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INTERNAL VS EXTERNAL MIGRATION IN POST-SOVIET SPACE CARIM-East Research Report

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CARIM-East
Creating an Observatory of Migration East of Europe



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About the CARIM-East project:

This project is the first migration observatory focused on the Eastern Neighbourhood of the European Union and covers all countries of the Eastern Partnership initiative (Belarus, Ukraine, the Republic of Moldova, Georgia, Armenia and Azerbaijan) and Russian Federation.

The project's two main themes are: (1) migration from the region to the European Union (EU) focusing in particular on countries of emigration and transit on the EU's eastern border; and (2) intra-regional migration in the post-Soviet space.

The project started on 1 April 2011 as a joint initiative of the European University Institute (EUI), Florence, Italy (the lead institution), and the Centre of Migration Research (CMR) at the University of Warsaw, Poland (the partner institution).

CARIM researchers undertake comprehensive and policy-oriented analyses of very diverse aspects of human mobility and related labour market developments east of the EU and discuss their likely impacts on the fast evolving socio-economic fabric of the six Eastern Partners and Russia, as well as that of the European Union.

In particular, CARIM-East:

- builds a broad network of national experts from the region representing all principal disciplines focused on human migration, labour mobility and national development issues (e.g. demography, law, economics, sociology, political science);
- develops a comprehensive database to monitor migration stocks and flows in the region, relevant legislative developments and national policy initiatives;
- undertakes, jointly with researchers from the region, systematic and ad hoc studies of emerging migration issues at regional and national levels;
- provides opportunities for scholars from the region to participate in workshops organized by the EUI and CMR, including academic exchange opportunities for PhD candidates;
- provides forums for national and international experts to interact with policymakers and other stakeholders in the countries concerned.

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Abstract

The paper addresses the distinctiveness of migration flows in the post-Soviet space east of the European Union: the Commonwealth of Independent States (CIS) and Georgia. Population mobility within this region is hypothesized to differ from extra-regional population movements due to the common institutional past of these states, all of which were once the USSR republics. Within the framework of the migration systems theory, the paper offers a quantitative analysis of the scale and mechanics of cross-border population mobility in the region. By means of island analysis, it examines the intensity and distinctiveness of intra-regional migration flows relative to those between the region and third countries. Next, an econometric gravity model has been applied to identify the main drivers of migration flows in the region. The resultant findings show that the distinctiveness of the intra-regional migration processes is questionable or at best rather weak as mobility of people from and to the CIS region is relatively high. Thus, it is argued that the existence of the 'post-Soviet migration system' should not be treated axiomatically. The region is increasingly integrated into the international division of labour through trade and capital mobility and the cross-border mobility of people also reflects this globalization trend.

Key words: migration, CIS, post-Soviet space, Pajek, island analysis, gravity model, migration system

Streszczenie

Artykuł poświęcony jest specyfice przepływów migracyjnych na wschód od Unii Europejskiej – na obszarze poradzieckim. U podstaw naszych rozważań leży założenie, że w związku ze wspólną przeszłością instytucjonalną krajów, które niegdyś wchodziły w skład ZSRR, mobilność ludności na tym obszarze może różnić się od mobilności wykraczającej poza ten obszar. Odwołując się do teorii systemów migracyjnych artykuł koncentruje się na analizie ilościowej skali i mechanizmów rządzących mobilnością na terenie Wspólnoty Niepodległych Państw (WNP) i Gruzji. Przy pomocy analizy wysp (ang. island analysis) badana była relatywna intensywność i odrębność wewnętrznych przepływów migracyjnych w regionie i przepływów pomiędzy krajami regionu a resztą świata. Następnie przy pomocy ekonometrycznego modelu grawitacyjnego zidentyfikowano czynniki determinujące te przepływy. Wyniki pokazują, że odrębność wewnątrz regionalnych procesów migracyjnych jest wątpliwa lub co najwyżej słaba, jako że przepływy ludności z i do regionu są stosunkowo duże. W związku z tym sugerujemy, aby nie traktować istnienia "poradzieckiego systemu migracyjnego" w sposób aksjomatyczny. Region w coraz większym stopniu wchodzi w międzynarodowy podział pracy poprzez handel oraz mobilność kapitału i migracje ludności także odzwierciedlają ten trend.

Słowa kluczowe: migracja, WNP, obszar poradziecki, Pajek, analiza wysp, model grawitacyjny, system migracyjny

1. Introduction

Countries constituting the former USSR take up approximately one sixth of the world's land area and account for about 4 per cent of its population. The collapse of the USSR in 1991 led to the emergence of a number of new states: the Baltic States, now in the European Union, and members of the Commonwealth of Independent States (CIS) plus Georgia¹. Thus, population movements which prior to 1991 had been represented as 'internal migration', after 1991 became 'international (cross-border) migration'. To analyze migration patterns in the post-Soviet space it is necessary to understand the region's Soviet past. All these new migrant sending and receiving countries share the legacy of common Soviet institutions, enduring social and cultural links with each other, and the widespread use of the Russian language. Their dependence on the Russian economy has historically been high and continues to be significant. In the light of this Soviet institutional legacy and economic dependence of many CIS countries on Russia, it is tempting to represent the CIS region as the 'post-Soviet migration system' (see Ivakhnyuk 2003; 2008; 2012). However, it remains an open question whether over 20 years after the establishment of the new geopolitical order in Eastern Europe, South Caucasus and Central Asia, intra-regional migration flows substantially differ from the broader pattern of international mobility from/to the region.

To determine whether or not, and if so to what an extent, migration between CIS countries is a distinctive phenomenon is an topical question as the post-Soviet space is increasingly integrated with other regions of intensive migration flows, particularly the European Union (EU) and Asia. Two aspects of this problem should be considered. First, the distinctiveness of intra-CIS migration flows can be related to their scale. If the intra-CIS mobility is significantly greater than that between CIS and non-CIS sending/receiving countries, it might be inferred that the region represents a distinct cluster of migratory movements. Second, the Soviet legacy could be a factor responsible for the regional specificity of migration mechanics, i.e., distinct migration push and pull factors operating within the region. By addressing these two aspects we can test the hypothesis about the distinctiveness of migration within the CIS region and consider whether it is meaningful to talk about the post-Soviet migration system. In this paper we therefore wish to address two research questions:

1. are migration linkages between CIS countries stronger than migration linkages between CIS and non-CIS countries?; and
2. are migration flows between CIS countries determined by economic and geo-demographic factors that are distinct from those influencing migration flows between CIS and non-CIS countries?

The article contributes to existing research in three ways. First, it examines, using tools designed for network analysis, the scale/intensity of migration in the post-Soviet space from a multidimensional, quantitative perspective. Second, it addresses macroeconomic, cultural and geopolitical features which could be responsible for the region-specific push and pull factors driving the contemporary cross-border population mobility. This analysis uses an econometric gravity model of migration flows. Third, it contributes to the migration systems literature, which has recently attracted some renewed interest (see Bakewell 2013).

¹ Although Georgia is not longer a member of the CIS, in this paper whenever CIS is referred to Georgia is included in it.

By taking the migration systems perspective, we can identify factors that affect the scale of migration flows and which, at the same time, may explain the specificity of these migration flows. These factors include, *inter alia*, institutional characteristics – such as historical, legal and political legacies – that differentiate a particular system from other systems and the broader environment in which it is nested. The systems perspective seems particularly useful when applied to the post-Soviet migratory space where legacy factors appear to be preminent. By addressing the two research questions, the paper will contribute to the wider debate concerning the existence of the ‘post-Soviet migration system’.

