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## ANALYSIS OF RUSSIAN MIGRATION FLOWS WITH SOCIO-ECONOMIC DEVELOPMENT CONSIDERATION

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### ABSTRACT

Migration in the Russian Federation today is considered as one of the main sources of further population growth. The concept of state migration policy contains that “migration policy is an auxiliary tool for solving demofigureic and related economic problems” [1]. In addition to compensating for the natural population decline, immigrants increase the supply of labor, labor productivity and ease the pressure on pension systems in host countries. In this regard, the issues of increasing the migration attractiveness of the Russian regions to attract qualified personnel from abroad are of particular importance. Regulation of internal migration flows is aimed at the development of labor mobility of the population, its movement from labor-oversupply and overpopulated areas to regions that experience personnel shortages. The purpose of regulating external migration flows is the selection of migrants to match their number and professional characteristics to the needs of the Russian labor market, as well as to curb illegal migration. Of particular interest is the study of the qualitative and quantitative characteristics of external and internal migration flows, which is necessary for the formation of directions of state migration policy. In this paper, we analyzed migration flows in the Russian Federation and their role in the socio-economic development of the regions, analyzed the impact of internal and external migration gains on the socio-economic position of the subjects of the Russian Federation, and also offered practical recommendations for improving state migration policy in order to fully and effective use of migration as a resource for the country's economic development.

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## 1. INTRODUCTION

According to the UN, the scale of world migration has a stable upward trend. In 1980 the number of international migrants was 102 million (M), in 2017 - 258 M, a substantial number (150.3M people) of whom are migrant workers (58.3% of the total amount of migrants). Over the past decades,

the proportion of international migrants among all the citizens of the planet also rose from 2,3% in 1980 to 2,8% in 2000 and 3.4% in 2017 [2].

The UN data based on official statistics on the foreign-born, i.e., people born outside of the country of current residence indicates that the highest number of migrants in 2017 – 49.8M (15.3% of country’s total population) - lived in USA. Russia ranks fourth – 11.65M migrants (8.1M of Russia’s total population) lived here [3]. The main Russian difference from the other industrial countries is that most immigrants get here from former Soviet Republics with which it has been established that no visa is required.

Experts note that the most developed countries seek to use international migration as an important factor of national human capital development, growth of the economy and the entire social sphere, using a selective approach for this. For example, in Canada and some other developed countries, a points-based system is used for the selection of economic migrants [4]. From 2015, applicants who already have a job offer (contract with an employer) receive an advantage when applying for living in Canada. Such a system allows attracting the very specialists that the country's economy needs [5].

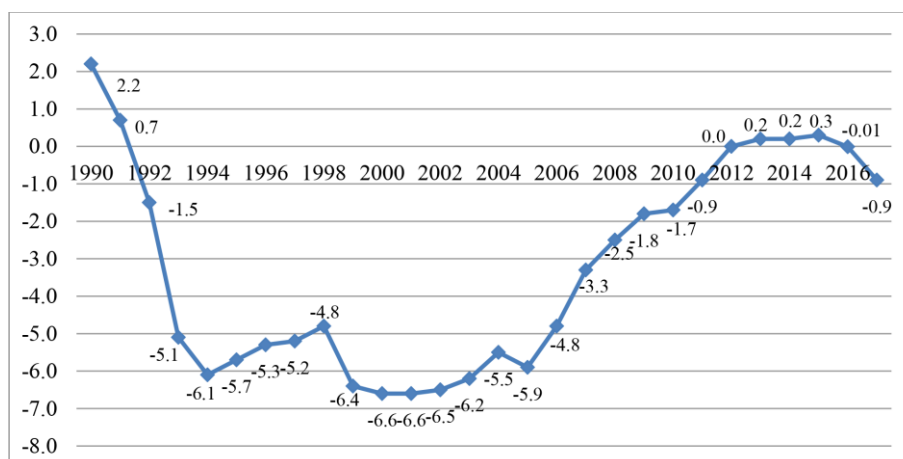
Selective approach allows the country - the recipient of labor to receive a number of significant advantages: solving the problem of labor shortages in certain sectors of the economy, productivity growth, balanced regional development by resettling migrants in certain territories, stimulating domestic demand for goods and services owing to growing number of consumers, development of human capital and innovative activity of enterprises, etc.

