

Determinants of Regional Migration Flows from former Soviet Republics to Russia

By

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Abstract

The breakup of the Soviet Union two decades ago created a new migration situation in the region. Although former Soviet republics develop independently, the region remains a common area for the vast majority of population. Post-Soviet movement of people is facilitated by shared transportation and communication systems, a regionally recognized language (Russian), education systems, complementary labor markets, and similar mentalities and behavior patterns. This paper is aimed at analyzing and identifying factors affecting regional migration flows to Russia. The key finding of the paper is that the level of income in source countries and population in places of origin and destination are influential for migration. Socio-cultural factors which reflect a common historical background remains significant in all estimations.

Keywords: Regional Migration Flows; Post-Soviet countries; Gravity Equation;

1. Introduction

As a result of rapidly rising degree of interdependence and globalization processes there is a continuous increase in volume and size of international migration worldwide. The estimated number of international migrants increased from 191 million people in 2005 to 214 million people in 2010.¹

While United States represents the top immigrant receiving nation worldwide, Russia is an important place of destination for regional migration. This may be attributed to notable income differential between post-Soviet countries and Russia. Changes of demographic profile in both directions also predict the flow of regional movement of people. In addition to this, the propensity to migration is facilitated by common historical and social background, geographic proximity, a regionally recognized language and absence of visa regime between Russia and its former satellite countries. Migratory flows in post-Soviet region seem to have internal pattern and characteristics.

The primary objective of the paper is to analyze and investigate empirically factors or determinants of regional migration from former Soviet republics to Russia. Our analysis will cover the period from 1997 through 2010 as we were able to collect the necessary data for this particular time period.

We choose the gravity model as the key empirical tool that has been widely used in migration studies before (Karemera, Oguledo and Davis 2000; Kim and Cohen 2010). Our approach to the topic is interdisciplinary since we incorporate economic and non-economic factors in our analysis.

The present paper will make some contributions to the literature. Earlier studies have mainly focused on international migration to North America and other industrialized countries.

¹ World Migration Report 2011, p. 72

This may be related to fact that post-Soviet migration has recently started. Although there are wide discussions on this topic in the region, an empirically designed study has not been conducted yet. Lastly, findings of the paper may serve as an important tool for policy recommendations and implications both for source countries and Russia.

The paper is organized as follows. Section 2 reflects review of past studies. Section 3 analyzes the migration trends and dynamics from the region to Russia. Section 4 describes methodology, variables and data. Sections 5 and 6 discuss empirical findings and limitations of the study. The last section presents some conclusions.

2. Review of Previous Literature

International migration has been an integral part of human history. People move from one area to another due to certain factors. While economic motives are important, there exist other reasons explaining the trends and dynamics of the geographic mobility of people.

Massey et al. (1993) describe international migration within a framework of several theories: neoclassical theory, new economic theory, dual labor market theory, world systems theory and theories of social capital, and cumulative causation. The fundamental idea of all economic theories postulates that international migration occurs due to changes in supply and demand at labor market which determines the level of wage differential and expected income between two geographic locations. Until equilibrium at the international labor market is reached migration takes place between two countries or regions (Borjas 1989).

It is important to emphasize that changes in supply and demand at labor market reflects population growth rates in places of origin and destination. Countries that experience population growth have higher level of labor supply and lower wages which motivates the process of out-

migration to regions where there exist steady demand for foreign labor and higher expected salaries and work payments.

However, some scholars cast some doubt on driving factors of international migration that focus on economic and demographic variables. Past studies have shown that social capital plays an important role in further continuation and perpetuation of international mobility processes. Social capital leads to the development of migrant networks that stands for the source of employment opportunities at a foreign labor market. Such networks are developed as a result of friendship and kinship links among experienced and potential migrants. These networks reduce the potential costs and risks associated with migration (Massey et al. 1993, Fussell et al. 2004). As a result of cumulative causation which originates from social capital accumulation the likelihood of additional trips toward the destination area tends to increase.

Another theory that contributed to exploring international migration refers to world systems theory. It interprets international movement of people on a global level and it assumes that capital and labor resources move in opposite direction between the core and periphery economies. It does not take into account the cost benefit analysis, resources and sources of international migration. From this theory it seems to be unclear how migratory flows are initiated and perpetuated over time and across countries and regions. Therefore, world systems theory remains primarily as a concept, it was not tested and measured empirically and as result it cannot serve as a direct reference for migration studies and forecasting (Bijak 2006).

