



## **Caucasus Research Resource Centers (CRRC) – Armenia**

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**Final Analytical Report**

## **Emigration in the South**

### **Caucasus Republics**

Case of Armenia

By

**Dr. Armen Asatryan**

**In collaboration with Anna Yeritsyan,  
Anna Yeghiazaryan and Anna Aramyan**

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## Introduction

Migration is the process of movement of people from one region or area in the world to another in a search for better conditions to live and work. Migration can have certain positive and negative consequences for both sending and receiving countries. On one hand the remittances sent to home country by a migrant have positive effect on the economy of the country; since they contribute to the poverty reduction in the short run (remittances sent to Armenia in 2003 were equal to 20% of GDP<sup>1</sup>). Next, according to the concept of “Brain gain through brain drain”, country citizens may gain certain knowledge and skills to be competitive in the country where they were planning to migrate, but apparently are staying in the home country. In other words, successful migration example can create incentives for other people in migrant’s country to improve professional qualifications and certain skills, which will later on be used in the home country. Besides, since South Caucasus countries are among those with prevailing collectivism values and strong family ties, it is natural to assume, that the money earned by a migrant will eventually flow to the home-country to support family and friends.

The long-run effect of migration, however, can be quite pessimistic because of the following reasons:

1. Any kind of migration leads to the brain drain. South Caucasus (SC) countries spend millions of dollars while preparing qualified specialists, who eventually generate revenues for foreign countries.
2. SC countries incur lost tax revenues,
3. The demographic structure of the population of SC countries changes, since mostly young and middle age people leave the region.
4. The remittance sent to SC may not necessarily continue, since mass migration that exists now in South Caucasus countries is leading to high possibility of permanent migration. In this case we are not facing just a temporary “brain drain” or “skill drain”, but rather a permanent loss of those. A migrant might eventually take his/her family out of the SC, which in turn leads to:
  - a. Decrease in investments and the subsequent decline in number of businesses
  - b. And decrease of potential customers in the SC markets of goods and services.

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<sup>1</sup> Bryan W. Roberts and King Banaian “Remittances in Armenia: How big are remittance flows to Armenia and how much does it cost to send them?” *Armenian Journal of Public Policy*, sept. 2005

People move for different reasons: from temporary labor migration to permanent refugee migration or permanent migration due to economic conditions in migrant's country.

One of the earliest migration theories was explained by Ernst Ravenstein, who proposed idea of push –pull factors in the core of the migration process. His theory was supported by model based on observation of migration patterns in Great Britain and supplemented by data from US. The core idea of the model is that people are pushed from places where there are some unfavorable conditions for them and are pulled to places where there are certain favorable factors for them. Within “push” factors could be named poor economic conditions, low salaries and a high unemployment rate of migrant's home country, as well as political-situational factors like Civil Strife, War, Political and Religious Persecution, Environmental Problems. On the other hand “pull” factors are higher salaries, employment opportunities, safety and minimal risk of market failure elsewhere.

Ravenstein stated that the major causes of migration are:

1. Better external economic factors
2. Distance (volume of migration decreases as the distance to the destination increases).
3. Sizes of the country and availability of extended boundary between countries.
4. Migration differentials (e.g., gender, social class, age) influence a person's mobility.

Later, some other theories have been developed to explain international patterns of migration. However push-pull theory was a base, a kind of a background for all of those. Neoclassical economic theory (Sjaastad 1962; Todaro 1969) suggests that international migration is related to the global supply and demand for labor. Nations with insufficient labor supply will have high wages that pull immigrants in from nations with a surplus of labor. Segmented labor-market theory (Piore 1979) argues that developed economies are structured so as to require a certain level of immigration: they have a primary market of secure, well-remunerated work and a secondary market of low-wage work. So it would be natural to conclude that immigrants are recruited to fill these jobs that are necessary for the overall economy to function but are avoided by the native-born population because of the poor working conditions associated with the secondary labor market. World-systems theory (Sassen 1988) argues that “international migration is a by-product of global capitalism. Contemporary patterns of international migration tend to be from the periphery (poor nations) to the core (rich nations) because factors associated with industrial development in

the First World generated structural economic problems, and thus push factors, in the Third World”<sup>2</sup>.

In former Soviet Union there have been few studies exploring reasons for migration. Particularly, soviet economist have proposed two main reasons for migration: labor resource balance (Litvyakov, 1969) and interregional differentiation of life conditions (Perevedentsev, 1967).<sup>3</sup> Meanwhile today Russian economists are pointing out economic troubles and open borders.<sup>4</sup>

Studies conducted about situation in Armenia identify three main migration streams during last 10 years.

1. Migration flow after the earthquake in 1988,
2. Migration flow resulting from Nagorno Karabakh conflict in 1989-1990
3. Migration flow resulting from collapse of the USSR and very hard economic conditions in the country 1991-1993.<sup>5</sup>

On the other hand, some additional factors affecting migration decision are becoming relevant today. Naming just the few of them<sup>6</sup>:

- Psychological costs associated with migration that are rather difficult to measure. These costs are immaterial and may consist of differences in culture, lifestyles, attitudes, religion, language problems.
- Existence of prior migrants from the sending country in the country of destination is going to reduce housing and employment search easier, thus creating incentives for migration.
- There is a positive correlation between migrants’ inflow and GDP of the receiving country.

At this point one would wonder whether all these theories and rules are holding for countries all over the world. Armenia, Azerbaijan and Georgia are countries in transition where the issue of labor migration and brain-drain are within the primary problems to be addressed. Are there certain common reasons for migration or similar characteristics of migrants in these countries? Within the framework of the New Economics of Labor Migration (theory developed by O. Stark and D. Bloom) it is obvious that main reason for migration would be wage differentials and certain risks associated with market failure in the home country. Other researches have analyzed the gender, age, and education of migrants to receive better picture while trying to explain what factors or personal characteristics are making people migrate. For example Mexican migrants

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<sup>2</sup> “Push pull Migration laws” Guido Dorigo and Waldo Tobler

<sup>3</sup> Y. Andreenko, S. Guriev “Understanding Migration in Russia”

<sup>4</sup> Olga Chudinovskikh “Transformation of Migration Data Collection in Post-Soviet Countries: Case of Russia”

<sup>5</sup> Dr. Gevork Poghosyan “Migration processes in Armenia: Case study”, 1998.

<sup>6</sup> Holger Wolf (2004) “Do values matter for migration decision?”

traveling to US are mainly male aged 19-34<sup>7</sup>, while in countries like Indonesia and Philippines women are as likely to migrate for getting a job, as male, there could even be observed cases, when woman migrates to another city to work, while her husband stays home to look after the children and land<sup>8</sup>.

In our report we have revealed certain characteristics and behavioral patterns of migrants in the three countries in South Caucasus. Since data is the key for any kind of socio-economic research we have used the CRRC data initiative (DI) datasets from 2004 to 2006 – it is comparable data on household economic behavior and social attitudes across the South Caucasus that allows cross-comparison of regional social and economic dynamics.

However, for a part of our research we mainly focused on DI 2006. This decision is based on two reasons. First, there are not sufficient observations in the migration section of capital city section of the DI 2006 (see Appendix 1 for detailed information about the Data Initiatives in 2004, 2005, and 2006). And second reason is that DI 2006 is much more representative on a country level than DI 2004 and DI 2005. Particularly, DI 2006 is representative on the Capital City, rural, and urban levels, which is not the case for the other two datasets.

### **Rearranging the DI 2006 database to include all individuals in the household**

Right in the beginning of the research, our team faced a lack of sufficient data in the sample regarding the emigration section. Particularly, Data Initiative (DI) 2006 included only 48 respondents who left their country for more than three months during the last three years (see Table 1). Fortunately, the emigration section of the questionnaire used in the survey involves all individuals of a surveyed household. Even though, the database included this type of information for all household members, there was not a clearly defined column showing it. This situation resulted from the structure of the database, which was designed to represent the respondent.

