

Economic Migration, Networks and Human Capital Transferability from the New European Borderlands.

A Comparison of Five Eastern European Countries.

Alexander M. Danzer^{*}, Barbara Dietz^{**}

^{*} *DIW Berlin and Humboldt University Berlin*
Corresponding author: Alexander M. Danzer, e-mail: adanzer@diw.de

^{**} *Institute for Eastern European Studies Regensburg and IZA Bonn*

-- Version: 1 April, 2008 --

Abstract

In this paper we use a unique new data set which has been collected in the first half of 2006 in Armenia, Belarus, Georgia, Moldova and Ukraine to investigate the determinants for short term migration and its destination and duration patterns. Special attention is paid to the role played by personal networks to Eastern and Western destinations as well as investments into the transferability of human capital made by migrants prior to their stay abroad.

We find that migration patterns are quite similar across the CIS countries under consideration and most migration determinants do not greatly differ from what is observed in other parts of the world. However, some surprising differences to standard results from the migration literature can be observed, e.g. the prevalence of older migrants and the low importance of small children in the migration decision process. Networks play a supportive role in channelling migrants, but human capital and its transferability are the main explaining factors for the migration and destination decision, a result proofing robust after correcting for endogeneity.

We expect that migration is likely to grow in importance for some countries at the European Borderlands, as networks develop and the costs of migration decrease. However, our analysis reveals that fears of brain drain have little substance as the educational background of migrants is rather low. As a considerable number of migrants have invested into destination country specific human capital prior to migration improved human capital endowments benefit both, migrants and sending countries, alike.

Keywords:

Migration, human capital transferability, migration networks, cross-country study

JEL codes:

J24, F22, J61

1. Introduction

Although recent migrations from former Soviet Union countries bordering the EU in the East are increasingly discussed, there is only little sound research on the quantity, determinants and patterns of these movements. Official statistics on the flow of people in former Soviet Union countries are typically scarce and sometimes misleading, while individual data in the form of survey results are generally lacking. Against this background the EU INTAS project “Patterns of Migration in the New European Borderlands: An assessment of Post-Enlargement Migration Trends in NIS Border Countries” took the initiative, to collect survey based information on the migration situation in five former Soviet Union countries: Armenia, Georgia, Moldova, Belarus and Ukraine.¹

The paper takes advantage of this unique cross-country survey study which has been conducted with comparable survey methodology throughout the five CIS countries. It is the first thorough analysis of migration patterns in the region. Because interviews were conducted in the sending countries, we basically got information on those who have returned after migrating abroad for a certain period of time, i.e. temporary migrants. The strength of our survey is the inclusion of irregular and illegal migrants, as migrants were interviewed independent of the way they crossed the border and found a job in the receiving country. Furthermore, the survey looked specifically at network relations in the migration process and tried to capture the efforts of individuals to ex ante acquire transferable human capital. Using the results of this comprehensive survey, we analyse the determinants of movements from the European Borderlands and explore the factors which influence the migration duration and the choice of destination regions. It is of particular concern for this research to investigate whether standard results from the migration literature can be identified in the post-Soviet context.

Our main findings are the following: Migration patterns are much in line with expectations from the economic literature on the motivations to migrate. However, we disentangle some post-Soviet peculiarities such as the age structure of migrants and a comparatively low influence of family obligations on migration decisions. Migration net-

works and the general political, economic and social background of the countries of origin strongly channel the temporary migration flows to either Russia or the European Union. Human capital transferability proves to be important and lends a strategic advantage to Russia, where language barriers are low. Yet, many migrants invest in improved human capital transferability already prior to the move. These results support our intuition that migration at the European Borderlands cannot be fully understood without taking into account the trade-off between individual human capital transferability and the potential to make investments into human capital or use networks instead.

The remainder of the paper is structured as follows: In section 2 we give the aim and motivation for the study of migration patterns in the European borderlands. Section 3 is a review of important theoretical considerations for the understanding of migration decisions and addresses the way human capital investments and personal networks influence them. Section 4 gives an overview of the five countries under consideration which have made some similar transition experiences but also differ especially in economic development and the political sphere. From this we expect to draw different conclusions for the motivations to migrate. Section 5 introduces the new data set, while section 6 describes the methodology and the econometric approach employed. The estimation results are reported in section 7 which allow us to conclude with some relevant policy implications for both, migrant sending and receiving countries.

2. Aim and motivation

With the political and economic transformation in Central and Eastern Europe since the end of the 1980ies and later with the break-up of the Soviet Union, new migration opportunities manifested in the region which allowed an increasing number of people to move out of their home countries. The destinations of these migrations varied widely: countries of the (former) Warsaw Pact were as well addressed as EU members and other destinations in the Western world such as the USA, Canada or Israel. The broad array of migration forms ranged from ethnically motivated movements to temporary labour migrations.

With the enlargements of the European Union in 2004 and 2007 a new dividing line

¹ We thank our colleagues from the EU INTAS project (INTAS Ref. No.: 04-79-7165) for their help in providing the

established in the East European borderlands separating the successor states of the Soviet Union strongly from their former allies.² Against the background of high differences in living standards, new migration challenges have been identified in CIS countries either directly bordering the enlarged EU (Moldova, Ukraine, Belarus) or being very close to its borders (Armenia, Georgia). Next to return migrations in the aftermath of the dissolution of the Soviet Union, studies found a growing motivation for labour migrations in the region, either towards European Union states, the USA and Canada, or to countries formerly belonging to the USSR, such as Russia (IOM 2005, Mansoor and Quillin 2006). With respect to migrations in the new East European borderlands a tendency towards illegal border crossings, short-term and circular movements can be observed as destination states provide little options for the admission of (labour) migrants. In sending regions the potential threat of brain drain is seen with concern, while the receipt of remittances is mostly considered rewarding for the economies and societies (cp. Danzer and Handrich 2007). On the side of receiving countries, especially in old and new European Union member states, the reaction towards a potentially increasing migration from the new Eastern borderlands is mixed. While some politicians and labour market experts promote a regulated labour migration from non European Union states in the light of aging societies and a mismatch in labour markets, there exist a considerable opposition against new labour migrations. The contra arguments include potential downward pressure on wages and growing unemployment prospects for natives, in addition to expected social tensions resulting of an increasing social and cultural diversity. To enter into the debate about the likely outcomes of migrations in the new East European borderlands, solid information on the motivation, structure and direction of these movements is required. It is the aim of this study to identify the core patterns of economic migration movements in this region, drawing on key arguments of migration theory and on a unique data base.

data.

² To cross the border towards EU countries, citizens from post-Soviet states need a visa since 2003. This is not only costly but also time consuming.

3. Theoretical considerations and empirical findings

In this section we want to review basic theoretical literature on the determinants of migration decisions, migration duration and choice of destination regions, to identify the key factors driving and channelling labour movements in former Soviet Union countries.³ Furthermore we present some empirical findings on these issues, focusing primarily on economic migration.

One of the most influential theoretical approaches to explain international movements, the neoclassical theory of labour migration, emphasizes wage differences between different countries or regions for the movement of people. In a scenario of free mobility and full information, workers would move from countries with lower wages to those with comparatively higher wages. In cases where unemployment is taken into account the probability of finding a job has to be considered (Harris and Todaro 1970). In testing this theoretical assumption many studies found a statistically significant positive effect of income differentials on migration movements (Borjas 1987, Clark et al. 2002, Mayda 2007). Nevertheless, the comparatively straightforward argumentation of neoclassical economics can not convincingly explain those frequent empirical cases where high wage differences between countries are not accompanied by substantial migration relations.⁴ Furthermore it is often observed that neither the poorest countries nor the poorest parts of migration sending regions are heavily involved in labour movements, what could be expected in a neoclassic world (Massey 2005, Hatton and Williamson 2005).

In an effort to model migration decisions more realistically, human capital theory focuses on individual decision-making and highlights the influence of human capital characteristics in the migration process (Sjaastad 1962). According to human capital theory, people move if the discounted values of expected returns to individual human capital - reduced by all kinds of migration costs - are bigger in the destination than in the home country. In this framework, individual human capital characteristics, such as gender, age, education, work experience and language competencies essentially determine mi-

³ For a comprehensive survey on migration theories see Bauer and Zimmermann 1998 and Massey et al. 1998.

⁴ Introducing uncertainty about the future economic development, Burda (1995) argued that people may postpone their migration decision and wait for new information to evaluate the gains and risks from moving. In this case large

gration decisions (Mora and Taylor 2005).

Against the background of the human capital approach, women are expected to have lower migration propensities than men, as they are typically more attached to their children and dependent relatives at home, particularly in more traditional societies (Boyd and Grieco 2004). With respect to age, the human capital approach would anticipate younger persons to be more likely to migrate, as their comparatively long working career ahead offers the largest profits from moving abroad. In addition, the young have less invested in home country specific human capital compared to older age cohorts thus being more inclined to leave. This is reflected in many past and contemporary (labour) migration flows, which predominantly consist of people in the beginning of their working career. Empirical studies confirm the relationship between younger age and higher migration intentions, pointing in some cases to an inverse U-shaped age-migration pattern (Stark and Taylor 1991).

Furthermore, education, work experience and language competencies as well as the transferability of these forms of human capital to the receiving economy are predicted to be an essential determinant of migration. The higher the transferability of individual human capital, the greater should be the incentive to go abroad. It is often assumed that this is especially the case with higher skilled individuals. Nevertheless, the interpretation of the effect of higher education on migration is ambiguous. On the one hand, higher educated individuals may find better employment at home and thus feel less pressure for emigration, on the other hand, they may also face better employment opportunities abroad and generally tend to have lower migration costs due to more effective and efficient search strategies for transportation, housing and foreign employment. A crucial point in this context is whether education and skills acquired at home can be transferred into the destination country labour markets. This is often not the case between countries with different levels of economic development or dissimilar political systems. Moreover it has to be considered that in a number of cases only low-skilled segments of labour markets in receiving economies are open to immigrants, making it not attractive for highly-skilled workers to move (Stark and Taylor 1991).