Hence, the existing literature explored this topic within a framework of different disciplines and level of analysis. Most of proposed theories have been tested on the basis of Mexico-US migration streams as case test. These studies mainly utilized household-level data, while some scholars incorporated both micro and macro variables in their analysis (Massey and

Espinosa 1997). This reflects the multi-level and multi-disciplinary nature of international migration that cannot be explicitly investigated by utilizing tools from a single field of study (Massey et al. 1993, Castles et al. 2003).

In our study we utilize aggregate variables as they fit well our chosen empirical model. Our variables of interest help us to determine which factors initiate and predict post-Soviet migration patterns. However, the gravity model does not include a predictor that may serve as a proxy for social capital. Indicators of social capital mainly come from household data.

Several scholars used the gravity model to explore patterns of international migration. Vanderkamp (1977) believes that it is potentially useful approach as its application will help us to understand that any economy is capable of reaching an equilibrium path once it utilizes the required number of labor whose supply can be regulated by migration.

Karemera et al. (2000) applied this model in the case of international migration to North America. They concluded that population size in countries of origin and income level in the US and Canada are two key factors explaining international movement of people to this continent.

In their study Lewer and Van den Berg (2007) showed that the patterns of international movement of people follow a similar fashion as in the case of international trade of commodities.

A recent study by Kim and Cohen (2010) provided an empirical evidence that the size of population as well as infant mortality rate, which is used as a proxy for standard of living, are most influential factors of international migratory flows to industrialized countries.

3. Migration Trends and Dynamics from the region to Russia

The political and economic transformation of the former Soviet Union affected the size and composition of migratory flows in the region. Initially, ethnic Russians were among the first

group of people who migrated toward their historical place. Afterwards, regional migration takes place due to notable demographic and economic heterogeneity between former Soviet republics and Russia.

Russia experiences major changes in its demographic profile which is associated with a lower fertility rate and shrinking population. The fertility rate in the country accounts for 1.5 children per a woman which fails to maintain a natural replacement level. In addition to this, the share of people who are above 65 years is 13% of the total population and the median age reaches 36 years for men and 42 years for women.² According to UN project by 2050 there will be 113 million people who will be living in Russia and this number is by 20% less than the current population. Naturally, given country's enormous area and abundant resources it will be a growing pressure to maintain long term economic growth.

However, many post-Soviet countries have a relatively younger population and a higher fertility rate. For example, given the fact that 93% of Tajikistan's area is covered with mountains the total fertility rate is 3.5 children per a woman and 65% of the total population are represented by a group of people whose age ranges within 14 and 64 years, favorable economic conditions are limited. Only international migration enables this Central Asian republic to overcome demographic and economic challenges.

Russia remains a key destination area for potential migrants from the region. Post-Soviet movement of people is facilitated by shared transportation and communication systems, a regionally recognized language (Russian), education systems, complementary labor markets, and similar mentalities and behavior patterns (Tishkov et al. 2005). For the last decade on average the number of migrant stock in Russia accounted for 12 million people making the country to be

² Federal State Statistics Service of Russia (www.gks.ru)

the second immigrant receiving nation in the world following the United States. Around 70% of immigrants in the country are represented by former Soviet republics.³

Figure 1 exhibits the recent trends and volume of migrant stock in Russia. During this period there was an insignificant, 8% decline in migrant stock. Belarus, Kazakhstan and Ukraine constitute around 75% of migrant stock in the country, while the share of the remaining eleven republics accounts for 25% accordingly.

A common border and language facilitates migratory flows from these countries to Russia due to the presence of well established migration corridors. According to the World Bank in 2010 7.2 million people moved through these corridors. This number constitutes about 60% of all migrant stock in Russia. Another argument for an active movement of people refers to a relatively higher level of economic interaction and cooperation between these countries. For instance, Belarus imports half of foreign goods from Russia, while Ukraine directs a quarter of exported commodities to Russian market (World Bank).

The next figure reveals an interesting fact. Despite the overall decline in migrant stock all groups of the post-Soviet region experienced certain changes. In particular, the share of Eastern Europe consisting of Belarus, Moldova and Ukraine increased by 2%. A similar pattern can be traced in the case of Central Asia which constituted 37% of total stock, a slight increase in 1%. However, other groups, i.e. Caucasus and Baltic experienced a decline in 3% and 5% in 2010 versus 4% and 7% in 2000 accordingly.

Prospects for regional migration will be different among countries of the former Soviet Union. In all countries of Central Asia on average 30% of total population are represented by children with 0-14 ages (World Bank). While Kazakhstan has the second largest area in the region and is rich in minerals, all other neighboring republics will not be able to fully absorb the

³ Migration and Remittances Factbook 2011

increasing number of labor force. Consequently, migration to another destination, in particular to Russia will occur. This is related to the fact that for the last two decades migrant networks are well established and this will further foster geographic mobility of people. In the case of other post-Soviet republics the share of 0-14 aged people is less than 20% of the total population. Perhaps, international movement of people from these countries will not be as massive as in Central Asia.

