return underestimated the migration loss of the

rural hinterlands by almost half, and in 2020, this underestimation became more than twofold. Taking into account auto-return, the migration loss of the rural periphery by 2020 decreased by 2.46 times compared to 2011, excluding auto-return - only by 12%, and if 2020 is not taken into account, it increased by the end of the decade. The outflow from all rural areas, including suburbs, with the exception of 2020, did not fall below 200,000 people per year.

**Table 3. Dynamics of net migration of the rural population with and without taking into account auto-return, migration within Russia, thousand people**

| | With auto-return | | | Without auto-return | | |
|---|---|---|---|---|---|---|
| | Rural areas, total | including: | | Rural areas, total | including: | |
| | | suburbs | periphery | | suburbs | periphery |
| 2011 | -226.8 | 76.1 | -302.8 | -227.3 | 76.3 | -303.6 |
| 2012 | -233.0 | 68.6 | -301.5 | -283.3 | 80.0 | -363.2 |
| 2013 | -242.4 | 67.1 | -309.6 | -324.3 | 76.8 | -401.1 |
| 2014 | -203.1 | 68.6 | -271.6 | -312.9 | 85.8 | -398.8 |
| 2015 | -118.7 | 98.1 | -216.8 | -268.0 | 106.1 | -374.0 |
| 2016 | -97.6 | 89.6 | -187.2 | -254.5 | 99.3 | -353.8 |
| 2017 | -98.9 | 109.6 | -208.5 | -265.5 | 115.2 | -380.6 |
| 2018 | -99.7 | 145.4 | -245.2 | -266.4 | 151.7 | -418.0 |
| 2019 | -49.2 | 145.4 | -194.6 | -214.9 | 150.0 | -364.9 |
| 2020 | -18.0 | 104.9 | -122.9 | -158.7 | 112.9 | -271.6 |
| Итого | -1387.5 | 973.3 | -2360.8 | -2575.7 | 1054.1 | -3629.8 |

*Source: Calculations based on data provided by Rosstat upon request.*

**Table 4. Net migration of the rural population in Russia by RS size, migration within Russia, 2011-2020, average per year**

| Population, thousand people | With auto-return | | Without auto-return | |
|---|---|---|---|---|
| | thous. people | Per 1,000 | thous. people | Per 1,000 |
| Suburban settlements | | | | |
| over 10 | 4.9 | 5.3 | 4.9 | 5.4 |
| 1-10 | 54.4 | 8.5 | 58.4 | 9.1 |
| 0.5-1 | 4.5 | 3.8 | 4.5 | 3.8 |
| 0.1-0.5 | 23.6 | 17.9 | 25.4 | 19.3 |
| under 0.1 | 9.9 | 18.9 | 12.2 | 23.1 |
| Peripheral settlements | | | | |
| over 10 | -3.1 | -1.5 | -6.7 | -3.4 |
| 1-10 | -71.0 | -5.8 | -117.1 | -9.6 |
| 3-10 | -22.5 | -4.0 | -41.1 | -7.2 |
| 1-3 | -48.4 | -7.5 | -76.0 | -11.7 |
| 0.5-1 | -56.8 | -10.5 | -86.2 | -15.9 |
| 0.1-0.5 | -85.8 | -13.3 | -125.8 | -19.5 |
| under 0.1 | -19.4 | -13.1 | -27.1 | -18.4 |

*Source: Calculations based on data provided by Rosstat upon request.*

The size of rural settlements has a very different effect on the migration balance in the suburbs and on the periphery. As can be seen from Table 4, the smallest villages had the most intensive migration increase in the suburbs, while on the periphery, the same villages experienced the most intensive migration loss. This may be due to the fact that in the suburbs, especially those located in close proximity to large cities, the territory of small rural settlements can serve as a convenient site for new housing construction: multi-story buildings located outside the city due to its expansion beyond its borders, or gated communities. On the periphery,

the smaller the rural settlement, the more likely it is that its residents will be deprived of certain basic services, since schools or healthcare facilities are either non-existent or closed for optimization (Egorov, Nikolaev 2022; Egorov 2022). Unlike suburban residents, who mostly make regular trips to large cities, it is often problematic for residents of the periphery to obtain the necessary services in a neighboring rural settlement. Apparently, this is an important reason for the intensive migration loss of the population of peripheral villages.

The components of the migration balance of suburban and peripheral villages are different (Table 5). A suburban village has a migration increase not so much in migration with peripheral territories (both urban and rural), but also with large cities around which they are formed. This flow can measure suburbanization in Russia, but only formally. On the territory of RS, especially those bordering large cities, multi-story blocks indistinguishable from urban development are often built and occupied.

