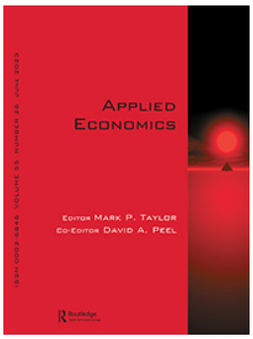

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The human capital and income of immigrants: evidence from Russia

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ABSTRACT
This study examines how immigration flows caused by the disintegration of states and globalisation change the composition of the labour force and how human capital is transferred from countries of the former Soviet Union to Russia. We estimate the contribution of imperfect human capital transferability to explaining the immigrant–native income differentials by using the Russian Longitudinal Monitoring Survey of 2009–2012. The findings reveal that the income of foreign-born people who moved before the disintegration of the USSR is not significantly different from the income of native-born citizens. In contrast, foreign-born groups who immigrated to Russia after the disintegration of the USSR have lower incomes than the native-born group. In addition, the income premium on education and labour experience received in host countries of the foreign-born group is lower compared to the income premium on education and labour experience received in Russia. An important factor explaining the difference in income between natives and foreign-born people who moved to Russia after the collapse of the USSR is the imperfection in the mechanism of human capital transferability.

KEYWORDS
Foreign-born population; immigration; human capital transferability; income difference; Russia

JEL CLASSIFICATION
J15; J24; J31; J61; J71

I. Introduction

According to the UN, between 1992 and 2017, Russia hosted over 11 million immigrants, with the vast majority arriving from the former Soviet republics, thereby making it the country with the second highest share of immigrants after the United States (Chudinovskikh 2018). Immigration in Russia differs from immigration in other countries such as the European Union members or the United States. The majority of immigrants in Russia come from former Soviet republics. Like Russia, these countries were part of the Soviet Union (the USSR) until 1991 (Shevel 2012).

After the disintegration of the USSR, a special group of migrants emerged in the Russian labour market – the foreign-born population. These are people who were born outside of Russia and who have Russia as their country of usual residence (The United Nations 1998).

Many studies have analysed the consequences of the disintegration of the Soviet Union for different aspects of Russian society (Ganguli 2018; Malakhov and Simon 2018; Jang 2018). One of the most important consequences is income differences between immigrants and local populations. Interest in studying income differences between immigrants and local populations is growing in the world due to the increasing number of immigrants in labour markets.

Studies dedicated to examining the income gaps between native-born and foreign-born populations have been conducted in many countries (Hofer et al. 2017; Aldashev, Gernandt, and Thomsen 2012). The differences between the incomes of foreign and native-born populations in Russia are still under-researched. To date, the empirical analysis of immigrants in the Russian labour market has primarily focused on short-term labour immigrants or foreign workers (Chernina and Lokshin 2013; Denisenko and Chernina 2017).

One of the reasons why the income of the foreign-born population may differ from the income of natives may be differences in their level of education and labour market experience.

The peculiarity of Russia is that a significant number of individuals from various Soviet territories immigrated to Russia during the Soviet period and were citizens of a unified country with no internal borders at that time. Other immigrants

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moved to Russia after the USSR's disintegration by crossing the international borders of newly independent states.

Thus, some of the foreign-born population were educated in the Soviet Union under a highly centralized government-run system that engendered an education system focused on equal quality across all national republics (Matthews 2012).

Other foreign-born people were educated in newly independent states and the educational programmes of these states differed from that of Russia to varying degrees. As a result, Russian language proficiency and the skills obtained during school and college or university education may differ for those who moved to Russia before or after the disintegration of the Soviet Union.

The immigrants initially lose out to natives due to the lack of human capital that is specific to the host country. However, the longer an immigrant stays in the labour market of the host country, the more likely it is that he or she will develop the specific human capital of that country. Thus, over time, the wages of immigrants and natives can converge (Chiswick 1978; Borjas 1985).

Researchers have made different assessments of the possibility of human capital transferability of immigrants in the host labour markets. If the education of immigrants is comparable in terms of quality to the education of natives, then it can bring the same return to both groups over time (Chiswick and Miller 2009; Piracha, Tani, and Vadean 2012; Hirsch et al. 2014).

However, human capital and skills obtained in one country may not always be in demand in another country. The quality of education can be different. Consequently, education received in different countries may give unequal returns to immigrants. It may also differ between immigrants and natives (Basilio, Bauer, and Kramer 2017; Sanroma, Ramos, and Simon 2015; Friedberg 2000; Poot and Stillman 2010).

In this article, we study whether human capital and the labour market experience of foreign-born people accumulated in different countries and in different times (before and after the collapse of the USSR) are rewarded differently in the Russian labour market. This aspect has never been considered for the Russian labour market before. Using data from the Russian Longitudinal Monitoring Survey (RLMS), we assess the level of education of foreign-born groups and determine the income premium from it and from the labour market experience that they received in Russia and in home countries.

In this research, we consider the time of arrival of immigrants to Russia. We estimate the income equation for natives and for two groups of foreign-born people according to whether they immigrated to Russia before or after the USSR's disintegration. We also analyse the contribution of human capital to income differentials between native-born and foreign-born citizens according to the timing of their immigration using standard decomposition methods (Oaxaca 1973; Blinder 1973).

Our results suggest that the income gap between native and foreign-born people at the time of arrival can largely be explained by the different sources of human capital. Education and labour market experience obtained outside of Russia receive significantly lower income premiums compared to human capital obtained in Russia. In addition, we find evidence of different education and experience premiums among those who arrived in Russia before and after the collapse of the USSR. Individuals who arrived in Russia before the collapse of the USSR and who obtained education similar to the Russian one receive a greater education premium than those who came to Russia after the collapse of the USSR.

The article is structured as follows. Section II presents the literature review. This section describes factors that can have an impact on the return to human capital of immigrants in the host country. We discuss the dataset and the empirical strategy in Section III. Section IV presents the estimation results. We estimate the return on the human capital of immigrants from the post-Soviet republics who moved to Russia before and after the collapse of the USSR. Section V presents our concluding remarks. Our work complements the views of researchers about the human capital and income of immigrants in the Russian labour market.

II. Literature review

The substantive body of empirical research on income gaps between immigrants and natives in European countries and the United States has

demonstrated repeatedly that there is well-established evidence that immigrants generally experience income disadvantages (Hofer et al. 2017; Aldashev, Gernandt, and Thomsen 2012; Lehmer and Ludsteck 2011).

A difference in individual human capital is one of the main reasons behind the income gap between groups (De Coulon 2001). The main characteristics of human capital are an individual's level of education and experience in the labour market (Becker 2009).

Consequently, incomes of native and foreign-born citizens will likely differ if they have different levels of education and labour market experience. Many authors argue that foreign-born populations may lack education compared to native-born citizens, which partly explains why they earn a relatively lower income in their host countries (Elliott and Lindley 2008; Aldashev, Gernandt, and Thomsen 2012; Lehmer and Ludsteck 2011).

However, even with the same level of education, the income of immigrants may be lower than the income of natives due to the difference in the 'standard' of human capital (Nielsen et al. 2004). For instance, the education and experience gained by immigrants in their country of birth cannot be fully transposed to their new country of residence (Chiswick 1978).