In Baltic States the demographic situation is similar to that in developed countries. This implies that they will need to attract foreign workers themselves in order to maintain a positive population growth rate which is necessary for natural replacement and long term economic growth.

4. Model, Variables and Data

A. The Gravity Equation

The idea of gravity equation comes from a famous Newton's law of universal gravitation. Initially, it has been extensively used for empirical studies in international trade. This model implies that the trade flow between two countries is proportional to the product of their GDPs and it is inversely proportional to their distance (Silva et al. 2005). Although the empirical gravity equation does not have a theoretical foundation, it allowed to investigate empirically the impact of distance, customs unions, exchange rate mechanism, and presence of common border and language similarities on the size and volume of trade (Anderson et al. 2003).

This approach has been successful in migration studies as well. Its modified version reflects the size of migratory flows from a country i to country j in which the former has more population as compared with the latter. Hence, an excessive part of population in country i moves toward a labor scarce country j in which there exists demand for foreign labor. The

distance remains negative as it reflects both transportation and psychic cost (Greenwood 1975). Mathematically, it can be expressed as follows:

$$M_{ij} = \gamma_0 P_i^{\gamma_1} P_j^{\gamma_2} D_{ij}^{\gamma_3} \quad (1)$$

where M_{ij} is migratory flows from a country i to country j , P_i and P_j reflect population sizes in both countries and D_{ij} is distance between places of origin and destination. γ_0 , γ_1 , γ_2 and γ_3 are unknown parameters. For empirical purposes the equation is used in log-linearized form as it is appropriate to estimate the parameters of interest by least squares method.

$$\log(M_{ij}) = \log \gamma_0 + \gamma_1 \log(P_i) + \gamma_2 \log(P_j) + \gamma_3 \log(D_{ij}) + \mu_{ij} \quad (2)$$

B. Estimation Methodology

To explore determinants of regional migration from post-Soviet republics to Russia we extend the equation (1) by adding more independent variables which may have potential to affect the migratory flows. Our sample covers the period of 1997 through 2010. For this time period we were able to collect the necessary data on migratory flows in the region.

In this study we estimate two equations. The first model will include all fourteen former Soviet republics. In the second model our analysis consist of countries in Central Asia, Caucasus and Moldova as they have had resource based economies. Since population is an important determinant of migration we will investigate how population support ratio, share of urban and rural population in sending countries and Russia affect geographic mobility of people in post-Soviet region. Hence, we will estimate the following set of equations:

$$\log(M_{iRt}) = \log \gamma_0 + \gamma_1 \log(GDP_{it}) + \gamma_2 \log(GDP_{Rt}) + \gamma_3 \log(PSR_{it}) + \gamma_4 \log(PSR_{Rt}) + \gamma_5 \log(D_{iR}) + \gamma_6 \log(LL_i) + \gamma_7 \log(LA_i) + \gamma_8 \log(COMLNG_{iR}) + \gamma_9 \text{Dummies} + \mu_{ij} \quad (3)$$

$$\log(M_{iRt}) = \log\gamma_0 + \gamma_1 \log(GDP_{it}) + \gamma_2 \log(GDP_{Rt}) + \gamma_3 \log(URPOP_{it}) + \gamma_4 \log(URPOP_{Rt}) + \gamma_5 \log(D_{iR}) + \gamma_6 \log(LL_i) + \gamma_7 \log(LA_i) + \gamma_8 \log(COMLNG_{iR}) + \gamma_9 \text{Dummies} + \mu_{ij} \quad (4)$$

$$\log(M_{iRt}) = \log\gamma_0 + \gamma_1 \log(GDP_{it}) + \gamma_2 \log(GDP_{Rt}) + \gamma_3 \log(RUPOP_{it}) + \gamma_4 \log(RUPOP_{Rt}) + \gamma_5 \log(D_{iR}) + \gamma_6 \log(LL_i) + \gamma_7 \log(LA_i) + \gamma_8 \log(COMLNG_{iR}) + \gamma_9 \text{Dummies} + \mu_{ij} \quad (5)$$

where PSR, URPOP, RUPOP reflect population support ratio, urban and rural population of the total population, LL and LA are landlock and land area of country i . COMLNG is whether Russian is a common language in country i . Dummies represent Baltic, Central Asia and the Caucasus as compared with a reference group which is Belarus and Ukraine. In a reduced equation Central Asia is compared with the Caucasus which is taken as a reference category accordingly.