**Table 1. DI 2006 sample distribution for those who migrated for more than three months during the last three years by respondents, individuals who are 18 years old and older, and all individuals**

	Respondents	All Individuals who are 18 years old and older	All individuals
Armenia	16	220	235
Azerbaijan	18	86	86
Georgia	14	205	218
Total SC	48	511	539

<sup>7</sup> Durand, Massey, and Zenteno (2001), Hanson, Robertson, and Spilimbergo 2000; Marcelli 1999; Marcelli, Pastor and Joassart 1999.

<sup>8</sup> Dube, 1997:57-59, 1990

Hence, our team rearranged the database in a way that would represent all household members, and then looked at the migration section. Taking into account that the respondents are 18 years old and more, we decided to recalculate this number for all household members, who are in the same age category as respondents. As a result of this process our sample revealed significantly larger number of individuals who are 18 years old and older and who left their country for more than three months during the last three years.

Indeed, the number of such individuals has increased more than tenfold relative to the number of respondents who left their country for more than three months during the last three years. Our team believes that sample size of 511 individuals is large enough to do comparative statistical analysis.

Moreover, rearranging the database allowed us to get emigration information about all individuals and not just for those who are 18 years old and older.

On the background of significantly different political, military, and economic integration strategies of the SC countries one can assume that there would be major differences in some aspects of migration between the three countries. On the other hand, the people living in these three countries share many socio-cultural values. This makes us assume that there would also be significant similarities between these countries. Hence, the prime goal of this work is to have in-depth study of similarities and differences in the migration processes in the region.

We have also decided to divide our research project on the following three major areas:

1. Historical migration patterns in the South Caucasus (SC) countries. This is achieved by exploring the respondent level information. This allows us to use the full richness of the dataset. Here we paid special attention to the regional comparisons within each country.
2. Current migration patterns in each SC country.
3. Possible future migration developments in the region in case if the socio-economic condition of households does not improve during the next three years.

We have based our analyses on quantitative research methods using such tools as crosstabulations, descriptive statistics, as well as regression analyses involving logit and ordered logit models. All statistical analysis and extrapolations are based on weighted data. DI includes two weights, one for the respondents and one for all household members.

## 1. Historical migration patterns in the SC countries

In this section we try to discuss the dynamics of migration into the countries and within the countries of the SC. First of all when speaking of the migration it will be natural to check out the data about place of birth of respondents. Table 2 shows that it is common pattern in the SC that the majority of respondents were born in their settlements. Still one can say that this number could be somewhat bigger before conflicts of Nagorno Karabakh, Abkhazia and South Osethia, when significant part of population in these countries had to relocate. The capital cities, however, are more dynamic in terms of migration than the other areas of the countries. This is explained by the drastic expansion of all three capital cities in the last decades.

**Table 2 Answer to the question “Were you born in this settlement?” (% share in total)**

regions	yes	no
<b>Yerevan</b>	58.6	41.4
<b>Other Armenia</b>	71.41	28.59
<b>Baku</b>	65.22	34.78
<b>Other Azerbaijan</b>	79.6	20.4
<b>Tbilisi</b>	60.5	39.5
<b>Other Georgia</b>	71.89	28.11

Next question to be addressed will be where those who moved came from. Most of the families moved in their settlements from another location of their country (see: Table 3). This situation is especially vivid in the case of Georgia, where 96% of the respondents have such an experience. Armenia, however, has a slightly different pattern of migration with about 28% of those migrated came in from other countries including Azerbaijan and Georgia.

**Table 3 Where did you move from?**

country	Another location from the country	Armenia	Azerbaijan	Georgia	Other Countries
Armenia	71.55	0	11.58	6.3	10.57
Azerbaijan	83.25	7.77	0	2.94	6.04
Georgia	96.43	0.69	0.55	0	2.33

Next two tables are showing the year when respondent’s family have moved and describe the reasons for it. As Table 4 shows, the main share of respondents in Armenia moved to their current location before 1970 (about 46%). This movement was mainly due to the fact that a family of respondent have moved, making him change settlement.( about one third of Armenians

mentioned that their family moved to their current region – see Table 5). This pattern is explained by the return of Diaspora Armenians after World War II and the rapid expansion of Yerevan. More than 60% of Azerbaijanis, however, moved into their new settlements after 1986. For Baku residents the main reasons for moving were job (25%), war/ethnic conflict (24%), and family moved to the region (21%). War/ethnic conflict (47%) and changing marital status (32%) were the main reasons for moving to their current location for those who live in the other regions of Azerbaijan. In Georgia reasons for moving were rather peaceful- almost 80 percent have moved to join the family or because of marriage.

**Table 4. Year of respondents' moving to their current settlements (% share of total moved by region)**

Region	Till 1940	1941 to 1970	1971 to 1985	1986 to 2006
Yerevan	4.39	46.28	29.39	19.93
Other Armenia	2.33	35.23	26.42	36.01
Baku	0	18.98	18.98	62.04
Other Azerbaijan	1.38	20.39	16.25	61.98
Tbilisi	4.22	37.13	21.52	37.13
Other Georgia	0.99	33.2	26.88	38.93

**Table 5. What was the main reason for moving?**

Region	job	entering higher education	my family moved to this region	changing marital status	war/ethnic conflict	other
Yerevan	8.78	20.27	36.15	26.35	4.39	4.06
Other Armenia	11.4	0.78	27.46	44.56	10.36	5.44
Baku	25.46	12.5	20.83	12.5	24.07	4.64
Other Azerbaijan	6.06	0.28	10.47	32.23	47.38	3.58
Tbilisi	13.14	27.97	16.95	22.03	14.41	5.5
Other Georgia	8.72	2.64	23.73	55.98	6.69	2.24

## 2. Current migration patterns in each SC country

In this section we would like to introduce our findings on the factors that influenced migration process in 3 Caucasian countries - Armenia, Azerbaijan, and Georgia. For our analysis we constructed model based on the CRRC Data Initiative Survey of Households conducted in 2006 to see how factors like age, gender, being head of the family, place of dwelling in the country, and believes of individuals about economic conditions in the country cause migrating behavior of the person.

As Table 6 below shows about 1.7% (or 255,812 people) of population in the SC have been living abroad for 3 or more months during the last 3 years. This number, however, does not include those who left their home country with the whole family. Anyway, according to DI 2006, Armenia (2.72%), followed by Georgia (2.14%) and Azerbaijan (0.85%), has the highest share of people living abroad. In terms of absolute number of people migrated, however, Georgia (107,954 individuals) is on the first place followed by Armenia (95,080) and Azerbaijan (52,787). It should be also mentioned that in all three countries those who are aged between 17 and 60 comprise more than 85% of those migrated.

**Table 6. Age distribution of people living abroad for 3 or more months during the last 3 years (DI 2006)**

		Age Category				Total
		16 and under	17 to 35	36 to 60	60 and above	
Armenia	Number of people	5,286	37,693	50,957	1,143	95,080
	Share in total	5.56%	39.64%	53.59%	1.20%	2.72%
Azerbaijan	Number of people	0	21,030	29,637	2,120	52,787
	Share in total	0%	39.84%	56.15%	4.02%	0.85%

<b>Georgia</b>	<b>Number of people</b>	5,686	39,264	54,933	8,062	107,945
	<b>Share in total</b>	5.27%	36.37%	50.89%	7.47%	2.14%
<b>Total SC</b>	<b>Number of people</b>	10,972	97,987	135,527	11,326	255,812
	<b>Share in total</b>	4.29%	38.30%	52.98%	4.43%	1.73%

Vast majority of migrated Armenians (82%) or Azerbaijanis (87%) left their country to find jobs. Only 59% of Georgians, however, look for jobs in other countries. Instead it could be mentioned that Georgia has the highest share of individuals (17%) who leave their country for getting education in other countries.

