

Educational Migration of School Leavers from Karelia: Arctic Specifics



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Abstract. Studying the migration plans of school leavers is important in the context of the reproduction of the region's human capital. The article considers youth's educational migration plans in the case of one of the Arctic regions (Republic of Karelia). The empirical base includes data of sociological research we conducted in November 2022. A total of 3,053 students in grades 8–11 from all districts of Karelia participated in the survey. The main aim of the research is to identify migration intentions of young people, namely school leavers as a social group on the way to choose vocational education in the region or outside it, the reasons for migration moods and potential willingness to return to the area after receiving a profession in another region. We have established that migration moods differ by regions of Karelia: educational plans of the majority of schoolchildren in Petrozavodsk are oriented outside the region, and the northern (non-Arctic) region of Karelia, on the contrary, to Petrozavodsk. However, school leavers

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of Arctic and southern regions are also focused on studying outside the region, where the flows from the regions are usually directed to the center of their region and then to other regions. It is important to assess the potential return of graduates who leave the region: most of those who are not going to study in Karelia are also going to work there. A comparison of actual and potential outflows of eleventh-graders from the region proves that in fact every third graduate leaves. Most graduates, disposed to leave, romanticize their plans, and only one in four families financially prepare for their child's education in another region; the rest take no concrete action. The results obtained contribute to studying youth's migration activity in Russia's regions that are partially included in the Arctic zone of the Russian Federation, as detailed information is limited for such territories. In practical terms, the research results can form the analytical basis for the timely development of management mechanisms to strengthen and retain youth in the Arctic regions.

Key words: educational migration, migration plans, school leavers, Arctic zone of the Russian Federation, Republic of Karelia.

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Introduction

Combined with a decline in natural increase, migration outflow is one of the main threats to the development and national security of the geostrategic macro-region – the Arctic zone of the Russian Federation (AZ RF)¹. The migration balance has been stably negative for the previous ten years in the AZ RF. According to the 2021 data, the population inflow does not compensate the outflow, which contributes to the population decline in the Arctic territories. The migratory outflow also aggravates the current deficit of labor resources in the AZ RF for the current and prospective period, which imposes restrictions on the implementation of large-scale investment projects, under which it is planned to create 140 thousand new jobs by 2035 (Efimov et al., 2022).

The specifics of the Arctic territories, on the one hand, limiting their development (remoteness, harsh climate, limited infrastructure, low density

and negative population growth, asymmetric socio-economic development), on the other hand, favorably distinguishing them from other Russian regions (strategic importance, investment and human resource potential, the presence of the Northern Sea Route (Shaparov et al., 2022), high human development index), necessitate an in-depth analysis of migration processes in these territories.

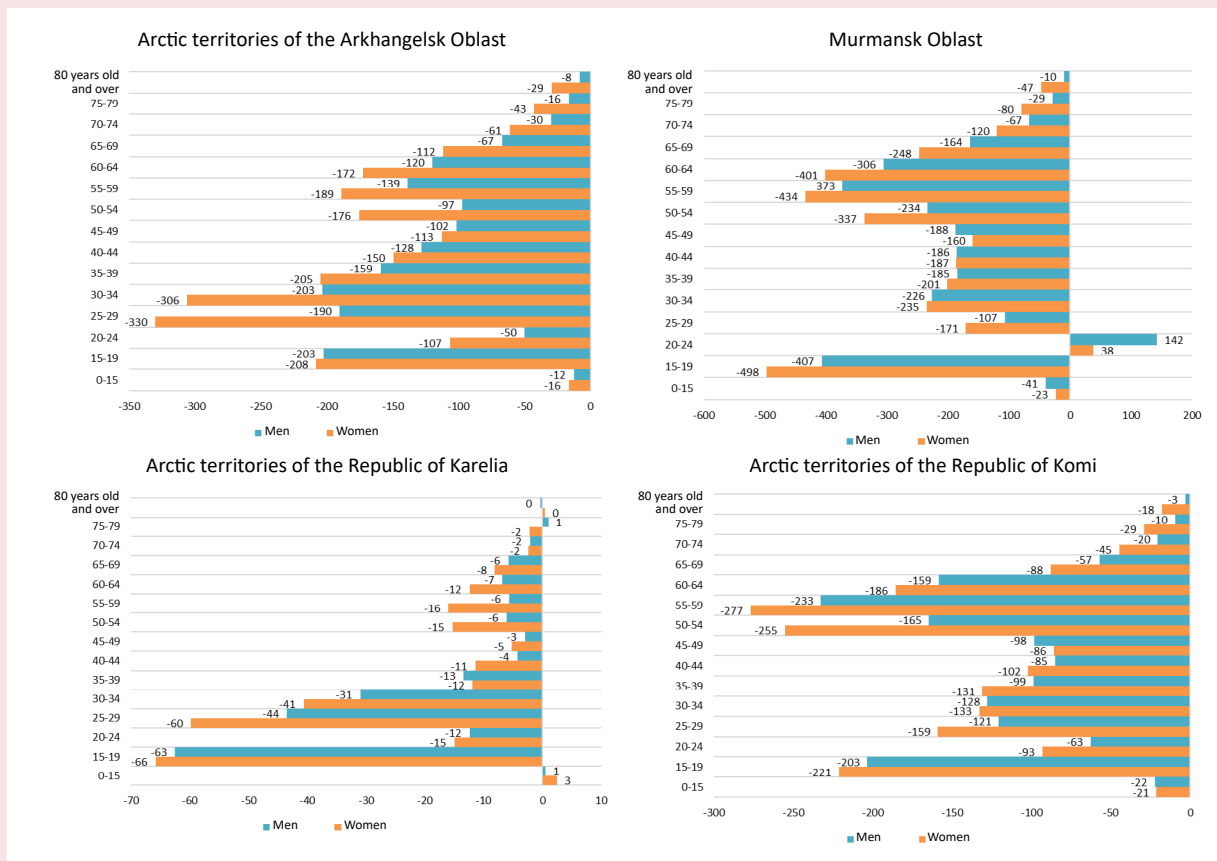
According to 2021 data, approximately every second person, arrived in the AZ RF, is a young person under the age of 35. There are fewer young people among those leaving the region – 38.6%, but the share of persons of retirement age leaving the AZ RF increased to 22.7% (the share of entering pensioners is 17%) (Khoteeva, Stepus, 2023). Migration movements are differentiated in the Arctic territories due to the different level of development of the territories, spatial location of the production, mining and infrastructure base that forms the foundation of the AZ RF economy (Heleniak, 1999). At the present stage, many factors causing migration movements in the AZ RF have been classified, among which generalized