C. Variables and Data

The dependent or response variable of all equations is represented by the annual number of migrants from country i to Russia in year t . Independent variables comprise economic, demographic, socio-cultural and geographic characteristics of countries of origin and destination that are frequently used as determinants of migration. Thus, we have the following variable groups:

- a) *Economic factors* affecting migratory flows from a source to a host country. GDP is used as a proxy for the level of economic development and it determines the push and pull factors of regional migration from country i to Russia. Karemera et al. (2000) believe that a migration flow from country i to country j is a negative (positive) function of income in home (host) country.

- b) *Demographic factors* are represented by population support ratio, the share of urban and rural population in places of origin and destination. Population support ratio is the number of people aged 15-64 divided by the number of persons aged 65 and over (Kim and Cohen 2010). It is assumed that a migration flow from the places of origin to an area of destination depends negatively (positively) on the population size in host (source) country (Karemera et al. 2000). The potential support or dependency ratio indicates population aging and reflects the shortage of working-age population in Russia that may be compensated by attracting foreign labor force.
- c) *Geographic factors* include distance between capital cities, land area and whether a source country is landlocked or not. Since data for transportation costs are not available the distance between capital cities in source and host countries is ordinarily used a proxy for transportation costs (Borjas 1987).
- d) *Socio-cultural factors* refer to the common language, i.e. whether Russian is used as a second language in post-Soviet countries. This variable represents a proxy which reflects past and current relationships that have occurred as a result of similar historical and political background. A positively significant coefficient of this variable implies its positive impact on the size of migration flows.

For some variables such as landlocked and common language the value of 10 and 1 were chosen since $\log_{10}10=1$ and $\log_{10}1=0$. This expression shows standard dummy variables with values 1 and 0. For instance, if Russian is the second language in a country i then value is assigned to 10, otherwise it is 1.

Data for the present study come from several sources. Information on annual number of migrants is taken from the Russian Federal State Statistics Service. Data on distance between

capital cities in a source country and Russia are from an online source.⁴ Other explanatory variables are accessed from the World Bank Online Indicators. WDI is the primary collection of development indicators, which are collected and compiled from officially recognized sources and regarded as the accurate global development data-set (World Bank). A detailed description of variables is given in appendix.

5. Empirical Results and Discussions

The primary purpose of the paper is to analyze and identify factors affecting international movement of people from post-Soviet region to Russia. We will discuss the empirical findings from a complete and reduced sample of countries separately so that to make a special emphasis on a group of post-Soviet republics that have had labor intensive economies. This category of countries was mainly specialized in labor-intensive sectors.

The collapse of centralized planning and gradual decline of demand for traditionally produced commodities had a negative impact on unemployment rates in these post-Soviet countries. Our analysis drawn from this geographic location will help us to identify whether people from this region are more prone for migration toward Russia.

Table 2 highlights corresponding results on a full sample. In an equation with potential support ratio, which is used as a proxy for the share of working age population in source countries and Russia the economic variable denoted by GDP in both places is statistically significant. Although the coefficient for population support ratio in countries of origin has its expected sign, it is not influential. However, in the case of a host country this variable is negatively significant which points to the fact that a decline in the share of working age population is an important factor to draw migrants. As compared with the reference group

⁴ www.timeanddate.com

consisting of Belarus and Ukraine, regional dummies yield our expected results. In particular, countries in Central Asia and the Caucasus send more migrants to Russia, while Baltic countries do not. This shows that Central Asia and the Caucasus have an excess of labor force which cannot be completely utilized in places of origin, while Baltic republics are faced with shrinking population. Russian being as the second language in some former Soviet republics facilitates the migratory flows.

In the second equation in which the potential support ratio is replaced by the share of urban population we come up with some interesting findings. In particular, the coefficient for urban population in former Soviet republics is negative implying that urban residents are less reluctant for international migration. This variable is statistically significant for the receiving country as more than 70% of people in Russia live in urban areas (World Bank). The common language as well as the regional dummies for the Caucasus and Baltic yields a similar qualitative pattern. However, the degree of economic development in host country is less important for regional movement of people toward Russia.

The last equation reveals that rural inhabitants in sending countries are more prone for migration. The coefficient for this variable in the case of Russia is negative as it shows a significant shortage of labor force in rural areas. Economic and socio-cultural variables, and regional dummies produce similar results obtained in previous estimations.