**Table 5. Components of net migration of the rural population taking into account its suburban/peripheral location, migration within Russia, 2011-2020, thousand people**

| Groups of settlements | Rural population – total | | Suburban settlements | | Peripheral settlements | |
|---|---|---|---|---|---|---|
| | With auto-return | Without auto-return | With auto-return | Without auto-return | With auto-return | Without Auto-return |
| Russia, total | -1381.9 | -2568.5 | 974.1 | 1054.2 | -2356.1 | -3622.7 |
| Large cities and their suburbs - total | -1178.4 | -2253.6 | 579.3 | 556.6 | -1757.7 | -2810.2 |
| Moscow and Saint Petersburg | -42.5 | -187.2 | 67.2 | 43.2 | -109.7 | -230.3 |
| Moscow and Saint Petersburg suburbs | -250.3 | -386.2 | -20.8 | -39.9 | -229.5 | -346.3 |
| Cities with population of 750-1600 thous. people | -110.3 | -330.5 | 190.9 | 188.5 | -301.1 | -519.0 |
| Suburbs 750-1600 | -103.6 | -132.7 | 3.0 | 5.3 | -106.6 | -137.9 |
| Cities with population of 100-750 thous. people | -499.0 | -1003.1 | 329.0 | 343.8 | -828.0 | -1347.0 |
| Suburbs 100-750 | -172.8 | -213.9 | 10.0 | 15.8 | -182.8 | -229.7 |
| Periphery - total | -203.5 | -314.9 | 394.8 | 497.6 | -598.4 | -812.5 |
| Including settlements with a population of: | | | | | | |
| 50,000-100,000 | -102.6 | -176.9 | 41.1 | 47.5 | -143.7 | -224.4 |
| 20,000-50,000 | -155.1 | -216.7 | 60.9 | 75.3 | -215.9 | -292.0 |
| 10,000-20,000 | -125.4 | -154.6 | 37.9 | 46.8 | -163.4 | -201.4 |
| 3,000-10,000 | -188.1 | -225.3 | 66.4 | 81.0 | -254.6 | -306.4 |
| 1,000-3,000 | 11.0 | 14.7 | 50.4 | 64.2 | -39.3 | -49.5 |
| 500-1,000 | 75.0 | 96.7 | 50.2 | 64.5 | 24.8 | 32.2 |
| 100-500 | 201.5 | 247.3 | 67.2 | 89.2 | 134.3 | 158.1 |
| 1-100 people | 76.8 | 95.6 | 19.5 | 27.2 | 57.4 | 68.3 |
| Settlements without population as of the 2010 Russian Census | 3.4 | 4.5 | 1.3 | 1.9 | 2.1 | 2.5 |

*Source: Calculations based on data provided by Rosstat upon request.*

*Note: Settlements are grouped by the size of their population as of the 2010 Russian Census.*

The villages of Murino and Kudrovo in the Leningrad Region are not the only examples; similar areas can be found near many large cities. Unlike suburban villages, peripheral villages lose population primarily due to migration to large cities and their suburbs, as well as to relatively

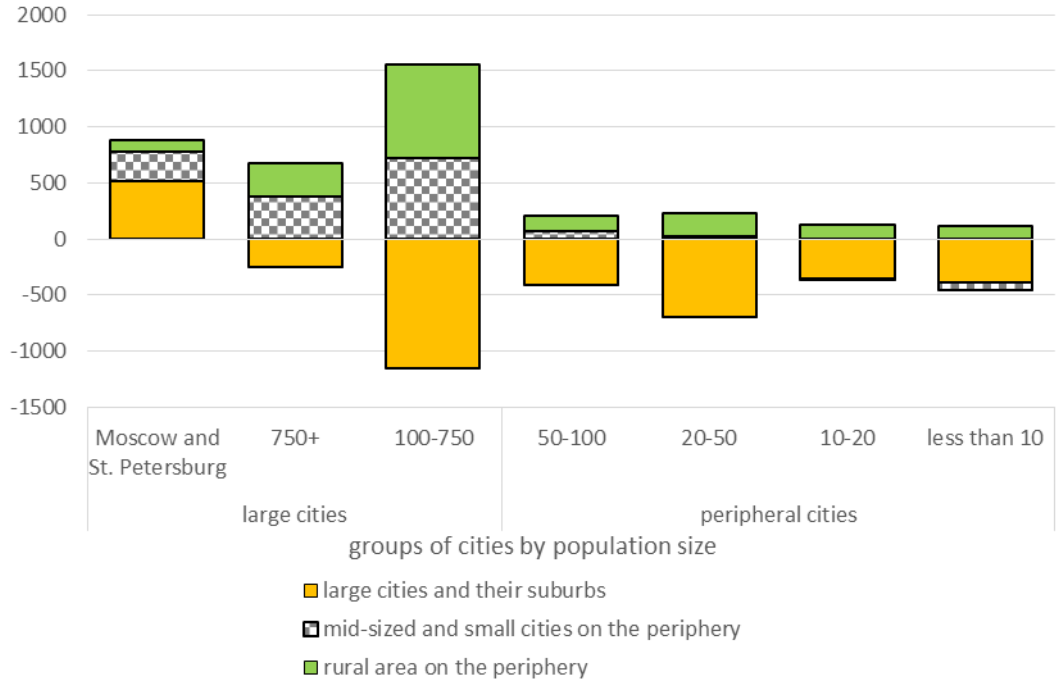
large settlements on the periphery. Large population losses due to the flow to large cities and their suburbs in the rural hinterland are not so much because its residents seek to move directly to them, bypassing small and medium-sized cities, but because in Russia almost 2/3 of the population lives in large cities and their suburbs, i.e. they have a huge demographic weight.

Without taking into account auto-return, the flow from the village in the hinterland to large cities is even more intense. It cannot be said that no one returns to the countryside after living with registration at their place of stay (during studies at universities and colleges, working in the city and losing it). Therefore, it is wrong to believe that auto-return is a complete statistical fiction, an artifact. On the other hand, there is no reason to believe that there is a mass return to the village after the end of temporary registration in the cities (upon completion of studies or for other reasons).