In the framework of human capital theory migration duration and destination can like-

wage differences may not trigger high migration flows.

wise be modelled on the basis of individually expected gains, costs and risks which are defined in dependence of migrants' demographic and labour market characteristics. Thus, it may be favourable for migrants to opt for a certain (limited) time span in moving abroad and for a particular destination region. In the case of short term migrations, for example, the nexus between younger age and migration intentions should be weaker than in the case of long-term movements as temporary migrants typically do not plan to build a career in the destination country. Shorter movements might also be predicted for females with family obligations, particularly in more traditional societies or communities, while this may not be the case for men. We hypothesize higher education and destination country specific skills to result in longer stays abroad, if these resources pay off in the destination economy.⁵ Concerning destination regions, all forms of destination specific skills, talents and knowledge should strengthen movements towards that respective region.

A growing body of literature recently deals with the investment of immigrants into skill transferability and its earnings effects after migrating into a foreign country (Chiswick et al. 2005, Chiswick and Miller 2007). This *a posteriori* concept for improvements in human capital transferability is typically used to explain the U-shaped earnings function of immigrants in the country of destination over time. In building on this work we suggest to introduce *a priori* investments into human capital transferability (for example language acquisition, training courses etc.) as an explaining factor of migration decision and duration which would capture the efforts of individuals to prepare migrations *ex ante* in accumulating (destination country) specific human capital.⁶ We believe that *ex ante* investments into skill transferability should channel movements towards countries that reward those resources.

Is it realistic that individuals decide on migration independently? A comparatively novel theoretical approach, the new economics of labour migration, argues that households are the relevant decision making unit and that failures of capital, credit and insurance markets in home countries are primarily responsible for movements (Stark 1991). In devel-

⁵ In looking at migration duration from the country of destination point of view, Dustmann (2001) and Dustmann and Weiss (2007) found that return migrants may be motivated to come back because they have accumulated human capital abroad which improves their earnings potential in the home country.

⁶ Chiswick and Miller (2007: 22) support this hypothesis as they found a tendency among labour immigrants in America to move into higher skill levels after arrival than indicated by their level of schooling. An argument in this context is that those people, when planning to migrate, invested into country specific human capital of the receiving economy.

oping and transition countries, where capital, credit and insurance market do not function properly, families may send members abroad to earn money for risk insurance and capital-building. In this context, the migration decision of households can be interpreted as a portfolio strategy to diversify family incomes.

Next to economic arguments, social relations have been shown to support and shape the movement of people to a considerable extent. It has been evidenced throughout migration history that migrant networks or chains which develop across time and space have the potential to stabilize and increase population movements (Espinosa and Massey 1997). These networks are traditionally defined as connections between migrants and non migrants in the countries of destination and origin through ties of kinship, friendship, and ethnicity or shared community origin. Because migrant networks reduce the costs and risk of movements, they are expected to increase the likelihood of further migrations (Massey et al. 1998: 42). In the empirical literature there is strong support for the relevance of 'family, friends and neighbours' effects in migration movements. Munshi (2003), for example, showed that migrants with better network relations are more likely to be employed and have better chances to work in higher paid jobs. However, recent studies have observed that network relations in migration processes not only relate to family and friends but also to recruiters, smugglers, consultants and other agents who support the movement of people because of financial interests (Krissman 2005). Stephen Castles (2007: 361) has labelled this development 'migration industry', where all kind of commercial agents facilitate the movement of people and the job search of (illegal) immigrants.

The theoretical arguments presented above allow us to formulate a number of hypotheses with respect to the determinants, duration and destination choice of movements in countries belonging to the new European borderlands. All of these states experienced economic and social transitions after the break up of the Soviet Union which resulted in growing poverty, job losses, increasing social inequality, a break down of social security systems and market failures. Against the background of this scenario short-term labour migration can be considered as a means to overcome economic problems at home. Furthermore we suggest that the individual decision to move is related to the family strategy in coping with the obstacles of transition societies. In line with the literature reviewed we anticipate younger individuals with no kids and comparatively little

family obligations being more inclined to leave. Females are expected to be less likely to go abroad than men, although the comparatively liberal societies in Eastern Europe with a high percentage of working and well educated women may mitigate this widespread behaviour a bit. With respect to education and work experience we tend to follow the argument that higher educations and skills may not pay off, as schooling and experiences obtained in CIS countries may not be easily transferable. In many cases, migrants from the CIS are channelled into low skilled occupations and thus not able to make use of their talents, particularly in the West. Special competencies, however, that can easily be transferred into the sending country or are a precondition for certain jobs there (language skills, for example) should strengthen the motivation to move. Likewise, all kinds of networks, relations to ethnic communities or migration agents should contribute to a higher preference for going abroad.

Finally, we would like to put forward an often neglected argument in identifying the patterns of labour movements: migration policies and institutional barriers in sending and receiving countries. Although labour migrants from the CIS in general face little control in leaving their home countries, the entrance to other states for work, especially to the West, is severely restricted. This contributes to high costs and risks, because irregular migrants have to either pay an agent to cross the border and find a job abroad or have to rely on networks. In both cases migrants may risk a life in a foreign country without legal entrance and labour permits. Against this background it can be expected that migration policies and entrance barriers of receiving countries will influence the duration and the destination choice of movements. While irregular migrants will certainly prefer countries with less restrictive entrance barriers and labour market controls, the argument is ambiguous with respect to the duration of movements. In the case of irregular work, temporary repeated migrants may tend to stay longer for one trip, trying to avoid a dangerous and costly return.

4. Countries under consideration: stylized facts

The countries we are looking at here – Armenia, Belarus, Georgia, Moldova, and Ukraine - were all part of the Soviet Union, thus sharing common economic and political experiences and common transformation challenges after the break-up of the Soviet Union. Although all of these countries went through specific migration episodes after

becoming independent, some common patterns exist. Because the collapse of the Soviet Union triggered the return of its populations to their (former) ethno-national homelands, migrations in the initial post-Soviet era were characterized by the dominance of ethnic exchange movements. While ethnic Russians having lived in Armenia, Belarus, Ukraine or Moldova moved back to the Russian Federation, Armenians, Ukrainians, Belarusians or Moldavians who had settled (or were forced to settle) in other Soviet Union republics returned to their newly independent nation states (Ivakhnyuk 2007). Beside ethnically motivated return movements, a number of post-Soviet states also experienced considerable emigrations because of political conflicts and ecological catastrophes. In Georgia for example political unrest and ethnic clashes in South Ossetia and Abkhazia triggered huge emigrations, whereas in Armenia ethnic conflict drove predominantly Azerbaijanis out (Yeganyan 2006). These movements were primarily directed towards neighbouring states formerly belonging to the USSR. Between 1990 and 2006 approximately 80% of emigrants from former Soviet Union states moved within the CIS region, predominantly towards Russia (Mansoor and Quillin 2006: 3).

According to official data Ukraine, Moldova, Armenia and Georgia experienced remarkable net emigrations between 1991 and 2005 (see Figure 1). Migration losses in this period ranged from 1.2% of the population (575 thousand people) in Ukraine to 22.6% of the population (982 thousand people) in Georgia. To the contrast, net immigrations prevailed in Belarus, most likely reflecting a population with little experience in international movements and a comparatively low economic pressure to leave.

Overall, official migration data indicate a general decrease of migration activities in the new East European borderlands since the middle of the 1990ies, pointing to declining ethnic exchange movements within the CIS countries (Mansoor and Quillin 2006: 5). In this period, migration movements in the region underwent two remarkable changes: the share of people leaving for the West increased and economically motivated movements gained in weight (Mansoor and Quillin 2006:5, Malynovska 2006). While the USA, Germany and Israel had been the most important Western destinations in the initial migration period after the collapse of the Soviet Union, in the later period an increasing number of Western countries, particularly in the European Union, were addressed by CIS emigrants.

Referring to official data (Figure 1), net migrations in all countries under consideration here followed a decreasing trend since the end of the 1990ies while empirical observations point to the fact, that Russia as well as a number European Union states faced an increasing number of (labour) immigrants from Ukraine, Moldova and Georgia in that period (OECD 2006: 384-394). This inconsistency is due to the fact that only persons who receive an official permission to reside abroad (Ukraine) or those who cancel their residence permits (Moldova, Georgia) are officially registered as emigrants in these states. Citizens of post-Soviet countries who leave on the base of family visits and tourist visa, who participate in bilateral agreements for short-term work or in a student exchange program are not counted in official emigration statistics. Besides, illegal border crossing or overstaying add to an increasing number of citizens from post-Soviet states, living and working abroad. In the early 2000s, estimates on legal and illegal migrant workers from Armenia, Georgia, Moldova and Ukraine reveal the meanwhile substantial migration (Table 1).

In the light of theoretical considerations, the growing economic migration intentions in the new European borderlands should reflect disparities in income, wealth and quality of life between sending and receiving regions. Actually, in comparing the GDP per capita in Belarus, Ukraine, Moldova, Georgia and Armenia with corresponding data in Russia and some EU countries, considerable differences in living standards can be observed in these geographically adjacent regions (Table 2). Furthermore, the human development index (HDI), which portrays a country's average achievements in three basic aspects of human development (health, knowledge, and a decent standard of living) demonstrates a noticeably higher HDI rank of European Union members as compared to Belarus, Ukraine, Armenia, Georgia and Moldova in 2005 (Table 3). Although Russia is ahead of Armenia, Georgia, Moldova and Ukraine in terms of HDI, it ranks below Belarus.

Next to economic disparities that most likely support the growing dynamics of economically motivated migration in the European borderlands, network relations, such as former contacts in the framework of the Warsaw pact, ethnic affiliations across borders, linguistic ties in the case of Russia and specific migration traditions connected to former ethnic return movements, are of relevance. All countries under consideration are closely related to Russia – through ethnic minority relations as well as through a common educational system, a common military service and a common labour market in the Soviet

era. Nonetheless political relations were characterized by a number of conflicts since the break-up of the Soviet Union, particularly in the case of Georgia and Ukraine. Between the new Eastern European Union members and former CIS countries borders had been porous until the year 2003, when visa procedures were introduced. In spite of that the various minority populations on both sides of the new Eastern borders of the European Union create strong network connections. For instance, in Zakarpathia (Ukraine) near the Hungarian border, live approximately 151,000 ethnic Hungarians. The Polish minority of 140,000 people in Ukraine settles near the Polish border, while ethnic ties to Ukraine prevail on the Polish side as well: The official statistics register 312,000 Polish citizens who have been born in Ukraine (OECD 2006: 269). In Belarus, an estimated population share of 4% is of ethnic Polish origin. Since the introduction of the new law on citizenship in Romania in 2003, approximately 530,000 Moldavian citizens have applied for a Romanian passport (Kennedy 2007). Moldavians who can demonstrate that they, their parents, or their grandparents lived in Moldova when it was part of Romania before the end of World War II are eligible for dual citizenship. All these forms of ethnic relations make it obviously easier for economic migrants in post-Soviet states to travel to European Union countries.

