



The Accessibility of Higher Education in the Russian Regions

A.D. Gromov, D.P. Platonova, D.S. Semyonov & T.L. Pyrova

To cite this article: A.D. Gromov, D.P. Platonova, D.S. Semyonov & T.L. Pyrova (2017) The Accessibility of Higher Education in the Russian Regions, *Russian Education & Society*, 59:1-2, 38-67, DOI: [10.1080/10609393.2017.1392801](https://doi.org/10.1080/10609393.2017.1392801)

To link to this article: <https://doi.org/10.1080/10609393.2017.1392801>



Published online: 27 Dec 2017.



[Submit your article to this journal](#)



Article views: 3



[View related articles](#)



[View Crossmark data](#)



A.D. GROMOV, D.P. PLATONOVA, D.S. SEMYONOV, AND
T.L. PYROVA

The Accessibility of Higher Education in the Russian Regions

This article provides a comparative analysis of accessibility of higher education across Russian regions in terms of the following three factors: the availability of admission opportunities; financial affordability; and geographic accessibility.

The study will be of interest to government agencies in higher education at various levels, analysts and researchers, as well as a wide range of readers focused on regional differences in higher education systems and policies.

English translation © 2017 Taylor & Francis Group, LLC, from the Russian text © 2016 “Vysshiaia shkola ekonomiki. Seriiia Sovremennaia analitika obrazovaniia.” “Dostupnost’ vysshego obrazovaniia v regionakh Rossii,” *Vysshiaia shkola ekonomiki. Seriiia Sovremennaia analitika obrazovaniia*, 2016, no. 8, pp. 4–32.

Alexander Dmitrievich Gromov, Researcher in Training at the Center for Fundamental Studies of the Laboratory for Economic Analysis and Forecasting, National Research University Higher School of Economics, Moscow, Russia; Email: adgromov@hse.ru

Daria Pavlovna Platonova, Head of the Laboratory for University Development, Institute of Education, National Research University Higher School of Economics, Moscow, Russia; Email: dplatonova@hse.ru

Dmitry Sergeevich Semyonov, Rector’s Aide, National Research University Higher School of Economics, Moscow, Russia; Email: dsemyonov@hse.ru

Tatyana Leonidovna Pyrova, Staff Researcher at the Institute of Education, National Research University Higher School of Economics, Moscow, Russia; Email: tlpyrova@edu.hse.ru

Translated by Kenneth Cargill.

Introduction

The problem of accessibility in higher education has not recently received much attention of researchers and experts in the field. This is mainly because the emergence of the market and popular demand have created a situation where higher education in Russia is highly accessible at the national level in comparison with other countries.

According to an OECD report, Russia together with Canada are now among the countries with the highest rates of people with higher education. For example, 54 percent of people between the ages of 25 and 64 have a university degree. Among those between the ages of 25 and 34 it is 58 percent, and among those between 55 and 64 it is 50 percent (Education at a Glance 2015). According to the Human Development Report international ranking, one of the components of which is an education index (the ratio of the estimated number of years spent on secondary education and university education to the actual number of years), Russia ranks 50th among 188 countries and is classed among the group of countries with “high human potential” (ibid).

The high level of accessibility of higher education in modern Russia can partly be attributed to historical reasons. After 1917, an official policy was adopted to radically expand access to higher education. Despite the fact that the success of these efforts can be estimated in different ways (Dmitriev 2012; Saprykin 2009), on the whole, higher education became much more accessible to representatives of non-privileged social strata, including women. Nevertheless, by the end of the 1980s no more than 25 to 30 percent of the country’s population had higher education even by the most optimistic estimates (Dmitriev 2012).

Between 1989 and 2014, the number of people with university degrees more than doubled (Regiony Rossii 2015). At the same time, the total number of universities significantly increased during this time from 514 in 1991 to 896 in 2015, and a private education sector was established (accounting for 41 percent of the total number of universities). A total of 32 percent of young people between the ages of 17 and 25 are enrolled in higher education programs (Rosstat 2015). In recent years, education policy has been largely concentrated

on ensuring the quality of higher education. Measures to counter pseudoeducation have led to a correction in the overall number of institutions of higher education.

There are at least two reasons why the accessibility of higher education deserves careful attention, including why we should study how it differs across regions. First of all, access to higher education determines the opportunities that are available to develop human capital, which requires that the population be highly educated. Secondly, the current discussion of the accessibility of higher education at the Russian national level ignores the differentiation that exists within the country. However, the absence of any discussion of the regional differentiation in accessibility, and in particular any consideration of the geography of Russia and especially the density of its university network, can lead educational policymakers to underestimate such important social processes as migration, urbanization, and social mobility. In other words, ignoring interregional differences in the accessibility of higher education has serious risks.

This article presents the results of an assessment of how the Russian regions differ in terms of the accessibility of higher education. We have focused on three aspects that seem to be key to research in the field of higher education and that factor into further sectoral policymaking at both the federal and regional levels:

1. Availability of admission slots
2. Affordability
3. Geographic accessibility

When ensuring that national university systems generate a robust supply of admission opportunities for prospective students, the state performs a proactive role in fostering the socio-economic development momentum in individual regions, industries, and the academia itself by facilitating the influx of extra financial resources and the accumulation of human capital. The state also acts as a regulator that defines the “rules of the game” in this area, including with regard to ensuring access to quality education.

In the section devoted to an analysis of the affordability of higher education, we focus on the range of tuition costs and the inequality of educational opportunities in society.

It is hard to overestimate the significance of the factor of geographical accessibility. In a situation where the population has low overall mobility and there is a shrinking number of areas where human capital is needed, it becomes very important to provide physical access to places where people can increase their personal chances of career success.

The focus of this article is to differentiate the constituent entities of the Russian Federation by the level of access to higher education in these areas. We will first describe the analytical framework and then present an empirical analysis of the level of accessibility of higher education in the Russian regions through three lenses. We present the methodology and results of our calculations in the form of ranked lists of regions by each aspect of analysis.