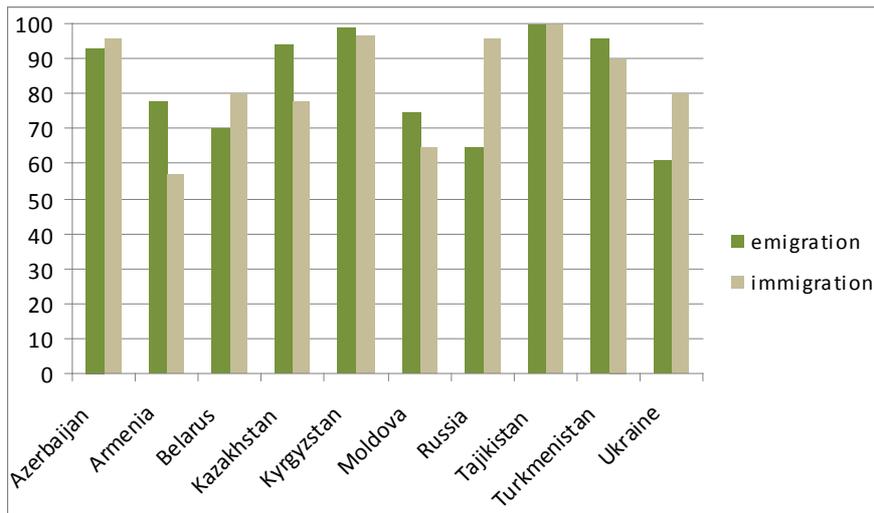
The article is structured as follows: the next section presents a brief overview of migration flows in the post-Soviet space. This is followed by an outline of the systemic approach to migration research, which has been applied in this study. The subsequent two sections present the data, methodology and results of our empirical analyses. First, the network analysis is explained, which we have used to study the relative scale of migration flows to draw inferences regarding the cohesion of intra-CIS flows. Second, we present the gravity model, in which a dummy variable indicating intra-CIS migration is included as a moderator of economic and demo-political determinants of migration flows. The final section summarizes the findings, assesses the effectiveness of the applied theoretical approach, and suggests areas for future research.

2. Migrations in the post-Soviet era: An overview

The opening of USSR’s external borders resulted in a substantial migration outflows from many parts of the former Soviet empire. Numerous conflicts which erupted in the post-Soviet area also contributed to increased peoples’ mobility. The immediate post-Soviet period was dominated by political and ethnic migration. Members of numerous nations repatriated to their homelands. Declining living standards, deep economic crisis and political uncertainty in the newly emerged states provided additional incentives for migration.

Until the end of the 1990s, settlement migration (migrants seeking permanent residence in host countries) was the most common type of migration. Since the beginning of the present, other, more flexible forms of migration have dominated. Labour migration, often in the form of circular flows of migrant workers, has become one of the most common survival strategies among citizens of the post-Soviet republics. For many, migration has become the only way to survive. Also, entire countries have grown dependent on migrant remittances. In 2011, for example, migrant remittances constituted 47 per cent of GDP in Tajikistan, 29 per cent in Kyrgyzstan and 23 per cent in Moldova (World Bank 2011). Today, 20 years after the collapse of the USSR, intra-regional migration flows still prevail, with Russia being the main migration magnet. In some of the CIS countries intra-CIS flows constitute over 90 per cent of all migration flows, both in case of emigration and immigration (see Figure 1).

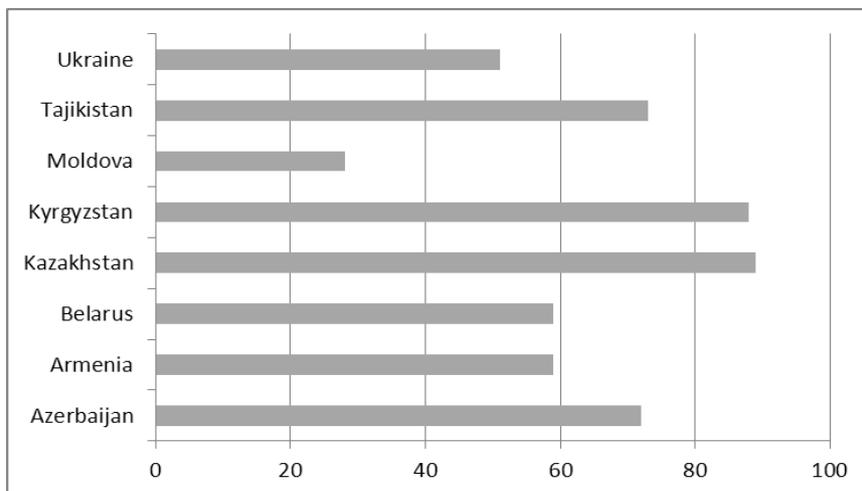
Figure 1: Share of intra-CIS migration in total migration exchange in 2009, per cent



Source: Cisstat.

Migration to Russia ranged in 2009 from 28 per cent for Moldova to 89 per cent of total migration for Kazakhstan (see Figure 2). The domination of Russia in attracting migrants can be seen as an example of the institutional path-dependency in the region, as immigration to Russia accounted for almost $\frac{3}{4}$ of total migration flows in the USSR already in the 1980s (Zayonchkovskaya 2000).

Figure 2: Share of emigration to Russia in total emigration from selected CIS countries in 2009, per cent



Sources: *Naselemnja Ukraïni za 2010 rik. Demografichnij shhorichnik* (2011); United Nations, DESA – Population Division, migration section (on-line); *Statistical Yearbook of the Republic of Belarus 2010* (2011); The State Statistical Committee of the Republic of Azerbaijan (on-line); *Statisticheskij Ezhegodnik Kyrgyzskoj Respubliki* (2011); *Demograficheskij ezhegodnik Kazahstana* (2012); UNECE Statistical Division Database (on-line).

Although Russia is still the magnet for CIS labour migrants, alternative destinations have appeared on the post-Soviet migration map as citizens of CIS countries develop new migration links with countries outside the former Soviet Union. Western European states, USA and Israel are important destination countries. New migrant receiving states have also emerged in the region, particularly Kazakhstan, which started to play an important role after the Russian economic crisis of 1998 (Anderson, Hancilova 2011). EU’s southern European member states have also become hosts for many eastern European migrants over the past few

years. Moldovan and Ukrainian labour migration to Italy, Greece, Spain and Portugal gained momentum in the 2000s. Turkey is another destination, which has started to receive significant numbers of labour migrants from the CIS region.

There are numerous factors strengthening migration ties between Russia and other post-Soviet states. These include historical and institutional ties (i.e., the Russian language factor, existing bilateral and multilateral agreements concerning migration issues, visa free-regimes, simplified access to citizenship, similar legal solutions formulated on the basis of the Soviet law); demographic and economic factors (including, but not limited to demographic pressure in some CIS states vs. depopulation in others, significant wage differences); geographical factors such as spatial proximity between various migration nodes and well developed transportation networks); and others. Many of these are the continuing Soviet legacy. Moreover, there are contemporary attempts to strengthen regional ties as Russia attempts to exert soft power to integrate post-Soviet states into its sphere of influence.

3. Systemic approach to migration research in the post-Soviet space

Given the geopolitical developments in the post-Soviet region, the area has often been referred to as a 'migration system'. Ivakhnyuk (2003; 2008; 2012) describes it as the Eurasian migration system. This implies that (1) if CIS countries form a migration system, migration linkages between them should be stronger than linkages developed between CIS and non-CIS countries; and (2) there are structural differences in the push and pull factors that influence the intra-CIS migration as opposed the migration between CIS and non-CIS countries. That said, what is a 'migration system'?

In one of the earliest applications of the systems approach to migration research Mabogunje (1970) defined a system as a close set of "interacting elements, together with their attributes and relationships" (Mabogunje 1970: 3). In terms of international mobility such 'elements' could be sending and receiving countries, their 'attributes' could be push and pull factors affecting migration (Ravenstein 1885; 1889; Lee 1966), and their 'relationships' could be the relative intensity of the push and pull factors and the intensity of migration *per se*. It has not been specified what minimal intensity of relationships between elements is needed to define a system. However, Salt (1989) and de Hass (2007) refer to 'greater' intra-system connectivity and complexity as a factor differentiating a system from its environment. Boutang and Papademetriou recognize that a system is characterized by 'a "particular" combination of types of population flows between countries' (Boutang, Papademetriou 1994: 20). Kritiz, Lim and Zlotnik (1992) claim that a system is formed by at least two countries that exchange "relatively high" numbers of migrants. Though existing conceptualizations do not define the necessary and sufficient conditions for a system to emerge, they all point out to relatively strong migration links between countries within the system as opposed to those outside it. In this interpretation, for a CIS migration system to exist, migration flows between CIS countries should be stronger than flows between CIS and non-CIS countries.