Economic and network arguments point to a considerable emigration pressure in the region under consideration; while this pressure is generally not constrained by laws of sending countries, migration movements are severely restricted by legal measures on the part of most receiving states. Particularly migrations into the European Union are restrained by policies which control the inflow of (labour) migrants, for example in the context of bilateral contracts on labour movements. Nevertheless, temporary labour migrants from post-Soviet states can be expected to enter or work illegally in economically better off countries, as long as basic migration incentives persist.

5. Data description

Data

We use quantitative data from Armenia, Belarus, Georgia, Moldova and Ukraine which were collected in a multi-stage sampling framework by the INTAS project (Wallace and Vincent 2007). The questionnaire was identical across countries. In each country, several regions were selected to conduct approximately 400 household interviews, sum-

ming up to 2,003 households in the sample. Households were sampled according to probability of inclusion in the sample proportional to size (PPS) and are representative for sub-regions. The sample was restricted to adults younger than 76 years.

The survey covers information on household and individual specific characteristics, on stays abroad and destinations between 2004 and 2006, on personal networks as well as on investments into human capital transferability. Migrants in our sample are persons who have been abroad at least once for at least 3 month but have returned to their country of origin after the last trip. Therefore it has to be kept in mind that our definition of migration is restricted to short-term migration and that our results cannot be generalized to various types of movements. Nevertheless, the largest share of migrants in the post-Soviet space can be considered short-term migrants (Mansoor and Quillin 2006, Görlich and Trebesch 2008).

Dependent variables

A variable overview and descriptive statistics are given in Table 4. The first five variables are the dependent variables used in the multivariate regression analysis. The variable *migrate* indicates whether a person has been abroad between 2004 and 2006 for at least 3 consecutive months and has turned home since. Destinations of migration are measured as discrete variables covering all EU members (EU-27), Russia (which is by far the most important recipient country of the Former Soviet Union) and other overseas destinations (e.g. USA, Canada, and Japan). Migration duration is cardinally measured in months. For the whole sample, the mean is at half a month, but the average of the true migration duration ranges between five and ten months in the different countries when accounting for migrants only (Table 7).

Independent variables

The independent variables used in the analysis comprise demographic information such as gender, marital status, age. To account for household specific conditions which might prevent or hamper migration (e.g. the presence of small children or elderly persons above 75) we include dummy variables. Education is included as a proxy for general human capital. We create three educational categories and include *lower education* (no

secondary education) and *university* degree into the regressions. The category *secondary education* is being omitted from the regressions as base category. The next two variables in Table 4 are proxies for migration networks in both Western and Eastern destinations and indicate whether a person has a potentially supporting friend in either or both of these destinations. *Westfriend* indicates having a personal network to an EU-27 country while *russfriend* means having social contacts with people in Russia who would be supportive after migrating there. Since especially older people (born before 1970) may have networks to a broad array of countries in the Former Soviet Union due to Soviet education and work experience as well as military service, networks to several countries of the Former Soviet Union may exist. However, as Russia is the relevant destination country in our sample we decide to restrict the network variable to friends in Russia. The following two variables are specifically linked to human capital, as they describe knowledge of a *western language*⁷ and investments into improving the transferability of skills between the country of origin and country of destination (e.g. language qualification courses). The latter (*invest*) is a binary variable taking the value of unity if the respondent has participated in language courses, qualification courses or has studied on the living conditions in the country of prospective residence. Our survey considers only human capital acquired prior to migration. The other variables in Table 4 are controls for settlement type and country fixed effects.

6. Methodology

To estimate the determinants of migration of individual i we make use of a simple probit model of the following reduced form:

$$\Pr(p_i = 1) = X_i\beta + C_i\gamma + \varepsilon_i \quad (1)$$

where a normal distribution is assumed for the outcome variable and the error is orthogonal to the explanatory variables X including human capital transferability and net-

⁷ We do only consider non-Slavic languages (English, Spanish, Italian, German, Portuguese, French, Greek and Norwegian were the languages known by respondents) and are aware of the fact, that e.g. speaking Polish might by no means be less useful human capital. However, since Slavic language distances are relatively small it is difficult to interpret the effect of Russian knowledge e.g. for the migrants in our sample in a country comparison. As all countries under consideration here belonged to the Soviet Union we can expect people to have a good knowledge of Russian, although their mother tongue might not be a Slavic language (as for example in Armenia, Georgia and Moldova).

works as well as controls C . A utility maximizing individual will chose migration if the costs (transportation as out-of pocket costs as well as psychological costs) are offset by the economic gain (the expected wage in destination minus the foregone earnings at home). As noted before, investments into human capital transferability are costly prior to the move, but they tend to reduce the costs post-migration. Besides, they increase the expected wage and/or the propensity to get a job at a given wage in the destination region. Above, *invest* could also proxy how serious individuals were about their migration plans in the past.

The choice of migration destination can be easily captured in the framework of utility maximization. Person i will chose migration destination j if $U_{ij} > U_{il}$ for $j \neq l$. Utility of individual i can be split into an observable and an unobservable part:

$$U_{ij} = V_{ij} + \varepsilon_{ij} \quad (2)$$

To analyze migration destinations we estimate a conditional logit model in which an individual is faced with the option to either migrate to the EU, to Russia, to overseas or not to migrate at all. It is important that this discrete set of choices satisfies the Independence from Irrelevant Alternatives assumption (IIA). The error term is extreme value distributed and iid, i.e. not correlated across choices. The probability of an individual choosing destination j can be notated as follows:

$$\Pr(Y_i = j) = \frac{\exp(x'_{ij}\beta)}{\sum_{j=1}^J \exp(x'_{ij}\beta)} \quad (3)$$

where x represents explanatory variables, among which we assume personal networks to play a pronounced role as they lower the cost for migration.

Generally, the IIA assumption is rather restrictive, since changes in the characteristics of one destination may distort the migration choice. Nevertheless, we use a small number of destinations which relaxes restrictivity a bit. Above, Train (2003) and Christiadi/Cushing (2007) have shown that violations of the IIA might not drive result insufficient if individuals' preferences are of interest rather than migration forecasting.

To understand the duration of migration we have to take into account that gains and costs from migration are not constant over time. The larger the out-of-pocket migration

cost, the longer an individual has to work abroad to reach the “break-even” of the migration investment. On the other hand, psychological costs may rise steeply as time passes, especially in the presence of family in the country of origin. On the political side, visa regulations often limit the stay of a person abroad or force her to turn illegal by overstaying the visa. Estimating the determinants of migration duration with OLS would yield biased, inconsistent and inefficient estimates for count data (Long 1997). We make use of a non-linear model for which we assume a Poisson distribution. The model is subject to the strict assumption of equidispersion of mean μ and the variance of months of migration y . To investigate potential misspecification of the Poisson model, we estimate a negative binominal regression model where overdispersion (α) varies across observations of the following type (NBREG model):

$$P(y|\mu, \alpha) = \frac{\Gamma(y + \alpha^{-1})}{\Gamma(y + 1)\Gamma(\alpha^{-1})} \left[\frac{\alpha^{-1}}{(\alpha^{-1} + \mu)} \right]^{\alpha^{-1}} \left[\frac{\mu}{(\alpha^{-1} + \mu)} \right]^y \quad (4)$$

where the Poisson event arrival rate $\lambda_i = \exp(x_i\beta)$ which is restricted to the mean μ (as in the Poisson model) may vary systematically by incorporating an overdispersion distribution Γ :

$$\lambda_i = \exp(x_i\beta + u_i) \quad \text{with } \exp(u_i) \sim \Gamma(1/\alpha, \alpha)$$

Another problem of the count data application is the potential bias through excess zeros. Many individuals have not made any migration experience over the preceding three years, thus exhibiting “zero” months of duration. However, the process producing zeros because of not migration may strongly differ from the process determining the counts of time abroad, including potential zero counts due to migration shorter than one month. What is necessary is a model which is capable of distinguishing between both unobservable processes by weighting

$$y_i \sim 0 \quad \text{with probability } q_i$$

$$y_i \sim \text{NB}(\lambda_i) \quad \text{with probability } 1 - q_i$$

In applying a zero inflated negative binominal regression model (ZINB model), we introduce an inflation variable which is strongly associated with the production of zeros stemming from the absence of positive migration decision in the past. We argue that having another person with migration experience in the household does impact on the

decision whether to migrate. However, migration duration should be almost uncorrelated since many exogenous factors such as employment opportunities and conditions abroad as well as visa regulations will prevent from perfectly aligning migration stays. Indeed, the pair wise correlation coefficient of having another migrant in the household and own migration duration is weak and insignificant exhibiting the necessary property for this instrument.

For several regressions we split the sample into urban and rural households. This is due to the fact that employment opportunities are scarce in rural areas of the former Soviet Union and might thus lead to different determinants of migration patterns. Another distinctive feature we account for is different migration determinants for men and women. While the underlying assumption for the interpretation of the female dummy in the full sample regression is that gender is a shift parameter, the split of the sample allows for qualitative differences in determinants of migration decisions. The presence of children, for example, is expected to impact in a different way on the decisions of men and women.

7. Results

Descriptive statistics

A country of origin comparison of migration patterns can be seen from Table 5 which reflects unweighted information. According to our data Belarus, Moldova and Ukraine are countries with high levels of short-term migration experiences (above ten percent), while this form of migration is less common in Armenia and Georgia (below five percent). In the case of Moldova and Ukraine, the recent participation of these countries in international labour migrations has widely been documented (Danzer and Handrich 2007, Dietz 2007, Görlich and Trebesch 2008). The comparatively high short term migration flows in Belarus come somehow as a surprise. Most likely, a considerable predominantly irregular short term return movement has developed in Belarus, challenging its seemingly closed character.