This study uses data provided by Rosstat as well as data from the Unified Information System of the Ministry of Education and Science for 2014. Data on the distance between cities were obtained using the Google Maps mapping service.

Analytical framework

The growth in the number of people who have received (or are receiving) higher education is often referred to as the massification of higher education, or the transition from elitist education to universal education (Trow 1974). According to Trow, as we continue to transition to a system of higher education that is accessible to more than 50 percent of the young people in a relevant age cohort, the functions of education are also changing. It has moved from performing a function that reproduced elites to preparing the entire population for social and technological changes.

Only a few studies have so far been published in Russia that are devoted to the question of the accessibility of higher education. For example, the sociologists D.L. Konstantinovskiy (Konstantinovskiy 1999) and V.I. Chuprov (Chuprov 1998) studied this issue at the turn of the 2000s. The Independent Institute of Social Policy in Russia

conducted the “Analysis of the Accessibility of Higher Education to Socially Vulnerable Groups” large-scale research project between 2001 and 2004. An extensive qualitative study was conducted, within the framework of this project, including more than 90 expert interviews with staff, university administrators, and matriculating students and their families (Omelchenko 2000–2001). Qualitative data were supplemented by quantitative indicators (Shishkin 2005).

The authors of these studies identified vulnerable groups and problems specific to the Russian situation related to the accessibility of education, which, in turn, have led to a situation of inequality in education. Affordability and school preparation were identified as specific Russian problems. Some studies have also noted the role that the factors of geographic accessibility and the level of school preparation play in an assessment of the accessibility of higher education (Starkova 2010).

This study proposes to assess the accessibility of higher education by considering three factors: the supply of admission slots, affordability, and geographic accessibility.

We will consider the provision of places for students at universities as the first criterion in our comparison of the accessible higher educational offerings between regions. Considered in the broadest sense, the provision of a sufficient number of slots for students allows all members of society who have the desire and the necessary level of preparation to obtain higher education. McCowen (2007) believes that this criterion together with ensuring the ability to get an education at an educational institution regardless of such individual circumstances as nationality, religion, health, social group, etc., constitute the basis for equality of access.

In measuring the number of seats that are available, we paid attention not only to general indicators, but we also considered differences in the accessibility of quality education for applicants in the regions. Given a mass higher education environment in which there is a large number of available places at universities that is approaching satisfying the demand of potential students, the differences in access are not manifested in the number of opportunities to receive an education, but in the quality of the places that different groups in the population compete for. In other words, some may find

that they have limited access to certain better-quality educational programs.

The second factor that we identified that influences the ability to obtain an education is affordability. Usually, this is understood as the level of one's financial means while taking into account the cost of education, alternative costs, etc. Following Usher and Medow (2010), we considered affordability separately from the general concept of accessibility. Affordability includes the cost of tuition as well as indirect costs and opportunity costs that together influence the decisions that members of the population make about whether or not to pursue a higher education and, as a consequence, the overall reach of higher education.

We also focused on the complex factor of geographic remoteness and assessed geographic accessibility as a separate category. A number of studies have shown that in addition to the financial costs incurred at university, the distance to the university (the geographical “density” of the higher education network) is one of the most important factors affecting enrollment at institutions of higher education (Frenette 2009; Pignini 2016). The identification of this aspect of accessibility as a separate category is consistent with the traditional importance that the geographic factor has been given in Russia. Geographic accessibility is evaluated by weighing two aspects: the costs associated with relocation (the cost of moving and renting housing, the costs of dividing a family into two households, the costs of traveling home, etc.) and the “neighborhood effects” (the impact that a university has on the environment, social relations, the development of electronic communications, etc.; Spiess 2010).

Results of the assessment of the accessibility of higher education in the Russian regions

Availability of admission slots

When calculating the availability of slots (at both public and private institutions of higher education), we determined that the basic indicator should measure how well young people in the relevant age cohort are able to access higher education. Thus, we used the ratio

of the number of students at regional higher educational institutions to the population of the region between the ages of 17 and 25 as an indicator that characterizes the sufficiency of intake capacity at regional universities.

Overall, 33 percent of Russian youth have access to higher education programs, but the situation in the regions varies greatly (Table 1, Figure 1). Thus, young people between the ages of 17 and 25 have access to the greatest number of slots at universities in Kursk Region (49.6 percent), Moscow Region (49.2 percent), and Tomsk Region (46.4 percent). The large number of available slots at higher educational institutions in Kursk Region, where about one percent of all students in Russia are enrolled, can be explained by the relatively large network of universities while taking into account the population of the region. Kursk Region has 14 institutions of higher education, and enrollments at these institutions vary from 380 to 6,100 students.

In almost half of the regions, less than 28 percent of young people have access to higher education. Obtaining a higher education is very difficult in Nenets Autonomous District (where there are no universities) and in Chukotka Autonomous District. The same situation is also true of several other regions, including the Republic of Dagestan, Altai Republic, Republic of Chechnya, Republic of Ingushetia, Republic of Tyva, and Yamalo-Nenets Autonomous District.

We used the share of freshmen at regional higher education institutions who enrolled with an average Unified State Exam (USE) score of 70 as an indicator characterizing the quality of education in a particular region. The average score on the USE is not only an indicator of the selectivity of the institution, but it is also an indirect indicator of the quality of education. That is, it is assumed that the more students with high test scores who seek to enter a particular institution, the better the quality of the education that can be obtained there.

Among the territories with the most opportunity for matriculating at highly competitive, “better-quality” institutions are St. Petersburg, Moscow, Tomsk, and Sverdlovsk Regions, whereas 29 Russian constituent entities lack higher education institutions where the average USE passing score is more than 70 (Table 2; Figure 2).

