Inequality of Educational Opportunity in Soviet and Post-Soviet Russia: An Empirical Analysis

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Abstract

This study seeks to assess inequality of educational opportunity (IEO) in Soviet and post-Soviet Russia and measure the impact of specific circumstances. Inequality of opportunity suggests that outcomes significant for everyone or nearly everyone, such as income level, educational attainment or health status, are determined by factors or variables that are beyond individuals' responsibility (so-called circumstances) and by factors for which individuals are deemed responsible (so-called efforts). Inequalities arising from efforts are considered ethically acceptable, while those that are due to circumstances are considered offensive and therefore must be eliminated.

The study uses data from two waves (2006 and 2011) of the Russia Longitudinal Monitoring Survey administered by Higher School of Economics (RLMS-HSE). Research methodology is based on the *ex-ante* approach to equality of opportunity. Three levels of educational attainment are analyzed: secondary school, vocational school, and college.

Inequality of opportunity was lower during the Soviet period than in post-Soviet Russia at all levels of educational attainment, being the lowest at the level of at least secondary school and the highest at the level of at least vocational school. Parental education is the most powerful circumstance in both Soviet and post-Soviet periods, while ethnicity makes no significant contribution to inequality of opportunity. The roles of gender and place of birth are quite important in both periods and vary greatly as a function of educational attainment.

Keywords

circumstances, efforts, individual achievement, inequality of educational opportunity, post-Soviet Russia, Soviet Russia.

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Education is perceived as a fundamental value in nearly all developed societies, while educational inequality — manifested in the dependence of individual achievement on circumstances beyond control (social background in the first place)—is interpreted as a vivid illustration of social injustice. According to the Russian Public Opinion Research Center (VCIOM), the majority of Russians are convinced that a college degree leads to career success and facilitates the achievement of life goals, although the percentage of such respondents has decreased noticeably over the last 11 years (from 76% in 2008 to 58% in 2019).[1] The belief that education has an essential influence on financial wellbeing has become more common since the beginning of the transitional period (70% in 2019 as compared to 47% in 1991). The past three years have seen an increase in the percentage of Russians who believe that higher education has become less accessible to everyone (from 53% in 2016 to 63% in 2019).

Educational inequality has been studied since the early 1950s. Research has been focused on identifying the mechanisms responsible for the maintenance of inequality in education and the factors promoting equalization of educational opportunity. A great contribution to the theoretical framework of inequality of educational opportunity (IEO) was made by the American sociologist Martin Trow [Trow 1973], who predicted the increase in access to higher education. Richard Breen and John H. Goldthorpe [Breen, Goldthorpe 1997] developed a theoretical model of educational decisions that explained the reproduction of IEO and the role of the psychological factor in this process. Theory of cultural reproduction developed by Bourdieu and Passeron [Bourdieu, Passeron 1977] emphasizes the role of cultural and educational differences among social classes in the development of educational inequality.

Empirical research in the field of IEO took a big leap with the development of measurement techniques within the framework of the theory of equal opportunities. This theory suggests that individual achievement such as income level, educational attainment or health status are determined by factors that are beyond individuals' responsibility (so-called circumstances) and by factors for which individuals are deemed responsible (so-called efforts). Theory of equal opportunities initially evolved along the lines of social philosophy — until Roemer proposed a mathematical formalization of the idea, which opened the door to rigorous quantitative methods [Ramos, van de Gaer 2016]. One of the innovative IEO-related studies proposing an advanced technique for inequality measurement was performed by Ferreira and Gignoux [Ferreira, Gignoux 2014].

Russia is a unique case in terms of IEO. Back in the Soviet period, equality of educational opportunity was one of the major goals of so-

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[1] Russian Public Opinion Research Center (2019) *Higher Education: A Social Elevator or a Waste of Time?* https://wciom.ru/index.php?id=236&uid=9808

cial policy which was supposed to be achieved by providing free educational services and ensuring a low level of economic inequality. Soviet propaganda declared this goal achieved, yet findings of Soviet and international researchers indicate that individual achievements were still dependent on social background. The post-Soviet years witnessed a sharp increase in economic inequality and an essential transformation of the education system due to the development of tuition-based programs. Those factors must have exacerbated the inequality of opportunity in education. At the same time, present-day Russia is part of some global trends promoting the equalization of educational opportunity, such as urbanization, advances in information technology, declining family size, and massification of higher education.