Human capital received in an immigrant's country of birth may not be equivalent to human capital in the host country due to limited skill transfer and the imperfect compatibility of the two countries' labour markets (Basilio, Bauer, and Kramer 2017).

Studies show that the knowledge and experience acquired by immigrants in their country of birth is assessed as being significantly less valuable than the knowledge and experience gained in their host country. As a result, immigrants have a lower return on investment in human capital acquired in their country of birth compared to the return on human capital that they received in the host country (Friedberg 2000; Cohen-Goldner and Eckstein 2008).

Immigrants' income is usually in the first years of arrival lower compared to natives' income (Fertig and Schurer 2007). Immigrants may increase their income if they invest in their human capital after arriving. For example, they can increase their income by acquiring language skills and learning features of the host country's labour market.

Immigrants' income growth over time is flatter than natives' income growth (Nielsen et al. 2004). As a result, it would take a long time for immigrants to reach the income level of the local population.

Chiswick (1978) conducted one of the first empirical studies on the assimilation of immigrant income. He assessed how the length of time white male immigrants lived in the United States affected their income. The results show that immigrants' incomes reach the level of natives' incomes in 10–15 years. Fertig and Schurer (2007) estimated that the period of total convergence between the income of immigrants and the income of natives in the United States and Germany is about nine years.

Later studies have found that the growth of immigrants' income depends not only on the period of residence in the country but also on when they immigrated. The income growth of late cohorts of immigrants in the U.S.A lagged behind the income growth of early cohorts of immigrants and natives (Borjas 1985).

The convergence of immigrants' incomes with natives' incomes in the labour markets of the receiving countries is dependent on the education premium received in the country of birth of immigrants. The lower the return to human capital received in the country of birth, the longer it takes for immigrants' incomes to equal those of the natives in the labour market in the host country (Eckstein and Weiss 2004; Sanroma, Ramos, and Simon 2015).

Acquiring knowledge and skills relevant to the host country is more difficult if there are large linguistic and cultural differences between the country of origin and the country of residence. At the same time, the more similar countries are in language and culture, the easier it is for immigrants to acquire knowledge and skills that are in demand in the host country (Isphording and Otten 2014).

Previous studies on Russian income differentials are quite limited. They have primarily focused on foreign citizens or temporary labour migration. Sample surveys from the Centre for Migration Studies have demonstrated that compared to foreign workers, employed native-born citizens have an average income that is 10–15% higher, and during crisis periods, 21% higher (Zaionchkovskaya and Tyuryukanova 2010).

Studies using data on migration quotas also revealed that labour immigrants earn less than earn natives in the Russian labour market (Commander and Denisova 2012). Research has demonstrated that Tajik labour immigrants have lower wages compared to native-born citizens, with a wage gap of 37% in 2007 and 45% in 2009 (Chernina and Lokshin, 2013).

Studies also show that the wage gap between labour immigrants from Tajikistan and natives was 74% in 2007, 59% in 2009, and 43% in 2011 in favour of the local population. These estimates can be interpreted as the discriminatory component of the differences in the income of migrants and natives (Denisenko and Chernina 2017).

Studies reveal that Russian male immigrants are fully assimilated into the Russian labour market upon arrival, while Russian female immigrants face significant wage gaps and have relatively slow assimilation rates (Lazareva 2015). However, the contribution of human capital to income differentiation between immigrants and natives has not been estimated using Russian data.

III. Data and methodology

This study used a dataset from the Russian Longitudinal Monitoring Survey (RLMS-HSE[1]) of 2009–2012. RLMS-HSE is the only representative microeconomic survey of households in Russia that details a wide range of respondent characteristics such as country of birth, age, sex, education, income, and so on.

The RLMS-HSE data are appropriate for estimating the foreign-born population in the Russian labour market and comparing it with natives. We defined foreign-born respondents as individuals who were born outside the territory of Russia. We included in the native-born group respondents who were born in Russia or did not indicate their country of birth but were living in Russia at the time of the survey and indicated that they lived in the place where they were born.

The information about the foreign-born population from the RLMS-HSE dataset is representative for Russia. The share of foreign-born population, according to the RLMS-HSE dataset of 2010 (8.2%), coincides with the share of the same group according to the Russian census of the same year (7.8%) (Table 1A, Appendix).

The largest foreign-born groups in Russia are from post-Soviet states (94%). The largest foreign-born groups originate from Ukraine (25%), Kazakhstan (22%), and Uzbekistan (8.8%). The share of foreign-born originated form Estonia is 0.9%, and immigrants[2] from Lithuania and Latvia are not presented in the sample. Ethnically Russian respondents dominated the foreign-born population (67%) (Table 1A, Appendix).

We restrict our analysis to employed females aged 15–55 years and males aged 15–60. Within the group of employed respondents, we refer to those who have a job; are on paid leave, excluding maternity leave; are on unpaid leave; or have engaged in some additional work in the last 30 days for which they have been or will be paid. The sample includes all types of workers: employees, self-employed, and entrepreneurs who work in the labour market formally or informally (for example, without a registered employment contract). We consider all types of employment in the sample, since we assume that the mechanism of transfer of immigrants' human capital to the Russian labour market does not differ by the type of employment. In addition, we aim to increase the sample with more observations.

We excluded from the sample the respondents who are employed in the following sectors: government and public administration, military industrial complex, army, Ministry of Internal Affairs, security services, and agriculture in order to increase the homogeneity of the sample. These types of activities and sectors have specific mechanisms of wage formation.

Finally, after selection and deleting all missing values, the final sample comprises 9,405 respondents (17,650 observations), of whom 7.5% are foreign-born. We categorize immigrants into two immigrant cohorts, namely those who moved to Russia before and after the collapse of the USSR. In

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

[2]In this study, we use 'foreign-born' and 'immigrants' as the synonyms.

addition, several additional variables were constructed. First, the period of residence in Russia was calculated as the difference between the year of the survey and the year when the respondent moved to Russia. A dummy variable estimated whether a respondent moved to Russia before or after the disintegration of the USSR (1 = moved before the disintegration of the USSR).

Second, we assessed the impact of the level and quality of human capital on the earnings of immigrants. The education level variable was constructed (upper secondary education or below, post-secondary non-tertiary education, higher education).

Third, respondents may have received education in the USSR. We assume that the respondent may have obtained at least eight years of education in the Soviet Union if he or she was 16 years or older at the time of the collapse of the USSR (year 1991). We considered that the respondents studied in the Soviet Union (1 = yes) if they were over 16 years old at the time of the collapse of the USSR.

In addition, we considered the country in which the education was received: Russia or abroad (home country). If a respondent received the level of education that they had at the time of the survey after moving to Russia, then we assume that his or her education was received in Russia. If a respondent obtained education before moving to Russia, then we suppose that the education was received in the country of birth.

We also analyse immigrants' potential experience in the Russian labour market. According to the Russian labour legislation, the potential age at which respondents enter the labour market is 16 years. The potential experience in the Russian labour market for immigrants, who moved to Russia after 16, was constructed as the difference between the current age of respondents and their age at the time of immigration to Russia. For those immigrants who moved to Russia before 16, the potential work experience is estimated as difference between current age on the time of survey and 16 years.