## Outflow from the rural periphery

The rural periphery is a near absolute migration donor for all urban populated areas in Russia, regardless of their size. For Moscow and St. Petersburg, the role of peripheral rural areas in the migration increase in 2011-2020 was small and amounted to 12.6% (Figure 1). For million-plus and sub-million cities, the role of peripheral rural areas in the migration balance was significantly inferior to the role of peripheral urban settlements. The migration balance of cities with a population of 100,000-750,000 people depended on peripheral rural areas a little more than on the influx from urban settlements on the periphery. In small and medium-sized cities and urban-type settlements themselves, the influx from rural areas is the only source that can, though only partially, offset the outflow to large cities and their suburbs. Moreover, this compensation is 30-37% and practically does not depend on the size of the cities.

**Figure 1. Main components of net migration of cities of different sizes, taking into account auto-return, 2011-2020, thousand people**




*Source: Calculations based on data provided by Rosstat upon request.*

Nevertheless, the largest rural settlements retain their population. The reason for this is the flow of population from smaller settlements. In general, the rural population of the hinterland flows in favor of RS with a population of over 1,000 people (Table 6). In the case of peripheral rural settlements, two rules apply, of which the first and more important is size: the larger the RS, the more desirable it is to live in. For example, rural settlements that are district centers (there are few of them in Russia, but they exist), have a full range of social services (Egorov 2022), and villages that are centers of rural settlements also have many amenities (Tkachenko, Smirnov, Smirnova 2019).

**Table 6. Components of net migration of peripheral RS with different population sizes, taking into account auto-return, thousand people**

| Groups of settlements | Peripheral RS, total | Including settlements with population, thous. persons | | | | | |
|---|---|---|---|---|---|---|---|
| | | over 10 | 3-10 | 1-3 | 0.5-1 | 0.1-0.5 | under 0.1 |
| Total | -2356.1 | -30.9 | -224.6 | -482.6 | -567.0 | -857.1 | -193.8 |
| Moscow, St. Petersburg and their suburbs | -339.2 | -17.9 | -57.5 | -76.6 | -64.7 | -89.4 | -33.0 |
| 750-1600 thous. and their suburbs | -407.8 | -17.5 | -83.5 | -87.0 | -99.8 | -108.9 | -11.1 |
| 500-750 thous. and their suburbs | -337.0 | -20.3 | -75.3 | -78.3 | -74.4 | -80.3 | -8.5 |
| 250-500 thous. and their suburbs | -425.1 | -11.4 | -67.1 | -103.6 | -94.8 | -127.0 | -21.3 |
| 100-250 thous. and their suburbs | -248.6 | -5.3 | -46.6 | -61.1 | -57.8 | -68.5 | -9.3 |
| 50-100 | -143.7 | -0.1 | -17.5 | -29.8 | -35.2 | -52.9 | -8.3 |
| 20-50 | -215.9 | 0.8 | -19.4 | -46.4 | -57.1 | -80.2 | -13.6 |
| 10-20 | -163.4 | 1.2 | -6.6 | -31.2 | -44.7 | -67.5 | -14.6 |
| 3-10 | -254.6 | 5.0 | -0.4 | -36.0 | -66.1 | -124.9 | -32.2 |
| 1-3 | -39.3 | 8.9 | 24.7 | 0.0 | -17.2 | -43.0 | -12.8 |
| 0,5-1 | 24.8 | 10.8 | 42.4 | 16.0 | 0.0 | -30.5 | -13.9 |
| 0.1-0.5 | 134.3 | 12.3 | 67.6 | 39.2 | 30.5 | 0.0 | -15.3 |
| Under 0.1 thous. people | 57.4 | 2.3 | 14.0 | 11.7 | 13.9 | 15.3 | 0.0 |
| Settlements without population as of the 2010 Russian Census | 2.1 | 0.1 | 0.5 | 0.3 | 0.4 | 0.5 | 0.1 |

*Source: Calculations based on data provided by Rosstat upon request.*

*Note: Settlements are grouped by the number of people living in them as of the date of the 2010 Russian Census.*

The second rule is that, for historical reasons based on the physical-geographical and natural features of the Russian territory, large rural settlements are located mainly in the south of the country, in regions with a more favorable climate. In conditions when the population of Russia shifts to the south as a result of migration, this gives a bonus to the rural settlements in the south of the country.

