

Where Did Central and Eastern European Emigrants Go and Why? *

by

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Abstract: This paper analyses migration flows from 9 Central and Eastern European (CEE) countries after the fall of the “Iron Curtain”, 1990-2000. Contrary to most of the previous literature, I analyze migration determinants on actual migration flows from the CEE countries into a number of destination countries. Besides economic differences between sending and receiving countries, I include a number of other variables, e.g. language preferences, education, social security pulls and other factors that help to explain migration behavior. My analyses reveal that the economic push/pulls factors play an important role in international migration from those countries. The disaggregated results show that there are large differences between the CEE countries with respect to emigration patterns. The lagged stock of immigrants, which may reflect networks has a strong and positive effect for immigrants from Central European countries, and Romania and Bulgaria, while immigrants from the Baltic countries seem to rely much less on networks. Income gaps have a positive effect on migration flows, particularly from the Southeastern countries, while employment opportunities in destination countries are main determinants of the migration flows from the Baltic and Central European countries.

Keywords: International migration, panel data

JEL-code: J61, F22, O15

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4.1. INTRODUCTION

This paper focuses on the migration flows from Central and Eastern European countries (CEECs)³⁷ after the fall of the “Iron Curtain”. I analyze the importance of economic push and pull factors for the observed flows during the period 1990-2000. This is of great interest as those countries constitute a relatively new and large source of immigration. After forty years of communist regime characterized by emigration stop, the “Iron Curtain” fell, which brought, among other things, the possibility of movement abroad. The decade following the fall of the Iron Curtain brought a period full of changes in post-communistic countries, which also was reflected in the development of migratory pressures.

The issue of migration flows from Central and Eastern European countries became especially hot in Europe in connection with the European Union (EU) enlargement towards the East. There was a fear that, if 10 new EU members that joined May 1st 2004 had a right to free movement upon accession³⁸, a large-scale migration wave might occur. Consequently, the majority of the “old” EU member states imposed temporary restrictions on the mobility from those countries.³⁹

In the years up to the EU enlargement, a relatively rich empirical literature on the determinants of migration in connection with the EU enlargement was produced. Due to lack of data on migration from CEECs, the previous studies analyzing East-West migration have typically relied on out-of-sample historical data.⁴⁰ So far, to the best of my knowledge, empirical evidence on actual migration behavior from Central and Eastern European countries does not exist. Moreover, as most of the

³⁷ Here, I use the following definition of CEEC immigrants: *new EU members*: the Czech Republic, Hungary, Poland, the Slovak Republic, Estonia, Latvia and Lithuania and *other potential EU accession countries*: Bulgaria and Romania.

³⁸ The freedom of movement of workers between the EU states is one of the EU *acquis communautaire*.

³⁹ The only countries that have opened their labor markets to the 10 new EU members from the date of EU enlargement in May 2004 are Sweden, the UK and Ireland. The rest of the EU countries still have an option to keep restrictions on mobility from the new members up to 7 years from enlargement. After 2006, the rest of “old” EU member states will decide whether to extend the “transition period” for another three years. The “transition period” should end five years after the 2004 enlargement, but it may be prolonged for additional two years in those EU member states, where “migration might threaten to cause serious disturbances on the labor market” (European Commission, 2001).

⁴⁰ I.e. migration waves from other countries than the CEECs.

studies focus on forecasting CEE migration potential, the choice of explanatory variables in a model is usually restricted to inclusion of income and unemployment variables and fixed or random effects that capture unobservable characteristics, see e.g. Alvarez-Plata et al. (2003), Bauer and Zimmerman (1999), Dustmann et al. (2003) and Boeri and Brücker (2001). But besides the differences in income and unemployment, there are many other economic and non-economic factors that play a role in migration decision-making, like e.g. cultural and linguistic distance, educational pulls, love, social benefits, tax pressures or/and immigration policies, see e.g. Pedersen et al. (2004) and Chiswick and Hatton (2003). Last but not least, the majority of the studies analyze migration flows into one destination country or/and to the whole European Union, see e.g. Bauer and Zimmermann (1999), Alvarez-Plata et al. (2003) and Zaiceva (2004). But CEE migrants didn't head solely towards the EU-15 countries. They also migrated to other countries especially the traditional "old" immigration countries like the US, Canada and Australia, or to the Central and Eastern European countries as well.

Contrary to most of the previous literature, I analyze the determinants of CEE migration on actual migration flows from a number of CEECs into a number of destination countries including large immigration countries outside EU-15 like the US, Australia etc. This allows me to look at emigration from Central and Eastern Europe in a more comprehensive way. Besides economic differences between sending and receiving countries, I include a number of other variables, e.g. language preferences, tertiary education, social security benefits and other factors that help to explain migration behavior. Specifically, I estimate a number of regression models on the annual flow of migrants from 9 CEECs into 18 OECD countries for the period 1990-2000. The questions I address in this paper are the following: Where did the CEE immigrants go and why? What are the macroeconomic determinants of migration flows from these countries?