¹ On the Strategy for the Development of the Arctic zone of the Russian Federation and National Security for the period through to 2035: Presidential Decree 645, dated October 26, 2020.

economic, social, demographic, ethnic, political-legal, natural-climatic, personal-psychological (Ukhanova et al., 2021), etc. The impact of these factors is differentiated by the subjects of the AZ RF and by individual territories. For example, for the regions of the European part of the Russian Arctic, the important ones are the age structure, the level of wages, as well as the combination of local conditions for the formation of migration sentiments, including the motivation of the population (Shelomentsev et al., 2018).

In the Arctic territories of the regions of the European part of the AZ RF on average for 10 years², there is a negative increase in the interregional type of migration. The Arctic territories of the Arkhangelsk Oblast and the Republic of Karelia are more often abandoned by young people under the age of 35, with women being the most active. The migration outflow of the adult population, especially of those of retirement age, is typical of the Murmansk Oblast and the Arctic territories of the Komi Republic (*Fig. 1*).

Figure 1. Average annual balance of interregional migration in the Arctic territories of the subjects of the European part of the AZ RF for 2012–2021, people*



* Data on age groups 0–15 and 15–19 are given with overlap due to the limited statistical information on gender and age structure of migration flows in the context of municipalities. According to: indicators of the Database of Municipal Formations of Rosstat.

² The assessment of the dynamics of migration gain/decline is given as an average for the years 2012–2021, rather than the latest data for 2021, as the COVID-19 pandemic has changed the migration situation between Russian regions, and using data only for the last year could distort the picture of the migration situation in the AZ RF.

At the same time, in the Murmansk Oblast, there is a migration increase in the population aged 20–24 years, especially among men, which may be associated with the return of young people to the region after training, at least fixed (Mkrtchyan, 2020), enrollment in higher education or employment.

Migration loss in the AZ RF is largely shaped by the youth's movement, which is due to the availability and remoteness of vocational training organizations and potential jobs, as well as youth's attitudes and plans to live and work in the Arctic territories (Uusiautti, Yeasmin, 2019).

Thus, the aim of the research is to identify the migration intentions of school leavers who are on their way to form an educational trajectory in the region or outside it, the reasons for their migration moods and their potential readiness to return back after receiving a profession. Scientific relevance is determined by the lack of knowledge about this phenomenon and the possibility of comparing youth's moods with the actual regional outflow of graduates in the context of municipalities. It is doubly relevant to study this problem in the territories of the regions partially included in the AZ RF, since the social infrastructure of such territories is mainly concentrated in the non-arctic part (except for the Arkhangelsk Oblast), and the vector of population migration plans is often formed along the direction “district – administrative center – other region”, where large and capital cities are intermediate links of migration routes from the Arctic territories to federal and regional capital cities (Fauzer, Smirnov, 2020). This article aims to contribute to the study of these problems. The tasks of the research are to 1) identify the educational and professional plans of school leavers, 2) analyze the migration attitudes of school leavers regarding education in their native region, and 3) compare the volume of the planned (by students) and actual migration outflow of school leavers.

Literature review on the research issue

Getting an education is the starting point for an independent migration experience and plays an important role in shaping one's life strategy. The phenomenon of uncertainty – from “preliminary assessments” and “weighing arguments” to “concrete actions” – has a great impact on studying these aspects (Tabor, Milfont, 2011). School leavers as a specific segment of young people are under conditions of choice and risk (Chuprov et al., 2003), also many of them find it difficult to assess their chances of enrollment, to make choices, to assess family's material possibilities (Karachurina, Florinskaya, 2019). When shaping an educational trajectory, the possibility of error is high; those who take risks have increased responsibility and autonomy, inspired by success and tempered by failure, which is a key factor in the social development of an individual (Chuprov et al., 2003).

The problematic of school leavers' behavior at the beginning of their life path has been widely studied in Russian and foreign sociology, especially the issues of subjective and objective aspects of choice: “dependence of educational, professional plans and real behavior in education and labor on ascriptive factors – social origin, parents' education, families' financial situation, settlement status, gender, nationality, etc.” (Cherednichenko, 2014, p. 5). These indicated interrelations have been the determinants of obtaining education and entering independent life.

It is worth noting that the direction and intensity of educational migration on the basis of statistical data began being studied since 2011, when, after the change in the order of statistical accounting, these data became available to researchers (Gabbrakhmanov et al., 2022). The most frequent focus is on the movement of school leavers between regions and the reasons for this movement (Gabbrakhmanov et al., 2019). Movements of graduates from villages to cities and from small

towns to large cities have been studied in detail (Abankina et al., 2012; Florinskaya, 2017). It is important to consider the migration movements of school leavers not only as an accomplished fact, but also as a potential opportunity (migration intentions), as the formed mood to leave the region can be realized after getting a profession or, on the contrary, develop into the mood to “stay”, competing with other events of the life path (Kartseva, 2021).

Young people often perceive studying in another region as an opportunity to establish themselves and a kind of social elevator, so losing local graduates at the stage of choosing education in another region, the probability of losing them forever is very high (Gabbrakmanov, 2020).

There is often a paradox in the migration intentions of high school students – first the region/city of education is chosen, and then an educational organization, the reasons for the choice are the comfort of urban environment, employment potential and connections (Klyachko, Semionova, 2021). The quality of the region’s human capital reproduction largely depends on students’ choice of future profession and formation of educational trajectory. In this context, intensive and uncompensated educational migration is a threat to territories. This problem is especially acute in the regions of the Arctic zone of the RF, where the education system has insufficient capacity, as a result of which forced educational migration is observed (Simakova, Gurtov, 2020). A decisive role is played by the formed professional interests, which are largely inconsistent with the interests of the local labor market, as well as the social ties of young people formed on the basis of migration experience (Zamyatina, Yashunsky, 2017).