This study seeks to assess and compare the inequality of educational opportunity in Soviet and post-Soviet Russia. Scientific novelty of the research consists in applying advanced instruments offered by the theory of equality of opportunity. Research methodology is based on an *ex-ante* approach, indicators of inequality designed for binary outcome variables, and the Shapley decomposition to measure the contribution of individual circumstances.

The article is structured as follows: the first section describes the theoretical framework of IEO research; the second one gives a review of studies assessing the educational opportunity in Soviet and post-Soviet Russia; the third one describes the research methods and data; the fourth one presents the results of calculations and offers a discussion; and the conclusion summarizes the key findings and looks into their practical applications.

1. Theoretical Framework of IEO Research

On the theoretical level, researchers distinguish between primary and secondary effects of IEO [Barone, Ruggera 2018]. Primary effects occur when individual academic achievement correlates directly with family social status. This relationship is explained first of all by the economic factor of social background, specifically by the access of higher-income families to more favorable conditions of prenatal development, child delivery, and early childhood — primarily in terms of nutrition and healthcare which are crucial for cognitive development. Furthermore, there is an impact of cultural and educational resources: because the culture of a learning environment is similar to that of higher-income and better-educated social classes, children from families of high social status adapt easier to the new conditions and their abilities are better recognized and rewarded by teachers.

Secondary effects consist in that the conditional probability of proceeding to the next level of education for students with similar academic performance also correlates directly with social background. Secondary effects are explained, firstly, by the economic factor: expenses on completing the next level of education are relatively lower for higher-income social classes, which makes it easier for them to

make the respective decisions. Secondly, there is also a psychological factor: parental education is believed to be a reference point for children, meaning that if an individual does not achieve the level of their parents' educational attainment, they perceive it as a social failure. The desire to avoid failure is what motivates such students to move to the next education level. Therefore, objectively similar levels of education have a higher subjective value for individuals from better-educated families, which partially explains the secondary effects of IEO.

The mechanisms described above show that the problem is rooted in cultural, economic, and educational inequalities that have existed to a greater or lesser extent throughout history and across social structures. Nearly all the developed countries have seen an increase in economic disparities since the 1980s. This trend has been expected to exacerbate the problem. However, there are other socioeconomic changes as well, which contribute to equalization of educational opportunity. First, education is growing more and more accessible. Percentages of low-educated people in populations shrink over time, naturally increasing the proportions of well-educated ones. Educational attainment rates are growing, which is expected to weaken at least the cultural and educational factor of inequality. Second, duration and public funding of compulsory education programs are increasing. As a result, the role of economic inequality has been reducing at least at the basic levels of education. Third, urbanization and a more even distribution of educational institutions in the country are also expected to equalize educational opportunity. Cities have become centers of cultural, educational, and economic progress, so the ever-growing percentage of urban population reduces the transportation and accommodation expenses for college students, thereby weakening the economic factor of inequality and most probably reducing the role of the cultural and educational factor. Fourth, declining family size translates into greater potential investments in education per child, reducing the significance of the economic factor. Fifth, advances in information technology expand access to educational resources for the majority of population, which is also supposed to contribute to equalization of educational opportunity. Sixth, the primary effects of IEO are also reduced by the expansion of maternity and child welfare services and advances in medical technology.

That way, the ongoing socioeconomic changes can have multidirectional influence on IEO, increasing or reducing it depending on which mechanisms eventually prevail: the ones widening the gap or equalizing the chances.

The dynamics of economic inequality indicators in Russia differs essentially from the trends typical of developed capitalist countries, where economic inequality has increased gradually since the 1980s. Inequality in the Soviet Union was fairly low, but the transition to a market economy gave a boost to social segregation, which reached very high levels within a short period of time (1990–2000).

Furthermore, Russia's education policy has not aimed to increase the duration and public funding of compulsory education programs as in modern developed countries. Government participation in education funding was greater in Soviet Russia than today. Free education at all levels in the Soviet education system was an important tool in achieving the declared goal of equal opportunity in all spheres including education, which essentially weakened the economic factor of inequality.