## 2. METHOD

This study applies the systematization of theoretical and analytical data, statistical analysis, comparative analysis, figureical analysis, regression analysis, and trend line building. This study focuses on 12 Russian regions with positive increase in migrations.

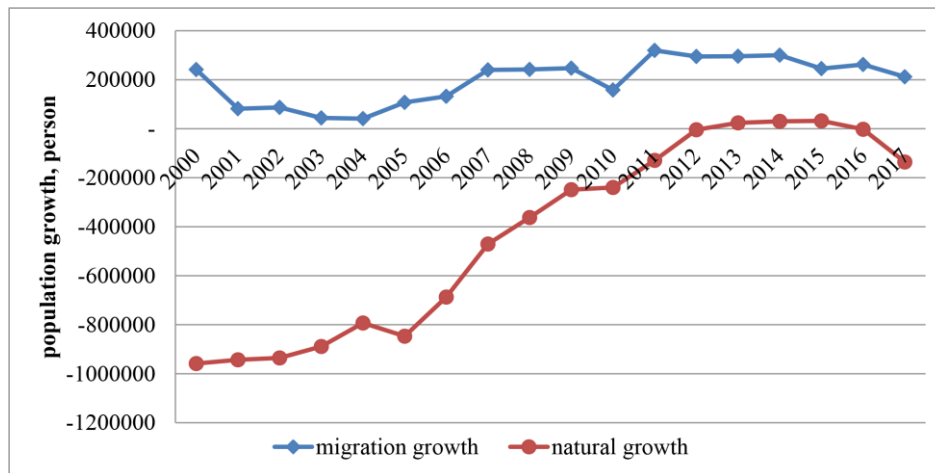
## 3. RESULT AND DISCUSSION

Since 1992, in Russia has been observed extremely low birth rate while the mortality rate was high, therefore natural growth rate over the 21 years (up to 2012 inclusive) was negative (Figure 1):



**Figure 1:** Natural population growth (per 1000 population), Russia [6].

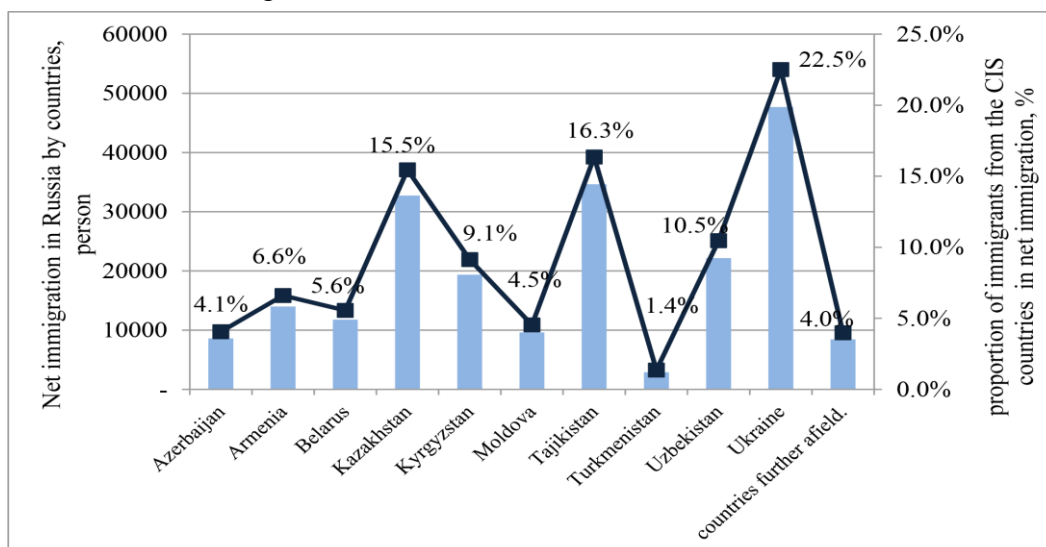
Under the circumstances, migration became a source of compensating for all population damages. Traditionally the migration growth rate is positive and significantly higher than the natural growth rate (Figure 2).