In addition, we estimate the impact of education and period of residence of the foreign-born population in Russia on their income using regression analysis. Following the seminal articles on immigrants' earnings assimilation by Chiswick (1978) and Friedberg (2000), we estimate earnings equations in the form:

$$\begin{aligned} w_{it} = {} & \delta_0 + \delta_1 Im_i + \delta_2\left(Sl^f_{it} \times Im_i\right) + \delta_3 Sl^d_{it} \\ & + \delta_4\left(Sl^d_{it} \times Im_i\right) + \delta_5\left(EXP^f_{it} \times Im_i\right) \\ & + +\delta_6 EXP^d_{it} + \delta_7\left(EXP^d_{it} \times Im_i\right) + \delta X_{it} \\ & + \varepsilon_{it}, \end{aligned} \tag{1}$$

for $i = 1, \ldots, N$ and $t = 1, \ldots, T$, where w represents the log hourly income of individuals. The equations used the logarithm of hourly income as the dependent variable. To do this, monthly labour income was divided by the number of hours worked per month. Then, i means in year i, f accounts for foreign human capital, and d accounts for host country human capital. Sl refers to the level of education and EXP refers to years of potential labour market experience. Im is a dummy variable for the individual's immigrant status. Coefficient δ_1 displays the difference in income between immigrants and natives.

Vector X_{it} includes the characteristics of individuals influencing their earnings: family status (1 = marriage or cohabitation); children (1 = have child/children); region (1 = Moscow and Moscow area); sectors (industry = base); occupation (base category= professionals); ethnicity (1=Russian); sex (1=male); types of residence (1=town); employment status (base category=employee); formal employment (1= yes); harmful or dangerous working conditions (1= yes). The earnings equation was estimated for the period 2009–2012. That is why X_{it} also includes a set of year-specific effects, which are assumed to be the same for both natives and immigrants.

We test the hypothesis that the premium on education and potential experience received in the home countries of immigrants will not equal the premium on the education and potential experience received in the host country. We also consider whether the returns to human capital from the same country are different for immigrants and natives.

According to research by Friedberg (2000), the quality of education varies among countries. Education received in countries with relatively low per capita income may differ from education received in countries with higher per capita income. Poor countries invest less in education compared to the rich countries. That is why the quality of education in poor countries may be lower than in rich countries.

After the collapse of the USSR, newly independent countries began to develop their national education systems. In the framework of these new educational systems, teaching of Russian and other subjects previously studied in the USSR was reduced or even eliminated. This could affect the transferability of education received in these countries. The elimination of Russian language and soviet-style teaching can reduce transferability of education obtain in post-soviet countries upon the collapse of soviet regime in Russian labour market.

In addition, the education and experience of immigrants cannot be commensurate with the needs of the host country in the case of lower economic development of the home country. As a result, the accumulation of human capital and the experience gained by immigrants in their home country may not be in demand in the host country. After the collapse of the USSR, Russia has had a relatively high level of economic development compared to most of the post-soviet republics remaining in the USSR until 1991.[3] The knowledge and skills of immigrants from the certain countries of the former USSR could be insufficient for the Russian labour market.

In Equation (1), we estimate the education and potential labour market experience premiums of immigrants depending on where they accumulated their human capital (in Russia or in the home country). The education premium obtained in one country may not be the same for immigrants and natives. Natives have specific knowledge and skills that are in demand in the labour market of the host country. Immigrants can accumulate these skills and knowledge at a slower rate. However, immigrants can receive support in the form of various integration programmes that will help them adapt to the labour market of the host country. As a result, this can increase their return on education and work experience in the host country's labour market compared to natives.

To determine the contribution of education and potential labour market experience gained in Russia to income differentiation between immigrants and the local population, we employ a decomposition method developed by Oaxaca (1973) and Blinder (1973). This method is based on an estimation of the Mincer-type hourly income equations (Mincer, 1974) for foreign-born $(f)\, W_f = X_f\beta_f + \varepsilon_f$ and native-born groups (n) $W_n = X_n\beta_n + \varepsilon_n$. The two-fold decomposition is then:

$$\overline{W_n} - \overline{W_f} = \underbrace{\left[(\bar{X}_n - \bar{X}f)\beta_n\right]}_{explained\ part} + \underbrace{\left[\overline{x_f}\left(\beta_n - \beta_f\right)\right]}_{unexplained\ part} \tag{2}$$

where $\bar{W}$ is the logarithms of mean hourly income for each group; $\bar{X}$ is a vector of mean social-demographic characteristics: levels of education received in Russia, potential labour market experience in Russia, family status (1 = marriage or cohabitation); children (1 = have child/children); region (1 = Moscow and Moscow area); sectors (industry = base); occupation (base category= professionals); ethnicity (1=Russian); sex (1=male); types of residence (1=town); employment status (base category=employee); formal employment (1= yes); harmful or dangerous working conditions (1= yes). years.

The first term of the decomposition represents the share due to differences in the observed socio-demographic characteristics of foreign- and native-born respondents. The second part of the equation is the unexplained residual. Sometimes it is attributed to the effect of discrimination. This part includes all unobservable differences (i.e. important characteristics not considered in the model) between native-born and foreign-born respondents and the effect of discrimination (Christl, Köppl-Turyna, and Gnan 2018). Unobservable differences can include, for example, differences in abilities, as well as in unobservable cognitive and non-cognitive characteristics (risk attitudes, motivation, purposefulness, degree of extraversion and openness, etc.) between immigrants and natives (Bütikofer and Peri 2017). The prejudices of employers towards immigrants, as well as their statistical discrimination or the restriction of immigrants' access to jobs in certain occupations and sectors of the economy also form unobservable differences between native-born respondents and immigrants (Elliott and Lindley 2008; Arrow 1973; Becker 1957).

[3]Baltic States seceded from the USSR in 1990.

The income gaps between native-born and foreign-born populations are estimated separately for the foreign-born population with respect to their period of movement to Russia (before and after the disintegration of the USSR).

IV. Empirical results

Background of the foreign-born population

One part of the foreign-born population immigrated to Russia before the disintegration of the USSR and others relocated after this period. These two immigration flows have different compositions.

Before the disintegration of the Soviet Union, the foreign-born population moved to Russia at a younger age (12 years old) than those who emigrated from newly independent post-Soviet states (24 years old). As a result, the period of residence in Russia of the foreign-born group who moved to Russia before the collapse of the Soviet Union was longer (about 33 years) than that of those who moved to Russia later (13 years) (Table 2A, Appendix).

Differences in the length of residence in Russia reflect differences in the potential experience of the foreign-born population in the Russian labour market. The potential length of experience in the Russian labour market of the foreign-born population who moved to Russia before the disintegration of the Soviet Union is greater (26 years) than that of the group who immigrated later (11 years) (Table 2A, Appendix).

The length of potential experience abroad among immigrants who moved to Russia before the collapse of the USSR is about two years and that among those who moved after the collapse of the USSR is about nine years.

The share of ethnic Russians (69%) predominated among the foreign-born population before the disintegration of the Soviet Union. After the disintegration of the Soviet Union, the share of ethnic Russians declined among immigration flows, but they were still the dominant group (62%) (Table 2A, Appendix).