The expected structural differences between intra- and extra-systemic mobility have been envisaged by most migration systems theorists. Mabogunje (1970) specified that every system operates in a specific environment, which comprises elements influencing and being influenced by the system. In case of

migration phenomena such environment consists of factors such as wages, prices, education, health, technology, governmental policies, etc. The changing environment causes changes in the operation of a system nested within it. This approach was followed by Fawcett (1989) and Boyd (1989), who also emphasized the relevance of systemic linkages between countries, which influence migration itself. In this vein Jones and Findlay (1998) examined the East Asian international migration system and noted that its development would be not possible without wage differentials within the region.

Boutang and Papademetriou stressed that a system comprises not only flows, but also “the rules regulating these flows, and their administration” (Boutang, Papademetriou 1994: 20). Finally, Kritiz et al. (1992) claim that in order to be part of one migratory system, countries need to share similar levels of development, a common cultural background and some degree of coherence in policy making. They also believe that the presence of strong economic and political ties with a specific destination country, in particular of dependent nature, provides an additional justification for the existence of a migration system. Intuitively, the CIS countries or, even more generally, all the post-Soviet states, share the common institutional background and, thus, they have strong legacy ties. This is precisely what has made us adopt the migration systems framework for our analysis. It remains unclear, though, how the geopolitical, historical and social factors shared by countries constituting a potential ‘migration system’ could influence the relatively large population flows hypothesized to exist between these countries.

4. Island analysis: intensity of migration ties

To identify groups of countries which have relatively more intensive internal than external migration exchange we apply an analytical technique used in network analysis, namely the concept of islands. An island is sub-network in which the connections inside the community are significantly stronger than those outside the community.²

In order to identify the islands in a given network we have to perform a ‘line-cut’ at a selected level. The idea behind recognizing islands is the following: let us imagine that all the nodes of a network (in our case – countries) are connected by bridges; the stronger the link between two nodes (which in our case means bigger migration exchange), the higher the bridge between them. Now let us ‘flood’ the network in a way that all bridges are under water. As we lower the level of water some bridges become visible. The countries connected by them form what is called an island. By continuously lowering the level of water more and more bridges become visible and more and more countries are incorporated into an island. If the water level is brought down to zero all the bridges become visible and the obtained island comprises the whole network. What is most interesting in applying island analysis is exploring in which order the bridges become visible as we lower the level of water in a stepwise manner, i.e., how does the structure of the network evolve if we decrease the required strength of interlinkages between the nodes of the network.³

² Pajek – a program for the analysis and visualization of large networks – has been used to perform the analysis. The program is available at <http://pajek.imfm.si/doku.php> and can be downloaded free of charge.

³ Technically, Pajek allows to set the minimal and maximal number of nodes to be included in one island, rather than the ‘level of water’. Nevertheless, the logic behind the procedure is exactly the same and the metaphor of water levels has been used for clarity.

4.1 Data and data aggregation

For the purpose of our empirical analyses we have constructed a data set which consists of 4050 data records. Each record is an ordered pair of countries in three selected years: 2004, 2007 and 2010. The countries we consider are the CIS official member countries, Turkmenistan and Ukraine (participating states), Georgia (member of the CIS from 1994 to 2009), 27 EU Member States, and other major migration partners for CIS countries⁴. As we are interested in migration to and from CIS countries, the dataset excludes country pairs in which neither sending nor receiving country is a CIS country⁵. For the islands analysis we have only used one part of our database, namely data for 2010.

In order to measure the strength of contemporary migration ties between two countries various measures can be used. We decided to take into account not only flows, but supplement it additionally with stocks, analyzing both of them first separately and in the end together. Migration data were in the first place collected from statistical offices of particular countries (Eurostat in case of EU states) and only later we have filled some of the gaps with UN data⁶. Unfortunately, some data are still unavailable. We have chosen to use the flows by country of previous/next residence. First argument in favor of that choice was better data availability. Second – the fact that we were interested in measuring the flows between two spaces. The use of data on flows by citizenship or country of birth would to a lesser extent allow us to treat the countries as nodes of a migration network as we would only know, for example, that a person of Ukrainian citizenship migrated but we would not know from which (or to which) country that person has actually moved. Similarly, information regarding migrant's country of birth does not give us the information from which country that person has come in reality and therefore it does not provide us with information whether the flow between two countries has indeed taken place. In the first place we have taken the flows registered by the receiving country (migration inflows by country of previous residence) based on the assumption that these are really people who have migrated from country A to B. In the absence of such data, we have taken the data registered by a sending country (migration outflows by country of next residence), which is a poorer measure as it registers only declarations as to the intended and not necessarily actual destination. Data regarding the stocks for 2010 were taken from the World Bank dataset⁷. Those data are mainly based on information on foreign-born migrants supplemented by foreign nationality data when the former are not available (Ratha, Shaw 2007).

Going out of the assumption that migration flows and stocks can be perceived as relatively small/big depending on the size of population of both sending and receiving states, we have created four separate indicators – the size of flows divided by the size of population of the country of origin and divided by the size of population of the destination country and analogical indicators for stocks. The source of population

⁴ These were selected if migration to or from such a country to either of the CIS countries (including Ukraine, Turkmenistan and Georgia) in any of the selected years was larger than 100 people. These countries include: Australia, Israel, USA, Canada, Norway, Turkey, Afghanistan, China, India, Mongolia, Serbia, South Korea, Syria, Vietnam.

⁵ An exception are three Baltic states (Lithuania, Latvia and Estonia) for which we have also taken into account their migration exchange with non-CIS states with the objective to perform sensitivity analysis by including these three countries in the CIS (or, alternatively, to check distinctiveness of migration processes for all post-Soviet states not only CIS).

⁶ For more detailed information concerning the data see Appendix 1.

⁷ Bilateral migration matrix 2010,

<http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/0,,contentMDK:22803131~pagePK:64165401~piPK:64165026~theSitePK:476883,00.html>, accessed on 15.06.2013.

data was the UN Population Division's data (World Population Prospects: the 2010 Revision, 2011). This way we have obtained four dimensions (see Table A): two for flows and two for stocks, which needed to be reduced to one in order to get a network in a one-dimensional space and perform the analysis.

Table A. Descriptive statistics of four dimensions of migration intensity (counted as per 100 000 population).

Variable	N	Mean	Std.Dev.	Min	Max
$FLOW_{s-r}/POP_{send}$	834	9.546	62.045	0	1224.179
$FLOW_{s-r}/POP_{rec}$	834	3.064	10.532	0	133.305
$STOCK_{s-r}/POP_{send}$	1350	154.229	1001.274	0	16718.000
$STOCK_{s-r}/POP_{rec}$	1350	115.006	745.849	0	14056.510

Source: own calculations.

$FLOW_{s-r}$ are migration flows from a sending to a receiving country⁸, $STOCK_{s-r}$ are the stocks of persons who were born in a sending (or alternatively are citizens of a sending) but resided in a receiving country, and POP_{rec} and POP_{send} are the population sizes of the receiving and sending countries, respectively.

We have decided to run the analysis for flows and stocks separately in order to show the differences between contemporary migration processes (expressed by flows) and historical legacy and migration potential at the same time (expressed by stocks) and compile both components in the end to show the overall picture. Beforehand, we have standardized⁹ each of the dimensions to make them comparable and avoid the situation when one has a bigger weight. We have chosen Euclidean distance in a 2- and 4-dimensional space accordingly as a metric to bring the given 2 or 4 dimensions to one. Below are the formulas for migration intensity indicator (I) in case of flows (1), stocks (2) and both migration components taken together (3):

$$I(FLOW) = \sqrt{\left(\frac{FLOW_{s-r}}{POP_r}\right)^2 + \left(\frac{FLOW_{s-r}}{POP_s}\right)^2} \quad (1)$$

$$I(STOCK) = \sqrt{\left(\frac{STOCK_{s-r}}{POP_r}\right)^2 + \left(\frac{STOCK_{s-r}}{POP_s}\right)^2} \quad (2)$$

$$I(FLOW, STOCK) = \sqrt{\left(\frac{FLOW_{s-r}}{POP_r}\right)^2 + \left(\frac{FLOW_{s-r}}{POP_s}\right)^2 + \left(\frac{STOCK_{s-r}}{POP_r}\right)^2 + \left(\frac{STOCK_{s-r}}{POP_s}\right)^2} \quad (3)$$

Due to including stocks and flows into the composite measure (3) we are able to capture both the intensity of actual population movements (flows) and the potential for migration in the future. On the one hand, relatively large migrant stocks may enable further immigration via networks. On the other hand, they may represent large population groups which have found themselves residing in a 'foreign' country after the collapse of the Soviet Union. The first possibility is especially relevant, as it represents the role of networks in a migration process, where networks decrease the costs and uncertainty related to migration.