The global development trends that are significant in terms of IEO, such as increasing access to education, urbanization, declining family size, advances in information and medical technology, and expansion of maternal and child welfare services, are very much the same in Russia as in other countries.

2. Educational Opportunity in Soviet vs. Post-Soviet Russia

Soviet sociologists began to study educational opportunity in the 1960s, invariably finding evidence for the impact of social background on individual educational achievement [Shubkin 1965; Samoylova 1978]: children of better-educated and higher socioeconomic status parents are more likely to pursue and complete college education than children from less advantaged families, and the same is true for urban vs. rural children, respectively.

Soon after the Soviet Union collapsed, the American sociologists Theodore P. Gerber and Michael Hout published an article dedicated to educational stratification in Russia during the Soviet period [Gerber, Hout 1995]. They provided a detailed analysis of the Soviet education system, applying multifactor regression analysis to the results of two sociological surveys to assess how the completion of certain education levels is affected by such circumstances as gender, parental education, and urban origin. Their findings indicate that gender and family background in the Soviet era had a significant impact on the probability of completing all education levels; and urban origin, on obtaining a college degree.

Two decades later, Anna Smolentseva [Smolentseva 2016] found that higher education expansion as part of a neoliberal reform package had not brought about greater social justice. In her opinion, expansion, fee-based financing, and policy measures such as university excellence initiatives tended to strengthen the institutional and social stratification of the higher education system, undermining social mobility and social equality in Russia.

A study of educational and career orientations of upper-grade secondary school students and the opportunities of school graduates in Soviet and post-Soviet Russia [Konstantinovskiy 2012] showed that social differentiation among schools increased during the transition period, children from the higher strata receiving better quality secondary education. In the Soviet era, at the period of significant changes in the country, and after those changes, youth from the high social stra-

ta had greater possibilities for access to higher education than youth from low social strata.

There are still very few studies assessing educational opportunity in Soviet Russia as compared to the post-Soviet period. As for using the theory of equality of opportunity to assess IEO, this approach is a novelty for sociologists both in Russia and abroad.

3. Research Goal, Methodology, and Data

This study is aimed at comparing the inequality of educational opportunity in Russia between the Soviet and post-Soviet periods and measuring the contribution of individual circumstances to IEO.

The theory of equal opportunities, which emerged at the end of the 20th century as an evolution of the egalitarian theory of social justice, argues that individual achievement is determined by factors or variables that are beyond individuals' responsibility (so-called circumstances) and by factors for which individuals are deemed responsible (so-called efforts). Inequalities arising from efforts are considered ethically acceptable (the reward principle), while those that are due to circumstances are deemed offensive and therefore must be eliminated (the compensation principle).

Attempts to mathematically formalize the idea of equal opportunity have encountered a number of challenges, in particular the incompatibility of compensation and reward principles [Ramos, van de Gaer 2016].

Methods of IEO assessment are based on the compensation principle. An *ex-post* or an *ex-ante* view can be taken to assess whether equality of opportunity has been achieved. According to the *ex-ante* criterion proposed by Van de Gaer, there is equality of opportunity when individuals from groups with homogeneous circumstances have on average the same level of achievement. According to the *ex-post* criterion formulated by Roemer, there is equality of opportunity when individuals with similar efforts have the same level of achievement. The *ex-post* and *ex-ante* versions of the compensation principle are incompatible with each other [Fleurbaey, Peragine 2013].

In the present study, inequality of opportunity was estimated using the method first proposed in [Chávez-Juárez, Soloaga 2014]. It is based on the *ex-ante* approach and involves the following steps.