The foreign-born population also differs in terms of the level of education and the quality of human capital. Those who moved to Russia before the disintegration of the USSR are more educated than those who immigrated after the collapse of the USSR.

The quality of human capital of the two groups also differs. The foreign-born people who moved to Russia before the disintegration of the USSR were more likely to have received an education in the USSR (81%) than the group who immigrated after the collapse of the USSR (49%) (Table 2A, Appendix).

Some of the foreign-born group received some education in their home countries while others were educated in Russia. Respondents who immigrated before the disintegration of the USSR had studied more often in Russia than in their home countries. The foreign-born population who moved to Russia after the disintegration of the USSR received higher education in Russia less frequently than in their country of birth. The share of respondents with Russian higher education was two times higher among those who moved to Russia before the disintegration of the USSR (31%) compared to the group that immigrated to Russia after that period (15%) (Table 2A, Appendix).

The human capital of foreign-born people who moved before the disintegration of the USSR is closer to the human capital of native-born citizens. The share of respondents with higher education is higher among the foreign-born who moved to Russia before the disintegration of the USSR compared to natives and the foreign-born population who moved after the disintegration of the USSR (Table 2A, Appendix).

The results also indicate that the foreign-born who moved before the disintegration of the USSR and natives have similar employment conditions. These two population groups have almost equal shares of individuals working in the public sector, shares of people in formal employment, and proportions of respondents working in difficult, hazardous, or dangerous conditions (Table 2A, Appendix). The two groups are also almost evenly distributed across construction and healthcare. Skilled workers and professionals dominate both groups. The monthly and hourly income of foreign-born groups who immigrated before the disintegration of the USSR is not that different from the income of native-born citizens (Table 3A, Appendix).

Foreign-born groups who immigrated after the disintegration of the USSR differ far more from native-born citizens than those who moved before the disintegration of the USSR. They are less often

employed in enterprises with a state-owned share or in the public sector and are less often officially registered at work compared to natives. This group is employed in construction more often than natives are. There are fewer professionals but more skilled workers among this group compared to natives (Table 3A, Appendix). The foreign-born people who settled in Russia after the disintegration of the Soviet Union are less educated but work more and live more often in Moscow compared to native-born citizens and the group who immigrated during the Soviet period. The monthly and hourly income of this group is lower than the monthly and hourly income of the native population (Table 2A, Appendix).

Transferability of human capital

We found that incomes of immigrants who moved to Russia before the collapse of the USSR do not differ significantly from the incomes of natives (Table 1). At the same time, in general, all immigrants earn about 5% ($p < 0.05$) less than earn their native counterparts (Table 2). This difference is due to the contribution of immigrants who moved to Russia after the collapse of the USSR. Our results show that incomes of immigrants who moved to Russia after the collapse of the USSR are about 7% ($p < 0.01$) lower than incomes of natives (Table 3). The income gap between natives and immigrants who moved to Russia after the collapse of the USSR becomes larger (13%) ($p < 0.05$) in magnitude when controlling for education and potential labour market experience. It is explained by the fact that after the collapse of the USSR immigrants with relatively lower qualifications compared to natives come to Russia. The share of individuals with higher education is lower among foreign-born group migrated after 1991 than among natives.

Table 1. Human capital premium of immigrants who moved before the collapse of the USSR, relative to natives.

Variables	1	2	3	4
Immigrant before 1991 (1=immigrant. 0= native)	−0.026	−0.042	−0.050	−0.135
	(0.027)	(0.081)	(0.03)	(0.09)
Education level (Upper secondary education or below=ref.):				
Post-secondary non-tertiary education		0.014	-	-
		(0.014)		
Higher education		0.155***	-	-
		(0.016)		
Education abroad: (Upper secondary education or below abroad=ref.):				
Post-secondary non-tertiary education abroad		-	−0.031	0.063
			(0.078)	(0.109)
Higher education abroad		-	−0.204	−0.108
			(0.217)	(0.228)
Education in Russia (Upper secondary education or below in Russia=ref.):				
Post-secondary non-tertiary education in Russia		-	0.013	0.011
			(0.014)	(0.014)
Higher education in Russia		-	0.156***	0.148***
			(0.017)	(0.017)
Education in Russia*Immigrant (Upper secondary education or below in Russia*Immigrant =ref.):				
Post-secondary non-tertiary education*Immigrant		-	-	0.032
				(0.083)
Higher education in Russia*Immigrant		-	-	0.176**
				(0.05)
Total potential experience/10		0.010***	-	-
		(0.00)		
Potential experience abroad/10		-	0.010	0.011
			(0.01)	(0.03)
Potential experience in Russia/10		-	0.010***	0.010**
			(0.00)	(0.00)
Potential experience in Russia* Immigrant/10		-	-	0.01
				(0.01)
Years since migration		−0.010	-	-
		(0.01)		
Constant		4.250***	4.249***	4.256***
		(0.039)	(0.039)	(0.040)
R-squared		0.24	0.23	0.23
Observations		17035	17035	17035

Source: RLMS-HSE, 2009–2012.

Dependent variable – logarithm of hourly wage; additional independent variables: ethnicity (1=Russian); children (1=have child/children); sex (1=male); family status (1= marriage/cohabitation); types of residence (1=town); region (1=Moscow and Moscow oblast); employment status (base category=employee); formal employment (1= yes); harmful or dangerous working conditions (1= yes); occupation (base category= professionals); sectors (base category=industry); time effects. Level of significance * – $p < 0.1$; ** – $p < 0.05$; *** – $p < 0.01$ Standard errors cluster by individuals.

Table 2. Human capital premium of immigrants, relative to natives.

Variables	1	2	3	4
Immigrant (1=immigrant 0= native)	−0.045**	−0.090**	−0.044**	−0.126**
	(0.017)	(0.028)	(0.019)	(0.046)
Education level (Upper secondary education or below=ref.):				
Post-secondary non-tertiary education		0.014	-	-
		(0.013)		
Higher education		0.154***	-	-
		(0.016)		
Education abroad: (Upper secondary education or below abroad=ref.):				
Post-secondary non-tertiary education abroad		-	−0.004	0.042
			(0.041)	(0.050)
Higher education abroad		-	0.022	0.067
			(0.071)	(0.076)
Education in Russia (Upper secondary education or below in Russia=ref.):				
Post-secondary non-tertiary education in Russia		-	0.016	0.009
			(0.013)	(0.014)
Higher education in Russia		-	0.157***	0.146***
			(0.016)	(0.017)
Education in Russia*Immigrant (Upper secondary education or below in Russia*Immigrant =ref.):				
Post-secondary non-tertiary education*Immigrant		-	-	0.046
				(0.049)
Higher education in Russia*Immigrant		-	-	0.125**
				(0.053)
Total potential experience/10		0.010***	-	-
		(0.00)		
Potential experience abroad/10		-	0.020	0.013
			(0.02)	(0.033)
Potential experience in Russia/10		-	0.010***	0.010**
			(0.00)	(0.00)
Potential experience in Russia* Immigrant/10		-	-	0.01
				(0.01)
Years since migration		0.010	-	-
		(0.01)		
Constant		4.231***	4.226***	4.240***
		(0.038)	(0.038)	(0.034)
R-squared		0.23	0.23	0.23
Observations		17650	17650	17650

Source:RLMS-HSE, 2009–2012.