In table 3 results are given for the reduced sample size of countries. In equation with a demographic variable represented by potential support ratio GDP in both directions, distance between capital cities, and landlocked and common language are more influential in explaining migratory flows to Russia. The most robust result is that the coefficient for working age

population is negatively significant in the host country. This provides evidence that domestic economy cannot be completely fueled by locally supplied labor force.

The empirical results for other equations that include the share of urban and rural population in places of origin and destination demonstrate almost similar pattern. The coefficient for urban population in Russia again points to the high level of urbanization and decreased share of rural inhabitants. GDP in destination seems to be less important determinant for regional movement of people toward Russia.

Hence, we notice almost identical results in full and reduced samples of countries. However, in the case of Central Asia, the Caucasus and Moldova distance between capital cities are more important for migratory processes. Another significant determinant refers to landlocked which is negatively associated with the geographic mobility of people.

6. Limitations of the Study

After we analyzed and identified determinants of regional migratory flows in post-Soviet region, we need to admit the presence of certain limitations of the study.

First, our analysis covers the period of 1997 through 2010. The Russian Federal Statistics Agency reports data on international migration starting from mid 1990s. However, migratory flows toward Russia began following the collapse of Soviet Union. The earlier periods of regional movement of people could reflect social, cultural and political factors. Since we referred to the last fourteen year period, to some extent, our study may miss the influence of above mentioned factors on regional migration.

Second, we focused primarily on official data on migratory flows. These data are significantly lower as compared with the actual number of annual migration flows to the country.

For example, according to the officially reported data, in 2010 the number of migrants who travelled from Tajikistan to Russia constituted more than 18 thousand people. During this period 2.1 billion dollars were remitted to Tajikistan.⁵ Assume that these people were economic migrants, a simple calculation reveals that on average each migrant transferred around 9 thousand dollars monthly to his place of origin. This points to the fact that the reported number of migrants from this Central Asian country to Russia is considerably underestimated.

Third, in studies based on gravity model the problem of multicollinearity is not properly addressed. While explanatory variables may be potentially correlated with each other they are jointed used in regression analysis. For instance, in a migration study by Kim and Cohen demographic variables represented by total population, working age population and urban population are simultaneously included in their model. Consequently, multicollinearity presents in their study.

Fourth, many studies on trade and migration that make use of gravity equation are frequently based upon least squares approach. A recent study by Silva and Tenreyro (2005) cast some doubt on the effectiveness of this method. They argue that log-linearization of the empirical model in the presence of heteroscedasticity leads to inconsistent estimates. They propose an alternative approach called Poisson pseudo-maximum likelihood (PPML) method which may effectively address this issue and may be utilized instead of standard empirical method. Currently, there is not a single paper that demonstrated the accuracy and relevance of PPML method in migration studies. This may be another potentially interesting study in future. Nevertheless, despite certain limitations both in terms of data availability and methodology application of gravity equation in trade and migratory flows have been substantial and it produced empirical and policy implications.

⁵ Migration and Remittances Factbook 2011

7. Conclusions

In this paper we attempted to analyze and identify determinants of regional migration flows from post-Soviet republics to Russia. Our approach to the topic has been interdisciplinary as we looked at various factors, including economic, demographic, geographic and sociocultural variables. The shortage of reported data on migratory flows allowed us to consider a relatively shorter period of time as compared with previous migration studies that focused on a longer time span (Kim and Cohen 2010). A gravity model of migration has been our key empirical tool and our estimations are drawn from pooled least squares technique.

We explored the geographic mobility of people in the region in two sample sizes: a full sample consisting of all former Soviet republics and a reduced sample which includes Central Asia, the Caucasus and Moldova. By doing so we intended to investigate migration patterns from a group of countries which has had resource based economies.

In the first scenario GDP in places of origin, working age population, and the share of urban and rural population were influential for migratory processes. As compared with the reference group two regions were prone to regional migration in opposite direction. In particular, the Caucasus was more active, while Baltic were not. In all regression estimations the sociocultural factor denoted by whether Russian is a second language in source countries has been an important determinant of migration in post-Soviet region. Kim and Cohen (2010) believed that as developed countries experience aging population associated with a lower fertility rate and increased life expectancy potential support ratio in the host country is negative implying that there is steady need for migrant labor. This evidence has been noticed in this study as well

since Russia follows similar trends and dynamics of demographic transition which prevail in Western countries.

A robust finding reveals that in places of origin rural inhabitants seem to be more active to migration as compared with urban residents. This may be a relevant conclusion as there are more economic opportunities in cities, while in rural areas such opportunities are limited.

In the second scenario we discover similar outcome. In particular, demographic factors in host country are significant. As compared with the first scenario the reduced sample implies that geographic factors, i.e. distance and landlocked are negatively associated with migratory flows from these countries.