⁸ This way bi-directional flows have been taken into account.

⁹ Using the standard score (also called z-score).

Having obtained one-dimensional links between countries from the above equations, we have conducted island's analysis in Pajek aimed at identifying groups of states possessing stronger migration ties with one another than with the rest of countries considered.

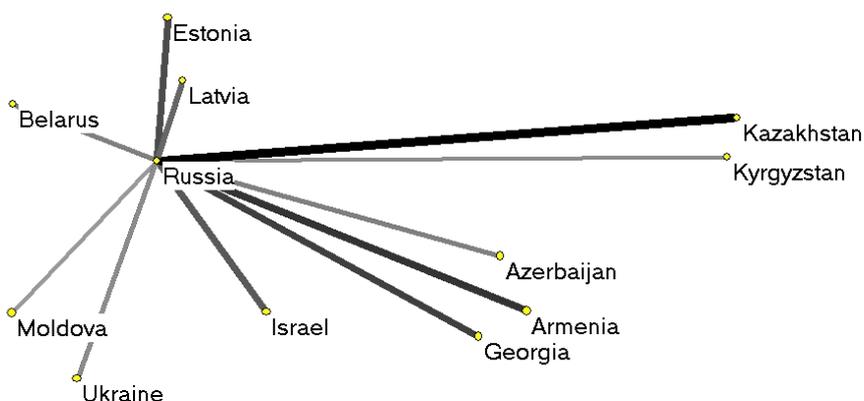
4.2 Results

The starting point for our island analysis was a situation when we had no links between the nodes (countries) of our network. By gradually ‘lowering the water level’¹⁰ bridges emerge linking certain nodes with one another (forming islands). In subsequent steps further bridges emerge and more and more countries join the existing islands increasing their size. By observing this process, we obtain valuable information about the network structure. The thickness and darkness of lines in the graphs presented below are proportional to the strength of the connection. As we include bi-directional migration data it is always the stronger link that is visible.¹¹ This is not problematic, though, as we are not interested in directionality, but only in the strength of the connection.

Examining the distinctiveness of the group of CIS/post-Soviet states in terms of migration exchange first we look at a situation in which the water level is low enough to allow at most 12 countries (the number of CIS countries, including Georgia) to constitute one island. Next we consider a situation in which the maximal number of nodes in an island is 15 (the number of post-Soviet states, CIS countries, Georgia and three Baltic states – Latvia, Lithuania and Estonia). If all post-Soviet states are not actually visible at that stage, we then continue to ‘lower the water level’ until this is achieved (what we will call the ‘last stage’).

We start our analysis with migration stocks data which tell us how many people born in the sending country – or alternatively of sending country’s citizenship if the data on foreign-born are missing (see Ratha, Shaw 2007) – reside in the receiving country. Wanting to check if CIS countries form a distinctive group we set the maximal number of nodes in one island to 12 (see Figure 3). Provided that CIS states form a distinctive group (‘system’), in which interconnections are stronger than with out-of-group countries, we should obtain an island gathering all of them together with no other nodes belonging to it.

Figure 3. Islands for stocks by maximal number of nodes in one island set to 12.



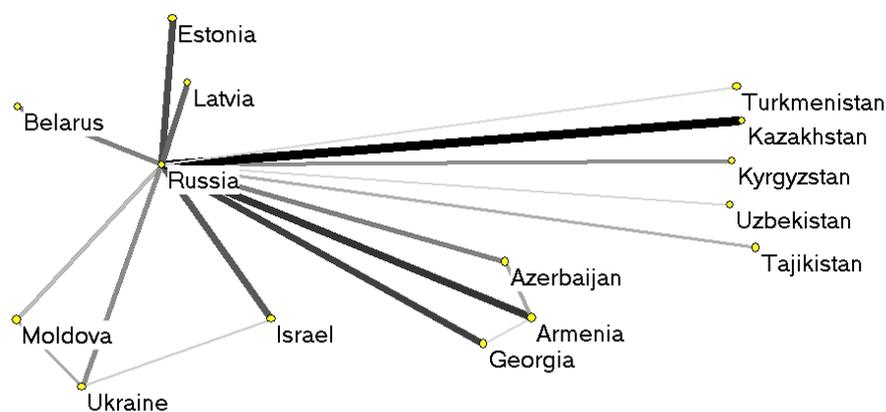
Source: own elaboration in Pajek

¹⁰ What technically meant increasing the maximal number of nodes in one island.

¹¹ Sometimes when the flow/stock in opposite direction is also significant both lines are visible (the smaller one as a bright corridor inside the bigger one).

At this stage we obtained one single island centered on Russia. However, it does not comprise 12 CIS states. Instead, there are two Baltic States visible (Estonia and Latvia) while three Central Asian countries are missing (Tajikistan, Turkmenistan and Uzbekistan). What is, however, more important is the fact that Israel is also a part of the island. Israel is a highly specific case as its migration exchange with the post-Soviet area concerned the arrivals of people of Jewish origin which gained mass character in the second half of 80s and at the beginning of 90s. Summing up, as far as CIS countries are concerned, we cannot distinguish a clearly detached system based on migration stock data. Therefore, we run an analysis for the maximal number of nodes in one island set to 15 in order to check for the distinctiveness of the ‘system’ for all post-Soviet states (see Figure 4).

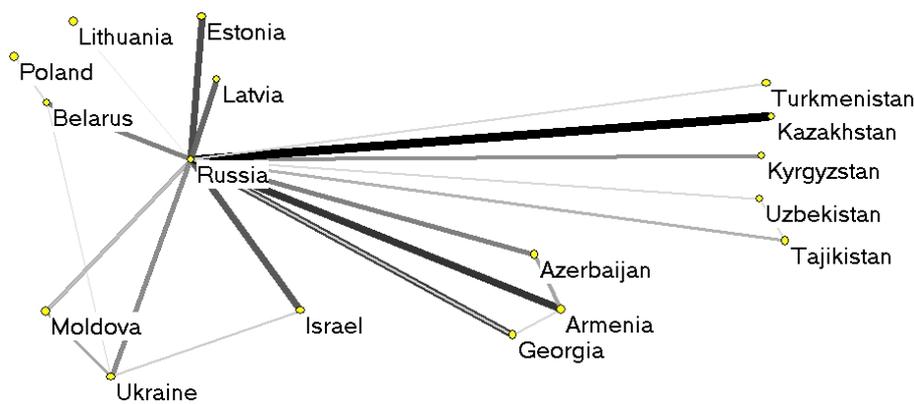
Figure 4. Islands for stocks by maximal number of nodes in one island set to 15.



Source: own elaboration in Pajek

As we can see from the above figure we received a picture which almost perfectly matches our expectations. A single island gathers all the post-Soviet states except for Lithuania. Israel took its place, evidently having relatively stronger ties to the ‘system’. Nonetheless, we can consider the post-Soviet region as forming a rather coherent network as far as migrant stocks are concerned. To support this claim we have further observed that only two steps further (i.e., when the maximum number of nodes in one island is set to 17) all the post-Soviet states became visible as components of one island (Figure 5). At the penultimate step, before Lithuania emerged as a node in our network, Poland also joined the post-Soviet island which is also a specific case given the considerable Polish minority living in Belarus (which results from border changes after the Second World War).

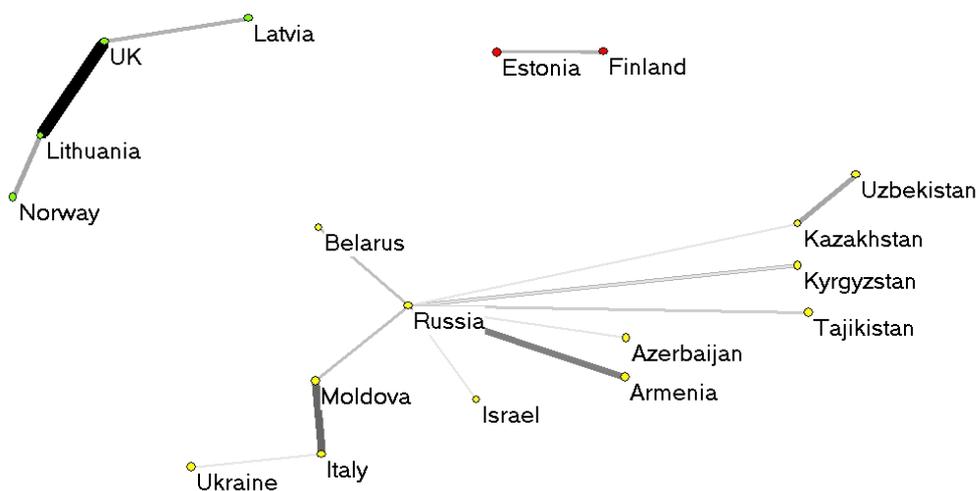
Figure 5. Islands for stocks at the last stage.