Confirming human capital theory and gender specific migration research, men tend to migrate about twice as often as women in Belarus, Moldova and Ukraine, in Armenia five times as often. A study done by Minasyan and Hancilova (2005) which found a similar high proportion of men in Armenian labor migration suggests, that traditional

cultural norms and social patterns are foremost responsible for this gender bias. Only in Georgia, women comprise a minimally larger share of migrants. This could be a result of recent tightening in Russian policies towards labour migrant from Georgia (Badurashvili 2004), thus encouraging movements to European Union destinations. Informal networks and the household service and care job dominated demand structure in receiving Western countries seem to channel women from Georgia into temporary labour migration. In all countries but Belarus, migration is more prevalent in rural areas. Most likely the reason lies in the comparatively low rural population share in Belarus (28%) where less emigration pressure exists in the country side. In all researched countries except Ukraine, Russia attracts the largest share of migrants; although the destination split between East and West is almost equal in Belarus. The choice of destinations in Ukraine heavily depends on the regional background of migrants. Whereas migrants from the Western part of Ukraine predominately move to European Union countries, Russia is the most attractive destination for migrants from the Eastern part. It has to be mentioned though, that migration intentions are higher in the West of Ukraine. Men and women tend to choose similar destinations for all countries of origin, but the settlement type influences the destination decision differently across countries: While in Armenia rural migrants head for the EU, their urban counterparts prefer to migrate to Russia. The opposite holds for Moldova, where according to Moshneaga (2006) the less dynamic part of the labour force, living in the country side or small towns, primarily go to Russia for work.

In Table 6 we take a closer look at migration networks to both destinations (West and Russia) as well as to language knowledge and investments into improved human capital transferability prior to migration. Migration networks to Russia are stronger than Western networks in Armenia and Belarus, but only marginally for the latter. In all three other countries, the networks to the West are much better developed than to the East. Men's network ties to Russia are stronger than women's and Russian networks exhibit a stronger gender bias than Western networks (which are quite equally distributed between sexes). This might reflect that males were more engaged in labour exchange in times of the Soviet Union than females. In general, international networking is higher for urban respondents which might be caused by scarcer communication facilities in rural areas. Notable exceptions are Belarus, where Russian networks are stronger in

rural areas, and Moldova, where networks to EU countries are more advanced in the countryside. Self-reported Western language skills are especially high in Belarus and Georgia, they are stronger among women and in urban settlements. The former most likely reflects the larger share of women in higher education, the latter better educational facilities in urban areas. Ex ante investments into human capital transferability are around 30 percent in Georgia, Moldova and Ukraine, whereas in Armenia and Belarus people are less engaged in improving their human capital with respect to a prospective movement. The gender split shows that men tend to invest more prior to migration which might be a strategy to catch up with women's better language skills. Similarly, investments are higher in rural areas with the notable exception of Belarus (where facilities in rural areas are scarce) and Ukraine.

Table 7 reports migration durations exclusively for migrants. While Belarussians and Georgians spent on average five to six months abroad during the preceding 36 months, Armenians, Moldavians and Ukrainians went eight to ten months abroad. In the latter two countries, men and women stay about the same time away from home, while Georgian women are more than twice as long abroad than their male counterparts. Male migrants from Armenia and Belarus spend substantially more time in the country of destination. The longest stays abroad (more than ten months) can be observed for rural or male Armenians as well as for Moldavians and Ukrainians in urban settlements.

Multivariate regression results

In the following section, we provide results for the multivariate regressions to characterize migration patterns, controlling for several factors influencing the migration decision, destination and duration. Table 8 presents marginal effects of eight regressions concerning the determinants of migration. All regressions have a reasonable fit. The first four regressions show that being a women and being above 50 years old strongly discourages migration. This result is in line with the theoretical argumentation of human capital theory and a number of empirical findings in other parts of the world (Mora and Taylor 2005). According to our results a university degree lowers the propensity to migrate, while lower education weakly enhances migration. This contrasts a number of studies which points to a positive correlation between education and migration (Adams 2003). However, in analysing former Soviet Union countries we hypothesized, that higher edu-

education obtained in these states does not pay off abroad as skills are not easily transferable, particularly not in Western countries. Furthermore, we expect a similar structure at work in destination economies as has been described by Mora and Taylor (2005: 47) in the case of migrations from Mexico into the USA: Because a high percentage of migrants are irregular and predominantly employed in low-skilled occupations, returns to schooling obtained in the home country are small. Children and being married play a surprisingly unimportant role in preventing migration. Only when restricting the sample to the high migration countries Belarus, Moldova and Ukraine, the presence of small children up to five years significantly reduces the propensity to migrate by five percent. This may be explained by the temporary character of migrations in our study which allows keeping up the family bonds while earning money abroad. Improved forms of long distance travel and communication facilities may have additionally supported migrations in the presence of dependent family members.

Networks do not seem to have a very strong impact on the migration decision. Only when restricting the sample to high migration countries and more so when considering only rural respondents, network contacts to Russia significantly increase the propensity to migrate. We think that weak “professional migration infrastructure” in rural areas leads people to rely on personal interaction. It does not come as a surprise, that knowledge of a western language is a positive determinant for migration. Likewise, having invested a priori into improvements of human capital transferability fosters migration. When restricting the sample to urban vs. rural as well as male vs. female respondents, it becomes clear, that determinants of migration differ across space and gender: Being married, younger than 25 or older than 50 has a significant and much stronger effect in rural compared to urban areas. This potentially indicates more traditional social roles in rural areas. Likewise, the effect of high or low education is stronger in rural settlement. Comparing the migration determinants for men and women exhibits a gender specific pattern. Very young and older men are less likely to migrate as compared to their female counterparts; young women are even especially likely to emigrate. We explain this pattern by the demand structure for labour migrants abroad: While men mostly work in construction or agriculture, i.e. heavy labour, the highest demand for women is in home caring and nursing which can be performed without any age restrictions. Our results seem to confirm the demand for low paid female migrants who work in care and house-

hold services, as an increasing number of women in advanced societies participate in the labour force (Ehrenreich and Hochschild 2002). Employment patterns in post-Soviet countries that traditionally relied on a high labour market participation of women (with kids being looked after by state institutions or grandparents) do not differ in that respect.

As expected, the presence of small children has an especially strong discouraging effect for women, but not for men. Being a university graduate discourages men from migration, potentially because they can find employment at home more easily than well educated women. Education of women, on the contrary, does not play a significant role for migration decisions. As we learnt from Table 6, western language knowledge is less widespread among men, thus raising the migration propensity for those men who do speak a foreign language strongly.

We report the determinants of the destination choice in Table 9. The omitted base category for the estimation is the choice of no migration. Thus the coefficients have to be interpreted in comparison to the group without migration experience. In our context, the core interest lies in the comparison of the two main destinations for Eastern European migrants: the EU and Russia. It turns out that gender, age and education are strong determinants of the destination choice. Women are more likely to migrate to the EU than to Russia, where the demand for household and care services is still comparatively low.⁸ In the two younger age groups, migrants and non-migrants do not significantly differ, irrespective of the destination. However, older migrants prefer Russia, certainly reflecting Soviet Union ties, and are extremely unlikely to migrate long distances, as e.g. to the USA or Canada which are captured in the “other” category. Having school children or a person older than 75 in the household, significantly reduces the propensity to migrate far distances. University education seems to play an important discouraging role in the choice of Russia only, but after controlling for western language skills, university graduates become less likely to migrate to Western Europe as well. This finding further strengthens the argument that highly educated people in former Soviet Union countries do not have a strong incentive to migrate temporarily as they do not expect their education to pay off abroad. We find that migration networks are more important in determining migration to Russia with the expected positive coefficient for having Russian

friends abroad. Because networks have been proven to be of high relevance in numerous international movements (Massey et al. 1998, Hatton and Williamson 2005) this result is just a further confirmation of the ‘family and friends effects’. Networks to the West are outperformed by western language skills, which are an extremely important driving force for attracting people. This result is in line with a recent study on labour migrants from Mexico to the USA which found migrants with a higher English language proficiency choosing on average a destination location in the US with a small Mexican population (Bauer, Epstein and Gang 2005). In comparing countries of origin, we find that Armenia and Belarus are less likely to send migrants to the West, while individuals in Georgia are slightly less likely to go to Russia as compared to the EU. In these results we find a certain reflection of political orientation of the countries under consideration. Moldavians, however, are more determined to move to Russia.

More details can be studied with separate estimations for men and women (results not shown). Highly educated men are especially unlikely to migrate at all, while low education strongly fosters their choice of going to Russia. This result strengthens the observation that young men often work in the construction sector, especially in Russia. The largest share of those men has rather low education. Lower educated and older women do not choose Western Europe as a destination what seems reasonable in the light of lower costs and risks when moving to Russia. While for both sexes, language skills play a similarly important role for choosing a European Union destination, the impact of migration networks seems especially strong for men. Having Russian friends significantly lowers the chance to migrate to the West or overseas, while it significantly increases the choice of Russia. For women, the impact of migration networks is statistically not significant different from zero. We may nevertheless suspect that networks in the form of commercial agents play a considerable role in supporting the movements of females to European Union countries.