**Table 7 The main purpose of staying abroad (DI 2006)**

<b>Country</b>	<b>The main purpose of staying abroad</b>					
	<b>To become a permanent resident</b>	<b>Education</b>	<b>Work</b>	<b>Reunification with family</b>	<b>Other</b>	<b>Do not know</b>
<b>Armenia</b>	2.89%	5.71%	82.37%	7.54%	1.49%	0%
<b>Azerbaijan</b>	0%	3.50%	87.19%	7.66%	1.65%	0%
<b>Georgia</b>	7.29%	16.89%	58.66%	10.23%	0.24%	6.69%
<b>Total SC</b>	4.15%	9.98%	73.35%	8.70%	0.99%	2.83%

Surely, the next step in research should try to reveal the country of destination or migrant receiving country. Russia is the main destination country for those migrated from the SC (see Table 9). This could be explained first of all by similarities in culture of post-soviet countries, relative close distance and absence of language and communication barriers. Russia is an especially important country for Azerbaijani (93%) and Armenian (87%) migrants.

Almost half of Georgians, however, prefer countries other than Russia. Table 8 shows that those Georgians who have economic reasons prefer migrating to Russia and those who have personal reasons choose mainly Greece and other countries.

**Table 8 Reasons of Leaving the Home Country by Country of Migration (% share in total migrated - DI 2006)**

Reasons of leaving the home country	Russian Federation	USA	Turkey	Germany	Greece	Ukraine	Other European Countries	Other Countries
Was unable to get a job	53.7	0.0	5.6	3.3	16.1	8.7	9.4	3.2
Money s/he was earning was not enough for the h/h	44.3	7.4	5.4	2.6	15.1	3.4	15.9	6.0
Could not get a job corresponding to his/her qualification	78.7	0.0	0.0	0.0	0.0	21.3	0.0	0.0
Personal reasons	24.6	0.0	0.0	0.0	20.3	0.0	26.3	28.8
Other	53.6	0.0	0.0	0.0	0.0	46.4	0.0	0.0

**Table 9 Country of Migration (% share in total migrated - DI 2006)**

Country of	Country of Migration
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<b>Origin</b>	<b>Russian Federation</b>	<b>USA</b>	<b>Turkey</b>	<b>Germany</b>	<b>Greece</b>	<b>Ukraine</b>	<b>Other</b>
<b>Armenia</b>	86.54	5.64	0.26	0.44	0.28	1.31	2.03
<b>Azerbaijan</b>	93.64	0.72	0	0	0	3.79	3.79
<b>Georgia</b>	50.57	3.14	3.51	8.59	10.94	6.16	25.69
<b>Total SC</b>	72.81	3.57	1.58	3.79	4.72	3.87	12.38

Since labor migration accounts for the greatest part of movement, one could assume that the absence from the home country is going to be temporary. Azerbaijan and Armenia again differ from Georgia in terms of duration of migration. Seasonal labor migration is predominant for Armenia and Azerbaijan. Georgians have longer term goals when migrating relative to Armenians and Azerbaijanis. Specifically, migration for up to 12 months is dominant in the first two countries and migration taking 1 to 3 years (65%) is principal for Georgia (see Table 10).

**Table 10 Duration of Stay (% share in total migrated - DI 2006)**

<b>Country of origin</b>	<b>Duration of Stay</b>		
	<b>3 to 6 months</b>	<b>6 to 12 months</b>	<b>1 to 3 years</b>
<b>Armenia</b>	35.32	24.68	40
<b>Azerbaijan</b>	34.88	19.77	45.35
<b>Georgia</b>	16.51	18.35	65.14

Now let's identify occupation of migrants before migration and try to compare it with what they have been doing during migration. The majority of those who migrated were unemployed in their own country (see

Table 11). This is especially vivid for the case of Azerbaijan (61%). It should be noted that 12% of Georgians were students before migration and probably these are the people who decided to continue their education in the Europe or USA.

**Table 11 Occupation of the migrant before migration for those who left to work (% share in total migrated - DI 2006)**

Country	Occupation of the migrant before migration					
	Employee in private organization /company	Employee in state organization/ company	Self - employed	Unemployed	Student	Do not know
Armenia	15.54	12.38	16.83	52.05	2.58	0
Azerbaijan	0	12.48	22.81	60.92	1.8	0
Georgia	7.84	17.08	9.32	48.09	12.49	3.6

**Table 14 presents quite interesting finding: most of the Armenian and the Azerbaijani respondents have clear idea about the occupation of their family members in migration. Georgian respondents, however, did not know what occupations have their migrated relatives for about every fifth of individual migrated. In addition, employment in private organization/company is dominant for Armenians (81%) and self-employment is prevailing for Azerbaijanis (75%). This numbers and comparison of the two tables (**

**Table 11 and**

Table 14) can prove that there is a need for employees in private organizations in the receiving countries. It is rather true in case of Armenians when Diaspora members or friends and relatives working for private sector abroad or owning companies in that particular industry can employ those from their home country.

**Table 12 Occupation of Migrant after his/her Migration by received assistance to migrate (% share in total migrated - DI 2006 Armenia)**

Who assisted you to migrate?	Occupation after the migration									
	Employee in private organization/company/enterprise	Employee in state organization/company/enterprise	Employee in foreign/international organization/company	Self-employed, without employees	Employer	Unemployed and looking for work	Student	Not employed and not looking for work	Pupil	DK
<b>Private person</b>	82.44	2.91	0	5.06	0.71	0.6	2.47	0	2.05	3.75
<b>Organization within home-country</b>	8.18	37.32	0	0	0	8.5	46.01	0	0	0
<b>Organization outside home country</b>	0	15.27	26.75	0	0	0	24.18	33.8	0	0
<b>Nobody</b>	74.45	7.61	0	3.09	0	6.36	3.83	1.98	2.68	0

**Table 13 Occupation of Migrant before and after his/her Migration (% share in total migrated - DI 2006 Armenia)**

Occupation of the migrant before migration	Occupation of the migrant after migration									
	Employee in private organization/company/enterprise	Employee in state organization/company/enterprise	Employee in foreign/international organization/company	Self-employed, without employees	Employer	Unemployed and looking for work	Student	Not employed and not looking for work	Pupil	DK
Employee in private organization/company/enterprise	77.9	9.9	0.0	3.7	0.0	2.9	0.0	3.3	2.2	0.0
Employee in state organization/company/enterprise	73.9	7.4	3.2	4.0	0.0	0.0	3.9	4.0	3.6	0.0
Self-employed, without employees	76.5	8.8	0.0	14.7	0.0	0.0	0.0	0.0	0.0	0.0
Employer	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unemployed and looking for work	79.3	7.3	0.0	1.0	0.6	6.0	2.2	0.0	1.0	2.5
Student	17.9	5.3	0.0	0.0	0.0	0.0	76.9	0.0	0.0	0.0
Not employed and not looking for work	53.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46.1	0.0
Pupil	41.9	0.0	0.0	0.0	0.0	19.4	0.0	14.2	14.5	10.1

**Table 14 Occupation of the migrant in migration for those who left to work (% share in total migrated – DI 2006)**

Country	Occupation of the migrant in migration				
	Employee in private organization /company	Employee in state organization/ company	Self - employed	Unemployed	Do not know
<b>Armenia</b>	81.31	8.13	3.58	4.31	1.35
<b>Azerbaijan</b>	12.99	7.26	74.67	3.01	0.97
<b>Georgia</b>	33.82	3.99	24.34	9.56	18.68

Next issue that arises in the process of migrant’s general characteristics description is what the gender of migrants is. In a country like Mexico majority of migrants are male seeking temporary employment in United States, while in Philippines most migrants are women. The picture is similar in Armenia and Azerbaijan, where correspondingly 93 and 91 percent of migrants are male. However, Georgia possesses different portrait – almost one third of labor migrants are women. This phenomenon was addressed by many other researchers – highly skilled young Georgian women are likely to migrate to work to Europe or US. This may be explained by the peculiarities of labor markets in the recipient countries and different demands to employers far and near abroad : there is rising global demand for labor in female-type jobs and occupations. Particularly research conducted in Georgia by Irina Badurashvili reveals two main occupations for female migrants from Georgia - babysitting and housekeeping<sup>9</sup>.