**Figure 2:** Population growth in Russia, persons [7]

It should be clarified that the Federal State Statistics Service (Rosstat) registers migration for permanent residence or long-term stay [8]. Consequently, official statistics do not take into account foreign migrants who do not have registration in Russia or stay for short periods.

According to the realistic scenario of the Demofigureic forecast until 2035, compiled by Rosstat, the natural population decrease in 2018-2035 will reach 7.3M people [9]. Thanks to migration, it will be possible to reduce it: according to the forecast, the migration increase for the same period will be 4.43M people, and by the beginning of 2036 the population will be not 139.6 million, but 144M people [10]. Accordingly, migration in Russia is considered to be one of the most important sources of stabilization of the demofigureic situation [11].

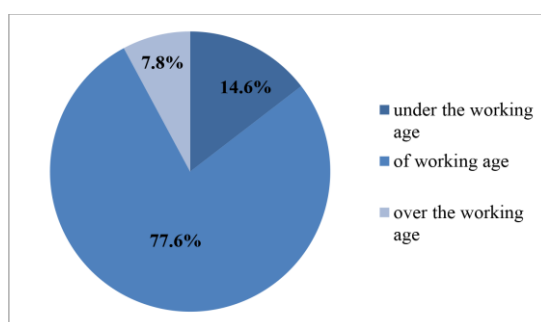


**Figure 3:** Net immigration in Russia in 2017 by countries

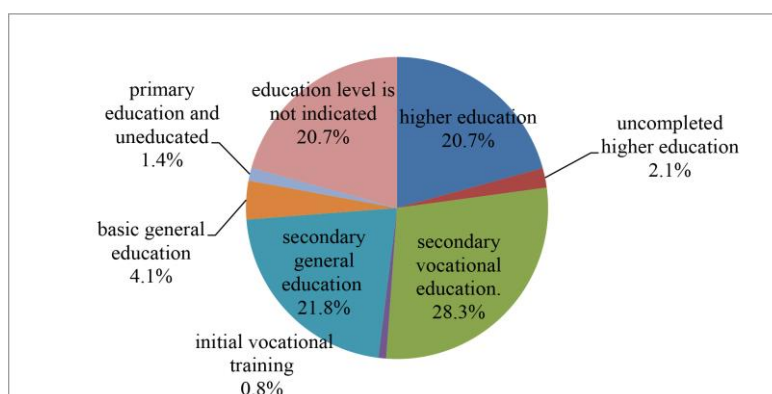
The majority of immigrants — in 2017, only 589,033 people arrived in the country — people from the Commonwealth of Independent States (CIS) countries (89%) [12]. Migration growth was 211,878 people, the share of from the CIS countries in it - 96% (Figure 3). In this regard, the cultural and linguistic affinity of migrants in Russia becomes meaningful. In 2017, most immigrants (89%)

came from the CIS countries (generally in 589 033 immigrants entered the country) [13]. Net immigration amounted to 211 878 people, the proportion of immigrants from the CIS countries was 96% (Figure.3): The largest number of migrants was from Ukraine, net migration amounted to 47 691 people, followed by Tajikistan (34 639 people), Kazakhstan (32 736 people) and Uzbekistan (22 167 people).

Migration flows can improve not only demofigureic situation in certain regions and in the country in general but also can significantly affect the economy of the host territories. This is due to the fact that migrants are mainly people of working age and therefore this is an additional workforce and staff capacity for regional enterprises. In 2017, age structure of net external immigration was structured as follows (Figure 4). Most of them have secondary vocational education or one of grades of schooling (Figure 5).