Table 1

Ranking of the Regional Systems of Higher Education by the Accessibility of Admission Opportunities

	Number of slots	Number of people between the ages of 17 and 25	Coverage, percent	Place
Russian Federation	5,209,019	15,854,942	32.9	—
Kursk Region	55,736	112,258	49.6	1
Moscow and Moscow Region	935,117	1,900,725	49.2	2
Tomsk Region	65,115	140,431	46.4	3
St. Petersburg and Leningrad Region	328,350	761,459	43.1	4
Tyumen Region	70,632	164,370	43.0	5
Orlov Region	33,486	81,488	41.1	6
Omsk Region	88,669	221,628	40.0	7
Magadan Region	5,240	13,566	38.6	8–9
Voronezh Region	98,965	256,565	38.6	8–9
Republic of Tatarstan	170,087	443,123	38.4	10
Novosibirsk Region	117,041	311,090	37.6	11
Khabarovsk Region	64,089	174,083	36.8	12
Republic of Mordovia	31,926	87,066	36.7	13
Belgorod Region	59,208	163,316	36.3	14
Astrakhan Region	42,901	118,878	36.1	15
Rostov Region	171,610	479,846	35.8	16
Samara Region	119,059	337,150	35.3	17
Udmurt Republic	52,532	153,302	34.3	18
Smolensk Region	33,592	99,989	33.6	19
Chelyabinsk Region	124,913	372,849	33.5	20
Saratov Region	90,799	272,909	33.3	21
Sverdlovsk Region	146,428	446,203	32.8	22
Ryazan Region	38,461	118,148	32.6	23
Republic of North Ossetia-Alania	29,680	91,596	32.4	24
Ulyanovsk Region	42,460	131,957	32.2	25–27
Nizhny Novgorod Region	111,139	345,465	32.2	25–27
Yaroslavl Region	39,610	123,188	32.2	25–27

(Continued)

Table 1

(Continued)

	Number of slots	Number of people between the ages of 17 and 25	Coverage, percent	Place
Kirov Region	38,524	119,907	32.1	28–29
Irkutsk Region	89,798	280,025	32.1	28–29
Bryansk Region	39,503	125,519	31.5	30
Chuvash Republic	42,575	135,499	31.4	31
Penza Region	42,925	138,743	30.9	32
Ivanovo Region	33,090	108,393	30.5	33
Republic of Buryatia	35,008	116,500	30.0	34–35
Tambov Region	33,106	110,256	30.0	34–35
Krasnoyarsk Region	96,115	324,794	29.6	36
Komi Republic	24,500	83,242	29.4	37
Orenburg Region	62,347	213,636	29.2	38–39
Altai Region	69,252	237,310	29.2	38–39
Kurgan Region	23,766	82,758	28.7	40
Volgograd Region	79,187	279,435	28.3	41
Mari El Republic	20,411	72,578	28.1	42–43
Republic of Kalmykia	9,212	32,760	28.1	42–43
Republic of Karelia	16,579	59,342	27.9	44
Novgorod Region	15,985	57,747	27.7	45–47
Republic of Adygea	14,284	51,672	27.6	45–47
Stavropol Region	97,844	354,340	27.6	45–47
Tula Region	39,200	142,747	27.5	48
Republic of Bashkortostan	126,661	462,837	27.4	49
Tver Region	33,983	125,748	27.0	50–51
Kaliningrad Region	30,166	111,724	27.0	50–51
Kostroma Region	16,559	61,975	26.7	52
Primorsky Region	60,646	229,242	26.5	53
Perm Region	72,405	274,914	26.3	54
Lipetsk Region	28,549	109,264	26.1	55
Vladimir Region	34,946	137,808	25.4	56
Murmansk Region	20,355	80,508	25.3	57
Kaluga Region	24,813	99,301	25.0	58

(Continued)

Table 1

(Continued)

	Number of slots	Number of people between the ages of 17 and 25	Coverage, percent	Place
Sevastopol and the Republic of Crimea	57,444	232,123	24.7	59–61
Krasnodar Region	143,550	580,706	24.7	59–61
Kemerovo Region	67,294	272,716	24.7	59–61
Vologda Region	28,354	115,848	24.5	62
Karachay-Cherkess Republic	14,089	57,752	24.4	63–64
Republic of Sakha (Yakutia)	30,422	124,869	24.4	63–64
Kamchatka Region	8,179	33,933	24.1	65
Amur Region	21,928	92,225	23.8	66–67
Pskov Region	16,004	67,341	23.8	66–67
Arkhangelsk Region	25,685	108,872	23.6	68
Zabaykalsky Region	30,164	138,400	21.8	69
Khanty-Mansiysk Autonomous District	34,503	164,592	21.0	70
Jewish Autonomous Region	3,977	19,475	20.4	71
Republic of Khakassia	10,651	54,517	19.5	72
Sakhalin Region	9,499	49,287	19.3	73
Kabardino-Balkar Republic	20,818	115,473	18.0	74
Republic of Dagestan	86,402	482,760	17.9	75
Altai Republic	3,488	20,483	17.0	76
Republic of Chechnya	35,070	209,749	16.7	77
Republic of Ingushetia	10,949	72,783	15.0	78
Tyva Republic	5,330	35,735	14.9	79
Yamalo-Nenetsk Autonomous District	5,602	53,121	10.5	80
Chukotka Autonomous District	478	4,690	10.2	81
Nenets Autonomous District	0	4,320	0.0	82



Figure 1. Accessibility of Admission Opportunities across the Regional Systems of Higher Education

Table 2

Ranking of the Regional Systems of Higher Education by the Accessibility of Highly Competitive Admission Opportunities