**Table 15 Gender of those who left to work (% share in total migrated)**

Country	Gender	
	Male	Female
<b>Armenia</b>	92.71	7.29
<b>Azerbaijan</b>	91.34	8.66
<b>Georgia</b>	67.3	32.7

<sup>9</sup> Irina Badurashvili, Georgian Centre of Population Research, Determinants and consequences of irregular migration in society under transition, The case of Georgia, Caucasus

## Logit Models for each SC country

We have decided to model  $m2$ , whether the individual has migrated for three or more months in the last three years,  $m2$  (1=yes, 0= no), by considering characteristics of adult individuals that should affect the likelihood that he/she has migrated for three or more months in the last three years. This is a country level comparative analysis for Armenia, Azerbaijan, and Georgia.

We estimated a separate model for each of 3 countries and, then, compared the findings. For this purpose we used the technique known as logistic regression to fit this kind of a model and constructed the dummy dependent variable,  $Y$ , on the following factors:

1. individual's age -- an interval variable **age**, measured in years,
2. whether he/she is the head of the family -- a dummy variable **a1\_2**, scored 1 if yes, 0 if no,
3. his/her gender -- a dummy variable **a1\_3**, scored 1 if male, 0 if female,
4. whether he/she is from the capital city -- a dummy variable **capital**, scored 1 if yes, 0 if no,
5. respondent's belief about the current economic condition of his/her household -- a categorical variable **c12**, scored 1 if very good, 2 if good, 3 if fair, 4 if poor, and 5 if very poor,
6. respondent's belief about the change in the economic condition during the last three years in his/her household -- a categorical variable **c14**, scored 1 if the situation has become significantly better, 2 if the situation has become a little better, 3 if the situation has remained about the same, 4 if the situation has become a little worse, and 5 if the situation has become significantly worse,
7. and respondent's belief that he/she will migrate from the country if the socio-economic condition in the country does not improve in the next 3 years -- a categorical variable **c18mi\_fr**, scored 1 if definitely yes, 2 if probably yes, 3 if probably no, and 4 if definitely no.

Hence, in our situation, we have a dependent variable,  $Y$  (designated  $p$ ), that shows the proportion of times that it takes the value 1 (i.e., the person has migrated for three or more months in the last three years).<sup>10</sup>

Thus:

$$p = P(Y = 1), \text{ or, } p = P(\text{“success”})$$

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<sup>10</sup> See details of the Logistic Regression with a Dichotomous Dependent Variable in Appendixes.

Logistic regression allowed us to estimate this probability  $p$  and determine the factors, i.e., independent variables that influenced its value.

Using  $L$  for a logit we get the following model logistic equation:

$$L = a + b_1 \text{age} + b_2 \text{a1\_2} + b_3 \text{a1\_3} + b_4 \text{c12} + b_5 \text{c14} + b_6 \text{c18mi\_fr} + b_7 \text{capital} + e$$

To solve for  $a$  and  $b$  we used Stata statistical package and for each of the 3 countries received the following output.

**Table 16 Estimation results for the logistic regression equation for each country.**

<b>Model</b>	<b>Armenia</b>	<b>Azerbaijan</b>	<b>Georgia</b>
<i>age</i>	-0.02 (3.12)***	0.01 (1.01)	-0.00 (0.03)
<i>a1_2</i>	0.48441 (2.36)**	-0.78345 (2.03)**	-0.75418 (3.10)***
<i>a1_3</i>	-2.00e+00 (8.97)***	-1.99e+00 (5.31)***	-8.71e-01 (4.98)***
<i>c12</i>	-0.08 (0.78)	-0.45 (2.46)**	-0.15 (1.30)
<i>c14</i>	-0.22 (3.08)***	-0.26 (1.89)*	-0.20 (2.42)**
<i>c18mi_fr</i>	-0.10 (1.77)*	-0.61 (4.92)***	-0.30 (3.99)***
<i>capital</i>	-0.39	-2.54	0.34

	(2.60)***	(3.50)***	(2.03)**
<b>Constant</b>	1.13 (2.41)**	2.65 (3.15)***	-0.26 (0.52)
<i>Observations</i>	6618	5629	6864
<i>LR<math>\chi^2</math>(7)</i>	208.6	100.7	65
<i>Prob &gt; chi2</i>	0.000	0.000	0.000

Absolute value of z statistics in parentheses

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

There are several ways of interpreting the effects of the **X** variables, for example, in terms of **Logit coefficients, in terms of Odds ratios, and in terms of Percent change in odds ratios.**

Table 17 shows these three interpretations for each model.

**Table 17 Results of Estimated Models in terms of the Logit Coefficients, Odds Ratios, and Percent Change in the Odds Ratios.**

Variable	Armenia			Azerbaijan			Georgia		
	Coeff.	Odds Ratio	Percent Change in Odds Ratio	Coeff.	Odds Ratio	Percent Change in Odds Ratio	Coeff.	Odds Ratio	Percent Change in Odds Ratio
<i>age</i>	-0.02	0.98	-1.87%	0.01	1.01	1.03%	0.00	1.00	-0.02%
<i>head of household</i>	0.48	1.62	62.32%	-0.78	0.46	-54.32%	-0.75	0.47	-52.96%
<i>gender</i>	-2.00	0.14	-86.40%	-1.99	0.14	-86.33%	-0.87	0.42	-58.14%
Respondent's belief about the current economic condition of his/her household	-0.08	0.93	-7.28%	-0.45	0.64	-35.98%	-0.15	0.86	-14.18%
Respondent's belief about the change in the economic condition during the last three years in his/her household	-0.22	0.80	-20.02%	-0.26	0.77	-22.70%	-0.20	0.82	-17.97%
Respondent's belief that he/she will migrate from the	-0.10	0.90	-9.84%	-0.61	0.54	-45.88%	-0.30	0.74	-25.69%

country if the socio-economic condition in the country does not improve in the next 3 years									
<i>capital</i>	-0.39	0.68	-32.10%	-2.54	0.08	-92.11%	0.34	1.40	40.02%
<i>constant</i>	1.13	3.09	209.01%	2.65	14.10	1310.26%	-0.26	0.77	-23.15%

In our paper we will look at Percent **change in the odds** to analyze and interpret the results that we got.

According to our findings, for each additional year of age, the probability of migrating decrease by about 2% in Armenia. The older is the person the lower is the probability of his migration from the country. This factor, however, does not have a statistically significant effect on migration in Azerbaijan and Georgia. It means that age of the individual does not influence the decision of the individual about migration. It was interesting to find out that the situation in Armenia didn't change a lot from the year 2001. According to the study done in 2003<sup>11</sup>, in 2001 immigrants in the age group from 0 to 19 years accounted for slightly higher share than 1/3, the age group 20-49 years – around 1/3 and the age group over 50– slightly less than 1/3. So, the age factor influence on the migration remains the constants for the last 6 years in Armenia. We can find the same situation in different countries of Africa<sup>12</sup> and in Mexico<sup>13</sup>. There also majority of migrants are young people from 15 to 34 years old.