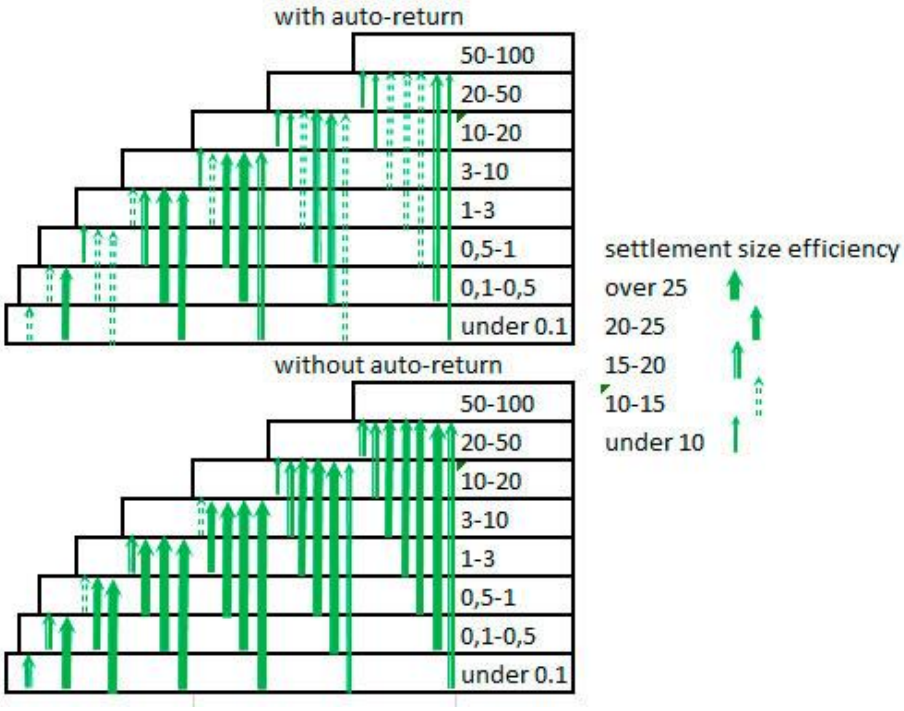
Including because of their southern location, the largest peripheral rural settlements, with over 10,000 people, lose population to medium-sized cities, but grow slightly due to migration from small towns and urban-type settlements. Due to migration from smaller rural settlements, they compensate for 54.5% of the outflow to larger rural settlements. Settlements with 3,000-10,000 residents compensate "from below" 40% of the outflow "to the top", those with

1,000-3,000 residents - 12.2%, with 500-1,000 - 7.3%, and with 100-500 - only 1.8%. The smaller the RS, the less likely it is to be replenished from below.

Half of the migration loss of the rural hinterland is concentrated in large cities with a population of over 100,000 residents. A quarter of the outflow from the rural periphery is concentrated in peripheral small and medium-sized urban settlements. Considering that more than twice as many people live in large cities (excluding their suburbs) than in peripheral small and medium-sized ones, the outflow from the rural hinterland occurs evenly to urban settlements of different sizes.

The remaining quarter of the outflow of the population from the rural hinterland goes to the suburbs of large cities; 60% of it goes to suburban urban settlements, 40% to suburban RS. This tips the scales in favor of the attractiveness of large cities for residents of the rural hinterland, since suburbs do not have independent migration attractiveness. The first studies of rural suburbs have already shown that people settle there out of necessity, unable to move to a large city due to the high cost of housing (Breslavsky 2014). The suburbs of Ulan-Ude still face an acute shortage of social infrastructure, waste disposal, and even access to clean water[2].

**Figure 2. Efficiency of migration between levels of the settlement hierarchy of peripheral territories (groups of settlements by number of residents, thousands of people), with and without taking into account auto-returns, 2011-2020, %**




*Source: Calculations based on data provided by Rosstat upon request.*

Some city dwellers may move to the suburbs for the suburbs themselves, for example, for their cleaner environment, their safe distance from the metropolis, and the opportunity to have

[2] Student expedition of the HSE National Research Institute "Internal migration and urbanization in a monocentric region (using the example of the Buryatia Republic)", October 2019 https://foi.hse.ru/openrussia/migration-ulan-ude

their own piece of land (Karachurina 2022), but for former rural residents what matters is the opportunity to live close to the city, to use its labor market, social infrastructure, and other amenities.

On the periphery, the population flow in favor of relatively large settlements (medium and small towns) repeats the picture of the country-wide flow up the settlement hierarchy (Mkrtchyan, Gilmanov 2023). The demographic efficiency of migration was calculated (similar to the calculations in (Plane, Henriec, Perry 2005)) as the ratio of net migration to gross migration, or migration increase to migration turnover between each level of the settlement hierarchy. Demographic efficiency hypothetically fluctuates from 0%, if the flows in both directions are equal in size, to 100%, if there was a migration flow in only one direction. Calculations between 8 levels of the settlement hierarchy show that on the periphery the population flows strictly up the hierarchy (Figure 2). At the top of the "peripheral" hierarchy are medium-sized cities (with a population of up to 100,000 people), and at the bottom are small rural settlements. It is clear that auto-return greatly reduces the efficiency of the flow, and only between neighboring levels of the hierarchy does the flow have a weak efficiency even without taking it into account.

The reason for the low efficiency of the flow between neighboring levels of the settlement hierarchy on the periphery is clear and is explained by the fact that it will not be possible to qualitatively improve living conditions by moving, for example, from a rural settlement with a population of 600 people to a rural settlement with a population of 1,100 people. It is more efficient to immediately move to a small town or a district center, i.e. through 3-4 floors of the settlement hierarchy. In addition, moves between neighboring rural settlements within one rural settlement are not necessarily accompanied by a change in registration. But the flow from the smallest rural settlements to small and medium-sized cities is not so efficient. Apparently, such cities are not available everywhere; the difference in housing prices between these rural settlements is higher and such a move is too expensive.

## Age characteristics of rural population migration

Rural population migration has distinct structural features, which are expressed mainly in its age profile. The village is losing its young population and, to a much lesser extent, attracting older people. But, as has already been shown above, suburban and peripheral rural settlements differ dramatically in terms of migration increase (decrease) rates; in addition, large and small villages on the periphery can differ significantly in terms of the age profile of migration.