An interestingly important finding has been found in both samples. More specifically, GDP in sending countries facilitate migratory flows to Russia. Since GDP is used as a proxy of economic development (Karemera et al. 2000) it may represent the level of income in migrant sending nations. An attempt to undertake international trips to new areas of destination have certain costs, including transportation, adjustment costs, etc. Consequently, income level in source countries may determine the degree of migratory flows.

The overall findings of the paper are consistent with previous studies on migration whose focus was on different countries and geographic locations. This study confirms that Western countries that are in the last stage of their demographic transition are faced with the necessity to supplement the shortage of labor in their societies and Russia is not an exception. Russian being widely used in some former Soviet republics as the second language reflects a common historical and social background, which ultimately has a significant impact on regional movement of people.

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APPENDIX

Definition of Variables

International Migration: an international migrant is individual who changes his or her place of usual residence. If a place of origin changes for at least one year a moving individual is defined as a long-term migrant while a person who changes his or her place of usual residence for more than three months but less than one year is considered to be a short-term migrant. Source: United Nations Population Division.

Gross Domestic Product: the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2000 U.S. dollars. Dollar figures for GDP are converted from domestic currencies using 2000 official exchange rates. Source: World Bank Online Indicators.

Potential Support Ratio: population between the ages of 15 and 64 as a percentage of the total population: World Bank Development Indicators.

Urban Population: people living in urban areas as defined by national statistical offices. It is calculated using World Bank population estimates and urban ratios from the United Nations Urbanization Prospects Source: World Bank Development Indicators.

Rural Population: people living in rural areas as defined by national statistical offices. It is calculated as the difference between total and urban population: World Bank Development Indicators.

Distance: bilateral distance between a capital city in country i to Moscow, Russia (in kilometers). Source: www.timeanddate.com.

Land Area: country's total area, excluding area under inland water bodies, national claims to continental shelf, and exclusive economic zones. In most cases the definition of inland water bodies includes major rivers and lakes. Source: World Bank Development Indicators.

Landlocked: a country which does not have an access to sea or ocean.

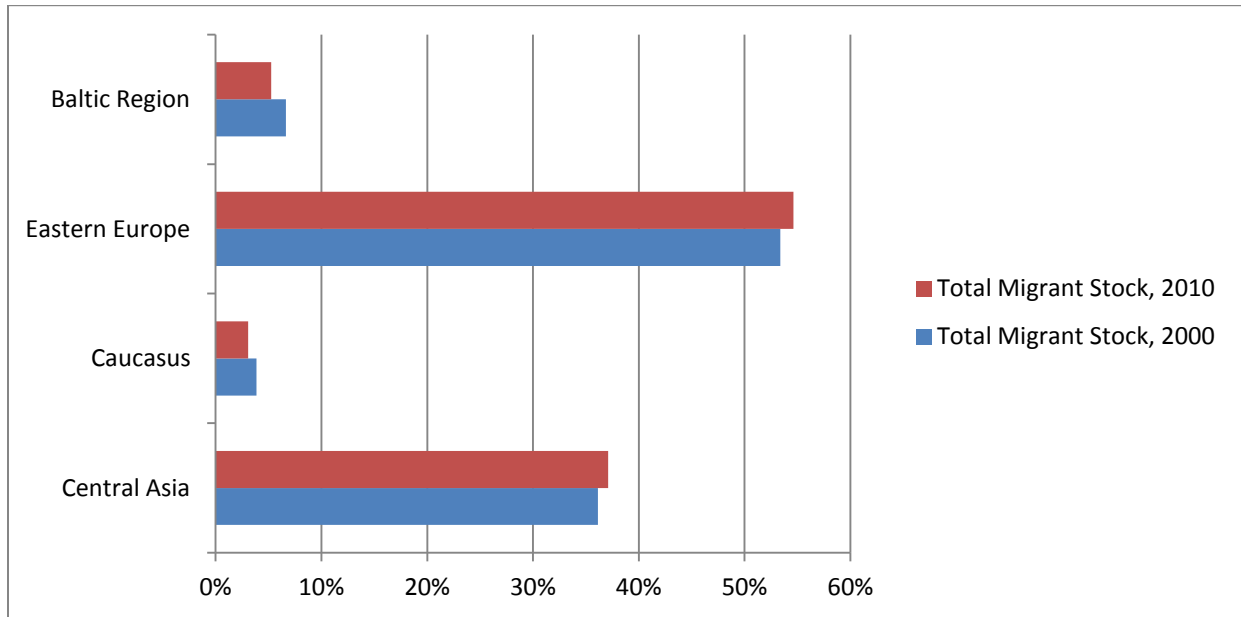
Caucasus: this region includes Armenia, Azerbaijan and Georgia.