The determinants of migration duration are reported in Table 10. All but the regression for the sub samples considering only women and urban residents, are plagued by over dispersion and excess zeros, thus making the estimation of a zero inflated negative binomial regression model (ZINB) necessary. The remaining two regressions only suffer

⁸ According to Tishkov et al. (2005: 27) migrants in Russia work in construction, transport, forestry and trade.

from over dispersion, while the Vuong test indicates no serious problems of excess zeros here. Thus we estimate negative binomial regression models (NBREG). The interpretation of the coefficients is straightforward: The constant reports the average migration duration for a middle-aged (36 to 49 years), unmarried, male, Ukrainian migrant with secondary education who lives in urban areas and has no children. Potentially the constant may be downward biased since singles are underrepresented in our sample. Georgians and Belarussians stay about one month shorter abroad than the comparison group. Women, married individuals and university graduates migrate for shorter stays abroad, while older migrants and persons with a higher level of human capital transferability stay significantly longer. When splitting the sample along geographic and gender lines, it becomes clear that the duration reducing effect of being married only holds for women and rural respondents. In rural areas, younger migrants tend to stay significantly shorter periods of time abroad. An interesting pattern arises for dependent family members in the household: Small children significantly reduce the length of stay for men only, while having a (dependent) elderly in the household shortens the stay abroad for urban households. The first result is quite puzzling and requires further analysis, while the explanation for the latter could lie in the contribution of elderly persons to the income generation process of households. As a study on poverty in Ukraine revealed, pensioners tend to positively contribute to household incomes resulting in reduced propensities of facing economic hardship (Brück, Danzer et al. 2007). As a kind of “insurance” elderly might lower the necessity for earning money through migration as a stable stream of income is available.

Robustness checks

In the following we deal with two potential sources of bias to our analysis: Pooling of countries and potential endogeneity of variables.

The first question which arises in a cross-country study concerns the issue of comparability. We use Chow tests to check whether pooling of observations from different countries is applicable. The tests do not indicate that determinants for migration decisions, destination and duration of migration differ a great deal between countries.⁹ Thus

⁹ Statistics not shown.

we feel safe with the implemented country fixed effects in our analysis which have to be interpreted as shift parameters.

Estimating the effect of migration networks on the migration destination has a serious caveat: Since we cannot observe an individual's whole migration experience, it might be the case that personal networks exactly exist *because of* migration experiences prior to our period of analysis. To test whether our results might be biased as a result of network endogeneity, we make use of the approach proposed by Rivers and Vuong (1988). As in all tests of endogeneity we first have to find convincing instruments. We decide to instrument both friendship networks to the EU and to Russia. Investments into human capital transferability are a priori investments, but language skills could be endogenous as well. For that reason, we also instrument the knowledge of a western language. Our instruments are geography based as they take the average regional density of networks and of language knowledge, respectively, multiplied by household size. The rationale behind these instruments is the following: In regions with many people connected abroad, the potential access to their helping hand is larger. Another potential instrument for migration network to Russia is being orthodox.

Table 11a shows that all instruments have the desired properties: They are highly correlated with the potentially endogenous regressor but uncorrelated with the dependent variable. Table 11b reports the z-statistics of the second stage for the predicted first stage residuals. In the Rivers-Vuong approach this statistic can be interpreted as a simple test of the exogeneity hypothesis of the instruments. In case the statistic shows a certain level of significance, the regressors can be assumed to be endogenous and require the use of instrumental variables. As becomes clear from the table, both networks should be instrumented in the estimation of the Western destination, while the estimation of the destination Russia is plagued by endogeneity to a much lesser extent. Language does not seem to exhibit any endogeneity problem. When instrumenting both destination equations, the Wald test of exogeneity failed to reject the null for exogeneity of networks in case of migration to the Eastern destination. This can be interpreted as some confirmation that endogeneity plays less a role for this migration process. Thus we present only results for the simple probit and IV probit for migration to the West in Table 11c. The qualitative results are similar in both equations, but we obviously lose precision in the IV estimation. Interestingly, after accounting for endogeneity, the posi-

tive effect of western friends for westward migration vanishes, while the discouraging effect of networks in Russia remains strong.

8. Summary and Policy Implications

Our paper explored short term migration patterns in terms of migration decision, destination and duration in five Eastern European former Soviet Union countries.

Among the important determinants to migrate we found individual demographic characteristics and household conditions. Although most of these determinants do not greatly differ in former Soviet Union countries from what is observed in other parts of the world, two results are noteworthy by international standards: the surprisingly low importance of the presence of young children on the migration decisions and the high share of comparatively older migrants. Human capital and networks rank prominent in determining patterns of economic migration. This leads us to the conclusion of increasing importance of short term migration for the countries under considerations, as migration networks rapidly develop and human capital becomes better transferable across space. Much depends on the economic performance of sending Eastern European countries, which will directly impact on the migration decision in the form of push factors.

Several policy implications can be drawn from our analysis, both for the countries of origin and the countries of destination. In recent years, migration networks have been established, which make potential migrants better informed and thus less risk-exposed as concerns their experience abroad. Fears of brain drain have not been substantiated in our analysis, although the results may differ in the case of permanent migration. Migrants come from various educational backgrounds and many already invested ex ante into the transferability of their human capital with respect to the destination region, e.g. by learning a foreign language. This finding indicates that migration can be treated as an investment made by individuals. The role of human capital seems to be well understood by migrants; the investment pays off a double (private and social) dividend: First, for the migrant who improves personal human capital to earn higher incomes and, second, for the countries of origin through increasing levels of education and skills – irrespectively of whether people migrate or not. These results provide tentative and indirect support for the potential of brain gain in migrant sending countries.

The major draw back for migrant sending countries lies in the high potential for social problems in families. As noted above, the presence of children does not prevent from migration. Social policy has to be aware of these detrimental effects which are likely to result in high numbers of social orphans, as observed in the case of Moldova and Ukraine in recent years.¹⁰

As concerns the countries of destination we will restrict ourselves to two major implications for the European Union which are of high importance in the political debate. The first concerns fears of immigration from Eastern European countries. Despite focussing on short term migration only, we want to stress that migration is economically motivated and that migrants prepare and invest into human capital transferability to find employment in the EU. Permanent immigration and social benefit abuse seem to be weak objectives. Second, the educational background of migrants coming to the EU is quite low. Most likely, highly qualified workers, who the EU increasingly intends to attract, do prefer other destinations. Potential reasons may be the rather immigration opposing political culture in Europe (as e.g. compared to the USA), strict regulations on visa issuing and on the acceptance of educational certificates and skills. However, our analysis also clearly reveals the importance of language barriers which makes Russia a naturally attractive destination for many Eastern Europeans.

¹⁰ We thank Natalia Astapova from the UNICEF office Kiev for this information.

References

- Adams, Jr., R.H. (2003): International Migration, Remittances and the Brain Drain: A Study of 24 Labor-Exporting Countries. World Bank Policy Research Working Paper, No. 3069, Washington DC: The World Bank.
- Badurashvili, I. (2004): Determinants and Consequences of Irregular Migration in a Society under Transition: The case of Georgia. Paper presented at the Population Association of America Annual Meeting, Philadelphia.
- Bauer, T.K., Zimmermann, K.F. (1998): Causes of International Migration: A Survey, in: Gorter, C., Nijkamp, P., Poot, J. (ed.), Crossing Borders: Regional and Urban Perspectives on International Migration. Ashgate: Aldershot: 95-127.
- Bauer, T.K., Epstein, G.S., Gang, I.N. (2005): Enclaves, language and the location choice of migrants, in: Journal of Population Economics, 18: 649-662.
- Borjas, G.J. (1987): Self-selection and the earnings of immigrants, in: American Economic Review, 77: 531-553.
- Boyd, M., Grieco, E.M. (2004): Women and Migration: Incorporating Gender into International Migration Theory". Migration Information Source Washington, D.C.: Migration Policy Institute.
- Brück, T., Danzer, A.M., Muravyev, A., Weisshaar, N. (2007): Determinants of Poverty during Transition: Household Survey Evidence from Ukraine. DIW Discussion Paper, No. 748
- Burda, M. (1995): Migration and the Option Value of Waiting, in: Economic and Social Review 27: 1-19
- Castles, S. (2007): Twenty-First-Century Migration as a Challenge to Sociology, in: Journal of Ethnic and Migration Studies, 33 (3): 351-371.
- Chiswick, B.R., Lee, Y.L., Miller, P.W. (2005): Immigrant Earnings: A Longitudinal Analysis, in: Review of Income and Wealth, 51 (4), 485-503).
- Chiswick, B.R., Miller, P.W. (2007): The international Transferability of Immigrants' Human Capital Skills. IZA Discussion Papers No. 2670.
- Christiadi, C., Cushing, B. (2007): Conditional Logit, IIA, and Alternatives for Estimating Models of Interstate Migration. Research paper (2007-4) presented at the 46th annual meeting of the Southern Regional Science Association, Charleston, SC.
- Clark, X., Hatton, T. J., Williamson, J. G. (2007): Where Do US Immigrants Come From and Why?, in: Review of Economics and Statistics, 89: 359-373.