Features of the age structure of arrivals and departures of the urban and rural population in 2011-2020 are presented in Figure 3. The data are presented in different scales and in absolute values, since the difference in population size between the group of large cities and groups of rural settlements is too great, and there were no data to calculate the denominator to present age coefficients. Therefore, we will immediately draw attention to the fact that the nature of the profile is influenced by differences in the population size by individual ages, primarily the young population as the most active in internal migration.

Large cities are characterized by a clearly expressed peak, which occurs at the age of 18, the time of finishing school and entering university. It is at this age that people most actively move from the periphery to university centers in connection with their studies. Therefore, for peripheral cities and urban-type settlements, as well as for rural settlements, peaks of departures are characteristic at this age. We will note that for the peripheral rural population, the increase in departures occurs at age 15-16, the age of finishing basic school and entering

vocational schools, for which reason young people often move to nearby cities, most often to district centers and inter-district centers. This is associated with an earlier peak of arrivals in peripheral cities.

During this period, people often left villages (both peripheral and suburban) at the age of about 30, as evidenced by the corresponding peaks. An outflow of families with children aged 3 and 6 years is also visible - the peaks at these ages are most pronounced among the rural population, especially the peripheral one. The placement of children in schools and preschool institutions in remote areas may necessitate the relocation of families. This is also affected by the low quality of education in rural schools, especially in small ones (Eremin 2021).

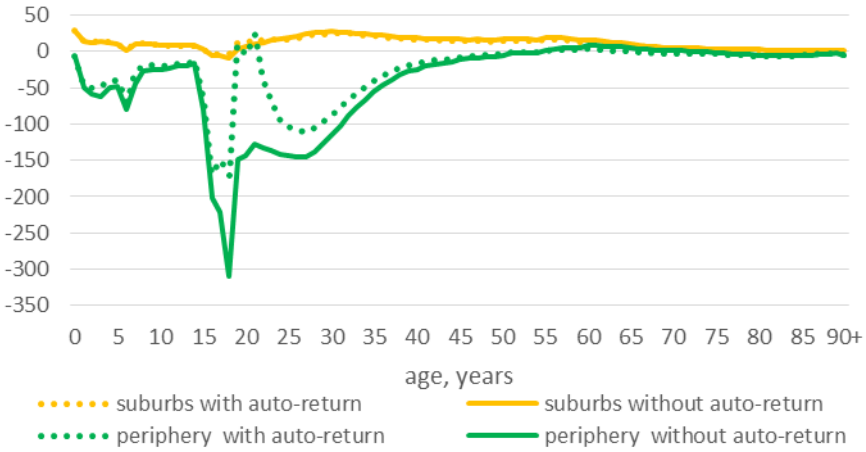
Most of all, migration in the two polar groups of villages differs in the excess of arrivals over departures at all ages in the suburbs and the opposite picture in the periphery. There is also a very small peak of departures from the suburbs at the end of school. Apparently, suburban residents most often make regular trips to study in the cities or, if they move to the cities, they are in no hurry to register there.

**Figure 3. Migration within Russia by individual groups of urban and rural settlements, by 1-year age groups, 2011-2020, thousand people**


*Source: Calculations based on data provided by Rosstat upon request.*

Note that auto-return has its greatest impact on arrivals to the periphery, both in rural areas and in cities at young ages. It also affects departures from large cities at young ages, which is not surprising, as these are the same, largely fictitious relocations. Auto-return has virtually no effect on the migration growth rate of suburban villages at any age (Figure 4); in peripheral villages, it significantly reduces the outflow of young people, and at the age of 19 and 21, it even provides for migration growth. Without taking into account auto-return, the reduction in the number of peripheral rural residents aged 15-39 for 2011-2020 amounted to 3.0 million people, while auto-return reduced these losses to 1.7 million, which is also significant, although the smoothing effect cannot be ignored. Annual losses of 18-year-olds in the rural periphery amount to 31,000 people without auto-return, and to 17,000 with it.