1. An ordinal variable is decomposed into a set of binary variables. A binary variable takes the value of 1 if the relevant level of achievement has been attained by an individual; otherwise, it equals 0.
2. A probit model controlling for circumstances is estimated for each binary variable.
3. Probit regressions are used to calculate predicted values $\widehat{p_i}$ of the probability that the outcome variable takes the value of 1. Values $\widehat{p_i}$ depend only on specific sets of circumstances and are regarded as estimates of their effects. The inequality index I, calculat-

ed based on distribution $\{\hat{p}_i\}$, represents an absolute inequality measure. In case of a binary achievement variable, two measures are used to assess inequality: the dissimilarity index *DI*, calculated with formula (1), and the modified dissimilarity index *MDI*, calculated with formula (2).

$$(1) \qquad DI(\bar{\hat{p}}_k) = \frac{1}{2N(\bar{\hat{p}}_k)} \cdot \sum_{k=1}^{N} |\hat{p}_k - \bar{\hat{p}}_k| ;$$

$$(2) \qquad MDI(\bar{\hat{p}}_k) = \frac{2}{N} \cdot \sum_{k=1}^{N} |\hat{p}_k - \bar{\hat{p}}_k| .$$

In formulas (1) and (2), N is sample size, $\hat{p}_k$ is predicted value of probability, and $\bar{\hat{p}}_k$ is the mean of probability distribution $\{\hat{p}_k\}$.

Both indices, *DI* and *MDI*, vary from 0 to 1. The difference between the two is that *DI* is a translation invariant measure while *MDI* is a scale invariant measure. Using *DI* as an index of inequality in case of binary outcomes was proposed for the first time in [Barros 2009]. Later on, it was discovered that scale invariant measures of inequality are more preferable in case of a binary variable, since *DI* will decrease as long as access to an outcome increases [Chávez-Juárez, Soloaga 2015]. This is not quite appropriate if the goal is to measure the inequality of opportunity without the "impurities" such as changes in the access to an outcome. For this reason, *MDI* appears to be a more preferable choice. In the present study, IEO is measured using both indices with the primary focus on *MDI*.

4. The Shapley decomposition is used to measure the contribution of individual factors to IEO (for more, see [Shorrocks 2012]).

The study uses data from two waves (2006 and 2011) of the Russia Longitudinal Monitoring Survey administered by Higher School of Economics (RLMS-HSE).[2] The choice of these two waves is explained by the fact that they contain information on parental education, which was not collected during the other waves. Other circumstances included in analysis are gender, ethnicity, and type of place of birth.

Parental education can be controlled for by taking into consideration either father's and mother's education individually or both parents' highest level of educational attainment. Both approaches have their pros and cons. The former allows a more detailed analysis of parental education, but it excludes respondents with missing data on

[2] Russia Longitudinal Monitoring survey (RLMS-HSE), conducted by National Research University Higher School of Economics and OOO Demoscope together with Carolina Population Center, University of North Carolina at Chapel Hill and the Institute of Sociology of the Federal Center of Theoretical and Applied Sociology of the Russian Academy of Sciences (RLMS-HSE websites: http://www.cpc.unc.edu/projects/rlms, http://www.hse.ru/rlms).

at least one parent's education, which may be the case with students from single-parent families. This results in self-selection bias, where missing data patterns are not random and potentially vulnerable social groups are excluded from analysis. The latter approach does not have this limitation but uses a rougher measure of parental education. In the present study, measurements were performed using both approaches in order to compare the results and test their robustness.

The original variable describing educational attainment contains six levels. However, due to low relative frequency of the levels "0–6 years of school", "7–8 years of school", "7–8 years of school + some courses", data for them is aggregated and hereinafter described as "some secondary school". This yields four levels of educational attainment and three binary variables describing the completion of three levels: secondary school, vocational school, and college.

Analysis included respondents aged 25–70 without missing data on gender, ethnicity, place of birth, respondent's education, and parental education. In order to compare the IEO situations between the Soviet and post-Soviet periods, the sample was divided into two subgroups: respondents who were aged 24+ in 1990 and/or had achieved their highest level of educational attainment before 1991, and those who were aged 16 or younger in 1990. The 2011 wave subsamples are more comparable in size, so calculations based on them are treated as reference. Descriptive statistics are given in Table 1.

As seen in Table 1, the post-Soviet period features a considerably higher percentage of children born in urban areas and, accordingly, an essentially lower percentage of those born in rural areas than the Soviet era. This reflects the process of urbanization, which is believed to have equalizing effects on educational opportunity. There is also a very wide gap in the level of parental education: the percentage of respondents with the lowest-educated parents (some secondary school) is very high in the Soviet-period subsamples (over 60%) as compared to the post-Soviet period (16–28%), where percentages of better-educated population are noticeably higher. This data indicates that access to education was improving throughout the Soviet era and confirms the trend for growing accessibility of upper education levels, which is often regarded as a factor contributing to equalization of educational opportunity. The distribution by gender and ethnicity looks very similar across all the subsamples.