The paper is organized as follows: Section 4.2 gives a brief overview of the migration theory and the existing literature. Section 4.3 describes the data and gives an overview on economic, demographic and labor market developments and conditions in the CEECs. In this section, I proceed with a description of migration flows and stocks from the countries of origins and try to answer the part of the question from the title, namely: "Where did Central and Eastern Europeans go?" Next, Section 4.4 turns towards the second part of the question, namely: "Why did

they migrate?” In this section, my empirical model, analyses and results on the determinants of CEE migration are presented and discussed. Finally, Section 4.5 concludes.

4.2. THEORY AND PREVIOUS RESEARCH ON MIGRATION DETERMINANTS

The determinants and consequences of migratory movements have been long discussed in the economic literature. The first contributions can be found in the neoclassical economics, which stress differentials in wages as a primary determinant of migration (Hicks, 1932). The “human capital investment” theoretical framework (Sjaastad, 1962) adds existence of migration costs in migrants’ decision making so that a person decides to move if the discounted expected future benefit is higher than the costs of migration.⁴¹ The “human capital investment” theoretical framework has been further adjusted for the probability of being employed; see Harris and Todaro (1970).⁴² In the aggregate terms, the differentials in wages and probability of being unemployed are typically proxied by GDP per capita levels in destination and source countries and unemployment rates⁴³, respectively.

The effect of GDP per capita in the source country may be more mixed. Earlier studies have found an inverted ‘U’ relationship between source country GDP and emigration, see Faini and Venturini (1994), Hatton and Williamson (2002) and Pedersen et al. (2004). At very low levels of GDP, emigration is low because people are too poor to pay the migration costs. At higher income levels, migration increases, and as GDP levels increase further, migration may again decrease because the economic incentives to migrate to other countries decline.

In addition to these economic determinants, Borjas (1999) argues that generous social security payment structures may play a role in migrants’ decision making. The idea behind is that potential emigrants must take into account the probability of being unemployed in the destination country. The consequences of this risk may be lowered by the existence of welfare benefits in the destination country. Such a

⁴¹ The theoretical framework describing migrants’ behavior has considered the decision-maker to be a Homo Economicus, whose decisions are perfectly rational in the economic sense and are based on immediate and complete information.

⁴² Harris and Todaro (1970) focus on the determinants of rural-urban migration.

⁴³ Sometimes employment or vacancy rates are used instead of unemployment rates.

welfare income is basically a substitute for earnings during the period of searching for a job. However, empirical studies in majority do not support the Borjas' "welfare magnet" hypothesis, e.g. Zavodny (1997), Urrutia (2001) and Pedersen et al. (2004). The fear of the "welfare magnet"⁴⁴ and of migrants coming to get a best mix of benefits, wages and taxes has dominated the EU enlargement debate.⁴⁵

The costs of migration are also shown to be an important part of migrants' decision making. The migration costs are not only the out-of-pocket expenses, but also psychological costs connected to moving to a foreign country and leaving family, friends and the known environment. The costs typically increase with the physical distance between two countries. In addition to that, the linguistic and cultural distance is important as well. The more "foreign" or distant the new culture and the larger the language barrier is, the higher are the costs of an individual to migrate and the less likely is it that the individual decides to migrate, holding all other factors constant. However, changes and improvements in communication technologies and declining costs of transportation may imply that the effect of "distance" has been reduced during the latest decades. Further, network effects may also counteract "distance". Through "networks" potential migrants receive information about the immigration country - about the possibility of getting a job, economic and social systems, immigration policy, people and culture. This facilitates immigration and the adaptation of new immigrants into the new environment. Network effects may also help to explain the persistence of migration flows, see e.g. Epstein (2002), Bauer et al. (2002) and Heitmueller (2003). Empirical evidence has shown that migrant networks have a significant impact on sequential migration, see e.g. Pedersen et al. (2004), who also show that networks are more important to people coming from low-income developing countries compared to migrants originating from high-income countries.

⁴⁴ The term was introduced in Borjas (1999).

⁴⁵ An example of defining such a fear of the "welfare magnet" can be found in a study by Kvist (2004), which in addition to commonly used labels for national fears such as "social tourism" and "social dumping", introduces a term "social raids" as "...surprise attacks on national social security by small or large groups of people from abroad".

In line with the human capital framework, empirical studies confirm that socio-demographic characteristics of an individual such as age, gender and education⁴⁶ matter in the decision to migrate. Usually, the young and more educated individuals are more mobile – as they have higher “returns to migration”. Thus, the socio-demographic structure of a source country population matters, see e.g. Chiswick (2000), Fertig and Schmidt (2000), Bauer and Zimmerman (1999) and Krieger (2004).