**Figure 4. Net migration of suburban and peripheral RS by one-year age groups, 2011-2020, thousand people**




*Source: Calculations based on data provided by Rosstat upon request.*

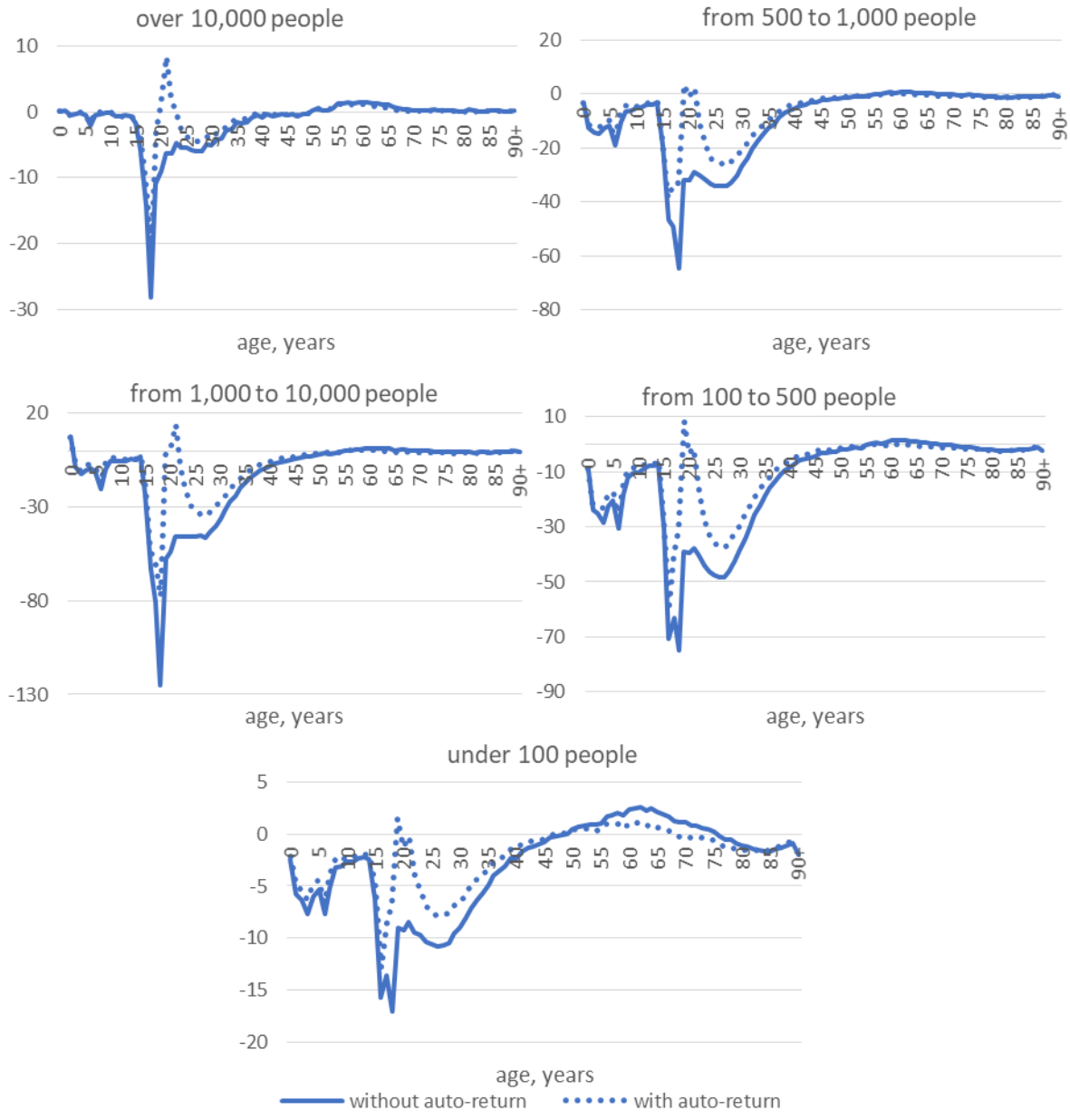
**Figure 5. Net migration of the population of suburban RS by one-year age groups, excluding auto-return, 2011-2020, thousand people**


*Source: Calculations based on data provided by Rosstat upon request.*

Calculations of migration increase most clearly characterize the differences in migration in RS of different sizes. In the suburbs, these differences are not very pronounced; due to the greatly varying numbers of their residents living in RS of different sizes, they were combined into

two groups: large and small (Figure 5). The age profiles of migration growth have many similarities: one sees a peak influx of families with children aged 0 years and an outflow at the ages of 6 and 18 years (for small RS, also at 16 years, which is apparently due to the distance of the suburbs, from which regular trips to the city at this age are practiced less often; it is easier to move). But in any case, the outflow of young people of school-leaving age in suburban RS is incomparable with what is observed on the periphery. Living in rural areas in the hinterlands is so unattractive for young people that researchers note labor migration from the city to the village, "*when rural youth stay to live in the city after school, but go to work in the village*" (Sergienko et al. 2019: 172). Similar practices are observed in other regions of Russia.

**Figure 6. Net migration of the population of peripheral RS by one-year age groups, excluding auto-return, 2011-2020, thousand people**




*Source: Calculations based on data provided by Rosstat upon request.*

Peripheral RS are no less difficult to compare using absolute data, but we will not pay much attention to the strong difference in scales in Figure 6. Even in their different "scales" it is clear that in large RS there is practically no outflow of families with preschool-age children, but the smaller the size of the village, the more noticeable this outflow becomes relative to other ages. From large peripheral villages, almost no one leaves before entering school; in small RS, the outflow peaks at 3 and 6 years are comparable to the peaks at 16 and 18 years.

The smaller the villages, the more pronounced the outflow from them at the age of 16 (after completing basic school). The same is observed in both peripheral small and tiny towns. After completing secondary school, the outflow is high from villages and peripheral towns of all sizes (and even cities with a population of 100,000 to 250,000 people). This is due to the limited distribution of higher education institutions in the periphery and in non-capital cities.

Excluding auto-return, peripheral villages lost 3.5 million people aged 0-39 in 2011-2020. At the age of 40-49, the outflow was significant, almost 5 times lower than that of thirty-year-olds, and at the age of 50-69, there was a small influx of population into the rural hinterland, which, however, amounted to less than 60,000 people. After 70 years, the outflow of the peripheral rural population resumes, but is not even close to the outflow of young people, amounting to only 70,000 people. At the same time, the components of the migration balance of the population of different ages are different for RS of different sizes (Table 7). If we do not take into account auto-return, the largest villages lose equal numbers of young people going to study and people aged 20-29. At the same time, the losses of the child population are very small. The smaller the RS, the greater the loss of children in the overall outflow of the child and youth population and the smaller the loss of youth finishing school. Apparently, due to the problems with obtaining an education in small villages, families often decide to leave before their children enter school.