Central Asia: this region consists of Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan.

Baltic: the northern part of the former Soviet Union which includes Estonia, Latvia and Lithuania.

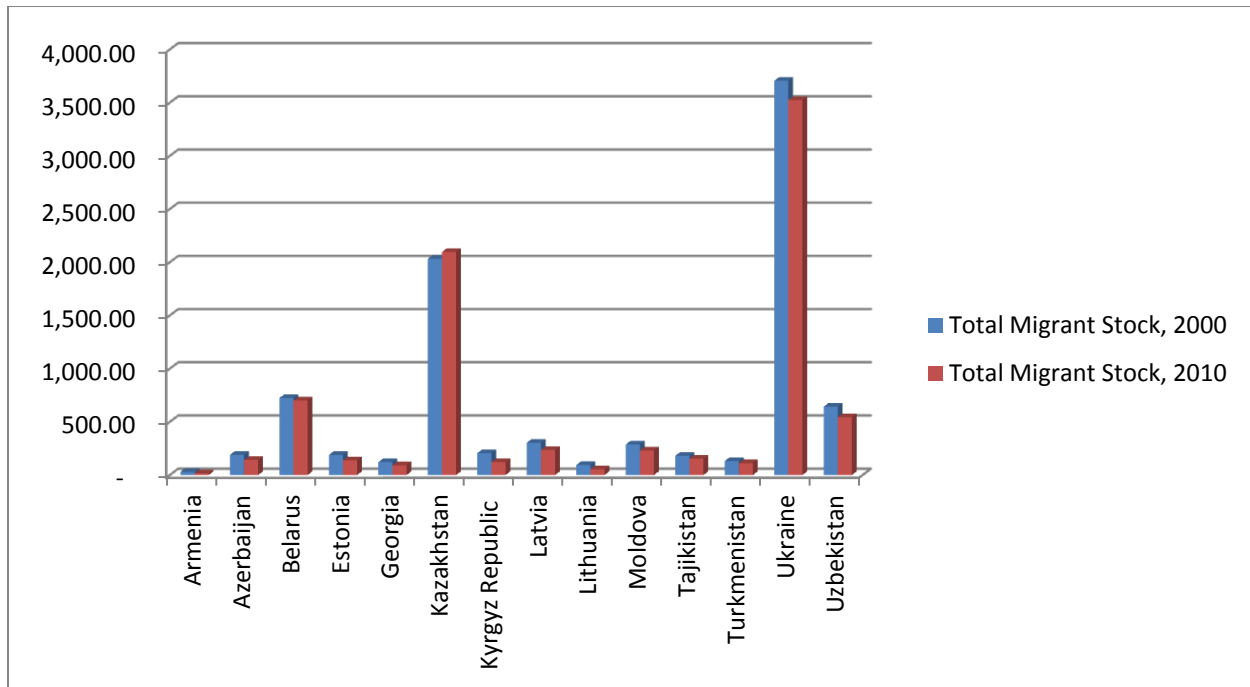
Figures and Tables

Figure 1. Trends in Total Migrant Stock (in percent)



Note: this figure was constructed by the author using data from United Nations Population Division

Figure 2. The Volume of Total Migrant Stock



Note: this figure was constructed by the author using data from United Nations Population Division

Table 1. Summary Statistics

Variable	Mean	Standard deviation	Minimum	Maximum	Number of Observations
Log migrants	3.89	0.65	2.53	5.37	196
Log GDP (origin)	9.82	0.483	8.86	10.73	196
Log GDP (Russia)	11.5	0.09	11.35	11.64	196
Log Potential Support Ratio (origin)	1.81	0.03	1.72	1.86	196
Log Potential Support Ratio (Russia)	1.85	0.01	1.83	1.86	196
Log Urban Population (origin)	1.72	0.13	1.42	1.87	196
Log Urban Population (Russia)	1.86	0.00	1.86	1.87	196
Log Rural Population (origin)	1.64	0.13	1.41	1.87	196
Log Rural Population (Russia)	1.43	0.00	1.42	1.43	196
Log Distance between capital cities	3.18	0.24	2.83	3.47	196
Log Land Area (origin)	5.16	0.54	4.45	6.43	196
Log Land Locked (origin)	0.65	0.48	0	1	196
Log Common Language (origin)	0.5	0.5	0	1	196
Dummy for the Caucasus	0.29	0.45	0	1	196
Dummy for Central Asia	0.36	0.48	0	1	196
Dummy for Baltic	0.21	0.41	0	1	196