Some studies show that it is important to distinguish between short-run and long-run determinants of emigration and that migration flows are sensitive to short-run changes in economic conditions, see e.g. Hatton (1995), Chiswick and Karras (1999), Fertig (2001) and Chiswick and Hatton (2003). This might be explained by the option value of waiting, see Burda (1995) and Burda et al. (1998). For an individual who considers to migrate it may pay off to wait and migrate the next year in the case that the economic conditions in the destination country would improve. Thus, although the decision of an individual to migrate is based on the long-run differences in wages and employment, the timing of the actual move is correlated with cyclical fluctuations in source and destination countries.

The decision to migrate has also been analyzed as e.g. a family or household decision. A move takes place only if the net gain accruing to some members exceeds the others’ net loss, see Mincer (1978), Holmlund (1984). Labor migration can also be taken as the risk-diversifying strategy of families, which implies that households diversify their resources such as labor, in order to minimize risks to the family income, Stark (1991). Further, Stark (1984) argues that members of a family migrate not necessarily to increase the family’s absolute income, but rather in terms of relative deprivation, i.e. to improve the family’s position relative to that of e.g. other households.

Last but not least, immigration policies strongly contribute to shape migration flows as they differ between potential receiving countries. Although it plays an important role in explaining migration flows, it is usually quite hard to find a variable that

⁴⁶ It is argued that the more educated individual has a greater ability to e.g. collect and process information, which lowers the risk and increases the propensity to migration, or to learn a foreign language.

would capture the effect of immigration policies and changes in the immigration policies over time.

A quite substantial body of literature exists on the determinants of migration from CEECs in connection with the EU enlargement that aims to predict a future migration potential from these countries. Consequently, as the main goal of the studies is to make the predictions, there are obviously just a few explanatory variables included that are relatively easy to predict as e.g. differences in income or/and employment⁴⁷, see e.g. Alvarez-Plata et al. (2003), or demographic structures, see e.g. Fertig and Schmidt (2000).

This paper adds to the above empirical evidence. It explores a panel dataset structure with information on both sending CEECs and receiving OECD countries. It enhances the CEECs' emigration literature by including additional important factors that played a role in the emigration from CEECs during the turbulent nineties.

4.3. DATA

The analysis is based on information on migration flows and stocks in 18 OECD destination countries from 9 Central and Eastern European source countries for the years 1989–2000⁴⁸, see Appendix, Table 4.A, for a list of countries included. Besides the flow and stock information, the dataset contains a number of other time-series variables, which might help to explain the determinants of migration across countries. These variables are collected from different sources, e.g. national statistical offices, OECD, World Bank, UN, ILO and IMF publications. For a more comprehensive description of the dataset, see Pedersen et al. (2004, 2006).

Although the dataset presents a substantial progress over those used in earlier research, there are still some problems. First, the dataset is unbalanced, i.e. observations are missing in the panel. For the majority of destination countries, I have information on migration flows and the stocks of immigrants for most of the years, but with different numbers of observations for each destination country, see

⁴⁷ But even for these variables it is quite difficult to get a precise prediction of their future development.