**Table 7. Components of net migration of children and young people in peripheral RS, excluding auto-return, 2011-2020, %**

| Age, years | All peripheral RS | Including by population size, thous. people | | | | |
|---|---|---|---|---|---|---|
| | | over 10 | 1-10 | 0.5-1 | 0.1-0,5 | under 0.1 |
| 0-6 | 10.1 | 2.3 | 5.8 | 10.8 | 13.5 | 14.7 |
| 7-15 | 7.9 | 3.4 | 6.0 | 7.8 | 9.6 | 10.8 |
| 16-19 | 24.8 | 38.8 | 29.2 | 23.6 | 21.0 | 19.8 |
| 20-29 | 38.9 | 39.2 | 40.9 | 39.4 | 37.3 | 35.4 |
| 30-39 | 18.3 | 16.3 | 18.1 | 18.3 | 18.6 | 19.3 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

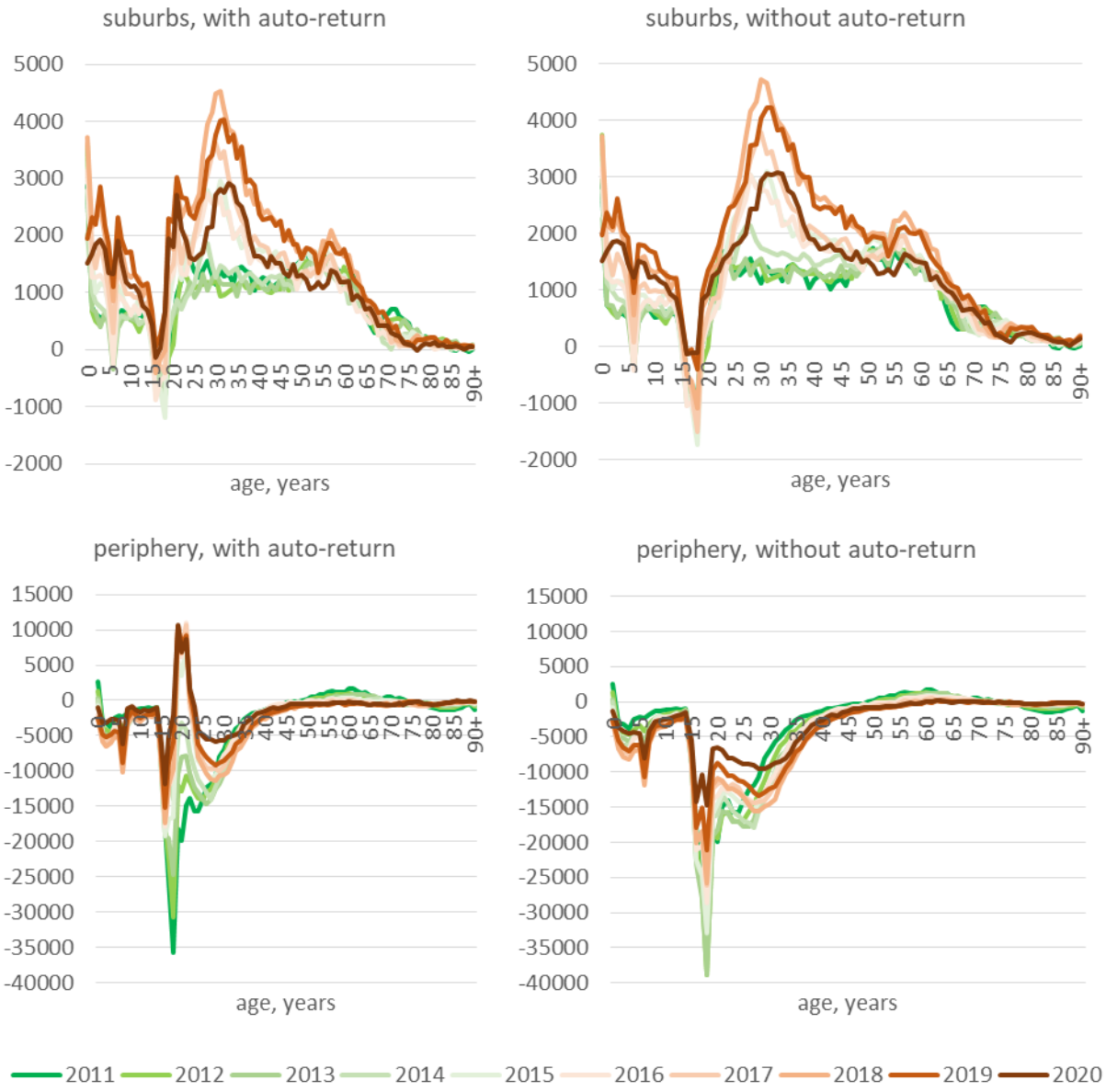
*Source: Calculations based on data provided by Rosstat upon request.*

The outflow of the population stops at the age of 50 from the largest and smallest villages, while in medium-sized villages it continues until the age of 55. In medium-sized villages, the outflow of the elderly resumes at an earlier age (from 66-67 years), while in the smallest villages it starts after 75 years, but reaches a relatively larger scale than in larger villages. In the largest villages, comparable in size to small towns, there is no outflow of "old" elderly people. Apparently, in "old" old age, as families become nuclearized due to the death of one of the spouses, living in villages with problems of access to the most basic health services becomes critically important for some elderly people, which prompts them to move. Elderly people in the hinterland face the impoverishment of rural social space, find themselves without access to services (Fomkina 2017), which also forces them to leave the village. These processes have

become widespread in many countries (Karachurina, Ivanova 2017); the Russian case is not unique in this.