Thus, when considering the educational plans of school leavers, we pay special attention to their migration intentions. The fact that graduates have already migrated and migration intentions have not yet entered an active phase, together with

the lack of alignment between the interests of the labor market, employers and graduates, on the one hand, is a threat to the reproduction of human capital of the AZ RF, and on the other hand, is an objective process, as the mobility aspect itself is an inherent characteristic of young people as a social group. Similar studies (Simakova, 2019) partially reflect this problematic. However, the migration plans of graduates are often considered in the key of revealing the fact of migration intentions with the indication of general reasons contributing to it, but without taking into account the influence of the spatial context of the territory and without comparing it with the actual outflow of graduates. Another area of research on Arctic youth migration concerns the “stay or go” aspects. Russian and foreign authors come to similar conclusions – “to leave”, but under certain conditions of development of Arctic territories (educational system, infrastructure and leisure) – still “to stay” (Rozanova-Smith, 2021; Simakova et al., 2021; Sharova, Nedoseka, 2021).

The article reveals the problems in the key of spatial localization of professional education system in the Arctic territories and considers them in a deeper way. We believe that graduates’ migration educational plans differ by regions of Karelia: graduates from regions distant from the center (Arctic, northern, southern) aspire to get education in the regional capital, and graduates from Petrozavodsk, on the contrary, aspire to larger cities. In addition to this assumption, we test a number of explanatory hypotheses about graduates’ migration intentions. H1: graduates with a higher level of family’s financial status seek education outside the region. H2: graduates with higher educational attainment want to study outside of Karelia. H3: a higher level of parents’ education determines graduates’ plans to study outside the region. H4: migration moods are more pronounced among those who have had experience of living outside the region.

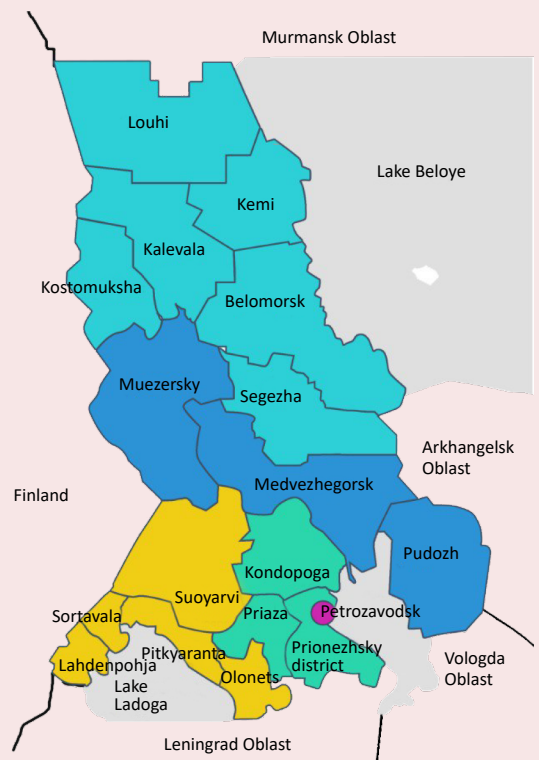
Theoretical and methodological basis of the research

In the research, the notion of educational migration is narrowed to educational migration, which is carried out for the purpose of obtaining vocational education by school leavers (Korepina, 2018). We consider educational migration in the complex, as a set of actions on the choice of education after school and decisions made to master

the desired profession for further consolidation in the system of social division of labor and acquiring social status in the region or outside of it.

Theoretically, the research is based on the riskological concept proposed by V.I. Chuprov and Yu.A. Zubok in which risk is considered when it is necessary to make “a choice from a number of options and assess the development of the situation that differ not only in the probability of realization,

Figure 2. Spatial localization of the research area*



- 1. Arctic districts of Karelia**
 - Kostomuksha municipal district
 - Segezha district
 - Kemsky district
 - Kalevsky district
 - Louhsky district
 - Belomorsky district
- 2. Non-Arctic north of Karelia**
 - Medvezhjegorsky district
 - Muezersky district
 - Pudozhsky district
- 3. Petrozavodsk**
- 4. Districts close to the administrative center**
 - Kondopozhsky district
 - Prionezhsky district
 - Pryazhinsky district
- 5. Southern districts of Karelia**
 - Sortavalsky district
 - Suoyarsky district
 - Pitkyarantsky district
 - Olonetsky district
 - Lyakhdenpозhsky district

* We present our spatial distribution of districts. According to Federal Law 193-FZ, dated July 13, 2020, the Arctic territories of Karelia include the territories of Louhsky, Kalevsky, Kemsky, Belomorsky, Segezhsy districts and Kostomuksha urban district. Northern (nonarctic) districts are the territories of Muezersky, Medvezhjegorsky and Pudozhsky districts. Areas close to the center are the territories of Kondopozhsky, Pryazhinsky and Prionezhsky districts. Southern districts of Karelia are Sortavala, Pitkyaranta, Olonets, Lahdenpohsky, and Suoyarvsky.

Source: own compilation.

but also in the possible (individual and social) consequences” (Chuprov et al., 2003): in terms of choosing a profession and an educational trajectory.

The subjective (personal) reasons for the formation of the migration mood of school leavers, as well as objective reasons, which become a consequence of the contradictions between individual needs and the opportunities to meet them at the place of residence, are identified based on the ideas of T.I. Zaslavskaya and L.L. Rybakovskii (Rybakovskii, 2016).

The geography of the study is limited to the territories of the Republic of Karelia (Fig. 2) as a subject of the European part of the AZ RF (the Arctic territories occupy 38% of the region’s area and 18% of the permanent population) for several reasons: asymmetry of districts in the spatial organization of the professional education system; geographical position, development of social and transport infrastructure, proximity to Saint Petersburg and the European Union.

The research object is students in 8th–11th grades in the Republic of Karelia. The information basis of the study is Rosstat data, departmental statistics and the sociological survey, we conducted

in November 2022. At 97% confidence probability and $\pm 3\%$ error the sample size is 3,053 people³. Of them 38% live in the capital of Karelia – Petrozavodsk⁴, every fourth (25%) – in Arctic regions, 17% – in the south of Karelia, 11% – in regions close to the center, and 9% – in northern (non-Arctic) regions (Tab. 1). More than half of the respondents (67%) live in cities, 33% – in rural areas. The selection of respondents is random, proportional to the number of students by district and grade level.