	Number of slots (in prestigious programs)	Share, percent	Place
Russian Federation	1,246,916	24.0	—
St. Petersburg and Leningrad Region	212,014	64.7	1
Tomsk Region	37,191	56.9	2
Sverdlovsk Region	69,250	47.2	3
Moscow and Moscow Region	355,774	38.1	4
Novosibirsk Region	41,533	35.6	5
Kaluga Region	8,503	34.2	6
Samara Region	39,617	33.3	7
Rostov Region	55,480	32.1	8
Tyumen Region	22,616	31.9	9
Nizhny Novgorod Region	33,804	30.8	10
Kaliningrad Region	8,416	27.7	11–12
Perm Region	20,398	27.7	11–12
Voronezh Region	27,635	27.6	13
Saratov Region	25,021	27.5	14
Yaroslavl Region	10,449	26.3	15
Republic of Tatarstan	37,961	22.3	16
Krasnodar Region	31,049	21.5	17
Ryazan Region	7,188	18.7	18
Smolensk Region	5,817	17.3	19
Lipetsk Region	4,876	17.0	20–21
Republic of Bashkortostan	21,591	17.0	20–21
Omsk Region	12,958	14.6	22
Arkhangelsk Region	3,572	13.8	23
Volgograd Region	10,627	13.4	24
Ivanovo Region	4,325	13	25
Kursk Region	7,042	12.8	26
Novgorod Region	1,976	12.3	27
Vladimir Region	4,249	12.1	28
Tver Region	4,089	11.9	29
Tula Region	4,658	11.7	30

(Continued)

Table 2

(Continued)

	Number of slots (in prestigious programs)	Share, percent	Place
Altai Region	7,987	11.5	31–32
Orenburg Region	7,016	11.5	31–32
Kirov Region	4,257	11.1	33–34
Astrakhan Region	4,780	11.1	33–34
Stavropol Region	10,498	10.7	35
Udmurt Republic	5,218	9.9	36
Kemerovo Region	6,562	9.8	37
Irkutsk Region	8,663	9.6	38
Republic of Karelia	1,482	8.9	39
Republic of North Ossetia- Alania	2,293	7.7	40
Vologda Region	2,163	7.6	41
Zabaykalsky Region	2,262	7.5	42
Chelyabinsk Region	9,312	7.4	43
Republic of Dagestan	5,358	6.3	44
Khabarovsk Region	3,653	5.7	45
Bryansk Region	2,021	5.1	46
Krasnoyarsk Region	4,586	4.8	47
Chuvash Republic	1,089	2.6	48
Primorsky Region	1,259	2.1	49
Penza Region	787	1.8	50
Khanty-Mansiysk Autonomous District	515	1.5	51
Amur Region	0	0	52–80
Belgorod Region	0	0	52–80
Jewish Autonomous Region	0	0	52–80
Kabardino-Balkar Republic	0	0	52–80
Kamchatka Region	0	0	52–80
Karachay-Cherkess Republic	0	0	52–80
Kostroma Region	0	0	52–80
Kurgan Region	0	0	52–80
Magadan Region	0	0	52–80
Murmansk Region	0	0	52–80

(Continued)

Table 2

(Continued)

	Number of slots (in prestigious programs)	Share, percent	Place
Orlov Region	0	0	52–80
Pskov Region	0	0	52–80
Republic of Adygea	0	0	52–80
Altai Republic	0	0	52–80
Republic of Buryatia	0	0	52–80
Republic of Ingushetia	0	0	52–80
Republic of Kalmykia	0	0	52–80
Komi Republic	0	0	52–80
Mari El Republic	0	0	52–80
Republic of Mordovia	0	0	52–80
Republic of Sakha (Yakutia)	0	0	52–80
Tyva Republic	0	0	52–80
Republic of Khakassia	0	0	52–80
Sakhalin Region	0	0	52–80
Tambov Region	0	0	52–80
Ulyanovsk Region	0	0	52–80
Republic of Chechnya	0	0	52–80
Chukotka Autonomous District	0	0	52–80
Yamalo-Nenetsk Autonomous District	0	0	52–80
Sevastopol and the Republic of Crimea ¹	—	—	—
Nenets Autonomous District ²	—	—	—

Here it is important to note the corporate-sponsored projects of a number of regions that recruit students for the best universities in other regions. Thus, the Republic of Sakha (Yakutia) short-listed a group of students to fill more than 900 slots at 140 institutions of higher education in other parts of the country (mainly in places with which the region has direct connecting flights) during the 2016–2017 academic year (Russian Ministry of Education and Science 2016).

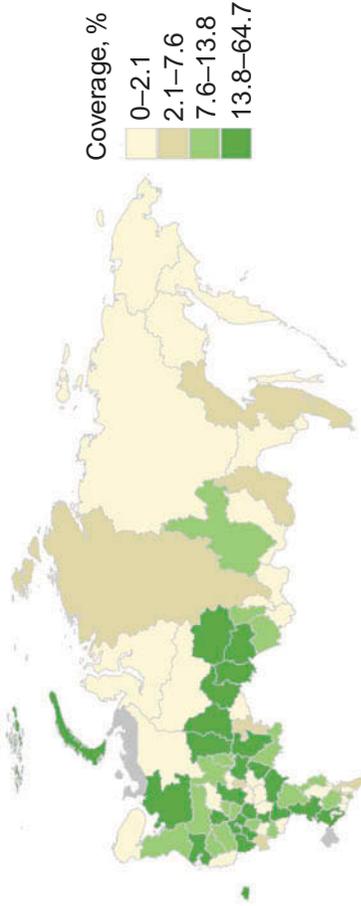


Figure 2. Accessibility of Highly Competitive Admission Opportunities across the Regional Systems of Higher Education

Map of Russia depicting the individual regions

Legend: Coverage, % = 0-23.6 (White), 23.6-24.7 (Gray), 24.7-29.2 (Purple), 29.2-32.2 (Pink), 32.2-49.6 (Burgundy)

Affordability

The study by Usher and Medow (2010) mentioned above divides affordability into three indicators, each of which is made up of the following subindicators: the cost to study at the institution (the cost per year of tuition, room, board, textbooks, and other educational materials), the ability of the population to pay tuition, and state support (grants, educational loans, and tax benefits).