Dependent variable – logarithm of hourly wage; additional independent variables: ethnicity (1=Russian); children (1=have child/children); sex (1=male); family status (1= marriage/cohabitation); types of residence (1=town); region (1=Moscow and Moscow oblast); employment status (base category=employee); formal employment (1= yes); harmful or dangerous working conditions (1= yes); occupation (base category= professionals); sectors (base category=industry); time effects. Level of significance * – $p < 0.1$; ** – $p < 0.05$; *** – $p < 0.01$. Standard errors cluster by individuals.

Our results show that education and potential labour market experience affect the incomes of immigrants positively on the Russian labour market. Higher education levels increase immigrants' incomes. Each additional year of potential labour market experience leads to an increase in immigrants' incomes by about 1% ($p < 0.05$) (Tables 1–3).

The assumption that immigrants receive an equal premium from external and internal human capital is not confirmed. Immigrants with higher education received in Russia earn about 15% ($p < 0.01$) more than earn immigrants with a secondary education. At the same time, the incomes of immigrants with higher education received outside Russia do not differ significantly from the incomes of immigrants who received secondary education outside Russia (Tables 1–3). Each year of potential labour market experience gained in Russia increase income of immigrants, who came to Russia before and after the collapse of the USSR, about 1% ($p < 0.05$) (Tables 2, 3).

Our results indicate that the higher education premium among immigrants who moved to Russia before the collapse of the USSR is 18% ($p < 0.05$) greater than the higher education premium among the natives (Table 1). This can be explained by the fact that this group of immigrants possesses additional specific skills that are in demand in the Russian labour market. For example, proficiency in the language of the country of birth in addition to Russian allows them to derive additional benefits from higher education. They may be more diligent and invest more in human capital in the Russian labour market to compete with the natives.

At the same time, the premium on education received in Russia does not differ significantly

Table 3. Human capital premium of immigrants who moved after the collapse of the USSR, relative to natives.

Variables	1	2	3	4
Immigrant before 1991 (1=immigrant. 0= native)	−0.067***	−0.119***	−0.055**	−0.131**
	(0.018)	(0.042)	(0.030)	(0.056)
Education level (Upper secondary education or below=ref.):				
Post-secondary non-tertiary education		0.012	-	-
		(0.014)		
Higher education		0.146***	-	-
		(0.016)		
Education abroad: (Upper secondary education or below abroad=ref.):				
Post-secondary non-tertiary education abroad		-	−0.004	0.029
			(0.045)	(0.054)
Higher education abroad		-	0.079	0.111
			(0.069)	(0.075)
Education in Russia (Upper secondary education or below in Russia=ref.):				
Post-secondary non-tertiary education in Russia		-	0.013	0.009
			(0.013)	(0.014)
Higher education in Russia		-	0.147***	0.145***
			(0.016)	(0.017)
Education in Russia*Immigrant (Upper secondary education or below in Russia*Immigrant =ref.):				
Post-secondary non-tertiary education*Immigrant		-	-	0.095*
				(0.054)
Higher education in Russia*Immigrant		-	-	0.024
				(0.063)
Total potential experience/10		0.010**	-	-
		(0.00)		
Potential experience abroad/10		-	−0.010	0.010
			(0.01)	(0.01)
Potential experience in Russia/10		-	0.010***	0.011**
			(0.00)	(0.00)
Potential experience in Russia* Immigrant/10		-	-	0.01
				(0.01)
Years since migration		0.020	-	-
		(0.02)		
Constant		4.249***	4.246***	4.251***
		(0.039)	(0.039)	(0.039)
R-squared		0.22	0.23	0.23
Observations		17035	17035	17035

Source: RLMS-HSE, 2009–2012.

Dependent variable – logarithm of hourly wage; additional independent variables: ethnicity (1=Russian); children (1=have child/children); sex (1=male); family status (1= marriage/cohabitation); types of residence (1=town); region (1=Moscow and Moscow oblast); employment status (base category=employee); formal employment (1= yes); harmful or dangerous working conditions (1= yes); occupation (base category= professionals); sectors (base category=industry); time effects. Level of significance * – $p < 0.1$; ** – $p < 0.05$; *** – $p < 0.01$. Standard errors cluster by individuals.

between natives and immigrants who moved to Russia after the collapse of the USSR (Table 3). There is also no difference between natives and immigrants in terms of the premium on potential labour market experience acquired in Russia. This means that during work and education, immigrants may improve their command of the Russian language and receive more information about the norms and ways of organizing work in Russia.

It should be noted that after controlling for foreign and domestic human capital, the income gap between natives and immigrants (−9%) ($p < 0.05$) became higher (−13%) ($p < 0.05$). This indicates a negative selection of immigrants in the Russian labour market (Table 2). The results for immigrants who came to Russia after the collapse of the USSR display a similar picture (Table 3). Negative selection in this case presupposes that the Russian labour market is dominated by immigrants whose qualifications are lower than those of natives are. Most of these immigrants came to Russia after the collapse of the USSR. At the same time, differences in incomes between natives and foreign-born who came to Russia before the collapse of the USSR were not found (Table 1). This group of immigrants have similar to natives' qualification.

Income difference

The income difference from the natives is observed only for those immigrants who moved after the disintegration of the USSR. At the same time, the contribution of human capital to the income gap between the two groups is significant. The higher

education premium as well as the premium on potential labour market experience obtained in Russia is lower for immigrants than for natives. This means that they do not have enough knowledge and skills specific to the Russian labour market, preventing them from fully benefiting from the increase in the level of education and from each year of potential labour market experience in Russia (explainable part of the decomposition, Table 4).

One of these obstacles is poor knowledge of the Russian language. Russian was the dominant language in school during the Soviet period. Therefore, immigrants who moved to Russia before the collapse of the USSR with higher probability did not experience problems with the Russian language. They were educated during the Soviet period and integrated more easily into the Russian labour market, and their income did not differ from that of the natives. Immigrants who moved to Russia after the collapse of the USSR were more likely to receive education in their native language, which could be an obstacle to their integration in Russia.

In addition, possibly due to employers' bias against immigrants who came to Russia after the collapse of the USSR as well as due to statistical discrimination or limit access of immigrants to jobs in certain occupations and sectors of the economy their incomes are lower than incomes of natives (an unexplained part of the decomposition, Table 4). However, this may be due to not only the discriminatory component but also the unobservable heterogeneity of the two groups or their self-selection. For instance, immigrant can be less goal-oriented and motivated to build a career compared to natives.