Now let us see how the fact of being the supporter of the family influences the decision to migrate. From the results that we got, it is obvious that being a head of the household is a significant factor affecting the decision to migrate in all three South Caucasus countries. The direction of the effect of this factor, however, is different from country to country. Specifically, in Armenia being a head of the household increases the probability of migrating by 62.3%. In other words, heads of households tend to migrate in Armenia. For Azerbaijan and Georgia, however, this factor decreases the probability of migrating by 54.3% and 53%, respectively. As in the case with age, situation with this factor (head of household) was also similar to existing

<sup>11</sup> "HOW TO REVERSE EMIGRATION?" written by Armen Yeghiazaryan, Vahram Avanesian and Nelson Shahnazaryan (jointly with "Ameria" CJSC, 2003)

<sup>12</sup> "New Patterns in the Human Migration in West Africa" by Adama Konseiga (Junior Research Fellow, Center for Development Research (ZEF), University of Bonn (Germany))

<sup>13</sup> "Youth Migration" by Marioliva Gonzalez

data for last 5 years in Armenia<sup>14</sup>. Namely, the overwhelming majority of migrants were married and in most cases, the migrant was either the head of the family (male) or his son.

The third factor - gender - has a significantly negative impact on migration in all three SC countries according to our model. Gender effects are very similar in Armenia and Azerbaijan, where being a female decreases the probability of migrating roughly by 86%. In Georgia, however, females tend to migrate in relatively larger share than those in Armenia and Azerbaijan. Specifically, being a female decreases the probability of migrating by 58% in Georgia. Different researches conducted in 2001 shows that proportion of men among migrant were always higher also from 1998 to 2001. For example in 2001 66.4% of immigrants from Armenia were men, and 33.6% were women. This kind of situation common not only for Armenia, Azerbaijan, and Georgia. Our findings are in line with world tendencies. For example in 2000 in less developed countries, 51% of all international migrants were men<sup>15</sup>. However in more developed regions the proportion of women among international migrants had reached 51%. Women often migrated officially as dependant family members of other migrants or to marry someone in another country.

The next factor in our analysis was the place of dwelling in the country. There are very large directional and magnitudinal differences in the migration patterns based on the location of the residence in these countries. Being a resident of Tbilisi increases the probability of migrating by 40%. This factor has an opposite impact on migration in Yerevan (-32%) and Baku (-92%). In other words, in Azerbaijan, those living in locations outside of Baku have very high risk of migrating relative to Baku residents. We can find the situation similar to Armenia and Azerbaijan in many African countries<sup>16</sup>. The majority of African migrants are from rural areas that were employed in agricultural, mining, trade or service sectors with low qualified jobs and relatively low wages.

The last 3 factors in our model were "Respondent's belief about the current economic condition of his/her household", " Respondent's belief about the change in the economic condition during the last three years in his/her household", and " Respondent's belief that he/she will migrate from the country if the socio-economic condition in the country does not improve in the next 3 years". From above mentioned table we can see that for each additional score of respondent's belief about the current economic condition of his/her household that is moving towards "very poor" the probability of migrating decreases by 7.3%, 36%, and 14.2% in

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<sup>14</sup> "Labour Migration from Armenia 2002-2005" by Anna Minasyan and Blanka Hancilova (2005)

<sup>15</sup> Fiftieth session (2.3.2006) of the Commission on the Status of Women (Commission Chairperson Carmen Maria Gallardo ( El Salvador))

<sup>16</sup> "New Patterns in the Human Migration in West Africa" by Adama Konseiga

Armenia, Azerbaijan, and Georgia respectively. In other words migration has improved the economic condition of the households in all three SC countries.

Our finding reinforces the previous result and shows that migration has improved the economic condition of the households during the last three years. Specifically, for each additional score of respondent's belief about the change in the economic condition during the last three years in his/her household that is moving towards "significantly worse" the probability of migrating decreases by 20%, 22.7%, and 18% in Armenia, Azerbaijan, and Georgia respectively.

According to our model for each additional score of respondent's belief that he/she will migrate from the country if the socio-economic condition in the country does not improve in the next 3 years that is moving towards "definitely no" the probability of migrating decreases in all three countries. The highest magnitude of change is observed in Azerbaijan (-45.9%), followed by Georgia (-25.7%) and Armenia (-9.8%). In other words, if the economic condition does not improve in the next three years, then we can anticipate much larger share of migration.

### 3. Analyzing the migratory patterns in the country if the socio-economic condition does not improve in the next three years

In this part of the study we tried to model individuals' potential action in case if the socio-economic condition in his/her country does not improve in the next 3 years. Our team decided to have not only country level comparative analysis among the three South Caucasus countries, but also to do a longitudinal research. The last work, specifically, tries to capture the possible changes in the capital cities of the three countries that might have been during the last two years (i.e., between DI 2004 and DI 2006).

In the CRRC DI dataset this information is embedded in the c18mi\_fr variable (a categorical variable scored 1 if definitely yes, 2 if probably yes, 3 if probably no, 4 if definitely no, and 98 if do not know).

**Table 18 If the socio-economic condition in your country does not improve in the next 3 years, which of the following actions will you take (% share in total; DI 2006)**

Country	Migration from the Country				
	definitely yes	probably yes	do not know	probably no	definitely no
Armenia	15.81	12.36	6.01	14.1	51.72
Azerbaijan	3.69	6.23	25.48	10.93	53.67
Georgia	7.21	14.77	18.04	25.02	34.97

Table 18 shows that majority of adults in all three countries believe that they will not migrate if the socio-economic condition in the country does not improve in the next 3 years. This could be explained by the affection towards historical motherland and conservatism in viewpoints regarding life in a new place. Also, in all three countries the family ties are very strong; it is difficult to imagine that one can leave friends and relatives and live away from home.

It is also important to mention that most of Armenians (94%) know what action they will take. On the other side almost every fourth individual in Azerbaijan and every fifth one in Georgia do not know what action they will take in this case.

Armenia also has the highest share of individuals (15.81%) who believe that they will definitely migrate from the country if nothing changes. This could be explained by existence of Diaspora

members – friends, relatives in the countries of possible migration. Seems like the decision to migrate is made easily and can be considered a highly possible option.

Now lets see what whether this belief has changed or not since 2004 and if yes then to what direction.

**Table 19 If the socio-economic condition in your country does not improve in the next 3 years, which of the following actions will you take (% share in total; Capital Cities by year -- in DI 2004 and in DI 2006)**

Capital City	Year	Migration from the Country				
		definitely yes	probably yes	do not know	probably no	definitely no
Yerevan	2004	15.39	11.32	4.71	16.23	52.36
	2006	14.27	10.22	3.38	9.82	62.31
Baku	2004	14.92	7.42	4.03	27.22	46.41
	2006	6.96	7.23	13.19	19.8	52.82
Tbilisi	2004	12.72	13.59	7.62	14.81	51.26
	2006	6.47	13.44	6.23	30.82	43.04

As we can see in the panel series comparison between the three capital cities, opinions of people in Yerevan practically did not change over time period from 2004 to 2006. Meanwhile in Baku there is increased uncertainty in 2006 (the proportion of “do not know” answers have increased more than 3 times). Within respondents who are willing to migrate, we can observe similar situation both in Baku and in Tbilisi- during the past two years proportion of those who will definitely migrate have decreased about twofold. This might be a result of certain conditions or situation in the country that makes people want to stay on their land and conviction that even if nothing improves in the country, they got no better place to go or can make it just fine in their own country. This change can also be a result of new policies or social conditions of the recipient country (for example Russia now has rather strict requirements to illegal migrants, than it used to have several years back).

For the further analysis we have assumed that “do not know” answer is the midpoint between yes and no answers. For the ease of modeling and presentation we have recoded this variable in the following way:

1. The answers “definitely yes” and “probably yes” were merged as “yes” and given the value of 3.

2. The answers “probably no” and “definitely no” were also merged as “no” and given the value of 1.
3. And the answer “do not know” was recoded as 2.