Table 2. Gravity Equation: Full Sample

	Dependent Variable: Log (Migrants)					
	OLS	Beta	OLS	Beta	OLS	Beta
<i>Economic Determinants</i>						
Log GDP (origin)	0.756 (0.150)***	0.565	0.655 (0.187)***	0.489	0.635 (0.198)***	0.474
Log GDP (Russia)	2.254 (0.705)***	0.342	0.533 (0.926)	0.081	0.659 (0.917)	0.10
<i>Demographic determinants</i>						
Log Potential Support Ratio (origin)	1.828 (1.889)	0.084				
Log Potential Support Ratio (Russia)	-49.05*** (7.515)	-6.688				
Log Urban Population (origin)			-1.161 (0.479)**	-0.227		
Log Urban Population (Russia)			160.636 (60.28)***	0.354		
Log Rural Population (origin)					1.311 (0.544)**	0.268
Log Rural Population (Russia)					-61.077 (21.881)***	-0.365
<i>Geographic determinants</i>						
Log distance between capital cities	-0.286 (0.481)	-0.104	-0.530 (0.417)	-0.193	-0.496 (0.415)	-0.181
Log land area (origin)	0.242 (0.237)	-0.204	0.238 (0.348)	0.20	0.253 (0.374)	0.213
Log landlocked (origin)	-0.309 (0.107)	-0.022	-0.157 (0.123)	-0.116	-0.202 (0.138)	0.149
<i>Social and historical determinants</i>						
Log common language (Russian in countries of origin)	0.441 (0.061)***	0.341	0.395 (0.073)***	0.306	0.416 (0.073)***	0.322
Dummy for Caucasus	0.782 (0.251)***	0.547	1.012 (0.205)***	0.708	0.930 (0.203)***	0.268
Dummy for Central Asia	0.957 (0.311)***	0.709	0.569 (0.391)	0.422	0.453 (0.432)	0.651
Dummy for Baltic	-1.047 (0.195)***	-0.665	-0.669 (0.250)***	-0.425	-0.655 (0.268)**	-0.416
<i>Constant</i>	59.466 (7.147)***		-306.08 (122.345)**		75.148 (22.069)***	

R ²	0.84	0.84	0.82	0.82	0.82	0.82
N	196	196	196	196	196	196

Robust standard errors are in parentheses, *significant at 10%, **significant at 5% and *** significant at 1%.

Table 3. Gravity Equation: Central Asia, Caucasus and Moldova

	Dependent Variable: Log (Migrants)					
	OLS	Beta	OLS	Beta	OLS	Beta
<i>Economic Determinants</i>						
Log GDP (origin)	0.615 (0.209)***	0.743	0.524 (0.339)	0.633	0.507 (0.359)	0.613
Log GDP (Russia)	2.658 (0.804)***	0.666	1.65 (1.003)	0.414	1.773* (1.002)	0.444
<i>Demographic determinants</i>						
Log Potential Support Ratio (origin)	2.899 (1.879)	0.237				
Log Potential Support Ratio (Russia)	-49.220 (9.167)***	-1.142				
Log Urban Population (origin)			-0.448 (0.621)	-0.128		
Log Urban Population (Russia)			195.60 (65.479)***	0.712		
Log Rural Population (origin)					0.554 (0.718)	0.131
Log Rural Population (Russia)					-74.353 (23.746)***	-0.736
<i>Geographic determinants</i>						
Log distance between capital cities	-1.482 (0.430)***	-0.450	-1.795 (0.394)***	-0.605	-1.774 (0.396)***	-0.598
Log land area (origin)	-0.018 (0.350)	-0.028	0.339 (0.635)	0.515	0.369 (0.669)	0.560
Log landlocked (origin)	-0.398 (0.147)***	0.506	-0.479 (0.210)**	-0.609	-0.504 (0.236)**	-0.640
<i>Social and historical determinants</i>						
Log common language (Russian in countries of origin)	0.409 (0.110)***	0.494	0.354 (0.181)*	0.427	0.358 (0.179)**	0.432

Dummy for Central Asia	0.182 (0.311)	0.231	-0.234 (0.589)	-0.299	-0.276 (0.631)	-0.351
<i>Constant</i>	58.382 (9.120)***		-379.216 (132.340)***		88.537 (24.965)***	
R ²	0.65	0.65	0.59	0.59	0.59	0.59
N	126	126	126	126	126	126

Robust standard errors are in parentheses, *significant at 10%, **significant at 5% and *** significant at 1%.