The four levels of educational attainment allow identifying three education levels and estimate their accessibility, i. e. the percentage of individuals who have achieved a particular level (Table 2).

4. Results and Discussion

Table 3 presents the results of probit regressions based on parents' highest level of educational attainment and the 2011 survey data. The rest of the results is not displayed due to article length limits but is available upon request.

Table 1. **Descriptive statistics for data used in calculations based on parents' highest level of educational attainment.**

Indicator	2006		2011	
	Soviet period (N=1,697)	Post-Soviet period (N=425)	Soviet period (N=1,929)	Post-Soviet period (N=1,199)
Gender				
Male	40.90	41.88	40.26	44.79
Female	59.10	58.12	59.74	55.21
Type of place of birth				
Urban	31.23	46.35	29.77	49.96
Semi-urban	13.85	17.65	13.71	14.51
Rural	54.92	36.00	56.52	35.53
Ethnicity				
Russian	82.20	79.06	83.43	82.90
Other	17.80	20.94	16.57	17.10
Parents' highest educational attainment				
Some secondary school	67.53	16.24	62.44	16.85
Secondary school	9.90	26.35	13.61	22.44
Vocational school	12.20	28.71	12.68	30.19
College	10.37	28.71	11.27	30.53
Respondent's educational attainment				
Some secondary school	12.85	15.06	9.71	13.18
Secondary school	38.54	32.24	42.23	29.02
Vocational school	26.40	22.12	28.10	22.52
College	22.22	30.59	19.95	35.28

Table 2. **Accessibility of education levels based on the data used in calculations based on parents' highest level of educational attainment.**

Education level	2006		2011	
	Soviet period	Post-Soviet period	Soviet period	Post-Soviet period
At least secondary school	87.15	84.94	90.29	86.82
At least vocational school	48.62	52.71	48.05	57.80
At least college	22.22	30.59	19.95	35.28

Table 3. **Results of probit regressions based on parents' highest level of educational attainment.**

Education level	Secondary school		Vocational school		College	
Period	Soviet	Post-Soviet	Soviet	Post-Soviet	Soviet	Post-Soviet
Gender						
Female	0.0553***	0.0806***	0.2019***	0.1277***	0.0241	0.0827***
Place of birth						
Semi-urban	–0.0148	–0.0067	–0.0684**	–0.0206	–0.0609**	–0.0379
Rural	–0.0104	–0.05220**	–0.0755***	–0.0681**	–0.0894***	–0.0986***
Ethnicity						
Non-Russian	0.0136	0.0540***	–0.0261	–0.0442	0.0012	–0.0058
Parental education						
Secondary school	0.0655***	0.1461***	0.2378***	0.1340***	0.1145***	0.0716**
Vocational school	0.1113***	0.2597***	0.3192***	0.4107***	0.2123***	0.2799***
College	0.1122***	0.2981***	0.3727***	0.5037***	0.4159***	0.4546***

Note: *, **, and *** indicate significance at levels 10%, 5%, and 1%, respectively.

Table **4. Inequality of educational opportunity: the 2011 survey data used for calculations based on parents' highest level of educational attainment.**

Education level	Secondary school		Vocational school		College	
Period	Soviet	Post-Soviet	Soviet	Post-Soviet	Soviet	Post-Soviet
MDI	0.0965	0.2054	0.3256	0.3885	0.2812	0.3728
Including the contribution of factors						
Parental education	62.81	69.20	63.52	74.99	78.23	77.22
Gender	20.85	13.70	21.24	11.82	2.84	5.70
Place of birth	10.76	14.68	13.65	8.91	18.19	14.58
Ethnicity	5.57	2.42	1.99	4.27	0.74	2.50
DI	0.0265	0.0585	0.1630	0.1621	0.3284	0.2497
Including the contribution of factors						
Parents' highest level of educational attainment	62.81	69.20	63.12	75.00	78.18	77.18
Gender	20.85	13.70	21.27	11.81	2.86	5.72
Place of birth	10.76	14.69	13.63	8.93	18.24	14.61
Ethnicity	5.57	2.41	1.98	4.27	0.74	2.49

Gender is a significant factor in achieving every level of education: all other things being equal, women are more likely to succeed than men. Rural origin, on the contrary, has a negative impact: the marginal effects are significantly negative for the reference category (urban) at nearly all times. Higher levels of parents' educational attainment correlate positively with achievement of all the three education levels. Ethnicity plays no big role, the marginal effects most often being insignificant. High statistical significance of the circumstances included in analysis indicates that IEO is a major issue for both Soviet and post-Soviet Russia.