The following factors are used in modeling individual’s decision to migrate if the socio-economic condition does not improve in the next 3 years:

1. household size of the individual (an interval variable **hh\_size**, measured in number of people),
2. his/her gender (a dummy variable **resp\_sex**, scored 1 if male, 0 if female),
3. individual’s age (an interval *[do you mean integer variable?]* variable **age**, measured in years),
4. individual’s education (a categorical variable **resp\_edu**, scored 1 if “no primary education”, 2 if “primary school”, 3 if “incomplete secondary”, 4 if “complete secondary”, 5 if “secondary technical”, 6 if “incomplete higher”, 7 “higher”, and 8 if “post graduate/scientific degree”),
5. whether he/she is from the capital city (a dummy variable **capital**, scored 1 if yes, 0 if no),
6. whether at least one of his/her household members has migrated for at least three months during the last three years (a dummy variable **m1**, scored 1 if yes, 0 if no),
7. individual’s marital status (a dummy variable **married**, scored 1 if married, 0 otherwise),
8. individual’s employment status (a dummy variable **employed**, scored 1 if employed, 0 otherwise),
9. whether his/her household has own shelter, i.e., house, apartment, or dacha (a dummy variable **shelter**, scored 1 if yes, 0 if no),
10. and individual’s belief about the current economic condition of his/her household (a categorical variable **c12**, scored 1 if very good, 2 if good, 3 if fair, 4 if poor, and 5 if very poor),

**In other words we hypothesize that the ten factors cited above are affecting individual’s decision to migrate in South Caucasus countries.**

As Table 20 shows the only major differences by the answer are observed in the age, capital, and employment categories in the DI 2006 for Armenia. Specifically, the average age of those who believe they will not migrate is by ten years higher than the mean age of the other two groups. The reason behind this might be that younger individuals think that they can have a living outside of the country. Indeed when looking at the migration policies of the developed countries (for example, Canada) we see that the preference for immigration is given to younger individuals. Moreover, a larger share of those think that he/she will not leave from Armenia are

from Yerevan (41%). This could be explained by the fact that there are relatively more socio-economic opportunities in the capital city relative to the other locations in the country. It should be also mentioned that those who are employed have higher risk of migrating from the country relative to the unemployed ones. Particularly, about 71% of those who think that they will leave the country if the situation does not improve are employed. This share is by about 14% higher than the employment rate for those who believe that they will stay in the country. This result could be due to the fact that older people, who mainly do not work, do not see migration as a potential solution to this problem.

**Table 20 Summary statistics by answers for the question – “If the socio-economic condition in your country does not improve in the next 3 years, which of the following actions will you take” (DI 2006)**

Variable	Migration from the Country								
	Armenia			Azerbaijan			Georgia		
	No	Do not Know	Yes	No	Do not Know	Yes	No	Do not Know	Yes
<i>hh_size</i>	4.91	5.17	5.08	4.38	4.59	4.43	4.90	4.86	5.15
<i>resp_sex</i>	1.67	1.58	1.58	1.53	1.56	1.42	1.62	1.57	1.54
<i>Age</i>	48.96	38.71	39.86	46.73	43.79	40.60	50.64	45.53	39.88
<i>resp_edu</i>	4.85	4.80	4.81	4.47	4.37	4.91	4.95	4.76	5.20
<i>Capital</i>	0.41	0.21	0.33	0.29	0.14	0.37	0.29	0.08	0.22
<i>m1</i>	1.91	1.92	1.86	1.98	1.98	1.88	1.93	1.93	1.88
<i>Married</i>	0.69	0.66	0.70	0.67	0.65	0.72	0.69	0.71	0.65
<i>Employed</i>	0.56	0.65	0.71	0.52	0.50	0.66	0.45	0.56	0.69
<i>Shelter</i>	0.96	0.99	0.95	0.95	0.78	0.82	0.96	0.97	0.94
<i>c12</i>	3.40	3.26	3.45	3.59	3.35	3.52	3.58	3.51	3.59

The other two countries have similar patterns for the age and employment characteristics regarding the issue of potential migration. There are, however, some differences among the countries. Firstly, while the difference between urban and rural residents of Georgia regarding migration is similar to those living in corresponding locations in Armenia, Azerbaijanis, however, have quite opposite pattern. Specifically, almost 37% of those who think about leaving from Azerbaijan and only 29% of those who prefer to stay in the country are from Baku. This means that, many Baku residents are quite desperate in their current situation and will take migration as a serious alternative if the things do not improve. Possession of some kind of a shelter (i.e., an apartment, a house, or a dacha) is very critical for Azerbaijanis in making a decision to migrate. For example, about 18% of those who plan to migrate do not own any type

of shelter. On the other side 95% of those who think to stay have possession of some kind of shelter.

## **Ordered logistic regression to model the willingness to migrate if socio-economic situation in the country does not improve**

### **Country level analyses using DI 2006**

Let's now look at the significance and the magnitude of the relationship between willingness to migrate and any of the previously mentioned factors for each country using DI 2006. Taking into account the categorical structure of the dependent variable, *c18mi\_fr*, which shows individuals willingness to migrate if the socio-economic conditions do not get better during the next three years, we decided to use ordered logistic regression to construct the models. Ordinal logistic regression, also known as ordered logit, is used to estimate relationships between an ordinal dependent variable and a set of X variables. Our independent variables have been presented and described thoroughly.

The ordered logit provides a preferred alternative to an ordinary two-outcome logistic model with an arbitrary dichotomization, which might have been tempting for us to consider. For instance, we might have been tempted to simplify our dependent variable and make it dichotomous, i.e., will migrate versus will not migrate. But such a decision on our part would have lost important information about the dependent variable. And in the South Caucasus, there are many who do not know what they will do; moreover, there are all kinds of social, cultural, and socioeconomic factors differentiating individuals who have different beliefs about their possible migration; so we decided to retain some distinctions among those individuals. Ordered logistic regression enabled us to do so.

The Stata command for such models is **ologit**, where the coefficients and cut points are estimated using maximum likelihood. In the parameterization of Stata, no constant appears because its effect is absorbed into the cut points.

There are several ways of interpreting the effects of the independent variables, for example, in terms of ordered logit coefficients, in terms of odds ratios, and in terms of percent change in odds ratios. The odds ratio,  $\Omega$ , may be calculated directly by taking the antilog (that is,  $e$  to the power) of the ordered logit coefficient. Percent change in the odds =  $(\Omega - 1) * 100$ . We prefer to

use percent change in the odds, which are presented in Table 21 Percent change in odds for the Ordered Logit Models by country (DI 2006), when interpreting and discussing the results of the ordered logit models.

**As people get old they have less willingness to migrate if the things do not improve during the next three years.** Specifically, with every one year increase in age, the odds of being in a higher willingness to migrate category decreases in all three countries, holding all other variables constant. The rate of the change is the highest in Armenia (3.5%), followed by Georgia (2.87%) and Azerbaijan (1.53%).

**Gender is an important factor explaining the plans to migrate in Armenia and Georgia, but it has insignificant impact in Azerbaijan. Females in these two countries are less willing to migrate.** For example, in Armenia females have odds of being in a higher willingness to migrate category that are about 30% smaller than males, holding all other variables constant. In Georgia we observe a similar pattern but with smaller difference (i.e., 19.3%).

**Being from the capital city significantly decreases the individual willingness to migrate in all three countries.** This effect is highest in Azerbaijan, where Baku residents have odds of being in a higher willingness to migrate category that are about 30% smaller than those from the other parts of the country, holding all other variables constant. On the other side, the smallest decrease is observed in Armenia, where those from Yerevan have odds of being in a higher willingness to migrate category that are about 11.1% smaller than those from the other parts of the country

**Having at least one family member migrated for no less than three months during the last three years also has a negative impact on individual's willingness to migrate if the things do not get better during the next three years.** This impact is the highest in Georgia and lowest in Armenia. In Armenia, particularly, those with the previously mentioned family characteristic have odds of being in a higher willingness to migrate category that are about 36.2% smaller than the other ones, holding all other variables constant.

**In Azerbaijan, employed individuals have odds of being in a higher willingness to migrate category that are about 43% higher than the unemployed ones, holding all other variables constant.** Being employed has no statistically significant effect on the willingness to migrate in the other two countries.