We have examples of these financial costs for various countries. For example, in the United States, the annual report on college pricing uses the following indicators: tuition fees, expenses for room and board (for students living in campus housing and those who live off campus), textbooks and office supplies, transportation, other expenses. Affordability is calculated on the basis of the average education expenditures as a fraction of average household income (College Board 2015).

The Russian education market is characterized by its own specific situation. The Russian funding mechanism operates through the distribution of admission quotas for higher education institutions and specific fields of study. In addition, the education system utilizes a limited mechanism for allocating reserved slots (admission quotas). This is approximately comparable to the practice in the West where the state issues scholarships to cover tuition.¹

The total costs of obtaining higher education consist of several indicators. The average cost of education for two semesters at institutions of higher education in the region was used as the direct cost of tuition. To calculate the ability of students to study on public scholarships, this indicator is multiplied by the share of tuition-paying students out of the total number of students pursuing education in the region.

When students decide to study in another city, they must secure housing. On the one hand, students may compete for a place in a student dormitory (because we believe that dormitory housing costs are comparatively small, we did not factor them in this study). On the other hand, there may be an insufficient amount of student housing. Our study uses an indicator that takes into account the

ability to obtain dormitory housing as well as the cost of housing in the region, which students will need to rent in case they are unable to secure dormitory housing. This indicator is calculated as the cost of the annual rent of a one-room apartment in the region multiplied by the difference between the number of students who need dormitory housing and the number of available places.

In addition to factoring in the cost of tuition, we also must consider living expenses. If these costs are high, then it will be difficult for households to fully support a member of their family studying at university, and this person will be more inclined to choose an alternative life trajectory than higher education or to choose poorer quality educational programs that can be more easily combined with an individual work schedule. The amount of the minimum living wage multiplied by 12 months is used as the indicator of necessary living expenses.

To assess the financial means of the regional population, these indicators were taken in relation to the average regional annual income per household member.

The final indicator is calculated as the weighted sum of the obtained relations. A weight of 0.5 was directly assigned to the calculation of the education costs, and a weight of 0.25 was assigned to housing and other expenses. Thus, our affordability indicator is calculated according to the following formula:

$$F = ((0.5 * S * SP + 0.25A * AO + 0.25PM)/D)*100, \text{ where:}$$

S = the average cost of education for two semesters at institutions of higher education in the region

SP = the share of students paying tuition out of the total number of university students in the region

A = the cost of annual rent for a one-room apartment in the region

AO = the share of students who are unable to secure dormitory housing out of the total number of students requesting such housing

PM = the amount of the minimum living wage multiplied by 12 months

D = the average regional annual income of households per member of the household

The cheapest education costs can be found in the Republic of Ingushetia, Altai Republic, Republic of Adygea, Republic of Chechnya, and Republic of Tyva. The top five most expensive regions for tuition include Yamal-Nenets Autonomous District, Moscow Region, Kamchatka Region, Tyumen Region, and Nizhny Novgorod Region (Table 3; Figure 3).

Table 3

Ranking of the Regions by Level of Affordability of Higher Education

	Education, RUB	Housing, RUB	Other, RUB	Income, RUB	General indicator	Place
Russian Federation	52,168	28,425	98,808	274,681	21.1	—
St. Petersburg and Leningrad Region	46,576	12,220	101,133	391,474	13.2	1
Amur Region	38,913	0	114,468	321,290	15.0	2
Vologda Region	40,898	742	102,936	299,339	15.5	3
Magadan Region	39,852	0	184,980	420,380	15.7	4
Komi Republic	39,950	0	129,804	325,834	16.1	5
Murmansk Region	59,604	0	139,524	399,942	16.2	6
Republic of Tatarstan	48,876	30,879	83,856	324,916	16.3	7
Nizhny Novgorod Region	61,190	27,315	89,448	365,039	16.4	8–9
Republic of Bashkortostan	48,098	12,718	86,808	298,027	16.4	8–9
Republic of Sakha (Yakutia)	54,459	34,318	159,984	455,117	16.7	10
Kemerovo Region	42,278	0	90,828	253,654	17.3	11
Yaroslavl Region	44,260	11,264	87,600	268,025	17.5	12–13
Tomsk Region	38,688	25,126	104,292	295,308	17.5	12–13
Udmurt Republic	44,551	13,058	87,888	268,981	17.7	14
Krasnoyarsk Region	40,838	21,574	110,232	299,084	17.8	15

(Continued)

Table 3

(Continued)

	Education, RUB	Housing, RUB	Other, RUB	Income, RUB	General indicator	Place
Perm Region	51,077	24,951	98,220	314,678	17.9	16
Yamalo-Nenetsk Autonomous District	92,526	0	170,892	493,255	18.0	17
Sakhalin Region	50,437	23,601	146,556	374,080	18.1	18
Primorsky Region	43,160	6,783	128,196	303,722	18.2	19–20
Ulyanovsk Region	41,959	8,842	87,576	247,471	18.2	19–20
Arkhangelsk Region	39,253	9,265	135,876	305,999	18.3	21
Orlov Region	32,603	38,139	88,008	260,284	18.4	22
Khanty-Mansiysk Autonomous District	59,143	33,291	145,620	401,543	18.5	23
Sverdlovsk Region	53,250	14,986	96,300	292,844	18.6	24
Kostroma Region	33,569	3,167	91,992	213,755	19.0	25
Ivanovo Region	33,863	14,246	98,040	235,596	19.1	26
Mari El Republic	30,717	1,054	86,412	192,008	19.4	27–28
Lipetsk Region	38,635	7,500	84,744	218,258	19.4	27–28
Khabarovsk Region	55,949	66,280	137,940	404,695	19.5	29–30
Moscow and Moscow Region	78,258	30,173	144,841	424,066	19.5	29–30
Republic of Karelia	40,025	564	116,184	249,318	19.7	31–32
Jewish Autonomous Region	34,592	0	128,040	249,655	19.7	31–32
Novgorod Region	55,723	22,608	94,980	289,487	19.8	33
Republic of Adygea	24,361	56,488	85,968	240,258	19.9	34–35
Astrakhan Region	48,106	5,708	85,440	234,809	19.9	34–35
Tver Region	45,942	3,255	99,384	242,488	20.1	36
Chelyabinsk Region	58,447	13,759	95,328	280,303	20.2	37–38
Omsk Region	38,993	11,863	87,036	218,777	20.2	37–38