Spatial conditions of formation of migration attitudes of school leavers of the Republic of Karelia

In the period from 2012 to 2021, the population of the Republic of Karelia decreased by 4.8%. Positive dynamics of permanent population growth is observed only in three of the 18 municipalities of Karelia: Petrozavodsk and Kostomuksha urban districts, Prionezhsky district. At the same time, we observe decrease of youth in all regions of Karelia: for the reported period the number of Republic’s youth aged 14–34 decreased by 20.6%. Arctic and northern regions of Karelia lose the youth more actively, their number decreased by 30.3% and 28.8% accordingly. In other districts the volume of

Table 1. Quantitative characteristics of the sample population*

Group of districts	Number of students in 8th–11th grades, people	Structure of students in 8th–11th grades, %	Number of respondents	Sample structure, %	Deviation of the sample from the general population, %	Proportion of graduates surveyed in the general population, %
Arctic	3,559	19.0	761	24.9	6.0	21.4
Northern (non-Arctic)	1,659	8.8	286	9.4	0.5	17.2
Center (Petrozavodsk)	8,609	45.9	1,172	38.4	7.5	13.6
Closed to the center	2,130	11.3	329	10.8	0.6	15.4
Southern	2,818	15.0	505	16.5	1.5	17.9
Total	18,775	100	3,053	100	3.2	16.3

* Note: percentages are from the population of respondents.

According to: actual data on the number of students, given by the Ministry of Education and Sports of the Republic of Karelia. The rest of the data are the results of the survey we conducted.

³ Distribution of respondents by grade is as follows: 999 in 8th grade, 1,044 in 9th grade, 535 in 10th grade, and 464 in 11th grade.

⁴ Students in 8th–11th grades at the Petrozavodsk Presidential Cadet School were excluded from the study, as this institution is subordinate to the Russian Ministry of Defense and, in addition to general educational activities, has a focus on the military-professional career of students, including those from other Russia’s regions, which could distort the research results.

youth reduction is smaller, but not less: in southern districts – 23.6%, in regions close to the center – 22.8%, in Petrozavodsk – 17.7%.

Interregional migration growth of young people was positive in 2021, except for the northern (non-Arctic) districts of Karelia (Tab. 2). On the contrary, the positive balance of intraregional type of migration is observed only in Petrozavodsk, where young people from the districts rush including for education.

The main educational opportunities of Karelia are concentrated in Petrozavodsk, where there are four universities (including branches) and 13 educational organizations, which provide training in intermediate vocational education programs. There are no educational organizations of vocational

education in the regions, which we designated as the “non-Arctic north of Karelia”, in the districts closed to the center there is only one such organization, in the arctic districts – three, in the southern districts – two. At the same time, the admission rate in relation to the total volume of graduates is a little more than 10%. Thus, the complex socio-economic conditions in the districts force school leavers to consider options for education outside their home municipality and even outside the region. How is the situation in reality? Every year about a third of graduates leave Karelia. In 2020 from total number of school leavers of the 11th grade form 30% entered colleges and technical schools of Petrozavodsk, another 31.2% – universities of Petrozavodsk, and 27.4% left to study in other Russian regions⁵.

Table 2. Quantitative characteristics of increase/decline of young people aged 15–34 in 2021 and indicators of education system of the Karelia Republic

Indicator	Arctic districts	Northern (non-Arctic) districts	Petrozavodsk	Districts, close to the center	Southern districts
1. Decline in number of young people aged 14–34 in 2021 compared to 2012, people ¹⁾	-9 259	-3 838	-15 906	-4 416	-5 901
2. Balance of interregional migration of young people aged 14–34 in 2021, people ¹⁾	16	-8	187	35	17
3. Balance of intraregional migration of young people aged 14–34 in 2021, people ¹⁾	-129	-170	355	-39	-17
4. Number of school leavers of 8th–11th grades in 2021, people ²⁾	3 559	1 659	8 609	2 130	2 818
5. Admission to full-time universities for budgetary places in 2021, people ³⁾	0	0	1 630	0	0
6. Admission to colleges and technical colleges on a full-time basis for budgetary places in 2021, people ⁴⁾	333	0	2 141	50	273
7. Professional training needs for 2023 ⁵⁾	1 324	394	3 598	1 293	707

¹⁾ According to: Database of indicators of municipalities. Federal State Statistics Service. Available at: <https://www.gks.ru/dbscripts/munst/> (accessed: March 1, 2023).

²⁾ Data provided by the Ministry of Education and Sports of the Republic of Karelia at our request.

³⁾ Information about the organization carrying out educational activities under the educational programs of higher education – bachelor’s degree programs, specialist’s degree programs, master’s degree programs. Form of statistical observation VPO-1. Moscow: GITs Rosstat, 2021.

⁴⁾ Information about the educational organization that carries out educational activities according to educational programs of secondary vocational education: State Statistical Reporting Form No. SPO-1. Moscow: GITs Rosstat, 2021.

⁵⁾ Forecast of training needs for 2023–2027 in the context of municipalities in the areas of training. Department of Labor and Employment of the Republic of Karelia. Available at: https://mintrud.karelia.ru/content/прогноз_потребности_в_подготовке_кадров

⁵ According to the reports of educational organizations for 2020, provided by the Ministry of Education and Sports of the Republic of Karelia.

The current volume of training in the vocational education system is less than the demanded by the labor market. According to the forecast of the Department of Labor and Employment, the need for personnel in the region will increase, but taking into account the graduates' outflow and the limited training in the vocational education system in the field, this need will be insufficiently provided with young qualified specialists.

Professional certainty and educational plans of school leavers

In the issue of graduates' certainty with their future profession the difference by the territories of Karelia is insignificant, so let us outline the general picture for the region as a whole. Half of the students in 8th–11th grades (53.7%) have chosen their future profession, and of those who are still undecided, every second cannot choose between several options, are afraid of making a mistake and do not know what exactly they like. Only every fifth high school student (22.5% of the total number of respondents) is sure about their choice, and every third (31.3%) has decided on their profession, but considers other options, another 23% made their choice conditionally, as they will act on the circumstances of the admission campaign of universities or colleges.