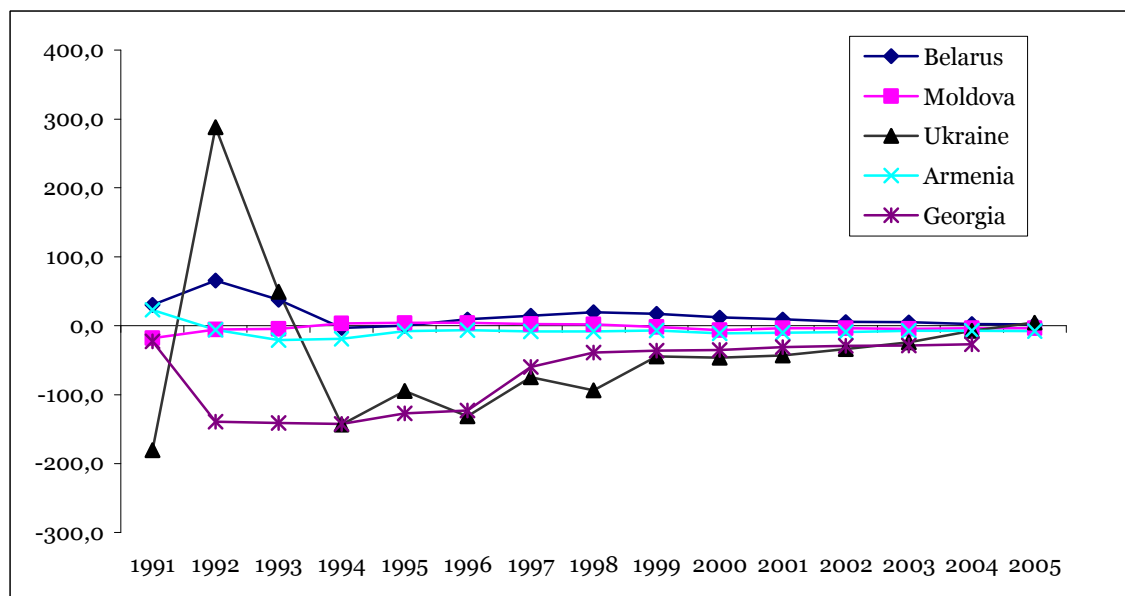
- Danzer, A.M., Handrich, L. (2007): Should I Stay or Should I Go?: Ukrainian Migration in Economic Perspective. (Advisory Paper W11) Kyiv: Institute for Economic Research and Policy Consulting, 2007
- Dietz, B. (2007): Migration policy challenges at the new Eastern borders of the enlarged European Union: The Ukrainian case. *Arbeiten aus dem Osteuropa-Institut München*, Nr. 267, Juli 2007.
- Dustmann, C. (2001): Why go back? Return motives of migrant workers, in: Djajic, S. (ed.): *International Migration: Trends, Policy and Economic Impacts*, New York: Routledge.
- Dustmann, C., Weiss, Y. (2007): Return migration: Theory and empirical evidence from the UK, in: *British Journal of Industrial Relations*, 45 (2): 236-256.
- Ehrenreich, B., Hochschild, A.R. (ed.) (2002): *Global Women: Nannies, Maids, and Sex Workers in the New Economy*. New York: Holt.
- Espinosa, K.E., Massey, D.S. (1997): What's Driving Mexico-U.S. Migration? A Theoretical, Empirical and Policy Analysis, in: *American Journal of Sociology*, 102 (4): 939-999.
- Görlich, D., Trebesch, Ch. (2008): Seasonal Migration and Networks: Evidence on Moldova's Labour Exodus, forthcoming in *Review of World Economics*.
- Harris, J., Todaro, M.P. (1970): Migration, Unemployment, and Development: A Two-Sector Analysis, in: *American Economic Review*, 60: 126-142.
- Hatton, T.J., Williamson, J.G. (2005): What Fundamentals Drive World Migration?, in: G. J. Borjas and J. Crisp (eds.), *Poverty International Migration and Asylum*, Palgrave-Macmillan: 15-38.
- IOM (International Organization for Migration) (2005): *World Migration 2005: Costs and Benefits of International Migration*. Geneva: International Organization for Migration.
- Ivakhnyuk, I. (2006): Migration in the CIS Region: Common Problems and Mutual Benefits. *International Symposium on International Migration and Development, Population Division*. Turin: Department of Economic and Social Affairs United Nations Secretariat.
- Kennedy, R. (2007): An EU Invasion waiting to happen, in: *Radio Free Europe/Radio Liberty*, February 1.
- Krissman, F. (2007): Sin Coyote ni Patron: why the 'Migrant Network' Fails to Explain International Migration, in: *International Migration Review* 39 (1): 4-44.
- Long, J.S., (1997): *Regression Models for Categorical and Limited Dependent Variables*. A Volume in the Sage Series for Advanced Quantitative Techniques. Thousand Oaks, CA: Sage Publications.

- Malynovska, O. (2006): Caught between East and West. Ukraine struggles with its Migration Policy. Migration Information Source.
- Mansoor, A., Quillin, B. (2006): Migration and Remittances. Eastern Europe and the Former Soviet Union. Washington, DC: The World Bank.
- Massey, D.S. (2005): Five Myths about Immigration: Common Misconceptions Underlying U.S. Border-Enforcement Policy, in: *Immigration Policy in Focus*, 4 (6).
- Massey, D.S., Arango, J., Hugo, G., Kouaouci, A., Pellegrino A., Taylor J. E. (1998): *Worlds in Motion. Understanding International Migration at the End of the Millennium*. Oxford: Clarendon Press.
- Mayda, A.M. (2007): International Migration: A panel data analysis of the determinants of bilateral flows. CReAM Discussion Paper Series, No. 07/07.
- Minasyan, A., Hancilova, B. (2005): Labor Migration from Armenia in 2002-2005. A Sociological Survey of Households. Yerevan: OSCE and Advanced Social Technologies NGO.
- Mora, J., Taylor, J.E. (2005): Determinants of Migration, Destination and Sector Choice: Disentangling Individual, Household and Community Effects, in: Özden, C., Schiff, M. (ed.): *International Migration, Remittances, and the Brain Drain*. Washington DC: The World Bank: 21-51.
- Moshneaga, V. (2006): Implications of International Labour Migration for the Population of the Republic of Moldova, in: Rodriguez Rios, R. (ed.): *Migration Perspectives. Eastern Europe and Central Asia*. Vienna: International Organization for Migration: 55-69.
- Munshi, K. (2003): Networks in Modern Economy: Mexican Migrants in the U.S. Labor Market, in: *The Quarterly Journal of Economics*, 118 (2): 549-599.
- OECD (2006): *International Migration Outlook. Annual Report 2006 Edition*. Paris: OECD.
- Piore, M. (1979): *Birds of Passage*, Cambridge MA: Cambridge University Press.
- Rivers, D., Vuong, Q.H. (1988): Limited Information Estimators and Exogeneity Tests for Simultaneous Probit Models, in: *Journal of Econometrics*, 39: 347-66.
- Rodriguez Rios, R. (ed.) (2006): *Migration Perspectives. Eastern Europe and Central Asia*. Vienna: International Organization for Migration.
- Sjaastad, L.A. (1962): The Costs and Returns of Human Migration, in: *The Journal of Political Economy*, 70: 80-93.
- Stark, O., Taylor, J.E. (1991): Migration Incentives, Migration Types: The Role of Relative Deprivation, in: *The Economic Journal*, 101: 1163-1178.

- Tishkov, V., Zayinchkovskaya, Z., Vitkovskaya, G. (2005): Migration in the countries of the former Soviet Union. A paper prepared for the Policy Analysis and Research Programme of the Global Commission on International Migration. Published on: http://www.gcim.org/en/ir_experts.html.
- Train, K. (2003): Discrete Choice Method with Simulation. Cambridge, MA: Cambridge University Press.
- Wallace, C., Vincent, K. (2007): Recent Migration from the New European Borderlands, in: Review of Sociology, 13 (2): 1-15.
- Yeganyan, G. (2006): The Migration Situation in Armenia: Challenges and Solutions, in: Rodriguez Rios, R. (ed.) (2006): Migration Perspectives. Eastern Europe and Central Asia. International Organization for Migration: Vienna: 17-26.
- Zimmermann, K.F. (1994): European Migration: Push and Pull, Proceedings of the World Bank Annual Conference on Development Economics 1994. Supplement to the World Bank Economic Review and the World Bank Research Observer: 313-342.

Appendix

Figure 1: Net migration: Armenia, Georgia, Belarus, Moldova, Ukraine (1991-2005)



Source: Transmonee Database

Table 1: Estimated number of migrant workers abroad (Armenia, Belarus, Georgia, Moldova, Ukraine, thousands), early 2000s*

	Workers abroad	Workers in Russia
Armenia	800-900	650
Georgia	250-300	200
Moldova	500	250
Ukraine	2,000-2,500	1,000-1,500

* Estimations include illegal migrants

Source: Ivakhnyuk 2006: 3

Table 2: GDP per capita (PPP, 2000 constant US \$), Armenia, Belarus, Georgia, Moldova, Ukraine, Russia, various European Union countries

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Germany	23,257	23,631	24,118	24,591	25,342	25,618	25,579	25,521	25,945	26,210
Italy	23,222	23,648	23,981	24,438	25,302	25,741	25,750	25,559	25,578	25,381
Spain	19,057	18,742	20,555	21,420	22,312	22,844	23,119	23,421	23,757	24,171
Portugal	15,653	16,254	16,960	17,550	18,147	18,392	18,397	18,064	18,172	18,158
Czech Rep.	14,651	14,559	14,461	14,672	15,222	15,671	16,004	16,579	17,269	18,273
Poland	8,578	9,179	9,632	10,070	10,548	10,723	10,878	11,307	11,913	12,318
Armenia	1,932	2,019	2,183	2,269	2,417	2,663	3,029	3,468	3,846	4,846
Belarus	3,578	4,003	4,360	4,524	4,800	5,045	5,323	5,728	6,416	7,044
Georgia	1,594	1,786	1,863	1,939	1,997	2,117	2,259	2,536	2,713	2,993
Moldova	1,381	1,408	1,320	1,279	1,310	1,395	1,509	1,614	1,739	1,868
Ukraine	3,864	3,782	3,744	3,772	4,035	4,450	4,728	5,215	5,892	6,092
Russia	6,173	6,277	5,961	6,368	7,005	7,380	7,765	8,376	9,021	9,647

Source: World Bank, World Development Indicators 07

Table 3: Human development index (HDI)*, Armenia, Belarus, Georgia, Moldova, Ukraine, Russia, various European Union countries

	HDI Rank	Human Development Index 2005
Spain	13	0.949
Italy	20	0.942
Germany	27	0.935
Portugal	29	0.897
Czech Rep.	32	0.891
Poland	37	0.870
Belarus	64	0.804
Russia	67	0.802
Ukraine	76	0.788
Armenia	83	0.775
Georgia	96	0.754
Moldova	111	0.708

* The HDI is a summary composite index that measures a country's average achievements in health, knowledge and a decent standard of living. Health is measured by life expectancy at birth; knowledge by a combination of the adult literacy rate and the combined primary, secondary, and tertiary gross enrolment ratios; and standard of living by GDP per capita (PPP US\$).