**Figure 4:** Age structure of external immigrants in Russia, 2017 (data from [14]).



**Figure 5:** Breakdown of the immigrants aged 14 or older by the level of education in Russia, 2017 (data from [15]).

Net immigration of those aged 14 or older amounted to 184 974, only 38 378 people (20.7%) of which had higher education. Consequently, the others are eligible to apply working specialties or occupations which do not require vocational training and qualification.

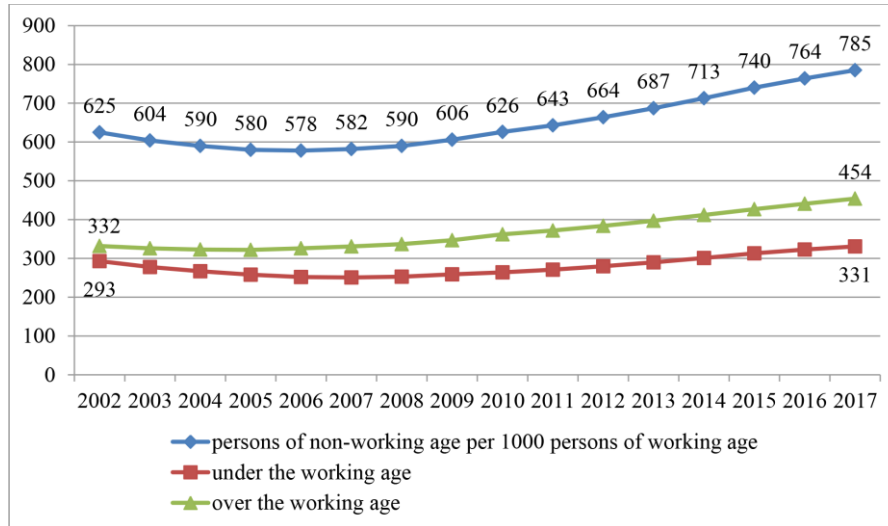
External immigration in Russia is a vital source of the replenishment of human and labor resources, owing to worsening demofigureic situation:

- 1) Since 1992 has been observed natural population decline (exception - 2013-2015), and migration can be a source to maintain the population.
- 2) Demofigureic burden on the population of working age increases (Figure 6).

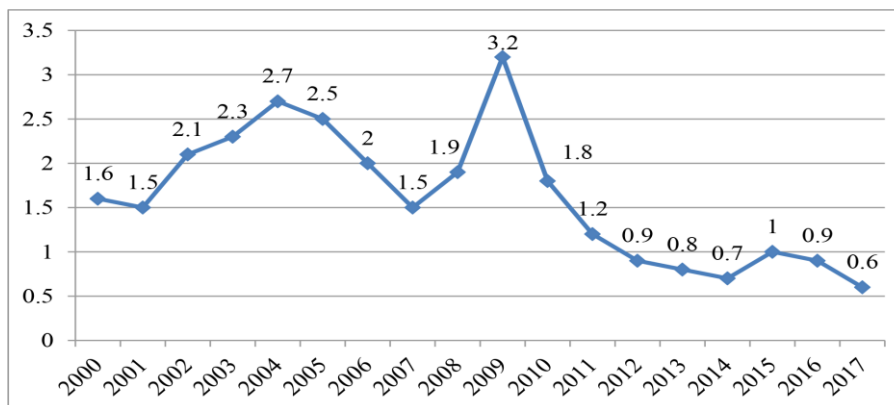
Over the 15 years, the dependency ratio rose from 625 to 785 (by 25.6%), most of which comprise persons of retirement age. Their share in total ratio increased by 36.7% - from 332 to 454 persons per 1000 persons of working age. Rapid population aging can cause shortage of labour and

it necessitates external labor resource mobilization;

- 3) This is confirmed by the fact that the unemployment load (the number of people officially registered as not working per job vacancy) was only 0.6 by the end of 2017 for Russia as a whole (Figure 7). It means the demand for labour exceeds its supply.