(Continued)

Table 3

(Continued)

	Education, RUB	Housing, RUB	Other, RUB	Income, RUB	General indicator	Place
Samara Region	47,339	26,962	95,448	266,321	20.4	39
Vladimir Region	49,852	754	95,448	239,459	20.5	40
Penza Region	39,602	2,980	82,068	196,363	20.9	41
Kurgan Region	53,065	0	91,260	235,397	21.0	42–43
Kirov Region	40,881	35,894	91,692	249,605	21.0	42–43
Volgograd Region	47,053	29,534	94,812	259,001	21.1	44–45
Republic of Kalmykia	30,340	17,167	93,000	137,957	31.0	72
Tyumen Region	61,713	25,949	101,640	201,959	31.1	73
Republic of Buryatia	44,350	35,614	99,156	171,190	32.6	74
Republic of Mordovia	35,578	24,371	83,964	135,697	33.1	75
Saratov Region	49,720	23,311	83,184	149,677	34.4	76
Tyva Republic	26,574	87,238	103,488	153,109	39.8	77
Republic of Chechnya	25,355	101,434	81,252	123,865	47.1	78
Republic of Ingushetia	9,476	26,560	88,752	60,833	55.2	79
Republic of Dagestan	34,020	37,812	89,436	88,342	55.3	80
Sevastopol and the Republic of Crimea ^a	—	—	—	—	—	—
Nenets Autonomous District ^b	—	—	—	—	—	—

^a Data not available.^b There are no institutions of higher education.

In some regions, the indicator for the cost of housing is zero, which means that all students are given places in dormitories. The regions with the highest cost of living for university students are Kamchatka Region, Republic of Chechnya, Republic of Tyva, Khabarovsk Region, and Republic of Adygea.

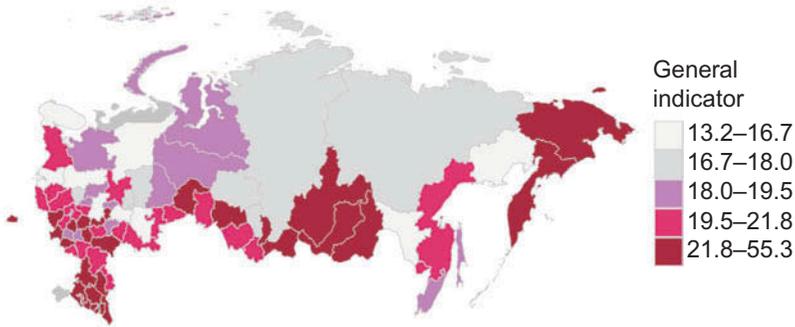


Figure 3. The Affordability of the Regional Systems of Higher Education

Higher education in the St. Petersburg region is the most affordable: on the one hand, institutions of higher education in this area have a low average cost of tuition, a large number of public scholarship positions, and a relatively large supply of dormitory housing; and on the other hand, the population has a relatively high level of income (9th among the regions), which makes the financial burden of tuition on households the lowest among the Russian regions. Amur Region has the second most affordable higher education as well as a large supply of dormitory housing. The tuition costs are also fairly low. Moreover, according to a monitoring study of the effectiveness of universities that was published in 2016, the Amur Region does not have any private universities. Higher education in the Republic of Dagestan, Republic of Ingushetia, and Republic of Chechnya is the least affordable.

Geographical accessibility

It is hard to overestimate the significance of the factor of geographical accessibility in the education system of the largest country in the world.

The intensity of educational migration flows between two geographical regions depends on the amount of demand for

educational services, the number of educational services provided by educational institutions in these places, as well as on their distance from students. When evaluating the significance of the geographical factor in this study, we considered interregional differences in the distances that residents had to cross from their place of residence to the educational institution. We characterized the volume of accessible educational services in the region and the demand for them using a different indicator that measured the population's access to higher education.

Both specific buildings as well as major geographical units may be considered as geographical features that can be used to measure distance. The individual districts inside the Russian regions were used in this study to evaluate geographical accessibility.

Distance can be understood as both the direct distance in kilometers as well as the time required to travel to the relevant geographical features or the associated travel costs. In addition, the distance can be calculated in several ways: as a straight line between two coordinates without taking into account existing routes, as a single route (following roads or railways, waterways or aircraft trajectories) or as several routes that are linked together. In our study, we used distances calculated along roads in kilometers for our accessibility calculations since this information was readily accessible. The distance was assumed to be zero when it was possible to obtain a higher education without leaving one's district.

The minimum distance from the regional center to the nearest inhabited place with a university or branch campus within the region averaged over all centers in the region was used as an indicator of intraregional geographical distance from universities.

It is the easiest for the residents of Moscow Region, Republic of Ingushetia, and Karachay-Cherkess Republic to reach institutions of higher education. Among the regions with the lowest level of geographical accessibility are Khabarovsk Region, Magadan Region, Republic of Buryatia, Zabaykalsky Region, and Sakhalin Region (Table 4; Figure 4).