**Having own shelter is also not a key factor for the South Caucasus countries, except for Azerbaijan.** This could be explained by the fact that most of the individuals in Armenian and Georgia own some kind of a shelter (i.e., a house, an apartment, or a dacha). As mentioned previously, this is not the case in Azerbaijan. The model shows that in this country those who do not own a shelter have odds of being in a higher willingness to migrate category that are about 68% lower than those with no possession of a shelter, holding all other variables constant.

We found a quite interesting result regarding impact of the current economic condition of individuals on their willingness to migrate. **In Armenia and in Georgia, the poor the economic condition of individual's household the higher is his/her willingness to migrate. In Azerbaijan, this relationship has opposite direction.** It could be, because poor families in Azerbaijan do not think that they will make a better living in another country.

**Table 21 Percent change in odds for the Ordered Logit Models by country (DI 2006)**

Model	Armenia	Azerbaijan	Georgia
<i>hh_size</i>	0.23	0.39	3.59
	(0.08)	(0.16)	(1.45)
<i>resp_sex</i>	-29.66	-9.94	-19.30
	(3.30)***	(1.06)	(2.35)**
<i>age</i>	-3.50	-1.53	-2.87
	(10.29)***	(5.09)***	(9.43)***
<i>resp_edu</i>	-0.92	-1.75	2.64
	(0.24)	(0.48)	(0.82)
<i>capital</i>	-11.1	-17.39	-49.25
	(1.05)	(1.69)*	(5.99)***
<i>m1</i>	-36.2	-57.09	-54.04
	(2.79)***	(3.29)***	(4.65)***
<i>married</i>	18.48	-8.99	6.81
	(1.55)	(0.97)	(0.7)
<i>employed</i>	12.58	5.39	42.67
	(1.03)	(0.49)	(3.46)***
<i>shelter</i>	-20.85	-67.67	-3.59
	(1.1)	(8.56)***	(0.17)
<i>c12</i>	20.96	-17.66	19.43
	(3.15)***	(3.29)***	(3.04)***
<i>Observations</i>	2064	2355	2396

Note: Absolute value of z statistics in parentheses

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

Next we present the results of cross-sectional and longitudinal analysis involving the adult residents of the three capital cities. For this purpose we have built six ordered logit models, the results of which are presented in the form of percent change in odds (see Table 22). In the cross-sectional analysis we compare the results gained for the capital cities in the same time period and in the longitudinal analysis we compare the results of the models pertaining to the same locations but for different years (i.e., using DI 2004 and DI 2006).

In 2004, the gender of individual was a statistically important factor explaining his/her plans to migrate in Baku and Tbilisi. Particularly, in 2004 in Baku females have odds of being in a higher willingness to migrate category that are about 23% smaller than males, holding all other variables constant. For the same period in Tbilisi we observe a similar pattern but with almost twofold larger difference. In 2006, however, this factor shows no statistically significant effect on the willingness to migrate in both capitals. It should be also mentioned that there is no significant relationship between gender and the willingness to migrate in both 2004 and 2006 models for Yerevan.

**All six models show that as people get old they have less willingness to migrate if the things do not improve during the next three years.** Yerevan and Tbilisi have higher rate of change per every year of age than Baku. In 2006 in Yerevan, for example, with every one year increase in age, the odds of being in a higher willingness to migrate category decreases by 4.25%. This rate of change is twice as high as the one for Baku. It also should be mentioned that in 2006 older individuals in Yerevan are less willing to migrate relative those to 2004. This is not the case for Tbilisi, where with every one year increase in age, the odds of being in a higher willingness to migrate category decreases by lower rate in 2006 (4.01%) relative to 2004 (4.37%).

No statistically significant relationship was found between an individual's education and his/her willingness to migrate for the models based on DI 2006. Education of the respondent is found to be statistically significant only for the Baku 2004 model. In 2004 educational level of individual and his/her willingness to migrate were positively related. Specifically, in 2004 with every one level increase in the educational level attained by an individual residing in Baku, the odds of being in a higher willingness to migrate category increased by about 11%.

As in the case for the country level analysis, in the capital cities in the SC having at least one family member migrated for no less than three months during the last three years also has a negative impact on individual's willingness to migrate.

In 2004 in Yerevan, married individuals had odds of being in a higher willingness to migrate category that were about 38% higher than singles, holding all other variables constant. In 2006 model for Yerevan, however, this factor stopped being a key element in the willingness to migrate. Marital status of individual does not show statistically significant effect on the willingness to migrate in the other models too.

Similar to the country level analysis (except for Azerbaijan), the capital city level analysis also shows that the poorer the economic condition of individual's household the higher is his/her willingness to migrate. During the last three years this relationship got weaker in Yerevan and Baku, but it became stronger in Tbilisi.

**Table 22 Percent change in odds for the Ordered Logit Models by the capital cities in the SC for 2004 and 2006**

Model	Yerevan		Baku		Tbilisi	
	2004	2006	2004	2006	2004	2006
<i>hh_size</i>	-0.97	-3.81	1.32	-4.36	0.01	3.42
	(0.27)	(0.72)	(0.39)	(0.68)	(0.00)	(0.60)
<i>resp_sex</i>	1.65	-14.50	-23.32	-20.07	-38.81	14.17
	(0.13)	(0.79)	(2.11)**	(1.12)	(4.09)***	(0.63)
<i>age</i>	-3.07	-4.25	-1.18	-1.82	-4.37	-4.01
	(7.13)***	(6.69)***	(2.53)**	(2.76)***	(10.40)***	(5.58)***
<i>resp_edu</i>	-2.56	0.36	10.85	4.01	-4.79	-3.86
	(0.61)	(0.05)	(2.38)**	(0.57)	(1.13)	(0.52)
<i>m1</i>	-40.51	-55.35	-48.56	-73.06	-63.98	-69.47
	(2.75)***	(2.52)**	(2.10)**	(0.92)	(5.05)***	(3.28)***
<i>married</i>	38.41	22.36	-2.24	25.09	2.65	20.48
	(2.55)**	(1.03)	(0.17)	(1.05)	(0.21)	(0.88)
<i>employed</i>	12.45	2.07	3.78	19.91	-12.70	66.32
	(0.82)	(0.10)	(0.27)	(0.84)	(0.92)	(2.21)
<i>shelter</i>	-1.62	-24.10	10.29	-13.46	-22.05	-29.47
	(0.07)	(0.64)	(0.41)	(0.40)	(1.25)	(1.02)
<i>c12</i>	42.99	37.15	27.37	10.41	38.19	47.31
	(4.94)***	(2.90)***	(2.80)***	(0.80)	(4.04)***	(2.92)***
<i>Observations</i>	1477	715	1478	602	1470	600

Note: Absolute value of z statistics in parentheses

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

## Conclusions and Recommendations

Different studies have recognized that there are both negative and positive aspects of the migration process for both sending and receiving country. In our case we will pay more attention on the sending country (since the paper is built to provide some solutions for the problem of migration for SC countries, in particular, for Armenia.).

The main purpose for this research was revealing some common reasons for migration from SC. Proper attention to these reasons and steps towards specific action plans will lead to resolution of issues resulting from population outflow from SC countries.

Main findings of the research suggest that economic reasons are the main foundations for migration out of the SC countries. Labor migration usually involves one or more household members and serves not only the needs of the migrant but also provides economic stability for the whole household. This is supported by the fact that individuals who have at least one member migrated for more than three months in the last three years are much less willing to migrate. However, if the economic condition does not improve in the next three years, then we can anticipate much larger share of migration. The existence of Diaspora members – friends, relatives in the countries of possible migration would facilitate this process.

In addition, in Armenia, a larger share of those think that he/she will not leave from Armenia are from Yerevan (41%). This is explained by the fact that there are relatively more socio-economic opportunities in the capital city relative to the other locations in the country. So in general if the Government would like to slow down migration processes in the country, it needs to work on improvement of social conditions and on creating new employment opportunities.