**Figure 6:** The dependency ratio in Russia (by the end of the year) [16].

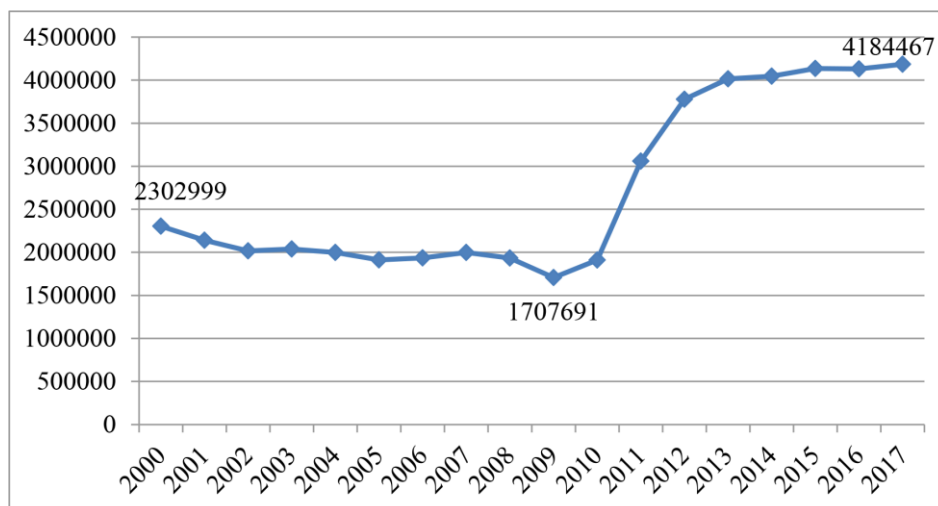


**Figure 7:** The number of people officially registered as not working per job vacancy by the end of the year for Russia as a whole, persons [17]

For comparison, in 1995, this indicator was 8.2, that is the number of those wishing to get a job was significantly higher than a number of vacancies, and therefore, labour market situation could be described as crucial. The unemployment rate at the time was 9.5%, the unemployment rate registered was 3.3%. In 2017, similar indicators amounted to 5.2% and 1%, respectively.

The severest impacts of negative demofigureic trends (fertility decline and decrease of the working-age population) internal interregional migration are starting to play an increasing role for Russian regions. Over the last ten years its levels have increased rapidly (Figure 8):

In this case, according to the Rosstat methodology, only internal migration associated with a change of permanent residence (i.e., with a change of registration) has been taking into account. Commuting and other temporary mobility is not taken into account.



**Figure 8:** Internal migration in Russia, persons [6]

Only 12 Russian regions had positive migration increase for the last 10 years (2008-2017):

- 1) four regions of the Central Federal District - Belgorod, Voronezh and Moscow regions, Moscow;
- 2) three regions of the North-West Federal District - Kaliningrad and Leningrad regions, St. Petersburg;
- 3) two regions of the Southern Federal District - the Republic of Adygea and the Krasnodar territory;
- 4) by one subject of the Volga, Ural and Siberian federal districts - the Republic of Tatarstan, Tyumen (including the Khanty-Mansiysk and Yamal-Nenets Autonomous Districts) and Novosibirsk regions.

These regions were selected as subjects of our study.

In order to determine on which type of migration - internal or external – the Russian government should focus in 12 regions. We have conducted regression analysis for forecasting, analyzing time series, testing hypotheses and revealing hidden relationships in the data. We need to determine whether there is a relationship between migration and regional socio-economic development. Let us put forward the hypothesis: “Migration growth has a positive effect on the characteristics of the socio-economic situation of the Russian regions”.