The results of measuring the inequality of educational opportunity during the Soviet and post-Soviet years using MDI are presented in Table 4 and Figures 1 and 2.

As can be seen in Figure 1 and Table 4, IEO is lower during the Soviet period than in post-Soviet Russia at all the three education levels. In all the calculations, the lowest IEO is observed at the level of secondary school; and the highest, at the level of vocational school — not college, as one would expect. Our hypothesis to explain this phenomenon is that obtaining a college degree requires much more effort than completing any other level of education, so circumstances play a smaller role at the level of college.

As can be seen from Figure 2, DI-based measurement yields a different picture. DI is an integrated indicator that reflects both educational inequality and access to education. An essentially higher level of college education accessibility during the post-Soviet period translates into a lower DI than in the Soviet era.

Figure 3 shows the contribution of individual circumstances to IEO. Parental education is the strongest factor in both periods, accounting for 60–70% of the inequality. It correlates with a number of other family background factors excluded from analysis due to missing data, such as family income and family's educational and cultural resources, so the obtained estimate of the contribution of parental education also partially encapsulates the impact of those omitted family background factors. It follows from Figure 3 that the role of parental education is only increasing in the post-Soviet period — apparently, due the increased socioeconomic stratification of Russian society.

Ethnicity as a factor of IEO plays no essential role in both periods. The contribution of gender, meanwhile, is quite significant in Soviet as well as post-Soviet Russia, varying greatly across education levels. Origin is also an important factor, however much less powerful in the post-Soviet period than in the Soviet Union. This trend should be regarded as positive, specifically as a decrease in the effects of the spatial factor of IEO. This could probably be explained to some extent by advances in information and communication technology that provides equal access to digital educational and information resources to virtually everyone regardless of their place of birth and residence.

Figure 1. **Inequality of educational opportunity in Russia measured using the MDI.**

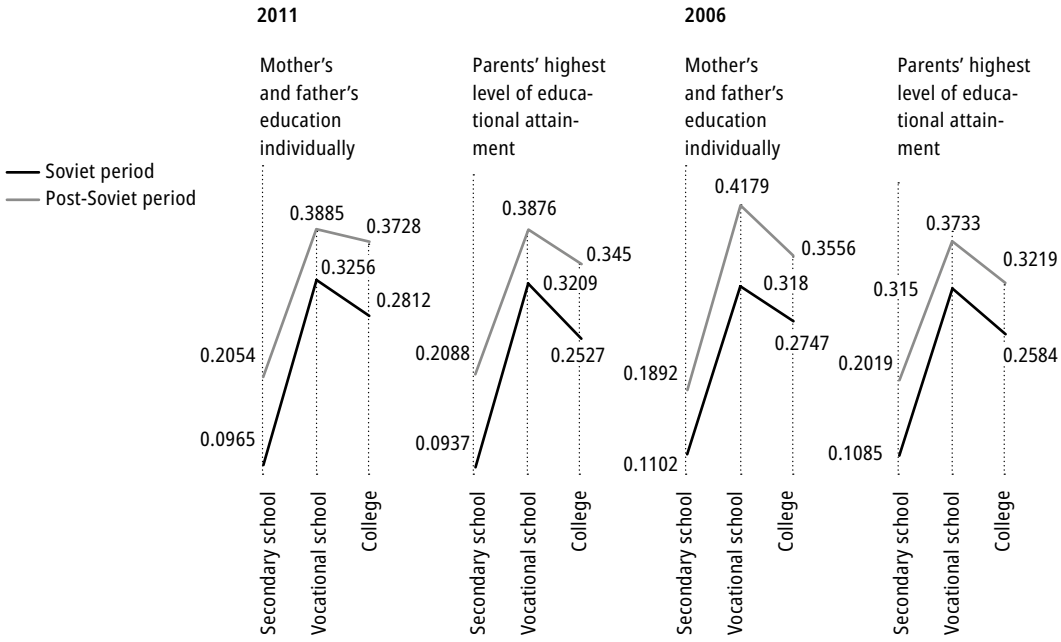


Figure 2. **Inequality of educational opportunity in Russia measured using the DI.**