At first one would point out increased amount of remittances flowing to the sending country with increase of migration. Remittances are a very important part of the country revenues, so it is obvious that Armenia has to support inflow of those, but on the other hand, there is an issue of incurring not just a temporary “brain drain” or “skill drain”, but rather a permanent loss of those. A migrant might eventually take his/her family out of the native country to the temporary place of work and stay there, which in turn leads to interruption in flow of

remittances, decrease in investments and the subsequent decline in number of businesses in the country of residence.

The study reveals that goals and reasons for migration are important in the selection the country of migration. External policies and regulations, as well as relations between countries can also have big influence on the willingness to migrate. In South Caucasus case the 2006 situation in Azerbaijan proves that even if nothing improves in the country, people are not ready to migrate (while in 2004 this indicator was rather different). This change can also be a result of new policies or social conditions of the recipient country (for example Russia now has rather strict requirements to illegal migrants, than it used to have several years back). Hence, it would be suggested to have targeted policies for migration for different population subgroups (i.e., students, skilled labor, etc.)

And last, but not least factor, affecting decision to migrate is past migration experience or success stories of other migrants. Existence of friends and family members who are working abroad and are knowledgeable about the situation in the receiving country, employment opportunities and place to stay highly motivate people to follow the same trail. Having information on relatives working abroad or keeping a record of individual's past migration patterns will help interested parties (Government, IOM) identify possible migrants.

**Our proposed policy recommendation for the Government officials, policymakers and other beneficiaries comprise of several points:**

1. There is a need to improve socio-economic condition in South Caucasus in order to halt emigration of the population. Main reason for migration in South Caucasus is expectation of a better salary or job in another country. This often results in uncontrolled, illegal movements across the border. One way to control the migration processes for both sending and receiving country *is attracting investments from receiving country to create jobs in sending country*. This implies that if for example Russia makes investments in Armenia, less illegal emigrants will go to Russia, since they will get employed in a Russian company here in Armenia.
2. Migrants who are leaving for short term jobs, assist the economy in the home countries by sending home remittances, so they must be able to leave and return easily, in other words migration regulations have to be rather managing than restrictive towards this

category of migrants. Restrictive actions need to be applied to those leaving the home country without intention to return: certain policies in cooperation with receiving country can be applied to make permanent migration harder.

3. Country with constant outflow of population has to provide migrants incentives for return (especially for highly skilled labor). Another, perhaps more expensive method for having highly skilled labor is practiced in countries like Uzbekistan and Kazakhstan, where Governments select young career oriented individuals from state organizations, provide educational grants for them, while simultaneously signing long term employment contracts with them. This ensures existence of skilled labor in governmental programs and provides long-term jobs for young generation.
4. And our final recommendation will be a new action plan for the Government aimed to encourage repatriation, like it was done in 1946-1948, when many Armenians from abroad have been offered housing and jobs, which indeed attracted around 100 thousand Armenians from countries like Greece, Syria, Egypt, Iran, France, USA. A law on repatriation needs to be adopted that will encourage permanent migrants returns to Armenia. Adoption of a law on dual citizenship will also contribute greatly to Diaspora member's repatriation and, correspondingly, to increase in investments in Armenian economy and economic conditions improvement.

## **Appendix 1: Description of CRRC's Data Initiative (this information is taken from CRRC Yerevan Office)**

The DI is a cross-border, comparative effort initiated by the Caucasus Research Resource Centers (CRRC) to assess the public opinion/attitudes and various socioeconomic and political developments in the South Caucasus (SC) region. The DI program is designed to gather yearly data on household economic behavior and social attitudes across the South Caucasus. Thus, the aim of the CRRC DI is to provide high quality, timely data on the short-term processes of change at the individual and household level for the domains with which it is concerned. These domains are: demography, education, migration, health, political activity, social institutions, crime, and economic behavior. Even though its sample covers the whole population, DI is narrowly focused on the residents aged 18 years and over. Special weights for respondents and all individuals are incorporated in the database for extrapolation purposes.

Now beginning its third year of operation, CRRC has surveyed 4500 randomly selected households every year throughout the South Caucasus on over 120 questions. One unique aspect of the DI is that it coordinates three simultaneous surveys and joins experts from Armenia, Azerbaijan, and Georgia to ensure that all data collecting methods, polling, interviewing, data coding, and archiving are in sync.

In 2004, the survey was conducted only in the capital cities. In total 4,461 respondents were surveyed in Yerevan, Baku and Tbilisi. The data created by DI-2004 are representative at the level of capital cities of Armenia, Azerbaijan and Georgia, and the capital cities of the SC in general.

The DI of 2005 tended to be geographically more representative of the SC region. The centers collected data not only in the capitals, but also in one region in each country: Kotayk Marz (region) in Armenia, Shida Kartli region in Georgia, and Aran region – Mugan zone in Azerbaijan. In each country, half of 1,500 interviewed households were selected from the mentioned regions and the rest – from the capital cities. In the capital cities the panel datasets of respondents were created based on the DI-2004 respondents' lists. Thus, the data created by DI-2005 are representative at the capital city level in each country, the capital cities of the SC in general, and at the level of the mentioned three regions.

In 2006, the centers increased the representativeness of collected data at the country level, and the SC region in general. Thus, the DI surveys were in all regions in Armenia, Georgia and Azerbaijan. More than 2,000 households were surveyed in each country, representing both urban and rural areas. The data created by DI-2006 are representative at the following levels:

- national level,
- capital city level,
- urban level (excluding capital city),
- urban level (including capital city),
- rural level,
- and the level of SC in general

## Appendix 2 Logistic Regression (with a Dichotomous Dependent Variable)

We have a dependent variable,  $Y$ , which is dichotomous. The mean of this dichotomous (also referred to as binary) dependent variable, designated  $p$ , is the proportion of times that it takes the value 1 (i.e., the person has migrated for three or more months in the last three years).

Thus:

$$p = P(Y = 1), \text{ or, } p = P(\text{"success"})$$

Logistic regression allows us to estimate this probability  $p$  and determine the factors, i.e., independent variables that influence its value.

Hence, to accommodate the above problems, we fit a model of the following form,  $\ln\left[\frac{p}{1-p}\right] = a + b_1X_1$ , where  $p = \frac{e^{a+b_1X_1}}{1+e^{a+b_1X_1}}$ . The expression on the right is called a logistic function, and it cannot yield a value that is either negative, or that is greater than 1. Consequently it restricts the estimated value of  $p$  to the required range of 0 to 1.

The above equation shows that the logit is a linear function of the  $\mathbf{X}$  variables.

Hence, we now assume that the relationship between the logarithm of the odds of success, i.e.,  $\ln[p/(1-p)]$ , and  $\mathbf{X}_i$  is linear.

This kind of a model is fitted with the technique known as logistic regression.

Thus logistic regression refers to regression models with a logit as a left-hand-side variable.

Using  $\mathbf{L}$  for a logit we get the following model logistic equation:

$$\mathbf{L} = \mathbf{a} + \mathbf{b}_1\mathbf{X}_1 + \mathbf{b}_2\mathbf{X}_2 + \mathbf{b}_3\mathbf{X}_3 + \mathbf{b}_4\mathbf{X}_4 + \mathbf{b}_5\mathbf{X}_5 + \mathbf{b}_6\mathbf{X}_6 + \mathbf{b}_7\mathbf{X}_7 + \mathbf{e}$$

The relationship between the logit transformation of the odds of a probability and the  $\mathbf{X}$  variables is linear.

Recall from the above that  $\text{Odds}(Y=1) = \frac{P(Y=1)}{1-P(Y=1)}$  is defined as the odds of success, or the odds of having the value of 1 on the dependent variable, or the odds of having migrated for three or more months in the last three years.

Stata statistical package is use to do a maximum likelihood estimation to fit the logistic regression model, i.e., to solve for **a** and **b**.

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