Among the motives of graduates' choice of future profession personal motives of development

and building a successful career prevail to a greater extent: potential salary (57.2%), opportunity to develop their abilities (51.7%), career prospects (47.2%) and opportunity to be useful to people (46.5%). It is interesting to note that the motive “to be mobile” was chosen by 13.8% of all respondents, while it is more important for Petrozavodsk residents than for those living in other regions of Karelia (16.4% of respondents from Petrozavodsk, 12.5% for students from Arctic districts and 9.2% for students from northern (non-Arctic) districts).

The educational plans of school graduates in the Arctic districts of Karelia differ from the plans of graduates from other regions. So, every third arctic schoolchildren is determined to get higher education (31.2%), in the region's capital there are more of them – 38.4%. Almost one third of the Arctic schoolchildren (28.2%) and schoolchildren from other districts of Karelia consider college and technical school education to be sufficient for themselves, but only 18.9% of those from the capital. When paying attention to specific plans after school, a larger number of graduates are already focused on entering universities: 44.7% of Petrozavodsk residents, 32.5% of schoolchildren from arctic districts, 35.9% – from districts close to the center (*Tab. 3*). The tendency of choosing IVE educational institutions also remained, but more Arctic schoolchildren chose this option

Table 3. Plans of schoolchildren in the districts of Karelia for the first year immediately after graduation, % of those who answered the question by district*

Plans for the first year after graduation	Arctic districts	Northern (non-Arctic) districts	Petrozavodsk	Districts, closed to the center	Southern districts
Go to university	32.5	25.2	44.7	35.9	32.5
Go to college, technical school	39.5	40.6	26.2	42.1	44.9
Find a job	1.9	4.2	3.7	2.7	3.1
Take a little rest and then continue training	4.3	5.2	4	3	3.5
Join the army	3.9	4.9	2.2	2.7	2
If I do not score enough points, I will retake the exams to go to university	3.1	5.2	3.8	2.7	1.6
I do not know yet	14.2	13.6	13.8	9.5	11.6

* Pearson Chi-square: asymptotic significance (two-sided) = 0.000. According to: own research results.

for themselves – 39.5%. Almost half of the graduates (except for those who study in schools of Petrozavodsk) prioritized the choice of colleges or technical colleges. This may be due to the spatial location of educational organizations and the location of large industrial enterprises, mainly concentrated in the regions of Karelia, where there is a demand for workers. At the same time, every third pupil (28.2% of the total number of respondents) decided in which educational organization they will enter.

The majority of graduates prepare for admission in one way or another, and the ways of preparation of students in the region's capital and distant regions differ. In Petrozavodsk, every third graduate uses the services of a tutor (30.9%), while in the Arctic and other districts more distant from the center only 16% prepare in this way, which is connected with a wider range of opportunities available in Petrozavodsk. For every fourth to fifth graduate (all types of districts) an important element of preparation is communication with acquaintances who entered the desired university or college (26.5% of graduates from Arctic districts, 20.5% from Petrozavodsk and 23.6% from southern districts), thus forming the image of educational organization by “word of mouth” based on feedback, which is generally typical for Russian province (Boldina, 2022).

Migration moods and graduates' plans

The active migration attitudes of graduates testify to the high level of youth mobility in Karelia. Among the surveyed graduates every third (36.5%) is focused on getting education outside the region. Among eleventh-graders this share is higher – 40.4%. Graduates of Petrozavodsk schools are more focused on education in the capital universities of the country (28.5% of the total number of respondents), and among eleventh-graders – it is every third graduate (30.6%). Students from southern districts (28.9%), whose interests are most likely due to their relative proximity to Saint Petersburg, are also more oriented toward universities in the capital (39.7% among eleventh-graders). In contrast, students living in other districts tend to go to the capital of Karelia, where most vocational education institutions are located: 37.8% of graduates from Arctic districts, and 46.3% from districts closer to the center (*Tab. 4*). It is likely that the geographical factor is important in determining the vector of educational migration of Karelian graduates. At the same time, graduates of the 11th grade in the northern districts to a greater extent aspire to Petrozavodsk (66.7% of the number of surveyed eleventh-graders in these districts), and none of them expressed interest in studying in megacities and abroad.

Table 4. Graduates' plans for education in relation to the Republic of Karelia, % of those who answered the question by district*

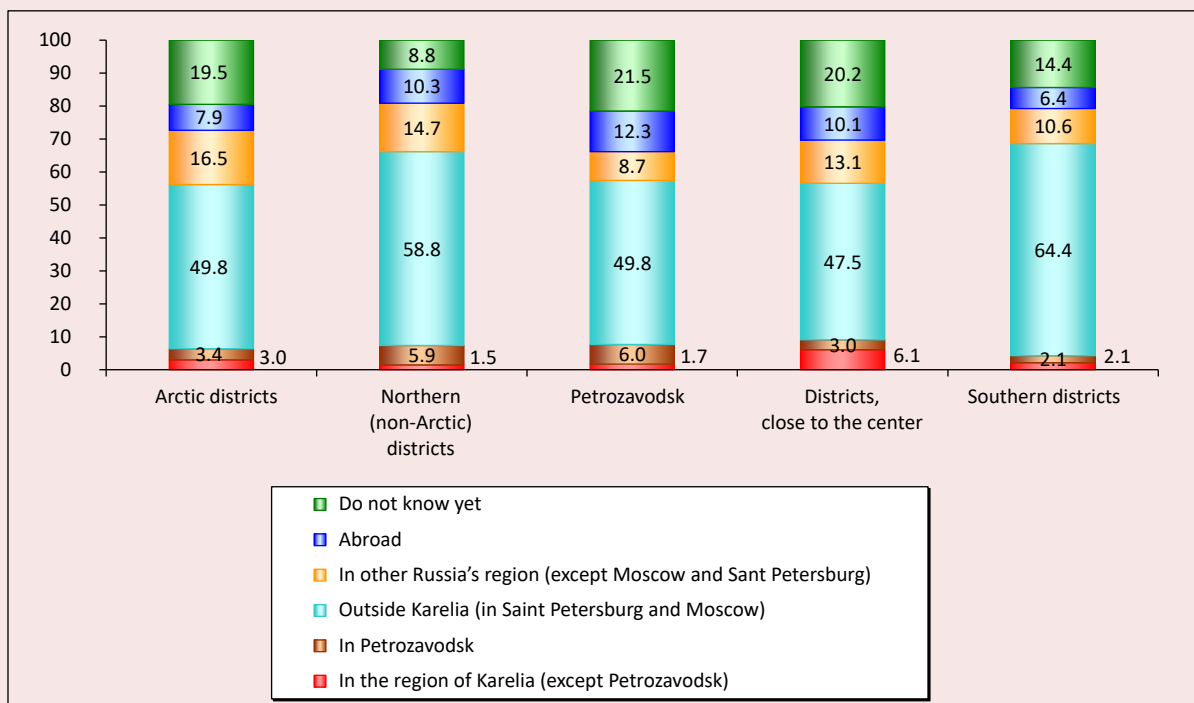
Plans for training	Arctic districts	Northern (non-Arctic) districts	Petrozavodsk	Districts, closed to the center	Southern districts
In the region of Karelia (except Petrozavodsk)	8	10.2	4.4	7.1	9.1
In Petrozavodsk	37.8	45.6	30.6	46.3	38.9
At universities/colleges in central regions (Moscow, Saint Petersburg)	23.9	14.4	28.5	18.4	28.9
In other cities outside of Karelia	9.7	7.7	9.8	8.6	7.7
Abroad	2	1.8	3.8	2.4	0.8
I do not know yet	18.6	20.4	22.9	17.2	14.6
* According to the distribution for both questions Pearson chi-square: asymptotic significance (two-sided) = 0.000. According to: own research results.					