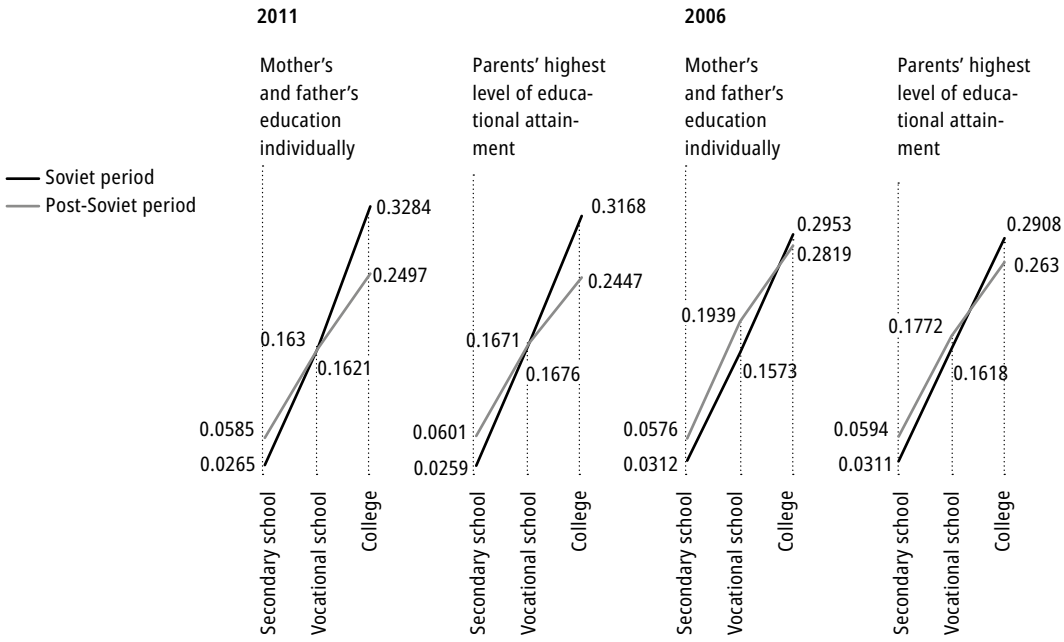
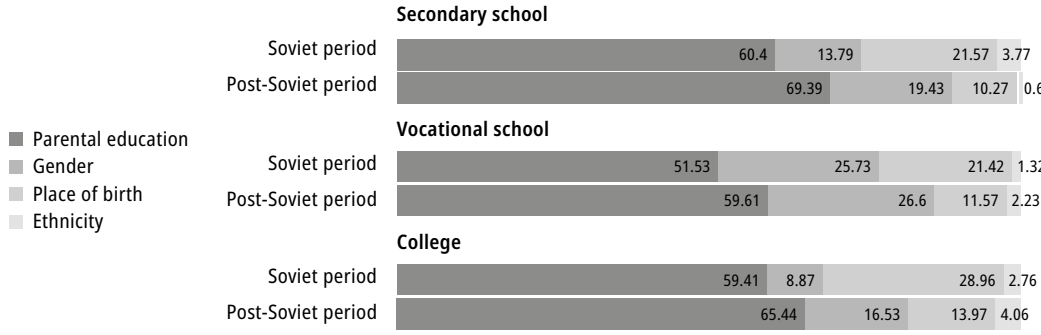


Figure 3. **The contribution of individual circumstances to IEO,** %.