As shown in Table 3, the migration increase of rural suburbs in the 2010s grew. This growth was provided by all age groups, except for the elderly (Figure 7). The increase in the migration influx to the suburbs of families with preschool and primary school children, as well as people aged 25-40 years, is especially noticeable. This may be a consequence of the growing attractiveness of suburbs for this category of the population, but one cannot exclude the influence of wave changes in the age structure of the population, typical for Russia.

**Figure 7. Dynamics of net migration of the rural population with and without taking into account auto-return, 1-year age groups, thousand people**




*Source: Calculations based on data provided by Rosstat upon request.*

The change in migration loss of peripheral rural settlements in the second half of the 2010s is noticeable among young people, but here it was, apparently, primarily a consequence of wave processes, the alternation of relatively small and numerous generations. The loss of

children aged 0-14 increased in the second half of the 2010s, the outflow of young people aged 15-29 decreased, and the loss of 30-39-year-olds increased. But auto-return also had a very big impact: the peak of migration growth in the 19-22 age group appeared in 2015, and the outflow of the population in older ages was also greatly underestimated. In 2018-2019, the auto-return of 19-22-year-olds compensated for 2/3 of the migration loss of 15-18-year-olds in the same years, or 51% of the loss in 2014-2015. It is clear that such a share of those who returned to the rural hinterland after studying in colleges and universities is unrealistic. Return migration could have actually taken place, but what share of young people returned to the rural hinterland after studying is a big question. It could be 10-15% or more, but it does not reach such values.

The low proportion of those wishing to return to rural areas after studying in the city is also shown by the results of sociological surveys, for example, a survey of young people in the Altai Territory conducted in 2017 (Sergienko 2019). Many of those who do return participate in pendulum migration to cities or go to work on a rotational basis. These may be those returning to a "ready" job – children of rural entrepreneurs (Sergienko et al. 2019) or a small number of those who completed their studies in targeted places at universities (Andreeva, Karachurina 2021). Therefore, field studies record a discrepancy between the real estimates of the young rural population and official data (Fomkina 2017), estimates which are also confirmed by student expeditions from the National Research University Higher School of Economics[3].

## Conclusions

Migration to cities is steadily leading to a reduction in the rural population of Russia. The rate of this reduction is not as high as in the Soviet period, but the human resources of rural areas in the hinterland have decreased severalfold since then. The data published by Rosstat, which do not allow us to estimate auto-return, significantly underestimate the migration loss of the rural population of the periphery, especially in recent years. Both the overall outflow of the rural population from the hinterland and, to an even greater extent, the outflow of young people are underestimated. At the same time, auto-return distorts the influx of the rural population into cities, including small and medium-sized ones on the periphery. However, this process is compensated, in turn, by an underestimation of the outflow of the population from them to large cities and their suburbs.

As previous studies have shown (Mkrtchyan 2019), zonality in the migration of the rural population is weakly expressed. The rural areas of southern Russia are also losing population as a result of migration, but only at a slightly lower rate than the villages in other parts of the country. The decisive role is played by the position of the rural settlements in relation to large cities, i.e. whether they are suburban or are located far from large cities, on the periphery. The influx of population into the rural suburbs of large cities camouflages the outflow of the rural population from peripheral areas.

Rural suburbs are attractive to migrants due to the proximity of large cities, and the more attractive they are to migrants, the more attractive their suburbs. The attractiveness of suburbs depends little on the attractiveness of specific settlements; the main thing is their proximity or remoteness from cities.

[3] The project of student expeditions of the HSE National Research University "Rediscover Russia" was launched in 2017. (see: https://foi.hse.ru/openrussia/). Expeditions have become an important part of the master's program "Demography" (for more detail see: https://www.hse.ru/ma/demography/expeditions).

On the periphery, the ability to retain population depends on the size of the rural settlements. There is a flow of population from small settlements to relatively large ones (in full accordance with the country-wide flow of population up the settlement hierarchy), but auto-return greatly understates its scale. At the local level, rural-urban and rural-rural migration contributes to the concentration of the population in large and very large rural settlements. The *polarization of developed spaces* continues (Nefedova, Treyvish 2020). Interrelated processes are underway: depopulation leads to the degradation of the RS network and of basic amenities for the population, which, in turn, leads to a further outflow of population from the village (Tkachenko, Smirnov, Smirnova 2019). Small RS are losing not only their young population, but also families with children, due to the lack of basic social infrastructure or the low quality of social services.

The ratio of the number of villagers living in the rural periphery and in the rural suburbs of large cities is rapidly changing in favor of the latter. Suburban RS are experiencing an intensive migration increase, while the peripheral village is no less intensively decreasing due to migration. Without taking this into account, the migration balance of the rural population is like the "average temperature in a hospital".

According to our estimates, due to internal migration, the rural population in the 2010s was annually decreasing by 150,000-250,000 people, while the rural periphery experienced an outflow of 250,000-350,000 per year, and this loss is almost entirely due to the young population, families with children. A small migration increase in the rural periphery is provided only by the population of pre-retirement and early retirement ages, but it is also coming to naught due to the outflow of the "old" elderly. In general, migration accelerates the aging of the rural population, but makes it possible to somewhat reduce the rate of aging in cities.

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