Source: own elaboration in Pajek

When analyzing migration flows we get a very different picture. Analogously, setting the maximal number of nodes in one island to 12 (Figure 6) we get three separate islands: one formed by Latvia, UK, Lithuania and Norway, second – by Estonia and Finland, and the third centered around Russia. The formation of separate islands by the Baltic States is of no surprise as being the members of the EU and the Schengen area they have recently developed strong migration ties with the EU countries which offer Latvian, Lithuanian and Estonian citizens better living and working conditions than Russia or other CIS countries.

Figure 6. Islands for flows by maximal number of nodes in one island set to 12.

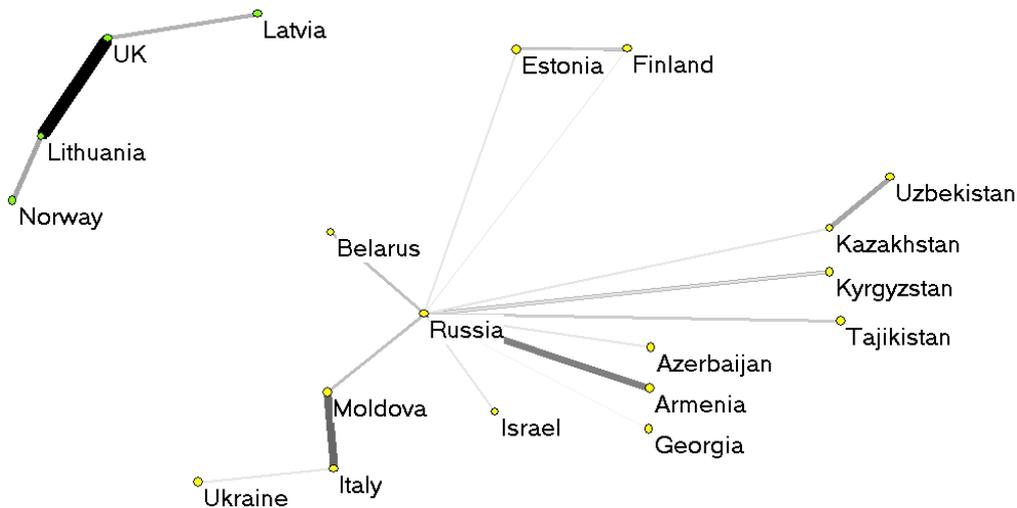


Source: own elaboration in Pajek

Figure 6 clearly shows that as regards the flows CIS countries do not constitute a clearly detached system. Considerable migration exchange between Moldova and Italy is the key feature supporting this thesis. Moreover, Israel belongs to a Russia-centered island at this stage, while Georgia and Turkmenistan are still missing. As regards Israel its presence can be partially explained by migrant stocks which may signalize the role of migration networks which sustain the flows.

Going further and setting the maximal number of nodes in one island to 15 we obtain two islands: one again formed by Latvia, Lithuania, UK and Norway and the one concentrated around Russia, resulting from the merger of the Russia-centered island and the one formed by Estonia and Finland (see Figure 7). Apart from this merger the only difference comparing to Figure 6 is that Georgia also joined the Russia-centered island.

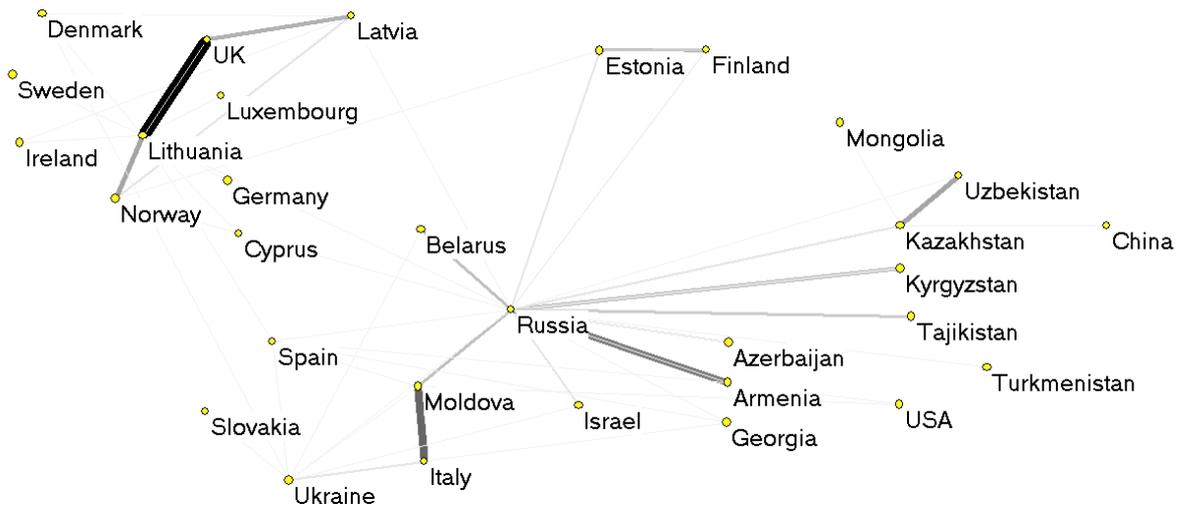
Figure 7. Islands for flows by maximal number of nodes in one island set to 15.



Source: own elaboration in Pajek

What is most important in Figure 7 is the fact that when the maximal number of nodes in one island is set to 15 we still do not have all CIS countries belonging to the Russia-centered island – Turkmenistan is missing. It means that it has relatively weak migration ties with the rest of the post-Soviet states. This is of no surprise taking into account its state isolation policy. In 1999 Turkmenistan introduced a visa regime with all the CIS countries. Moreover, the authorities attempt to control every exit from and entrance to the country. In order to make Turkmenistan visible we have to go as far as to 31 nodes maximum in one island. This is the first moment when Turkmenistan appears in the picture (see Figure 8).

Figure 8. Islands for flows at the last stage.

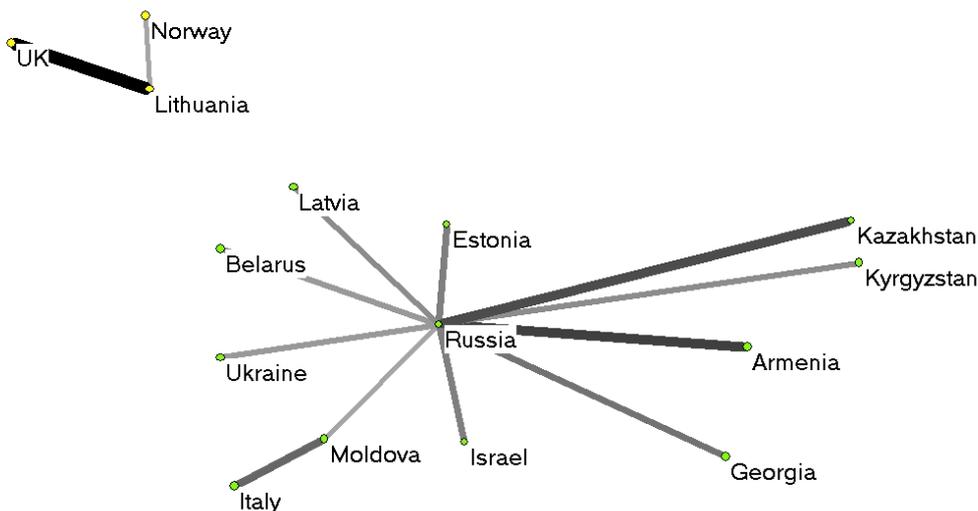


Source: own elaboration in Pajek

As Turkmenistan joins the island, there is already a number of non-CIS countries belonging to it, both from the West (apart from those mentioned before e.g. Spain, Slovakia, USA, Germany, Denmark) and East (Mongolia and China). Comparing figures 5 and 8 (both depict the first step at which we have all the post-Soviet states visible in the picture) we can see that there is a big difference between the picture obtained by the analysis run on migration flows and stocks.