Table 4

Ranking of the Regional Systems of Higher Education by Level of Geographical Accessibility

	Average distance, km	Place
Russian Federation	107	—
Moscow and Moscow Region	8	1
Republic of Ingushetia	22	2
Karachay-Cherkess Republic	25	3–4
Republic of Adygea	25	3–4
Kaliningrad Region	27	5
Krasnodar Region	28	6
Vladimir Region	31	7
Republic of North Ossetia-Alania	32	8
St. Petersburg and Leningrad Region	35	9
Chuvash Republic	36	10
Kabardino-Balkar Republic	41	11–12
Stavropol Region	41	11–12
Kemerovo Region	42	13
Lipetsk Region	45	14–15
Udmurt Republic	45	14–15
Republic of Tatarstan	46	16
Penza Region	47	17–19
Republic of Chechnya	47	17–19
Sverdlovsk Region	47	17–19
Nizhny Novgorod Region	48	20–22
Ivanovo Region	48	20–22
Smolensk Region	48	20–22
Chelyabinsk Region	49	23–25
Yaroslavl Region	49	23–25
Rostov Region	49	23–25
Primorsky Region	51	26
Orlov Region	53	27–28
Bryansk Region	53	27–28
Tambov Region	54	29–30
Kaluga Region	54	29–30
Tula Region	61	31
Voronezh Region	63	32–34

(Continued)

Table 4

(Continued)

	Average distance, km	Place
Republic of Mordovia	63	32–34
Belgorod Region	63	32–34
Novgorod Region	64	35–36
Yamalo-Nenetsk Autonomous District	64	35–36
Republic of Bashkortostan	68	37
Republic of Dagestan	69	38–39
Astrakhan Region	69	38–39
Mari El Republic	70	40
Tyumen Region	72	41
Samara Region	73	42
Ulyanovsk Region	78	43
Orenburg Region	79	44–45
Kursk Region	79	44–45
Perm Region	80	46
Republic of Khakassia	85	47
Pskov Region	86	48
Volgograd Region	89	49
Saratov Region	90	50–51
Tver Region	90	50–51
Altai Region	97	52
Kurgan Region	98	53
Murmansk Region	100	54
Omsk Region	119	55
Ryazan Region	121	56
Khanty-Mansiysk Autonomous District	127	57
Novosibirsk Region	130	58
Amur Region	140	59
Kirov Region	143	60
Jewish Autonomous Region	145	61
Krasnoyarsk Region	152	62
Irkutsk Region	160	63
Republic of Kalmykia	161	64
Komi Republic	165	65
Tomsk Region	169	66

(Continued)

Table 4

(Continued)

	Average distance, km	Place
Vologda Region	176	67
Kostroma Region	205	68
Tyva Republic	210	69
Altai Republic	212	70
Arkhangelsk Region	235	71
Kamchatka Region	239	72
Republic of Karelia	278	73
Republic of Sakha (Yakutia)	291	74
Sakhalin Region	313	75
Zabaykalsky Region	331	76
Republic of Buryatia	339	77
Magadan Region	362	78
Khabarovsk Region	474	79
Chukotka Autonomous District ¹	—	—
Sevastopol and the Republic of Crimea ^a	—	—
Nenets Autonomous District ^b	—	—

^a Data not available.^b There are no institutions of higher education.

Students must cross the longest distance in Khabarovsk Region, Russia's third largest territory. The largest regions in Russia, Krasnoyarsk Region, and the Republic of Sakha (Yakutia), rank 62nd and 74th, respectively, out of all 79 regions analyzed in terms of their geographical accessibility. Overall, the low geographical accessibility of higher education is clearly related to the physical expanse of the region. It is difficult to obtain a higher education in the large regions due to the lack of nearby institutions of higher education (in either a potential student's city of residence or in neighboring cities).

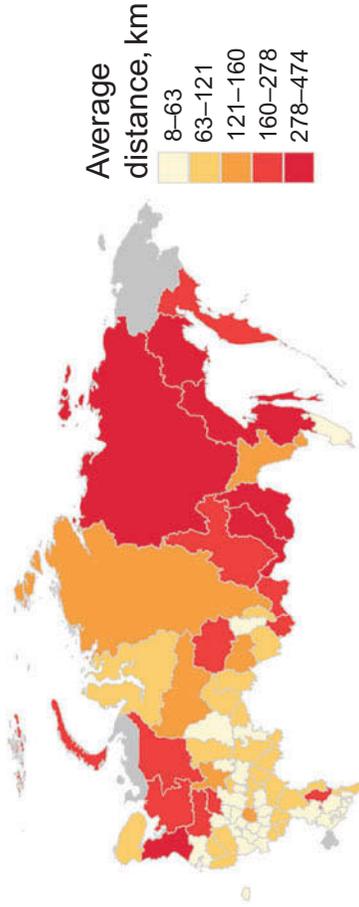


Figure 4. The Geographic Accessibility of the Regional Systems of Higher Education

Conclusion

In this study, we assessed the accessibility of higher education by considering the following key factors: the availability of admission slots for students, affordability, and geographical accessibility. Our assessments show that there is a high level of regional diversity.

Thus, our analysis of universities' student intake capacity by territory, including in the segment of the most sought-after and competitive educational offerings, indicates a broad variation in the level of development of Russia's regional networks of higher education institutions. The accessibility indicators for higher education range from 49.6 to 0 percent. In only 21 regions is the accessibility indicator higher than 32.9 percent, which is the average value for Russia. The regions with the least accessibility are not just sparsely populated, such as the Nenets Autonomous District or the Chukotka Region, but they are also such major regions as the Republic of Chechnya, Republic of Ingushetia, Republic of Tyva, and Yamalo-Nenets Autonomous District.

Here it is important to pay attention to the fact that the number of slots that universities can offer students is not directly related either to average per capita monetary incomes or to the number of people employed in the economy. There is a certain connection between the accessibility of higher education and the structure of the economy. (The oil and gas as well as mineral extraction industries tend to predominate in places with low accessibility). However, this link is weak. Most likely, the availability of admission opportunities at universities is determined by the general attractiveness of the region (in the case of Moscow and St. Petersburg) and the availability of a developed network of universities (Tomsk Region and Kursk Region).