A positive contribution to the differentiation of income between natives and immigrants who came to Russia after the collapse of the USSR is made by their residence in Moscow or in the Moscow region, self-employment and employment in construction. In these regions and in this sector of the economy, immigrants are most in demand and may receive the higher premium for investments in their human capital. At the same time, the incomes of immigrants who are employed in the health sector (nurses and support staff) are higher than those of native workers with the same productivity characteristics in this sector. It is likely that employers in hospitals and clinics prefer immigrants as carers and nurses. They are also willing to pay them more than natives with the same productivity characteristics (Table 4). It coincides with the fact that immigrants and natives are rather complements than substitutes in the Russian labour market and are distributed differently across sectors of the economy (Smirnykh and Polaykova 2020). Based on this, we suppose that with high probability the sectoral segregation of immigrants is not a significant obstacle to the transferability of immigrants' human capital to the Russian labour market.

In general, the results confirm the assumption that the transfer of human capital of immigrants to the Russian labour market is imperfect. Our findings also show that imperfect transfers of human capital may be responsible for the income gap between immigrants and natives in Russia. The results obtained also indicate that the human capital of immigrants who arrived in Russia after the collapse of the USSR is less transferable to the Russian labour market than the human capital of immigrants who arrived in Russia earlier, before the collapse of the USSR. Immigrants who moved to Russia before the collapse of the USSR often received their education in the USSR and studied in Russia, and their income does not differ from the income of natives. Difficulties with the transfer of human capital are observed among immigrants who moved to Russia after the collapse of the USSR. These difficulties are caused not only by the lack of knowledge and experience of immigrants, which are specific to the Russian labour market, but also by possible discrimination against them by employers.

V. Conclusion

Studies devoted to the analysis of the labour market position of immigrants, in comparison with native-born citizens, have become relevant in recent years because of the global increase in immigration (International Migration Report, 2017). The foreign-born groups often lack the skills to compete with native-born citizens in host labour markets, which may lead to long-term rises in social tensions (Elliott and Sims, 2001). Russia is of interest in this

Table 4. Detailed decomposition of the native-immigrants income gap.

Variables Depend. var. = logarithm of hourly income	Migrated before the collapse of the USSR (basic group – natives)		Migrated after the collapse of the USSR (basic group – natives)	
	Coeff.	%	Coeff.	%
Predicted difference	−0.027	100	−0.067***	100
Explained	0.014	−51.852	−0.010	14.925
Post-secondary non-tertiary education in Russia	−0.002	7.406	−0.004	5.970
Higher education in Russia	0.001	−3.704	−0.021***	31.343
Potential experience in Russia	0.004*	−14.815	−0.010**	14.925
Sex (1=male)	−0.004	14.815	0.011***	−16.418
Ethnicity (1=Russian)	−0.002	7.406	−0.004	5.970
Children (1=have child/children)	0.008***	−29.63	−0.001	1.493
Family status (1= marriage/cohabitation)	0.001	−3.704	−0.001	1.493
Type of residence (1=town)	−0.007***	25.928	−0.010***	14.925
Moscow and Moscow (1= yes)	0.017*	−62.962	0.035***	−52.239
Employee=base category				
Entrepreneurs	−0.001	3.704	−0.001	1.493
Self-employed	0.001	−3.704	0.003*	−4.478
Formal employment (1= yes)	0.001	−3.704	−0.003*	4.478
Harmful or dangerous working conditions (1= yes)	−0.001	3.704	−0.005***	7.463
Professionals=base category				
Top manager	0.001	−3.704	−0.001	1.493
Technicians and associate professionals	−0.001	3.704	0.001	−1.493
Clerical support workers	0.002	−7.406	0.002	−2.985
Service and sales workers	−0.003	11.111	−0.004	5.970
Skilled workers	0.001	−3.704	−0.007**	10.448
Unskilled workers	0.001	−3.704	−0.002	2.985
Industry=base category				
Construction	0.001	−3.704	0.004**	−5.97
Transport and communications	0.001	−3.704	0.001	−1.493
Education	−0.001	3.704	0.003*	−4.478
Science. Culture	0.001	−3.704	−0.001	1.493
Public Health	0.001	−3.704	0.001	−1.493
Trade. Consumer Services	−0.001	3.704	0.001	−1.493
Finances	0.001	−3.704	−0.001	1.493
Housing and Communal Services	−0.001	3.704	−0.001	1.493
2009=base category				
2010	−0.001	3.704	0.001	−1.493
2011	0.001	−3.704	0.001	−1.493
2012	−0.005	18.519	0.003**	−4.478
Unexplained	−0.041*	151.852	−0.057***	85.075
Post-secondary non-tertiary education in Russia	−0.02	74.07	0.005	−7.463
Higher education in Russia	0.043**	−159.259	−0.009	13.433
Potential experience in Russia	0.045	−166.660	0.007	−10.448
Ethnicity (1=Russian)	0.042	−155.556	0.109***	−162.687
Sex (1=male)	−0.042*	155.556	−0.051***	76.119
Children (1=have child/children)	−0.078	288.889	0.011	−16.418
Family status (1= marriage/cohabitation)	0.033	−122.222	−0.007	10.448
Type of residence (1=town)	−0.014	51.852	0.019	−28.358
Moscow and Moscow (1= yes)	−0.01	37.037	−0.032***	47.761
Employee=base category				
Entrepreneurs	−0.001	3.704	−0.004	5.970
Self-employed	0.058	−214.815	0.001	−1.493
Formal employment (1= yes)	0.014	−51.852	0.067***	−100
Harmful or dangerous working conditions (1= yes)	0.015	−55.556	−0.008*	11.940
Professionals=base category				
Top manager	0.008	−29.630	−0.001	1.493
Technicians and associate professionals	0.011	−40.741	−0.008	11.940
Clerical support workers	−0.002	7.407	−0.006	8.955
Service and sales workers	0.014	−51.852	0.012***	−17.910
Skilled workers	0.048**	−177.778	0.019	−28.358
Unskilled workers	0.011	−40.741	0.004	−5.970
Industry=base category				
Construction	0.004	−14.815	−0.011	16.420
Transport and communications	0.008	−29.630	0.004	−5.970
Education	0.006	−22.222	0.003	−4.478
Science. Culture	−0.001	3.704	−0.001	1.493
Public Health	−0.006	22.222	0.012	−17.91
Trade. Consumer Services	−0.009	33.333	0.005	−7.463
Finances	0.001	−3.704	−0.001	1.493
Housing and Communal Services	0.006	−22.222	0.006**	−8.955
2009=base category				
2010	−0.003	11.111	−0.003	4.478
2011	−0.023	85.185	0.012	−17.910

(*Continued*)

Table 4. (Continued).

Variables Depend. var. = logarithm of hourly income	Migrated before the collapse of the USSR (basic group – natives)		Migrated after the collapse of the USSR (basic group – natives)	
	Coeff.	%	Coeff.	%
2012	−0.001	3.704	−0.004	5.970
Constant	−0.198	733.333	−0.207	308.955

Source: RLMS-HSE, 2009–2012.
Levels of significance * – p < 0.1; ** – p < 0.05; *** – p < 0.01. Standard errors cluster by individuals. Income equations are in Table 4A Appendix.

regard, as it demonstrates how the disintegration of the USSR, and the associated immigration flows, affected the Russian labour market and transfer of human capital to it from the former Soviet republics. Post-Soviet Russia experienced significant growth in foreign-born populations, and populations from the former Soviet republics moved to Russia during the Soviet period.