Graduates' plans regarding educational migration are interesting to consider in perspective regarding employment in Karelia, i.e. in terms of whether the potential departure of graduates from the region is compensated in the future. Do those who are going to study outside Karelia plan to return after their education? Survey data indicate that they do not have such intentions. Among the graduates from Arctic districts who plan to study outside Karelia, only 6.4% intend to find a job in Karelia after graduation, every second graduate (49.8%) is focused on Moscow and Saint Petersburg, another 16.5% want to find a job in other regions (Fig. 3). Among graduates of northern (non-Arctic) territories only 7.4% plan to return to Karelia, 58.8% are oriented to work in megacities and 14.7% – in other Russian regions; 7.7% of graduates who plan to study outside Karelia intend to return back

to Petrozavodsk, 49.8% are focused on Russian capitals, and, interestingly, 12.3% expressed interest in working abroad.

Given the active migration sentiments of graduates to study and work outside the region, we can make the assumption that educational migration is not the root cause, but acts as a kind of stepping stone to migration from the region as a whole, especially in the capital and Arctic districts of Karelia. Another question is to what extent these plans will translate into real actions. The implementation of migration plans largely depends on the existing experience of mobility, even in the form of short-term trips that allow comparing places of residence and choosing living conditions. People with migration experience tend to “more easily decide to move and use it as a means to solve their life problems” (Zayonchkovskaya, Nozdrina, 2008).

Figure 3. Plans of graduates who intend to study outside Karelia to work after education, % of those who answered the question for the district*



* Pearson Chi-square: asymptotic significance (two-sided) = 0.002. According to: own research results.

Most graduates of Karelia have migration experience, only every fourth graduate (25% of the total number of respondents) had no experience of staying outside the region for more than a week, every third (27.2%) leaves several times a year, another 20% leave steadily once a year.

The reasons for the formation of migration attitudes to study and work outside the region can be called common and related to the expectations of a “better life”, they do not show any regional specifics: “I will find a high-paying job there” (57.6% of the respondents who expressed a desire to study outside the region), “there are more opportunities for personal development” (55.1%) and “professional development” (50.5%). An important condition is the “Arctic” orientation of the chosen specialty, its demand at the regional level. The research of migration plans of the students of Northern (Arctic) Federal University named after M.V. Lomonosov showed that those, who are studying in such specialties are less likely to express migration sentiments (Zaikov et al., 2018).

During the study of migration intentions, it is important to determine to what extent these intentions are supported by certain actions, in this case what graduates do to get education in other regions. Of those who want to study outside of Karelia, 25.8% do nothing, i.e. their sentiments are purely hypothetical, another one in two (51%) studies the website of the educational institution, being at the initial stage of choice – analysis

of information about the potential place and conditions of migration. One aspect of migration is the reliance on experience or existing connections in the region of potential movement: 25% of respondents keep in touch with friends and relatives living in the regions where the graduate would like to move/studying in the desired educational institutions. Lack of housing in another region is a significant limiting factor for the implementation of migration plans, so even now every fifth graduate is concerned about housing in another region – 22.3% are interested in a dormitory for nonresident students and solve this issue. A more conscious type of implementation of educational migration plans includes financial readiness of the future applicant and family: every fourth (25.7%) graduate, wishing to study outside Karelia, noted that the family is saving money for this purpose. Families from Arctic districts (27%) and Petrozavodsk (25.1%) are more active in saving money for their child’s education outside of Karelia, while in other regions it is every fifth family. Only a few (5.8%) respondents have already got acquainted with the future educational institution by visiting it in person.

Thus, we partially confirmed the hypotheses stated in the research. We tested all the at the significance level of 0.05 according to the chi-square test. Indeed, the migration sentiments of graduates by districts of Karelia differ, but the direction of the flows does not coincide with the assumed one. The graduates of the arctic districts to a greater

Table 5. Results of additional hypothesis testing by districts of Karelia

Hypothesis	Arctic districts	Northern (non-Arctic) districts	Petrozavodsk	Districts, closed to the center	Southern districts
H1	The hypothesis is rejected	The hypothesis is rejected	The hypothesis is rejected	The hypothesis is rejected	The hypothesis is rejected
H2	The hypothesis is accepted	The hypothesis is accepted	The hypothesis is rejected	The hypothesis is rejected	The hypothesis is accepted
H3	The hypothesis is rejected	The hypothesis is rejected	The hypothesis is accepted	The hypothesis is accepted	The hypothesis is rejected
H4	The hypothesis is accepted	The hypothesis is rejected	The hypothesis is accepted	The hypothesis is accepted	The hypothesis is accepted

According to: own research results.

extent tend to study outside Karelia, as well as the graduates of the southern districts and Petrozavodsk. The hypothesis that graduates' migration plans are conditioned by a good financial situation of their families was not confirmed (*Tab. 5*). It is the insufficiency of training places and high educational aspirations that force graduates to consider training options outside the region. The experience of living in other regions is associated with the formation of migration plans for all regions, except for the northern (non-Arctic). Academic success does correlate with educational plans, and mostly "excellent" and "good" students tend to leave the region, but it is not typical for graduates of districts close to Petrozavodsk. Higher parental education is associated with the formation of graduates' intentions to study outside the region, but this is true only for high-school students of Petrozavodsk and districts close to it.