The results of the assessment of the accessibility of quality education show that in more than one third of the regions there are no institutions of higher education where the average USE score of admitted freshmen exceeds 70. In addition, in three regions the likelihood of entering a comparatively strong university is high: in these places more than 40 percent of students

study in highly selective universities. Of course, the connection between limited access to quality higher education and concentration within the market for higher education should be considered. Students rarely enroll with high USE scores in regions with small numbers of institutions of higher education. They occur more frequently among matriculating students who live in areas with a large network of institutions of higher education.

In the above assessment of affordability, it is important to distinguish not only tuition costs, but also the entire set of accompanying expenditures, including for students on public scholarships. Lack of financial support, a poorly developed university infrastructure, the high cost of direct education, and a limited number of public scholarships available in a given region can limit access to higher education for applicants from low-income families.

The North Caucasian republics have the least accessible higher education because they lack developed infrastructure and have relatively high housing prices. The families of university students in the St. Petersburg region, Amur Region, and Vologda Region bear the smallest financial burden. This is explained by the low average cost of annual tuition, the large number of available public scholarships, and the large amount of dormitory housing.

Underestimating the affordability factor entails significant risks. A situation where the ability to obtain higher education depends on the income level of the population can lead to the marginalization of entire groups within the population and the degradation of regions outside the capitals. It is critically important when developing the regional systems of higher education and individual institutions of higher education to pay special attention to minimizing the indirect costs of students and, in particular, housing costs.

Higher education in the geographically expansive regions is the least accessible because of the challenge of overcoming geographical distances. This reality corresponds to our intuitive expectations. An analysis of the geographical accessibility of higher education in the regions has shown that universities are the easiest to reach in the Republic of Ingushetia, Republic of

Adygea, and Karachay-Cherkess Republic, and they are the most remote in Khabarovsk Region. The “geographical inequality” of access should be considered while taking into account the low physical mobility of the population, especially when developing measures to restructure the network of institutions of higher education.

Note

1. Although a student loan system exists in Russia, it is still fairly underdeveloped. Between 2007 and 2013, only 1,900 student loans were issued, which translates to less than 300 per year (Krasnova and Verenikin 2015).

References

1. Dmitriev, A.N. (ed.). *Raspisaniye peremen: Ocherki istorii obrazovatel'noy i nauchnoy politiki v Rossiyskoy imperii — SSSR (konets 1880-kh — 1930-e gody)*. Moscow: Novoye literaturnoye obozreniye, 2012.
2. Konstantinovskiy, D.L., and Shubkina, V.N. (ed.). *Dinamika neravenstva. Rossiyskaya molodezh' v menyayushchemsya obshchestve: orientatsii i puti v sfere obrazovaniya (ot 1960-kh godov k 2000 godu)*. Moscow: Editorial URSS, 1999.
3. Krasnova, A., and Verenikin, A. “Nevygodnye investitsii: pochemu v Rossii ne populyamy kredity na uchebu.” RBK, 2015. <http://money.rbc.ru/news/561546659a7947095c7dc48c>.
4. Ministerstvo obrazovaniya Respubliki Sakha (Yakutiya). “Minobr. Abiturientu. Kak postupit' v tsentral'nyy vuz?” 2016. <https://minobr.sakha.gov.ru/news/front/view/id/2649605>.
5. Omelchenko, E.L. “*Chego stoit prokhodnoy ball?*” *Differentsiatsiya sotsial'nogo prostanstva i dostupnost' vysshego obrazovaniya dlya molodezhi provintsial'noy Rossii*. Fond Forda, grant no. 1005–1656, 2000–2001.
6. *Regiony Rossii. Sotsial'no-ekonomicheskiye pokazateli. 2015*: Moscow: Rosstat, 2015.
7. Saprykin, D.V. *Obrazovatel'nyy potentsial Rossiyskoy Imperii*. Moscow: IJET, 2009.
8. Starkova, E.V. *Dostupnost' vysshego obrazovaniya: otsenka ekspertov*. https://www.hse.ru/data/2010/12/31/1208179750/Starkova_Dostupnostx27_VO.pdf
9. Chuprov, V.I. “Molodezh' v obshchestvennom vosproizvodstve.” *SOTSIS*, 1998, no. 3.
10. Shishkin, S.V. “Dostupnost' vysshego obrazovaniya dlya naseleniya Rossii: chto pokazyvayut rezul'taty issledovaniy.” *Universitetskoye upravleniye*, 2005, vo. 34, no. 1, pp. 80–88.
11. “Education at a Glance.” OECD, 2015. http://www.keepeek.com/Digital-Asset-Management/oecd/education/education-at-a-glance-2015_eag-2015-en#page1.
12. Frenette, M. “Do universities benefit local youth? Evidence from the creation of new universities.” *Economics of Education Review*, 2009, vol. 28, no. 3, pp. 318–328.
13. “Human Development Report. United national development programme.” <http://hdr.undp.org/en/composite/HDI>.
14. McCowan, T. “Expansion without equity: An analysis of current policy on access to higher education in Brazil.” *Higher Education*, 2007, vol. 53, no. 5, pp. 579–598.

15. Pigni, C., and Staffolani, S. “Beyond participation: do the cost and quality of higher education shape the enrollment composition? The case of Italy.” *Higher Education*, 2016, vol. 71, no. 1, pp. 119–42.
16. Spiess, C. K., and Wrohlich, K. “Does distance determine who attends a university in Germany?” *Economics of Education Review*, 2010, vol. 29, no. 3, pp. 470–479.
17. College Board. “Trends in college pricing 2015.” <http://trends.collegeboard.org/college-pricing>.
18. Trow, M. “Problems in the Transition from Elite to Mass Higher Education.” In OECD (ed.). *Policies for Higher Education*. Paris: OECD, 1974, pp. 51–101.
19. Usher, A., and Medow, J. *Global Higher Education Rankings 2010*. Higher Education Strategy Associates, 2005.
20. Usher, A., and Medow, J. *Global Higher Education Rankings 2010*. Higher Education Strategy Associates, 2010.