It seems worthwhile to check what will happen if we run island analysis on both stocks and flows data jointly (using formula (3)). Analogously to the analysis performed on flows and stocks separately we start by looking at islands which emerge when the maximal number of nodes in one island is set to 12 (Figure 9).

Figure 9. Islands for flows and stocks by maximal number of nodes in one island set to 12.

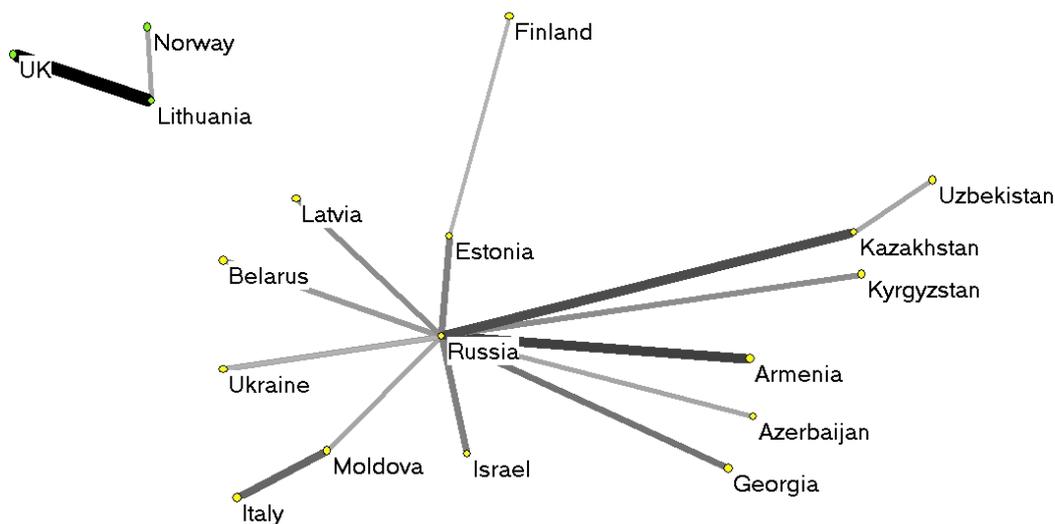


Source: own elaboration in Pajek

As it could be expected the obtained picture combines the features of pictures received by flows and by stocks. On the one hand, Latvia and Estonia seem to have stronger migration ties with Russia than with EU states. Migration stocks are mainly responsible for that fact. On the other hand, Italy appears in our Russia-centered island due to considerable migration flows connecting it to Moldova. Clearly, Israel also belongs to Russia-centered island taking into account that it was visible both as regards flows and stocks. Nonetheless, there are still a few CIS countries missing (Azerbaijan, Tajikistan, Turkmenistan and Uzbekistan). Israel is a specific case due to ethnic character of the migration exchange with post-Soviet states, but the presence of Italy certainly is a sign pointing to the lack of distinctiveness of a CIS ‘migration system’.

At the point when the maximal number of nodes in one island is set to 15 (Figure 10) two CIS states join the Russia-centered island (Uzbekistan and Azerbaijan). Moreover, Finland appears in the picture due to its connection to Estonia.

Figure 10. Islands for flows and stocks by maximal number of nodes in one island set to 15.



Source: own elaboration in Pajek

However, there are still two CIS countries missing in the network (Turkmenistan and Tajikistan). To include them into the island we have to increase the maximal number of nodes in one island to 20 which is the first moment they both appear as nodes of our island (Figure 11).

Figure 11. Islands for flows and stocks at the last stage.



Source: own elaboration in Pajek

At this stage not only the two missing CIS countries joined the island but additionally the island previously formed by Lithuania, UK and Norway merged with the Russia-centered one. Notably, the only EU countries for which we have collected data as if they were CIS countries were Latvia, Lithuania and Estonia which were part of the USSR but are now strongly embedded in the EU context. Lithuania represents a particularly interesting case, as it is not connected directly to Russia, as are Latvia and Estonia, but it appears in the ‘system’ via connections with UK and Norway, which in turn are linked to Latvia.

Definitely the link between Moldova and Italy is the key connection responsible for the ‘dissolution’ of the post-Soviet ‘migration system’. Moreover, we have to bear in mind that the appearance of Italy in the island means not only that a single node connects with Moldova but that Italy is a part of a bigger network which we have not depicted, as we have not included data on e.g. intra-EU migration. Had such data been included in our analysis, i.e., if we aimed at exploring not only the ‘post-Soviet system’, but also an ‘EU system’ and their interrelations, a number of interconnections between non-CIS countries would have emerged prior to what has been depicted here which would all the more be an evidence against the existence of the CIS/post-Soviet migration system.

Summing up, the obtained constellations lead us to think that indeed what constitutes the ‘post Soviet migration space’ (or alternatively ‘CIS migration space’) is a very arguable set of countries. Although as far as migration stocks are concerned such a distinction seems justified, analyses of migration flows does not allow for such a conclusion. Contemporary migration flows seem to be determined by the demand factor (migration exchange with the EU) or institutional/political factors (isolation of Turkmenistan), while historical factors expressed by migration stocks seem to lose importance.

5. Gravity model: Distinctiveness of intra-regional migration flows

This section aimed at finding an answer to the question whether population flows between CIS countries are governed by economic and geo-demographic determinants of migration in a distinct manner from migration flows between CIS and non-CIS countries. It has been anticipated that due to the common Soviet past the CIS countries share not only are the flows among them relatively large in magnitude, but also that they are governed by statistically different relationships with macro-level determinants of mobility.

5.1 Data

On top of migration flow and population data described for the purpose of the network analysis, in this section we have employed a number of variables commonly treated as the determinants of migration in gravity-type models (Zipf 1962; Andrienko, Guriev 2003; Lewer, van den Berg 2008; Mayda 2010; Uzagalieva et al. 2012). The data comprises: economic indicators – GDP pc PPP and the unemployment rate; a geographic indicator – the average distance between countries; and cultural and institutional indicators such as common language and common historical institutional setting. The summary statistics of variables used are presented in Table B.

Table A. Variables used, 2004/2007/2010 average.

Variable	raw data		estimation sample	
	full	full	CIS	non-CIS
FLOW _{s,r,t}	683.61 (3,512.70)	763.5 (3,728.65)	4,442.44 (9,426.18)	514.11 (2,809.01)
GDP _{s/r,t=-1}	3.12 (5.08)	2.73 (4.57)	1.73 (1.73)	2.80 (4.70)
U _{s,t=-1}	8.71 (4.20)	8.84 (4.07)	9.11 (4.43)	8.82 (4.04)
U _{r,t=-1}	8.71 (4.20)	8.77 (3.98)	8.84 (4.03)	8.77 (3.98)
POP _{s,t}	50,785.30 (184,071.70)	45,853.90 (154,495.80)	36,402.57 (49,709.17)	46,494.58 (159,107.7)
POP _{r,t}	50,785.30 (18,4071.70)	42,864.46 (143,736.70)	36,315.20 (49,762.84)	43,308.42 (147,959.10)
DIST	3,411.24 (2,541.31)	3,100.43 (2,734.95)	1,778.52 (800.69)	3,190.04 (2,796.00)
LANG	0.02 (0.14)	0.02 (0.15)	0.15 (0.36)	0.02 (0.12)
No. of observations	4,050	1,843	117	1,726

Standard deviations in parentheses.

Population (POP) and migration flow (FLOW) data are identical to those used in the network analysis (see: previous section) with the exception that they cover the years 2004, 2007 and 2010. The reason was to enable providing a rather general answer to the posed research question. Had only one point in time been taken, the obtained estimates would have been possibly biased by the socio-economic and political situation prevailing in that year. This is especially worrisome in the context of the recent financial crisis, which significantly changed the framework of global migration flows. GDP_{t-1} is the GDP per capita (PPP) level in

US dollars¹² in the preceding year (2003, 2006 and 2009 accordingly). U_{t-1} is the unemployment rate in the preceding year¹³. The distance measure ($DIST^{14}$) indicates distance between capital cities of respective countries, weighed by the population shares living in these capital cities¹⁵. The common language variable ($LANG^{16}$) is a dummy taking the value of 1 if a given pair of sending and receiving countries shares a common language spoken by at least 9 per cent of the respective populations. The distinction between CIS and non-CIS country pairs is straightforward, i.e., CIS pairs include two CIS countries (where Georgia is also considered a CIS country while Latvia, Lithuania and Estonia are not) while non-CIS pairs include one CIS and one non-CIS country.