The indicators “internal migration increase (per 10,000 people)” and “external migration increase (per 10,000 people)” were chosen as independent variables  $x_1$  and  $x_2$ . Formulating separate regression equations for  $x_1$  and  $x_2$  will make it possible to compare the effects and strength of the influence of external and internal migration processes on regional development.

The dependent variables will be indicators that reflect some of the main characteristics of the socio-economic situation of the subjects:

- $y_1$  – Gross regional product (GRP) per capita (RUB);
- $y_2$  – the number of small and medium enterprises, at the end of the year (units);
- $y_3$  – the volume of innovative goods, works and services per capita (rubles);
- $y_4$  – the unemployment rate (%);
- $y_5$  – the number of registered crimes per 100,000 people.

To determine the presence/absence of a relationship between independent and dependent variables trend lines will be constructed, in our case - based on linear and non-linear pairwise equations (exponential, logarithmic, polynomial and power) regression, for each of which the coefficient of determination  $R^2$  will be determined: the higher the coefficient of determination, the better the model. If  $R^2 \leq 0.5\%$ , then the model has a poor quality level, the analysis cannot be considered significant and used for subsequent studies. For further forecasting and drawing conclusion, we will use those models that have  $R^2 \geq 0.75$ .

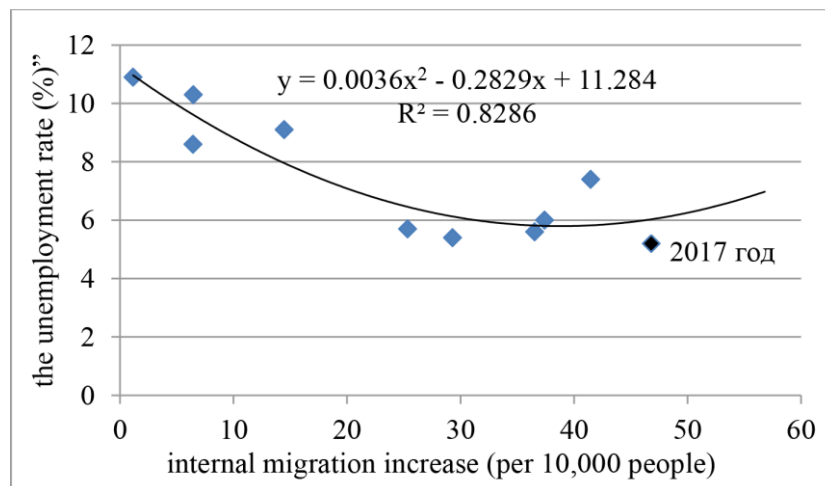
The resulting statistically significant regression equations are presented in Table 1.

**Table 1: Regression equations with the coefficient of determination  $R^2 \geq 0.75$ .**

Region	independent variable X	independent variable Y	Regression equation
Kaliningrad Region	$x_1$ "internal migration increase (per 10,000 people)"	$y_1$ "GRP per capita (RUB)"	$y = 189686e^{0,0157x}$ $R^2 = 0.7485$
Voronezh region	$x_2$ "external migration increase (per 10,000 people)"	$y_1$ "GRP per capita (RUB)"	$y = 403.9x^2 - 14697x + 262166$ $R^2 = 0.9521$
Moscow	$x_1$ "internal migration increase (per 10,000 people)"	$y_2$ "the number of small and medium enterprises, at the end of the year (units)"	$y = 204.21x_2 - 23724x + 866884$ $R^2 = 0.943$
Moscow	$x_2$ "external migration increase (per 10,000 people)"	$y_2$ "the number of small and medium enterprises, at the end of the year (units)"	$y = 11104x^2 - 237720x + 1493855$ $R^2 = 0,8972$
Kaliningrad Region	$x_1$ "internal migration increase (per 10,000 people)"	$y_4$ "the unemployment rate (%)"	$y = 0,0036x^2 - 0,2829x + 11.284$ $R^2 = 0.8286$
Kaliningrad Region	$x_1$ "internal migration increase (per 10,000 people)"	$y_5$ "the number of registered crimes per 100,000 people"	$y = 0,6133x^2 - 38,847x + 21390.7$ $R^2 = 0,7628$
St. Petersburg			$y = 0,2394x^2 - 50,231x + 3673.9$ $R^2 = 0.8137$

Consider, for example, the Kaliningrad region. By the standards of Russia, it is a rather small region both in terms of area and population.