Source: United Nations, Human Development Report 2007/2008

Table 4: Variable overview

variable	N	mean	sd	min	max
migrate	2003	0.081	0.273	0	1
west (EU27)	2003	0.026	0.161	0	1
russia	2003	0.041	0.198	0	1
otherdest	2003	0.014	0.117	0	1
duration	2003	0.643	2.930	0	36
female	2003	0.636	0.481	0	1
married	2003	0.672	0.469	0	1
age1725	2003	0.219	0.414	0	1
age2635	2003	0.249	0.432	0	1
age3649	2003	0.372	0.484	0	1
age5076	2003	0.158	0.365	0	1
kid05	2003	0.188	0.391	0	1
kid510	2003	0.179	0.384	0	1
elderly75	2003	0.076	0.265	0	1
loweredu	2003	0.049	0.217	0	1
secondary	2003	0.639	0.480	0	1
university	2003	0.311	0.463	0	1
westfriend	2003	0.105	0.307	0	1
russfriend	2003	0.049	0.217	0	1
westlanguage	2003	0.336	0.472	0	1
INVEST	2003	0.249	0.433	0	1
urban	2003	0.686	0.464	0	1
rural	2003	0.314	0.464	0	1
armenia	2003	0.200	0.400	0	1
belarus	2003	0.200	0.400	0	1
georgia	2003	0.201	0.401	0	1
moldova	2003	0.200	0.400	0	1
ukraine	2003	0.200	0.400	0	1

Source: INTAS; authors' calculations

Table 5: Migration patterns and migration intentions

Country of origin		Total	women	men	urban	rural
Armenia	migration 2004-06	3.2%	1.4%	7.6%	3.1%	4.1%
	- destination EU27	0.7%	0.4%	1.7%	0.3%	2.7%
	- destination Russia	2.3%	0.7%	5.9%	2.5%	1.4%
Belarus	migration 2004-06	10.2%	7.4%	14.6%	11.7%	4.7%
	- destination EU27	4.3%	3.3%	5.7%	5.1%	1.2%
	- destination Russia	5.0%	2.1%	9.5%	5.4%	2.4%
Georgia	migration 2004-06	1.7%	1.9%	1.4%	1.7%	2.0%
	- destination EU27	1.0%	1.1%	0.7%	1.0%	1.0%
	- destination Russia	0.2%	0.4%	0.0%	0.0%	1.0%
Moldova	migration 2004-06	13.5%	10.3%	18.0%	12.1%	14.4%
	- destination EU27	3.0%	1.7%	4.8%	3.2%	2.9%
	- destination Russia	9.7%	7.7%	12.6%	8.9%	10.3%
Ukraine	migration 2004-06	11.7%	8.7%	16.9%	10.6%	14.3%
	- destination EU27	4.3%	2.8%	6.8%	4.0%	4.8%
	- destination Russia	3.5%	2.4%	5.4%	3.3%	4.0%
Total	migration 2004-06	8.1%	5.7%	12.2%	7.3%	9.9%
	- destination EU27	2.6%	1.8%	4.1%	2.6%	2.7%
	- destination Russia	4.1%	2.5%	6.8%	3.5%	5.4%
N		2003	1273	730	1375	628

Source: INTAS; authors' calculations

Table 6: Personal networks and human capital transferability

Country of origin		Total	women	men	urban	rural
Armenia	EU friend	21.8%	19.9%	26.3%	23.0%	16.2%
	Russian friend	36.3%	33.0%	44.1%	38.7%	25.7%
	Western language	22.2%	23.8%	18.6%	24.5%	12.2%
	HC INVESTment	9.5%	6.4%	16.9%	8.6%	13.5%
Belarus	EU friend	21.0%	21.1%	20.9%	24.1%	9.4%
	Russian friend	24.5%	21.5%	29.1%	22.2%	32.9%
	Western language	47.0%	53.7%	36.7%	54.0%	21.2%
	HC INVESTment	20.3%	19.4%	21.5%	23.5%	8.2%
Georgia	EU friend	35.0%	35.6%	33.8%	38.9%	23.0%
	Russian friend	21.3%	23.1%	18.0%	22.1%	19.0%
	Western language	40.2%	47.0%	27.3%	46.5%	21.0%
	HC INVESTment	34.2%	31.1%	40.3%	26.7%	57.0%
Moldova	EU friend	57.5%	58.8%	55.7%	51.0%	61.7%
	Russian friend	26.5%	22.7%	31.7%	26.8%	26.3%
	Western language	24.5%	26.6%	21.6%	27.4%	22.6%
	HC INVESTment	30.0%	30.0%	29.9%	21.7%	35.4%
Ukraine	EU friend	34.3%	32.9%	36.5%	36.5%	29.4%
	Russian friend	16.2%	15.5%	17.6%	19.7%	8.7%
	Western language	34.0%	34.9%	32.4%	36.9%	27.8%
	HC INVESTment	30.5%	29.4%	32.4%	32.5%	26.2%
N		2003	1273	730	1375	628

Source: INTAS; authors' calculations

Table 7: Average migration duration in month (among migrants only)

Country of origin	Total	women	men	urban	rural
Armenia	8.3	2.5	10.9	6.3	15.0
Belarus	4.6	3.7	5.3	4.7	4.0
Georgia	5.7	6.8	3.0	6.0	5.0
Moldova	9.6	9.3	9.8	10.4	9.2
Ukraine	9.1	9.2	9.0	10.1	7.4
N	162	73	89	100	62

Source: INTAS; authors' calculations

Table 8: Probit Regressions: determinants of migration

	(1) baseline model	(2) with networks	(3) with HC	(4) Bel, Mol, Ukr	(5) only rural	(6) non rural	(7) men	(8) women
female	-0.049 (4.36)***	-0.047 (4.28)***	-0.045 (4.38)***	-0.072 (3.89)***	-0.049 (2.46)**	-0.050 (3.95)***		
married	-0.018 (1.26)	-0.017 (1.24)	-0.008 (0.59)	-0.008 (0.33)	-0.055 (1.91)*	0.000 (0.00)	0.002 (0.05)	-0.021 (1.64)
age1725	-0.001 (0.09)	-0.003 (0.21)	-0.018 (1.26)	-0.031 (1.15)	-0.065 (2.41)**	0.008 (0.44)	-0.082 (2.71)***	0.029 (1.71)*
age2635	-0.004 (0.32)	-0.005 (0.34)	-0.009 (0.72)	-0.005 (0.21)	-0.040 (1.63)	0.006 (0.40)	-0.014 (0.49)	-0.003 (0.20)
age5076	-0.041 (2.94)***	-0.040 (2.86)***	-0.028 (2.18)**	-0.066 (2.68)***	-0.049 (2.07)**	-0.027 (1.68)*	-0.060 (2.40)**	-0.027 (1.89)*
kid05	-0.023 (1.59)	-0.024 (1.72)*	-0.020 (1.53)	-0.050 (2.11)**	-0.035 (1.32)	-0.018 (1.24)	-0.026 (0.87)	-0.025 (2.05)**
kid510	-0.013 (0.90)	-0.012 (0.88)	-0.012 (0.96)	-0.034 (1.46)	0.037 (1.29)	-0.025 (1.70)*	-0.042 (1.68)*	0.005 (0.37)
elderly75	-0.007 (0.32)	-0.007 (0.34)	-0.006 (0.33)	-0.023 (0.57)	0.037 (1.01)	-0.028 (1.12)	-0.001 (0.03)	-0.009 (0.45)
loweredu	0.033 (1.41)	0.032 (1.41)	0.041 (1.80)*	0.075 (1.94)*	0.064 (1.86)*	-0.003 (0.08)	0.057 (1.34)	0.028 (1.13)
university	-0.021 (1.80)*	-0.022 (1.91)*	-0.030 (2.78)***	-0.057 (2.68)***	-0.053 (1.99)**	-0.024 (1.99)**	-0.090 (4.14)***	-0.004 (0.30)
westfriend		0.013 (1.14)	-0.003 (0.33)	0.004 (0.21)	-0.000 (0.00)	0.007 (0.56)	0.013 (0.64)	0.005 (0.45)
russfriend		0.015 (1.23)	0.018 (1.58)	0.043 (1.93)*	0.053 (2.03)**	0.006 (0.43)	0.036 (1.50)	0.002 (0.20)
westlanguage			0.032 (2.73)***	0.086 (3.85)***	0.079 (2.61)***	0.036 (2.80)***	0.113 (3.91)***	0.021 (1.74)*
INVEST			0.094 (7.02)***					
rural	-0.004 (0.32)	-0.003 (0.25)	-0.002 (0.23)	0.002 (0.08)			-0.001 (0.03)	0.006 (0.47)
armenia	-0.056 (4.27)***	-0.057 (4.25)***	-0.038 (2.96)***		-0.062 (2.63)***	-0.044 (3.02)***	-0.042 (1.43)	-0.047 (3.77)***
belarus	-0.015 (1.14)	-0.014 (1.08)	-0.008 (0.62)	-0.030 (1.41)	-0.058 (2.25)**	-0.007 (0.46)	-0.008 (0.31)	-0.022 (1.92)*
georgia	-0.072 (5.09)***	-0.072 (5.14)***	-0.065 (5.28)***		-0.070 (2.55)**	-0.062 (4.21)***	-0.105 (3.62)***	-0.048 (3.99)***
moldova	0.001 (0.09)	-0.003 (0.23)	0.004 (0.29)	-0.002 (0.08)	0.003 (0.11)	-0.005 (0.27)	0.001 (0.02)	-0.005 (0.39)
Observations	2003	2003	2003	1200	628	1375	730	1273
Pseudo R-squared	0.10	0.10	0.16	0.07	0.15	0.12	0.13	0.13
Test: kid05=kid510=0	98.499	101.111	162.137	59.217	47.446	77.982	58.389	70.575

Robust z statistics in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%
Source: INTAS; authors' calculations