Notably the estimation sample differs from the raw data in two ways. The first difference are the unequal population sizes and unemployment rates in case of sending and receiving countries. Recall that, as we consider bilateral migration flows, each pair of countries is recorded twice – once the flow is considered in one direction and the second time in the other direction. Thus we have the same set of receiving and sending countries leading to identical average unemployment rates and population sizes in the raw sample. In the full estimation sample, however, these variables are not due to the fact that in case of some country pairs migration flows were reported only in one direction. This lead to including such a pair of countries only once and, in effect, to unequal average unemployment rates and population sizes across the sending and receiving countries. The second difference between the full estimation sample and the raw sample also in the number of observations, which is smaller by a half in the former. This issue, which arose from missing data in case of many countries, seems not to change the value of the considered explanatory variables to a very large extent though. This suggests that our results are not highly influenced by sample selection.

5.2 Empirical approach

Given the time dimension of the data and the macro-level of analysis, the technique applied to test for this contingency is a panel regression with random effects, resembling a gravity model:

$$\begin{aligned}
 \ln(\text{FLOW}_{s-r})_t &= \beta_1 \ln(\text{GDP}_s/\text{GDP}_r)_{t-1} + \beta_2 \ln U_{s,t-1} + \beta_3 \ln U_{r,t-1} && \text{(economic indicators)} \\
 &+ \beta_4 \ln(\text{POP}_{s,t} \times \text{POP}_{r,t}) + \beta_5 \ln \text{DIST}_{s-r} && \text{(demo-geographic indicators)}^{17} \\
 &+ \beta_6 \text{LANG}_{s-r} + \beta_7 \text{CIS}_{s-r} && \text{(institutional indicators)} \\
 &+ \beta_0 + \varepsilon_{s-r,t} + u_{s-r,t}
 \end{aligned} \tag{4}$$

where t indicates the year 2004, 2007 or 2010, and s and r denote the sending or receiving country, respectively. All continuous variables have been transformed into natural logarithms¹⁸. The sending and

¹² The World Bank Indicators: <http://data.worldbank.org/indicator/NY.GDP.PCAP.PP.KD>

¹³ The World Bank Indicators: <http://data.worldbank.org/indicator/SL.UEM.TOTL.ZS>

¹⁴ The GeoDist dataset by Mayer and Zignago (2011).

¹⁵ Other distance measures available in the GeoDist dataset have also been considered. All yield similar results.

¹⁶ The GeoDist dataset by Mayer and Zignago (2011).

¹⁷ The specification $\beta_4 \ln(\text{POP}_{s,t} \times \text{POP}_{r,t})$ has been taken from Zipf (1962). It is equivalent to $\beta_4 \ln(\text{POP}_{s,t}) + \beta_5 \ln(\text{POP}_{r,t})$ under the condition that $\beta_4 = \beta_5$. The actual model has been run in the form $\beta_4 \ln(\text{POP}_{s,t}) + \beta_5 \ln(\text{POP}_{r,t})$ and the condition that $\beta_4 = \beta_5$ has been tested for and found true.

¹⁸ Three alternative specifications have been run – one excluding flows of value 0 (logarithm impossible to compute, $N=1,645$), one replacing these 0 with the value of 0.001 to enable computation of logarithm ($N=1,843$). The estimators obtained from these models

receiving countries' unemployment rates and populations have been included in the model independently, as it seems that they must not necessarily affect migration flows in relative terms (Aldashev, Dietz 2011). The GDP and U variables are lagged one year to conceptually enable migration to be a response to the economic situation at the sending and receiving countries.

We are most interested in the estimator of the CIS variable, β_8 . Given the results of the island analysis (see: previous section) we have defined the CIS dummy in two ways:

- in the first specification (used in model (4) presented in Table B) we have allowed it to take two values: 0 for CIS to/from non-CIS migration flows, 1 for flows between CIS countries.

- in the second specification (used in model (5) presented in Table B) we have allowed it to take three possible values: the reference category (value 0) are CIS to/from non-CIS migration flows just as in the first specification, but what has received the value of 1 in the first specification (CIS-CIS flows) has now been divided into two components: flows between CIS countries, but excluding Russia (value of 1), and flows between Russia and CIS countries (value of 2).

First, we expect the CIS dummy estimators to be significant and positive for when the category of interest includes intra-CIS flows (with CIS to/from non-CIS flows as the reference category). This expectation is based on the common institutional past of the CIS countries. Second, we expect that flows between Russia and other CIS countries are significantly larger in scale than flows between CIS countries when neither of them is Russia. This expectation is based on the findings of the island analysis and the observation that Russia still remains a dominant actor in the region.

By interacting the CIS dummy variable with the other explanatory variables we also wanted to explore whether the fact that a sending and receiving country share a common Soviet past is a significant moderator of the relationship between the explanatory variables and migration flows. In light of existing conceptual approaches taking the existence of a post-Soviet system as granted, the considered interaction effects should turn out to be significant. This would imply that, indeed, a common post-Soviet past significantly affects migration processes among CIS countries and makes them distinct from mobility between CIS and non-CIS countries.

5.3 Results

The results of estimating the above model are presented in Table B. Column (1) presents the estimates obtained from the base case model, which includes only the economic indicators. Column (2) adds demographic indicators. Columns (3), (4) and (5) add the institutional indicators of interest – common language and the CIS dummy in the dichotomous version (4) and in the trichotomous version (5).

were stable in terms of sign and significance but differed slightly in terms of magnitude. The model enabling the inclusion of more observations has been eventually used.

Table B. Results of panel regressions

$\ln(\text{MIG}_{s-r})_t$	(1)	(2)	(3)	(4)	(5)
$\ln(\text{GDP}_{s/r})_{t-1}$	-0.421*** (-4.20)	-0.418*** (-5.12)	-0.419*** (-5.13)	-0.421*** (-5.17)	-0.421*** (-5.17)
$\ln(\text{U}_s)_{t-1}$	0.783*** (3.92)	0.687*** (3.57)	0.690*** (3.58)	0.673*** (3.51)	0.675*** (3.52)
$\ln(\text{U}_r)_{t-1}$	-0.490*** (-2.96)	-0.494*** (-3.10)	-0.488*** (-3.06)	-0.494*** (-3.09)	-0.494*** (-3.09)
$\ln(\text{POP}_s)_t$		0.958*** (13.57)	0.947*** (13.50)	0.920*** (13.18)	0.904*** (12.85)
$\ln(\text{POP}_r)_t$		0.997*** (12.62)	0.986*** (12.54)	0.960*** (12.36)	0.943*** (12.07)
$\ln(\text{DIST})$		-1.826*** (-11.81)	-1.773*** (-11.28)	-1.679*** (-10.57)	-1.678*** (-10.60)
LANG			1.896*** (3.58)	1.453*** (3.25)	1.156*** (2.74)
CIS-non CIS				reference category	
CIS-CIS				1.634*** (6.87)	
CIS-Russia					3.133*** (11.28)
CIS-non Russia					1.050*** (4.41)
constant	1.671*** (3.49)	-1.814 (-1.31)	-2.084 (-1.49)	-2.381* (-1.69)	-2.087 (-1.47)
No. of observations	1843	1843	1843	1843	1843
Overall R ²	0.04	0.30	0.31	0.32	0.32

Z-scores in parenthesis. Significance levels: * 10%, ** 5%, *** 1%.