A good quality model with  $R^2 = 0.829$  has a polynomial regression equation:  $y = 0.0036x^2 - 0.2829x + 11.284$  - it can be used to predict changes in the unemployment rate depending on changes in internal migration flows. Let's continue the trend line for 10 years ahead (Figure 10):



**Figure 10: Polynomial trend line for the independent variable  $x_1$  "internal migration increase (per 10,000 people)" and dependent  $y_4$  "the unemployment rate (%)" of the Kaliningrad region.**

If internal migration growth increases by 10%, the projected unemployment rate with a probability of 82.9% will be:  $0.0036 * (46.8 * 1.1)^2 - 0.2829 * (46.8 * 1.1) + 11.284 = 6.3$  , which is 20.4% more than the unemployment rate in 2017 by 5.2%.

#### 4. DISCUSSION

The hypothesis about the positive effect of positive migration growth on the socio-economic situation of the regions was only partially confirmed: the nonlinear regression equations for a number of subjects showed that a further increase in migration growth could lead to faster growth of GRP (in the Voronezh and Kaliningrad regions) and small and medium-sized enterprises (in Moscow), and to the growth of unemployment (in the Kaliningrad region) and crime (in St. Petersburg and the Kaliningrad regions). Therefore, there is a need to regulate migration processes and their “retention” in an acceptable framework for the region.

Thus, we conclude that it is necessary to attract labour migrants to Russia as one of the most important sources for replenishing demographic and labor resources and economic development. But also important are the protection of the national labour market and the maintaining inter-ethnic and inter-religious peace and harmony in Russian society, which are declared in the Concept of the State Migration Policy of the Russian Federation for 2019-2025.

Implementing of labour patents in Russia for citizens from “visa-free” countries allows an unlimited number of migrants to come to Russia to work. Such systems, in our opinion, should work in all CIS countries: Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan, Uzbekistan, and Ukraine. This project will provide the following benefits:

- recruitment of labor adopted in quantitative and qualitative characteristics to the requirements of the Russian economy;
- formation of “transparent rules of the game” on the Russian labor market – workers who are best prepared for a specific type of work activity will receive a job;
- quotas distribution for attracting labor by country depending on their cultural and linguistic similarity with Russia;
- minimizing the number of illegal migrants;
- protection of labor and social rights of migrant workers;
- legal preparedness of migrants;
- minimizing interracial conflicts between labor migrants and the local population.

Therefore, the implementation of the proposed system will become an effective mechanism for regulating external migration processes.

#### 5. CONCLUSION

The article presents an overview of the detailed qualitative and quantitative characterization of migration flows in the Russian Federation, an analysis of their meaning and degree of influence on the Russian regions’ socio-economic situation. From this study, the following main problems of migration management were identified: disproportions in the internal movement of the population - concentration of “internal” migrants in the central part of Russia and outflow of the population from its eastern part; lack of skilled labor migrants - only one fifth of migrants have higher education;



exceeding the number of labor migrants over the real demand of the Russian economy and the subsequent increase of unemployment rate among the local population in some regions of the Russian Federation; high level of illegal migration. Russian regions have a different need to attract foreign labor, and it must be taken into account when developing migration policy.

The most interesting for Russia are the practices applied in the migration policy of the United States, Canada, and the EU countries and related to the selective mechanisms in the field of economic class immigration, which can contribute to the overall progress of the country, using immigration as one of the development resources.

## 6. AVAILABILITY OF DATA AND MATERIAL

Data can be made available by contacting the corresponding authors

## 7. ACKNOWLEDGEMENT

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