As a result, there is a group in the Russian labour market who were born outside of Russia. This group can be defined as the foreign-born population. In this research, we examined the issue of whether the human capital premium differs between natives and immigrants who arrived in Russia before and after the collapse of the USSR. We also assessed whether the education premium depends on where immigrants received their education (in Russia or abroad). The human capital received by immigrants in the country of origin may not be equivalent to the human capital received in Russia due to the limited ability to transfer skills and the imperfect compatibility of the labour markets of the two countries. In addition, the premium on human capital obtained in Russia may differ between natives and immigrants.

We found that immigrants who moved to Russia before the collapse of the USSR receive a higher premium on higher education acquired in Russia, which allows them not only to acquire professional skills but also to improve their knowledge of the language, socialize more, or build social networks. It can bring them additional benefits for employment. In addition, this group of immigrants may be more diligent and may invest more in their human capital, which allows them to outperform natives in the labour market.

The results show that the education received by immigrants outside of Russia is less valued in the Russian labour market than education received in Russia. At the same time, the premium on higher education received in Russia is not practically different among immigrants who moved to Russia after the collapse of the USSR compared to premium among natives.

The results suggest that the income of the foreign-born population varies according to the period in which they immigrated. The income of foreign-born populations who moved before the disintegration of the USSR is not significantly different from the income of native-born citizens. The foreign-born people who immigrated to Russia after the disintegration of the USSR had lower incomes compared to native-born citizens.

The differences in income between natives and the foreign-born population are affected by the length of residence of immigrants in Russia as well as the level and quality of their education. The earlier foreign-born people moved to Russia the higher the probability of an increase in their income, and the difference between the incomes of the immigrants and natives is smaller.

The income of the foreign-born population is also affected by the level of their education. The foreign-born people who immigrated to Russia before the collapse of the USSR have a higher level of education than the group who moved from newly independent post-Soviet states. The quality of human capital of the groups also differs. Those who resettled in Russia in the Soviet period were more likely to have studied in the USSR and Russia, where the education level was standardized, have Russia language proficiency compared to those who moved to Russia after the collapse of the USSR from the newly independent states.

The income gap is observed only for the part of the foreign-born population who resettled in Russia after the collapse of the USSR. Our results also show that the difference in income between natives and immigrants who came to Russia after

the collapse of the USSR is explained not only by the lower accumulation of their human capital in the Russian labour market but also by discrimination on the part of employers. Thus, the human capital of immigrants who arrived in Russia after the collapse of the USSR is less transferable to the Russian labour market than the human capital of immigrants who arrived in Russia before the collapse of the USSR.

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Data available

The data that support the findings of this study are available from the corresponding author Evgeniya Polyakova, email eypolyakova@hse.ru, upon reasonable request.

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Appendix

Table A1. The share of foreign-born in 2010, %.

Variables	Russian census	RLMS-HSE
All foreign-born	7.8	8.2
Country of birth:		
Ukraine	26.28	25.02
Kazakhstan	22.17	22.81
Uzbekistan	9.93	8.82
Azerbaijan	6.65	6.82
Belorussia	6.62	7.99
Kyrgyzstan	5.12	3.65
Armenia	4.57	5.93
Tajikistan	4.04	4.62
Georgia	3.90	3.03
Moldavia	2.55	3.17
Turkmenistan	1.61	2.21
All post-soviet countries	93.44	94,07
Other countries	6.56	5.93
Total	100	100
Ethnicity:		
Russian	53.9	67.1
Non-Russian	46.1	32.9
Total	100	100

Source: RLMS-HSE, 2009–2012.

Table A2. Socio-Demographic characteristics of natives and immigrants.

		Immigrants		
Variables	Natives	Migrated before the collapse of the USSR	Migrated after the collapse of the USSR	Total
Share of migrant, %:	-	0.04	0.03	0.07
		(0.19)	(0.18)	(0.26)
Age at migration, years	-	11.70	23.70	17.31
		(8.53)	(10.88)	(11.92)
Residence period, years	-	32.97	12.65	23.48
		(9.52)	(5.52)	(12.86)
Education level:				
Upper secondary education or below	0.08	0.09	0.18***	0.13***
	(0.27)	(0.29)	(0.33)	(0.36)
Post-secondary non-tertiary education	0.63	0.58**	0.58***	0.59***
	(0.48)	(0.48)	(0.49)	(0.49)
Higher education	0.29	0.33**	0.23***	0.28
	(0.46)	(0.44)	(0.44)	(0.46)
Total potential experience, years	21.74	28.67	20.35	24.78
	(10.61)	(9.77)	(10.01)	(10.48)
Potential experience in Russia, years	21.74	26.23	11.25	19.23
	(10.61)	(8.76)	(5.29)	(10.48)
Potential experience in abroad, years	-	2.44	9.1	5.55
		(4.07)	(9.06)	(7.62)
Education level:				
Upper secondary education or below in Russia	-	0.06	0.05	0.05
		(0.23)	(0.22)	(0.23)
Upper secondary education or below in abroad	-	0.03	0.13	0.08
		(0.18)	(0.34)	(0.27)
Post-secondary non-tertiary education in Russia	-	0.45	0.25	0.36
		(0.49)	(0.43)	(0.48)
Post-secondary non-tertiary education in abroad	-	0.13	0.33	0.23
		(0.33)	(0.42)	(0.42)
Higher education in Russia	-	0.31	0.15	0.23
		(0.12)	(0.36)	(0.42)
Higher education in abroad	-	0.02	0.08	0.05
		(0.13)	(0.27)	(0.21)
Study in the USSR (1=yes)	0.55	0.81***	0.49***	0.84***
	(0.42)	(0.28)	(0.43)	(0.37)

(*Continued*)

Table A2. (Continued).

Variables	Natives	Immigrants		
		Migrated before the collapse of the USSR	Migrated after the collapse of the USSR	Total
Age, years	37.74	44.67***	36.35**	40.78***
	(10.61)	(9.77)	(10.04)	(10.71)
Ethnicity (1=Russian)	0.91	0.69***	0.62***	0.66***
	(0.28)	(0.46)	(0.48)	(0.47)
Sex (1=male)	0.49	0.47	0.55***	0.50
	(0.49)	(0.49)	(0.49)	(0.50)
Family status (1= marriage/cohabitation)	0.79	0.78	0.87***	0.82**
	(0.40)	(0.41)	(0.34)	(0.38)
Children (1=have child/children)	0.75	0.89***	0.74	0.82***
	(0.43)	(0.31)	(0.43)	(0.38)
Types of residence (1=town)	0.78	0.71***	0.66***	0.68***
	(0.41)	(0.45)	(0.47)	(0.46)
Region (1=Moscow and Moscow oblast)	0.14	0.18***	0.23***	0.21***
	(0.34)	(0.38)	(0.42)	(0.41)
N	16,333	702	615	1317

Source: RLMS-HSE, 2009–2012.
Significant level of the mean differences between natives and immigrants: * – $p < 0.1$; ** – $p < 0.05$; *** – $p < 0.01$.

Table A3. Employment conditions, sectoral and occupational distribution of natives and immigrants.