The obtained results in the most extended model (5) are in line with theoretical predictions:

- a 10 per cent increase in the GDP level ratio leads to a 4 per cent decrease in migration flows ($1.10^{(-0.421)} - 1 = -0.04$). Assuming that the level of GDP pc (PPP) is a measure of living standards and the general condition of the economy, than a better situation in the home country relative to the host country should be a disincentive to outmigration.;
- a 10 per cent increase in the unemployment rate of the sending country increases emigration by 7 per cent. A 10 per cent increase in the unemployment rate of the receiving country decreases emigration by 5 per cent. People tend to avoid markets in which jobs are hard to find. Though the unemployment rate effectively affecting migrants at the destination must not be the same as the general unemployment rate (as migrants often operate in secondary markets) increases in general unemployment at the destination may generate anti-immigrant attitudes (in line with a fallacy that immigrants take the natives' jobs). Such social pressures may affect migration flows just as actual economic conditions.;
- a 10 per cent increase in the population of the sending country is associated with a 9 per cent increase in the migration outflow. Statistically the same relationship holds for a 10 per cent increase

in the population of the receiving country. This captures the potential of the home country to send migrants and of the host country to receive migrants. The higher this joint potential, the larger the migration flow.;

- doubling the distance between the sending and receiving country implies a decrease in migration flow by 69 per cent. Here distance is a proxy for the costs of migration, both pecuniary and non-pecuniary. The monetary costs of travel along with the costs of family separation and possible visits at home are, as expected, inversely related to the scale of migration between two countries.;
- sharing a language increases migration between two countries over three times ($\text{EXP}(1.156)-1=2.18$), *ceteris paribus*;
- migration within the CIS is on average 5 times larger in scale than between the CIS and the 'outside world' (see column (4) for reference, $\text{EXP}(1.633946)-1=4.12$);
- if we take Russia out of the CIS picture the difference in the scale of intra-CIS migration flows and migration flows between CIS to/from non-CIS countries is much smaller – not even threefold ($\text{EXP}(1.05)-1=1.86$). Hence we can conclude that Russia as a major receiving country in the CIS region induces a great proportion of mobility within the CIS. Flows between CIS countries and Russia are nearly 23 times larger than flows between CIS and non-CIS countries ($\text{EXP}(3.133)-1=21.94$). In numerical terms the CIS-non Russia migration flows are 88 per cent smaller than flows between a CIS country and Russia.;

Regardless of specification the estimators obtained for the economic, demo-geographic and common language indicators are very stable leaving us confident about the results.

An attempt was made at including three Baltic states (Latvia, Lithuania, and Estonia) in the CIS group, as they were also republics of the USSR. Nowadays they seem more tightly connected with the European Union, though, which is why they were not initially included in the CIS dummy. However, when the CIS dummy also includes the three Baltic states, the magnitude of the CIS estimator is slightly smaller (1.22, in comparison to 1.634 in model (4) in Table B), yet of the same sign and significance. This is indicative of their relatively weak connections with non-EU post-Soviet states which indicates that in terms of migration flows 'Soviet heritage' might not be as important of a determinant, as anticipated.

In the second step of the analysis, the CIS dummy in both its dichotomous and trichotomous version has been interacted with all the independent variables of model (3). The dummies were interacted with each of the independent variables separately and with all of them simultaneously as well. In neither of the 16 resulting regressions were these interaction terms highly significant. This lead us to conclude that, contrary to what was anticipated, the mechanics of contemporary migration flows within the CIS, i.e., the relations of push and pull factors to the actual migration flow, are not significantly different in case of migration flows between the CIS countries (in comparison to non-CIS to/from CIS migration flows).

6. Summary and conclusions

This paper has made an attempt to provide a multidimensional and quantitative evaluation of the distinctiveness of migration flows in the post-Soviet space. Using the systems perspective, we have anticipated that migration flows in the CIS region significantly differ both in terms of their scale and mechanics from flows directed to or originating from outside of the region. This hypothesis was tested by employing network analysis and an econometric gravity model. The dataset used for the analysis was compiled specifically for the purpose of this study.

Our goal was to quantitatively explore certain features and patterns of migration within this region and between it and the rest of the world. We found no evidence to support the hypothesis of the existence of the CIS/post-Soviet migration system. The island analysis has shown that, as far as the scale of flows is concerned, CIS states do not form a clearly distinct group of major sending and receiving countries. This distinctiveness is only visible when analyzing migrant stocks, which reflect past migration interdependencies between CIS countries rather than of the contemporary population mobility within the region. Interpreting our results in terms of the migration systems theory, we infer that claiming the existence of the CIS migration system in the CIS migration space could be potentially misleading. Given the limitations of our study, which took a purely quantitative perspective, to refute the CIS migration system hypothesis would also require considering other ties between the CIS countries such as economic, political or historical linkages. This was not our objective in this paper, however, and it remains to be addressed by future research.

The results of the gravity model show that migration between CIS states is, on average, more intense than between CIS and non-CIS countries. In light of the findings of the island analysis, though, it must be kept in mind that the actual migration patterns within and out of the region are far more nuanced. Despite the fact that migration flows within the CIS are on average larger than between CIS and major non-CIS sending and receiving countries, there are certain migration corridors involving CIS and non-CIS states that are quantitatively more significant than some CIS-CIS migration flows. The gravity model was also meant to test the mechanics of intra-CIS migration flows, i.e., whether certain correlates of the scale of migration flows relate to intra-CIS mobility differently than migration between a CIS and non-CIS country. This part of the analysis revealed that, in comparison to inter-regional mobility, intra-CIS migration flows do not respond to the considered push and pull factors in a significantly different way. This finding suggests that the distinctiveness of the migration processes between the CIS countries is questionable or at best very weak as far as the migration mechanics is concerned.

Speaking of the migration situation in the post-Soviet area we should bear in mind the limitations of our dataset. Registration for permanent residence is the main proxy for the scale of migration. Obviously this constitutes only a small part of the whole process, even when irregular migration flows are excluded. In 2010-2012, the number of officially registered labour migrants in Russia exceeded the number of migrants registered for permanent residence over five times (Chudinovskikh, Denisenko 2014). Nevertheless, we have limited our analysis to permanent migration data for the sake of completeness and comparability of the data set. Future research should incorporate labour migration into the analysis.

Despite the above-mentioned drawbacks, the study sheds new light on the phenomenon of migration in the post-Soviet space. It questions the asserted distinctiveness of the region and the existence of the post-Soviet migration system. Although the observed flows are, on average, relatively large, it seems that they are influenced by similar push and pull factors as those influencing the mobility between the region and the rest of the world. Notwithstanding this finding, it must be noted that the socio-economic differences between countries that were formerly the USSR republics are very large, with Russia being a major recipient of migrants from the region.

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Appendix 1. Data sources on migration flows used in the analysis

Data source	Metadata
Ukrstat (Demographic yearbook Population of Ukraine 2010)	Distribution of international migrants by countries of arrival (departure); movements connected with change of place of residence; number of arrivals/departures based on registration coupons (registration/de-registration at/from the place of residence in Ukraine)
Statbank.statistica.md	Immigrants by country of origin, emigrants by country of destination (permanent or temporary residence)
Statistical yearbook of the Republic of Belarus	Arrivals/departures by countries of next/previous residence, based on registration coupons, registration/de-registration at the place of residence (also includes temporary residence)
Statistical yearbook of Azerbaijan, azstat.org	Arrivals/departures for permanent residence by countries
Demographic/Statistical yearbook of Kazakhstan	Arrivals/departures by countries of next/previous residence, based on registration coupons
Demographic yearbook of Russia	Arrivals/departures by countries of next/previous residence, based on registration coupons
Statistical yearbook of Kyrgyzstan	Arrivals/departures by countries of next/previous residence, based on registration coupons; movements connected with change of place of residence
Eurostat	The data sources are administrative records or national surveys. For some datasets statistical estimation methods are applied.; 'Immigration' denotes the action by which a person establishes his or her usual residence in the territory of a Member State for a period that is, or is expected to be, of at least 12 months, having previously been usually resident in another Member State or a third country; 'Emigration' denotes the action by which a person, having previously been usually resident in the territory of a Member State, ceases to have his or her usual residence in that Member State for a period that is, or is expected to be, of at least 12 months.
UNECE	Long-term immigration/emigration by country of previous/next residence (flow)
Central Bureau of Statistics, Statistical Abstract of Israel	Immigrants by last country of residence
Statistics Norway	Emigration by country and immigration by country
Australian Government, Department of Immigration and Citizenship	Permanent departures by region and country of future residence
U.S. Department of Homeland Security, Office of Immigration Statistics, Yearbook of Immigration Statistics	Persons Obtaining Legal Permanent Resident Status by Region and Selected Country of Last Residence