Table 9: Multinomial logit Regression of migration destination

	baseline model			with networks			with language		
	EU	Russia	other	EU	Russia	other	EU	Russia	other
female	-0.542 (2.15)**	-0.997 (4.10)***	-0.173 (0.19)	-0.550 (2.18)**	-1.015 (4.13)***	-0.184 (0.21)	-0.744 (2.83)***	-0.992 (3.99)***	-0.154 (0.17)
married	-0.492 (1.59)	0.068 (0.20)	-0.775 (1.36)	-0.483 (1.54)	0.052 (0.15)	-0.826 (1.58)	-0.274 (0.84)	0.028 (0.08)	-0.842 (1.55)
age1725	-0.123 (0.34)	-0.105 (0.28)	1.528 (1.52)	-0.125 (0.34)	-0.154 (0.40)	1.465 (1.38)	-0.673 (1.67)*	-0.090 (0.24)	1.591 (1.35)
age2635	-0.088 (0.26)	-0.065 (0.19)	1.275 (1.17)	-0.116 (0.34)	-0.025 (0.08)	1.168 (0.99)	-0.229 (0.61)	-0.015 (0.05)	1.230 (0.99)
age5076	-1.016 (2.08)**	-0.789 (1.92)*	-32.839 (30.88)***	-1.010 (2.06)**	-0.763 (1.85)*	-32.721 (31.94)***	-0.860 (1.76)*	-0.772 (1.87)*	-30.749 (30.83)***
kid05	-0.537 (1.25)	-0.317 (0.91)	-0.414 (0.44)	-0.562 (1.31)	-0.313 (0.92)	-0.402 (0.45)	-0.594 (1.32)	-0.313 (0.93)	-0.462 (0.49)
kid510	-0.165 (0.45)	-0.285 (0.85)	-33.678 (56.11)***	-0.137 (0.37)	-0.285 (0.84)	-33.385 (56.16)***	-0.043 (0.11)	-0.283 (0.84)	-31.379 (54.15)***
elderly75	-0.514 (0.83)	0.362 (0.75)	-33.078 (62.50)***	-0.494 (0.80)	0.377 (0.78)	-32.979 (66.16)***	-0.428 (0.69)	0.360 (0.74)	-30.963 (58.25)***
loweredu	-0.557 (0.76)	0.671 (1.94)*	1.617 (0.86)	-0.510 (0.70)	0.669 (1.93)*	1.610 (0.88)	-0.272 (0.36)	0.659 (1.91)*	1.569 (0.85)
university	-0.186 (0.65)	-0.906 (2.43)**	0.938 (1.15)	-0.203 (0.70)	-0.936 (2.53)**	0.843 (1.18)	-0.685 (2.18)**	-0.868 (2.23)**	0.948 (1.27)
rural	0.142 (0.55)	-0.131 (0.54)	-0.491 (0.77)	0.186 (0.71)	-0.149 (0.61)	-0.423 (0.76)	0.408 (1.46)	-0.171 (0.70)	-0.506 (0.98)
westfriend				0.632 (1.81)*	-0.183 (0.46)	0.681 (0.73)	0.466 (1.32)	-0.165 (0.41)	0.690 (0.73)
russfriend				0.049 (0.08)	0.973 (2.51)**	-33.647 (58.48)***	0.050 (0.08)	0.954 (2.47)**	-31.680 (54.16)***
westlanguage							1.932 (6.14)***	-0.232 (0.75)	-0.459 (0.60)
armenia	-2.331 (3.86)***	-0.497 (1.12)	0.149 (0.10)	-2.332 (3.89)***	-0.469 (1.06)	0.071 (0.05)	-2.090 (3.55)***	-0.499 (1.13)	-0.003 (0.00)
belarus	-0.503 (1.73)*	0.351 (0.96)	-0.530 (0.39)	-0.470 (1.60)	0.381 (1.04)	-0.571 (0.42)	-0.592 (1.91)*	0.388 (1.07)	-0.514 (0.39)
moldova	-0.930 (2.73)***	0.888 (2.64)***	0.546 (0.32)	-1.060 (2.93)***	0.859 (2.48)**	0.385 (0.21)	-0.980 (2.66)***	0.843 (2.41)**	0.420 (0.23)
georgia	-2.229 (4.12)***	-2.527 (2.44)**	0.185 (0.17)	-2.242 (4.19)***	-2.579 (2.48)**	0.190 (0.17)	-2.196 (4.05)***	-2.590 (2.49)**	0.195 (0.18)
Constant	-1.437 (3.57)***	-2.346 (5.16)***	-6.034 (3.99)***	-1.523 (3.76)***	-2.368 (5.10)***	-5.948 (4.12)***	-2.362 (5.35)***	-2.313 (4.85)***	-5.850 (4.18)***
Observations		2003			2003			2003	
Ps R-squared		0.12			0.13			0.16	

Robust z statistics in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%

Source: INTAS; authors' calculations

Table 10: ZINB and NBREG model: migration duration

	ZINB baseline model	ZINB extended model	ZINB men	NBREG women	NBREG urban	ZINB rural
female	-0.281 (1.60)	-0.384 (2.00)**			-1.431 (5.08)***	-0.179 (0.82)
married	-0.438 (2.12)**	-0.465 (2.18)**	0.070 (0.25)	-0.950 (2.46)**	-0.360 (0.95)	-0.626 (2.29)**
age1725	-0.261 (1.11)	-0.406 (1.72)*	-0.418 (1.24)	0.163 (0.35)	-0.057 (0.13)	-0.705 (2.51)**
age2635	-0.008 (0.04)	0.069 (0.31)	0.512 (2.11)**	-0.278 (0.55)	0.523 (1.20)	-0.696 (2.58)***
age5076	0.488 (1.80)*	0.575 (2.08)**	0.062 (0.22)	-0.530 (1.11)	-0.140 (0.35)	0.306 (0.92)
kid05	-0.196 (0.79)	-0.176 (0.69)	-0.776 (2.78)***	-0.016 (0.03)	-0.385 (0.85)	-0.412 (0.98)
kid510	0.448 (1.77)*	0.367 (1.42)	-0.350 (1.18)	0.118 (0.25)	-0.511 (1.11)	0.256 (0.91)
elderly75	0.315 (1.04)	0.024 (0.08)	0.236 (0.80)	-0.551 (1.03)	-1.102 (2.54)**	0.210 (0.46)
loweredu	-0.421 (1.63)	-0.218 (0.81)	0.156 (0.58)	0.229 (0.38)	-0.144 (0.24)	-0.150 (0.64)
university	-0.303 (1.37)	-0.390 (1.74)*	-1.144 (3.29)***	-0.056 (0.14)	-0.660 (1.72)*	0.575 (1.57)
westlanguage		0.428 (2.58)***	0.685 (3.43)***	0.743 (2.34)**	0.635 (1.94)*	0.590 (3.03)***
INVEST		0.509 (2.72)***	0.143 (0.82)	2.259 (6.66)***	2.307 (6.67)***	0.024 (0.14)
rural	-0.220 (1.27)	-0.211 (1.22)	-0.371 (2.00)**	-0.168 (0.42)		
armenia	-0.722 (1.92)*	-0.362 (0.95)	0.449 (1.25)	-2.516 (4.37)***	-0.605 (1.31)	0.389 (0.61)
belarus	-0.826 (3.85)***	-0.749 (3.45)***	-0.549 (2.27)**	-1.454 (2.65)***	-0.568 (1.37)	-0.373 (0.86)
moldova	0.186 (0.93)	0.329 (1.59)	0.275 (1.30)	0.393 (0.76)	0.826 (1.64)	0.741 (3.06)***
georgia	-0.929 (1.93)*	-1.208 (2.68)***	-2.476 (4.03)***	-2.851 (6.03)***	-1.910 (4.02)***	-0.603 (0.83)
Constant	2.664 (10.51)***	2.160 (7.76)***	1.908 (5.39)***	-0.739 (1.48)	-0.159 (0.30)	2.055 (6.62)***
Observations	2003	2003	730	1273	1375	628
Zero observations	1839	1839	639			565
Likelihood ratio test	329.591	285.449	97.739	316.43	269.20	37.933
Voung test	3.286	1.654	4.194			3.257
sig.	0.000	0.049	0.000			0.003
R2_p				0.074	0.059	

Absolute value of z statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Source: INTAS; authors' calculations

Table 11a: Correlation matrices for instrumental variables

	iv_westfriend	westfriend	west
iv_westfriend	1.0000		
westfriend	0.2878*	1.0000	
west	-0.0259	0.0725*	1.0000

	iv_russfriend	russfriend	russia
iv_russfriend	1.0000		
russfriend	0.1832*	1.0000	
russia	-0.0162	0.0962*	1.0000

	iv_westlanguage	westlanguage	west
iv_westlanguage	1.0000		
westlanguage	0.2195*	1.0000	
west	0.0197	0.1857*	1.0000

* significant at 5%

Source: INTAS; authors' calculations

Table 11b: Estimated first stage residuals for the Rivers-Vuong approach (endogeneity test)

	iv_westfriend	iv_russfriend	iv_westlanguage
destination West	-1.79 (0.074)*	-2.52 (0.012)**	-0.02 (0.983)
destination Russia	-1.82 (0.070)*	0.48 (0.628)	0.46 (0.647)

* significant at 10%; ** significant at 5%

Source: INTAS; authors' calculations

Table 11c: IV Regression for migration to EU

	(1) Probit	(2) IV Probit (Second stage)
female	-0.014 (2.33)**	-0.398 (2.71)***
married	-0.012 (1.60)	-0.183 (1.04)
age1725	-0.001 (0.12)	0.271 (1.05)
age2635	-0.003 (0.35)	-0.020 (0.10)
age5076	-0.017 (2.31)**	-0.642 (2.44)**
kid05	-0.011 (1.49)	-0.344 (1.62)
kid510	-0.001 (0.11)	-0.119 (0.60)
elderly75	-0.003 (0.30)	-0.060 (0.20)
loweredu	-0.005 (0.42)	-0.014 (0.04)
university	-0.006 (0.92)	-0.061 (0.33)
westfriend	0.019 (2.92)***	-0.311 (0.28)
russfriend	-0.018 (2.79)***	-3.214 (2.32)**
rural	0.004 (0.58)	-0.049 (0.30)
armenia	-0.030 (4.41)***	-0.534 (1.43)
belarus	-0.008 (1.20)	-0.044 (0.18)
georgia	-0.030 (4.45)***	-0.879 (3.45)***
moldova	-0.021 (3.55)***	-0.094 (0.24)
Constant		-0.303 (0.53)
Observations	2003	2003
Pseudo R-squared	0.13	
Wald test of exogeneity: chi2(2)		5.28
p-value		0.071

Robust z statistics in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Note: for migration with destination EU27, we instrument friendship networks to the EU and Russia with *iv_westfriend*, *iv_russfriend*, and *orthodox*. As a robustness check, we use the instrument *ethnic russian* and find similar results.

Source: INTAS; authors' calculation.