Variables	Natives	Immigrants		
		Migrated before the collapse of the USSR	Migrated after the collapse of the USSR	Total
Monthly wage, thousands Rub	16.11	16.33	15.05***	15.73
	(8.12)	(8.65)	(5.72)	(7.45)
Monthly working hours, years	175.01	178.32	181.68***	180.54***
	(31.31)	(43.44)	(45.45)	(34.58)
Hourly wage, Rub.	93.31	93.60	85.51***	88.77**
	(46.10)	(51.40)	(28.85)	(1.17)
Enterprises with state-owned share (1=yes)	0.36	0.41***	0.28***	0.35
	(0.48)	(0.49)	(0.44)	(0.47)
Public sector (1= yes)	0.19	0.21	0.15***	0.18
	(0.39)	(0.40)	(0.36)	(0.38)
Formal employment (1= yes)	0.85	0.82	0.66***	0.75***
	(0.36)	(0.37)	(0.47)	(0.43)
Harmful or dangerous working conditions (1= yes)	0.13	0.13	0.08***	0.11**
	(0.34)	(0.17)	(0.27)	(0.31)
Tenure, years	6.71	7.78***	4.29***	6.15***
	(7.87)	(8.02)	(4.80)	(6.93)
Second job (1= yes)	0.05	0.05	0.04	0.05
	(0.21)	(0.23)	(0.16)	(0.22)
Salary arrears (1= yes)	0.03	0.03	0.03	0.03
	(0.17)	(0.17)	(0.16)	(0.17)
Change of place of work compared to the previous year (1= yes)	0.17	0.13***	0.19	0.17
	(0.37)	(0.33)	(0.39)	(0.37)
Employment status:				
employee	94.01	91.80	92.31	91.22
entrepreneurs	3.23	6.53	6.41	6.67
self-employment	2.76	1.67	1.28	2.11
Chi2[1]	-	22.09***	12.93***	11.11***
Sector:				
Industry	20.17	15.81	15.45	15.64
Construction	11.94	11.97	16.42	14.05
Transportation, Communication	12.33	13.53	13.33	13.44
Education	10.75	12.11	7.80	10.10
Science, Culture	3.47	3.56	4.39	3.95
Public health	8.55	9.12	6.18	7.74
Trade, Consumer Services	25.76	23.50	29.59	26.35
Finance	2.77	3.85	2.93	3.42
Housing and Communal Services	4.26	6.55	3.90	5.32
Total	100	100	100	100
Chi2[1]	-	20.82**	30.7***	25.58***
Occupation:				
Top manager	4.35	5.13	3.90	4.56
Professionals	18.34	18.38	13.66	16.17
Technicians and associate professionals	17.99	19.80	16.10	18.07

(*Continued*)

Table A3. (Continued).

Variables	Natives	Immigrants: Migrated before the collapse of the USSR	Immigrants: Migrated after the collapse of the USSR	Immigrants: Total
Clerical support workers	6.17	4.56	5.04	4.78
Service and sales workers	12.35	13.68	14.31	13.97
Skilled workers	32.71	30.34	37.89	33.86
Unskilled workers	8.09	8.12	9.11	8.58
Total	100	100	100	100
Chi2[1]	-	7.12	17.23***	10.54
N	16,333	702	615	1317

Source: RLMS-HSE, 2009–2012.
Significant level of the mean differences between natives and immigrants: * – p < 0.1; ** – p < 0.05; *** – p < 0.01. 1 - Results of the test for chi-square test of independence for immigrants and natives.

Table A4. Income equations of natives and immigrants associated with Oaxaca-Blinder decomposition.

	Natives	Immigrants: Migrated before the collapse of the USSR	Immigrants: Migrated after the collapse of the USSR
Post-secondary non-tertiary education in Russia	0.114	−0.032	0.024
	(0.014)	(0.060)	(0.038)
Higher education in Russia	0.146***	0.288***	0.087
	(0.017)	(0.069)	(0.054)
Potential experience in Russia	0.001***	0.002	0.002
	(0.000)	(0.002)	(0.002)
Ethnicity (1=Russian)	−0.004	0.053	0.161***
	(0.015)	(0.046)	(0.037)
Sex (1=male)	0.169***	0.080*	0.080**
	(0.010)	(0.004)	(0.003)
Children (1=have child/children)	0.059***	−0.027	0.073*
	(0.010)	(0.079)	(0.038)
Family status (1= marriage/cohabitation	−0.179*	0.023	−0.026
	(0.010)	(0.056)	(0.043)
Type of residence (1=town)	0.096***	0.077	0.125***
	(0.010)	(0.054)	(0.036)
Moscow and Moscow (1= yes)	0.400***	0.348***	0.258***
	(0.011)	(0.062)	(0.034)
Employee=base category			
Entrepreneurs	0.052	−0.014	−0.114
	(0.034)	(0.151)	(0.103)
Self-employed	−0.118***	−0.056	−0.117
	(0.026)	(0.106)	(0.075)
Formal employment (1= yes)	0.011	0.028	0.110***
	(0.011)	(0.070)	(0.034)
Harmful or dangerous working conditions (1= yes)	0.104***	0.215***	0.016
	(0.011)	(0.069)	(0.051)
Professionals=base category			
Top manager	0.031	0.185*	0.029
	(0.244)	(0.104)	(0.111)
Technicians and associate professionals	−0.057***	0.007	−0.109*
	(0.015)	(0.007)	(0.058)
Clerical support workers	−0.149***	−0.186**	−0.263***
	(0.020)	(0.095)	(0.069)
Service and sales workers	−0.209***	−0.107	−0.127*
	(0.019)	(0.104)	(0.070)
Skilled workers	0.141***	0.016	−0.090
	(0.016)	(0.078)	(0.066)
Unskilled workers	−0.273***	−0.135	−0.223***
	(0.019)	(0.095)	(0.074)
Industry=base category			
Construction	0.103***	0.140*	0.036
	(0.014)	(0.083)	(0.054)
Transport and communications	0.062***	0.119*	0.090
	(0.014)	(0.072)	(0.060)
Education	−0.106***	−0.055	−0.085
	(0.018)	(0.090)	(0.079)
Science, Culture	−0.057**	−0.052	−0.090
	(0.025)	(0.090)	(0.084)

(*Continued*)

Table A4. (Continued).

		Immigrants	
	Natives	Migrated before the collapse of the USSR	Migrated after the collapse of the USSR
Public Health	−0.083**	−0.149*	0.113*
	(0.017)	(0.086)	(0.067)
Trade, Consumer Services	0.023*	−0.016	0.041
	(0.013)	(0.070)	(0.050)
Finances	0.127***	0.135	0.131
	(0.024)	(0.134)	(0.093)
Housing and Communal Services	−0.103***	−0.007	0.048
	(0.02)	(0.095)	(0.058)
2009=base category			
2010	0.005	−0.008	−0.009
	(0.008)	(0.048)	(0.043)
2011	0.033	−0.041	0.077*
	(0.009)	(0.045)	(0.042)
2012	0.075	0.074	0.062
	(0.009)	(0.051)	(0.041)
R2	0.23	0.28	0.24
N	16,333	702	615

Source: RLMS-HSE, 2009–2012.
Levels of significance: * – $p < 0.1$; ** – $p < 0.05$; *** – $p < 0.01$.