Having compared the educational and professional intentions of high school students, we can conclude that the graduates, intended to leave Karelia to a greater extent, consider getting education outside the region as an opportunity to leave the region forever, i.e. they form an educational strategy for the sake of migration. However, the phenomenon of migration, i.e. moving to another region/district after finishing

school, is often "romanticized" by young people due to the age specifics of personality formation, and therefore in reality some students' migration moods remain at the level of dreams (hypothetical). This is confirmed by the fact that not all of those who expressed migration sentiments started to take active steps to implement their plans.

Actual outflow of 11th graders from the Republic of Karelia

In spite of the fact that every third high school student (36.5%) and 40.4% of 11th graders have migration intentions to study outside of Karelia, not all plans can come true due to various circumstances. In objective reality, the outflow of graduates may be more or less, depending on the admission campaign and the results of final examinations. According to the reports of educational organizations, provided to the Ministry of Education and Sports of the Republic of Karelia on the graduates of the 11th grade, on average, in 3 years 28.2% of 11th graders leave the region to get education. The situation varies by districts due to the spatial location of the network of vocational education organizations, which, in turn, determines the formation of migration flows of graduates within the region as well. The main flow of 11th graders from the regions of Karelia goes to Petrozavodsk. At the same time, 61.8% of graduates from Petrozavodsk stay in the

Table 6. Actual average annual distribution of 11th grade graduates in the Republic of Karelia by educational paths, % of those who answered the question by district

Districts	Entered educational institutions of secondary vocational education			Entered educational institutions of higher education		Started work or enlisted in the army
	in Petrozavodsk	in other regions of Karelia	outside of Karelia	in Petrozavodsk	outside of Karelia	
Arctic districts	34.2	1.6	11	22.4	21.7	9.1
Northern (non-Arctic) districts	45.3	0.9	3.3	32.6	14.2	3.6
Petrozavodsk	23.2	0.6	3	38.6	24.9	9.7
Districts, close to the center	46.3	0.6	5.5	30.1	15.1	2.4
Southern districts	27.3	2.9	7.6	25.9	28.8	7.4
Total	30.4	1.1	5.5	32.2	22.7	8

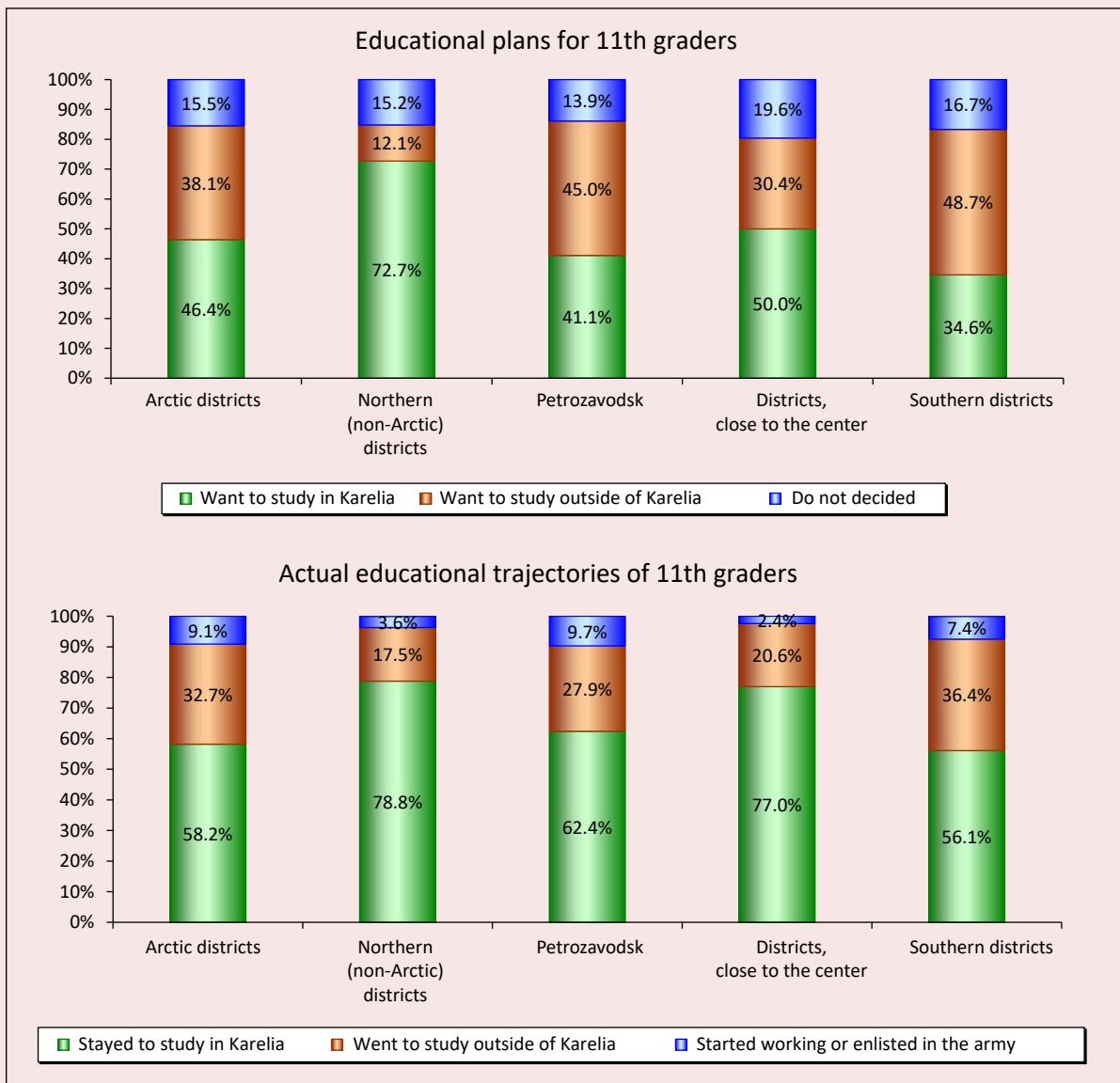
According to: data from the Ministry of Education and Sports of the Republic of Karelia for the academic years 2019/2020, 2020/2021 and 2021/2022.