Just as any empirical research, our measurements have some limitations. First, we could only take into account the circumstances for which data was available in the database. Assessment of the impact of family background would certainly have been more accurate if there had been a possibility to use not only parental education but also family income, family emotional climate, family size, and family composition in the analysis. The geographic factor restricted to the type of place of birth is also imperfect, as locality's socioeconomic status and distance from major educational hubs matter too. Data inadequacies in IEO research are well-known: large, ready-to-use, nationally representative surveys like RLMS-HSE have not been designed to measure inequality, so calculations are based on "what is available". Inadequate consideration of circumstances results in the underestimation of educational inequality and is fraught with misinterpretation of cause and effect relationships.

There is a hypothesis that expansion of access to education, especially at the college level, leads to higher horizontal differentiation of educational institutions. Otherwise speaking, institutions formally providing access to the same level of education may differ substantially in the quality of their programs. The present study does not make allowance for horizontal differentiation of colleges. Higher education as such can be fairly accessible to population at large, but inequality may well manifest itself in obtaining top-tier college degrees that are in high demand in the labor market. There is empirical evidence that admission to top-ranked colleges is largely determined by family background [Khavenson, Chirkina 2018].

Transformation of the education system and society as a whole during the post-Soviet period had substantial effects on the quality of enrollment. A rapid growth of the tuition-based sector of college education and its large share in the higher education market (about 50%) allow low-performing candidates to enter institutions of higher and vocational education. As educational institutions are financially moti-

vated to keep high admission and retention rates, weak students do not drop out but successfully graduate and get their diplomas. As a result, formally identical levels of education in Soviet and post-Soviet Russia may differ greatly in the actual amount and quality of the knowledge provided. Naturally, those differences could not be considered in this study either.

Comparability of formally identical education levels across different periods of history of a country or across countries during the same period is a common stumbling block for researchers and a source of criticism of studies which use educational attainment as a measure of individual educational achievement and parental education as an indicator of family background. "Does a student learn the same amount in 6th grade in Zambia as in Finland? Is the value of one year of schooling the same even across different schools in a single country or city?" [Ferreira, Gignoux 2014:211] Recently, as different projects have compiled school-based surveys that administer cognitive achievement tests to samples of students across a number of countries, as well as collecting information about the students' families and the schools they attend, a new frontier for IEO research has emerged that relies on comparable tests as a more objective measure of educational achievement. The Trends in International Mathematics and Science Study (TIMSS) and the Program for International Student Assessment (PISA) are perhaps the best known examples. However, such projects focus on school students' performance. The sector of professional education is much more diverse in terms of curricula and content, so developing a universal test for college students is a huge challenge. Second, these tests have been applied relatively recently, so using them to analyze the dynamics of educational inequality is only possible for the relatively short period of the past 20–25 years (PISA was first performed in 2000, and TIMSS in 1995).

The findings obtained in the present study that indicate an increase in the inequality of educational opportunity during the post-Soviet period are of great practical importance. First, the growing inequality of access to education may set the stage for exacerbation of social tensions. In this regard, it is important to understand how much Russia's population is concerned about social justice and how sympathetic it is toward the idea of equal opportunities.

Increasing inequality of educational opportunity may also have a negative impact on economic growth. IEO-induced barriers prevent self-actualization in discriminated social groups, affecting aggregate economic output at the macro level. To succeed, society must create incentives and opportunities for maximum self-fulfillment for the majority of population. In this regard, inequality of educational opportunity is most probably even more significant than income inequality of labor market opportunity. Indeed, IEO largely predicts subsequent inequalities in the labor market, and its effects are experienced at earlier stages of life, when individuals are much more vulnerable to adverse circumstances.

5. Conclusion

Analysis of inequality of educational opportunity in Soviet Russia showed that individual educational achievement was influenced by circumstances beyond individuals' control, such as parental education, gender, and place of birth. Given that economic inequality was low and there were virtually no tuition fees during that period, the results of analysis demonstrate a significant role of cultural, educational, and psychological factors in the maintenance and reproduction of educational inequality.

The post-Soviet period is characterized by a sharp increase in economic inequality and growth of the tuition-based sector at all stages of education. Such processes contribute to the inequality of educational opportunity, which is proved by comparisons performed in this article.

From a practical perspective, there are two major negative implications of the growing inequality of educational opportunity: it may exacerbate social tensions and slow down the socioeconomic development as a result of low self-actualization in vulnerable social groups.

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