regional capital (Tab. 6). Other districts of Karelia due to the limited volume of admission to colleges and technical schools are not in active demand among 11th graders, and training at universities is available only in Petrozavodsk. Graduates of southern (36.5%) and Arctic (32.8%) districts of Karelia choose universities and colleges outside the region more actively, among Petrozavodsk residents

less (27.9%), graduates of northern (non-Arctic) districts are less oriented toward other regions (17.6%).

Comparison of the actual outflow of 11th graders with their assumed plans to study in another region conditionally reflects the real and potential volumes of migration, which can turn into real ones at the next stages of building a life trajectory. The

Figure 4. Actual outflow by reason of study and potential educational plans of 11th graders in the Republic of Karelia, % for the district



According to: research results and data from the Ministry of Education and Sports of the Republic of Karelia.

limitation of the comparison is the comparison of different types of data: educational trajectories of graduates according to the results of the survey and monitoring of admission to universities and colleges for different time interval, but since the social group under study is homogeneous, such a comparison is acceptable. In all districts of Karelia, the actual graduates' outflow due to education is less than expected (*Fig. 4*).

According to the survey results, graduates of Petrozavodsk, Arctic and southern districts expressed the most active migration sentiments, which is also confirmed by the actual data, but in a smaller volume. About a half of 11th graders in Petrozavodsk planned to leave Karelia, but only every third graduate left in fact. The actual graduates' outflow from the Arctic territories practically corresponds to the migration intentions of students: the share of those who left the region is slightly higher than the share of those who expressed their desire to leave – by 5.4%. The majority of 11th graders from the northern (non-Arctic) districts and districts close to the administrative center stay to study in Karelia.

Conclusion

The migration outflow of young people remains an urgent problem in the Arctic territories, which is intensified by the educational migration of school leavers. Educational migration is only partly returned or compensated by the influx of graduates from other regions, so it is necessary to identify graduates' mood for education outside the region to understand the potential volumes and migration vectors.

Migration intentions and plans of Karelia's graduates differ in the context of municipal districts, allocated into groups according to the principle of their spatial localization. Migration intentions of schoolchildren in Petrozavodsk are indeed oriented outside the region, and those of northern (non-Arctic) districts of Karelia, on the contrary, to Petrozavodsk. However, the migration intentions

of graduates from Arctic and southern districts are also oriented outside the region, which is atypical for the arctic territories, where traditionally the flows from the districts are usually directed to the center of the region, and from it further to other regions (Fauzer, Smirnov, 2020). The assumption made at the beginning of the study about the plans of graduates' movements to obtain education was confirmed partially. Most likely, such a picture is formed in Karelia because of the geographical position of the region and the development of transport infrastructure. The plans for intra- and interregional educational migration of graduates are largely due to the concentration of educational organizations in Petrozavodsk, the limited number of budgetary places and specialties in colleges and technical schools in the districts.

Only half of the graduates expectedly decided on their future profession and plan to build their trajectory in accordance with the exam results and "according to circumstances". This conclusion is confirmed by the results of similar studies (Merenkov et al., 2015).

Alarming are the conclusions obtained regarding the sentiments of nonreturning graduates who wish to study outside of Karelia. For example, the majority of graduates from the arctic territories who are in the mood to study in other regions plan to find a job there as well. Every second graduate who wants to study outside the region plans to work in Saint Petersburg or Moscow. The formation of such sentiments indicates that although getting an education is the first step of youth migration, it is not the main reason for it. Studying outside the region is seen as a way of getting a foothold in a new place, separating from parents and "starting a new life". At the same time, the financial situation of the family does not play a role in the formation of graduates' migration attitudes of the districts under consideration. The most successful schoolchildren, except for Petrozavodsk and the territories closest to it, tend to leave the districts. The high level of

parental education is associated with the formation of migration attitudes of graduates of Petrozavodsk and districts close to the center. Migration experience turned out to be significant in building educational plans for graduates of all districts (except for northern (nonarctic) districts).

The research focuses on migration and educational plans that have not yet materialized. Due to the age features of personality formation migration is often romanticized by young people, in reality graduates, outflow from the region is less – every third eleventh grader (28.2%) leaves to study. More than a third of 11th graders in the Arctic and southern districts of Karelia choose to study outside Karelia, and about every third 11th grader from Petrozavodsk also leaves. The lowest volumes of educational migration outside the region are characteristic of the northern (non-Arctic) territories, where a smaller share of graduates expressed such intentions. In the Arctic districts, despite their territorial proximity to the North, the intentions of graduates who are successful in their studies and have experience of leaving Karelia are opposite – to go to study in other regions and stay there after their studies.

The problem of graduates' outflow from the region remains relevant in the context of nonreturn of educational migration, which requires the

application of measures and the development of mechanisms to maintain and retain local youth. The development of digital technologies, in particular distance learning (Ljovkin et al., 2020), which would allow obtaining in-demand professions locally, has great potential in solving the problems of youth outflow. It is also necessary to pay attention to the development of mechanisms to attract graduates who have already left the region for employment, for this purpose it is necessary to inform them about the real prospects of professional and career development in Karelia. The latter aspect requires elaboration within the framework of creating a unified system for monitoring educational and post-educational migration of young people, tracking the territorial movements of an individual along the vector “school – educational organization – employment region” (region and municipality level).

The results obtained at this research stage contribute to the study of youth's migration activity in Russia's regions, which are partially included in the AZ RF, as detailed information on such territories is limited. In practical terms, the presented results allow forming an analytical basis for the timely development of managerial mechanisms for the consolidation and retention of young people in the Arctic districts.

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