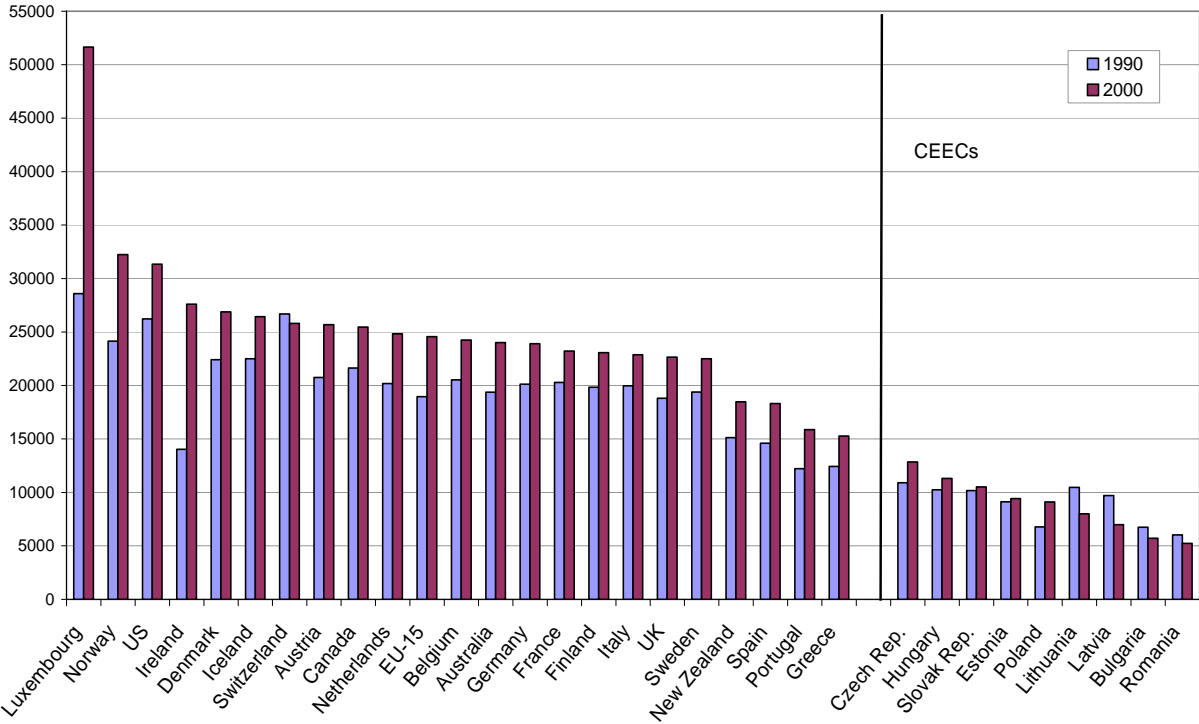
⁴⁸ The dataset originally covered 27 OECD destination and 129 source countries, see Pedersen et al. (2004) for a detailed description of the dataset. In this paper, I restricted it to a sample of 18 destination and 9 CEE source countries.

Appendix, Tables 4.B1 and 4.B2, for means and standard deviations for all flows, stocks and other variables for each destination and source country. Another problem is that different countries use different definitions of an “immigrant”⁴⁹ and different sources for their migration statistics. For a description of some of the difficulties related to collecting international migration data, see Pedersen et al. (2004, 2006).

4.3.1. Economic conditions

There are large differences in the level of GDP per capita measured in PPP, between the CEECs and their Western European neighbors and other developed OECD countries. According to Figure 4.1, the nine CEECs under analysis were and still are far below the average for the rich OECD countries.

Figure 4.1: GDP PPP per capita in the OECD and CEE countries, 1990 and 2000.



Source: The World Bank: World Development Indicators.

However, some of the countries like the Czech Republic and Hungary achieving 57% and 54% of the “old” EU-15 average, respectively, have been comparable to

⁴⁹ Some use foreign-born (by countries of birth), some foreigners (by citizenship/nationality).

the more poor EU member states, Greece and Portugal. But the gap was more than significant in the case of Romania (36%) and Bulgaria (32%) in 1990.

The early years of the transformation brought deep changes in the post-communistic economies, their labor markets and societies. The countries experienced several drastic recessions due to a collapse of the planned systems and their restructuring into market economies. This was accompanied by a break down of trade relations with the former Soviet Union and their shift towards the EU, see Bauer and Zimmerman (1999).

Therefore, the economic differences even deepened during the early nineties as the growth rates in most of the CEECs were negative, see Table 4.1, due to the recessions mentioned above. Especially the Baltic countries experienced a deep fall during the crisis in the beginning of the nineties. Consequently, the level of GDP per capita, PPP, in the Baltic countries in year 2000 still didn't achieve the economic level from 1990.⁵⁰

Table 4.1: GDP growth in the CEE countries, 1989-2000.

GDP Growth	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Czech Rep.	-	-	-11,61	-0,52	0,06	2,22	5,95	4,29	-0,77	-1,20	-0,39	2,94
Hungary	0,74	-3,50	-1,89	-3,06	-0,58	2,95	1,49	1,34	4,57	4,86	4,17	5,15
Poland	-	-	-7,00	2,60	3,80	5,20	7,00	6,00	6,80	4,80	4,10	4,00
Slovak Rep.	1,21	-2,67	-14,57	-6,72	-3,70	4,92	6,73	6,21	6,20	4,10	1,90	2,20
Estonia	3,07	-7,06	-8,00	-2,12	-8,35	-2,00	4,29	3,91	1,06	4,72	-1,12	6,44
Latvia	6,00	-1,00	-10,00	-35,00	-15,00	1,00	-1,00	3,00	9,00	4,00	1,00	7,00
Lithuania	-	-	-6,00	-21,00	-16,00	-10,00	3,00	5,00	7,00	5,00	-4,00	4,00
Bulgaria	-3,29	-9,12	-8,45	-7,27	-1,48	1,82	2,86	-1,01	-7,04	3,50	2,40	5,80
Romania	-5,80	-5,70	-1,29	-8,78	1,53	3,94	7,12	3,95	-6,05	-4,16	-1,20	1,80

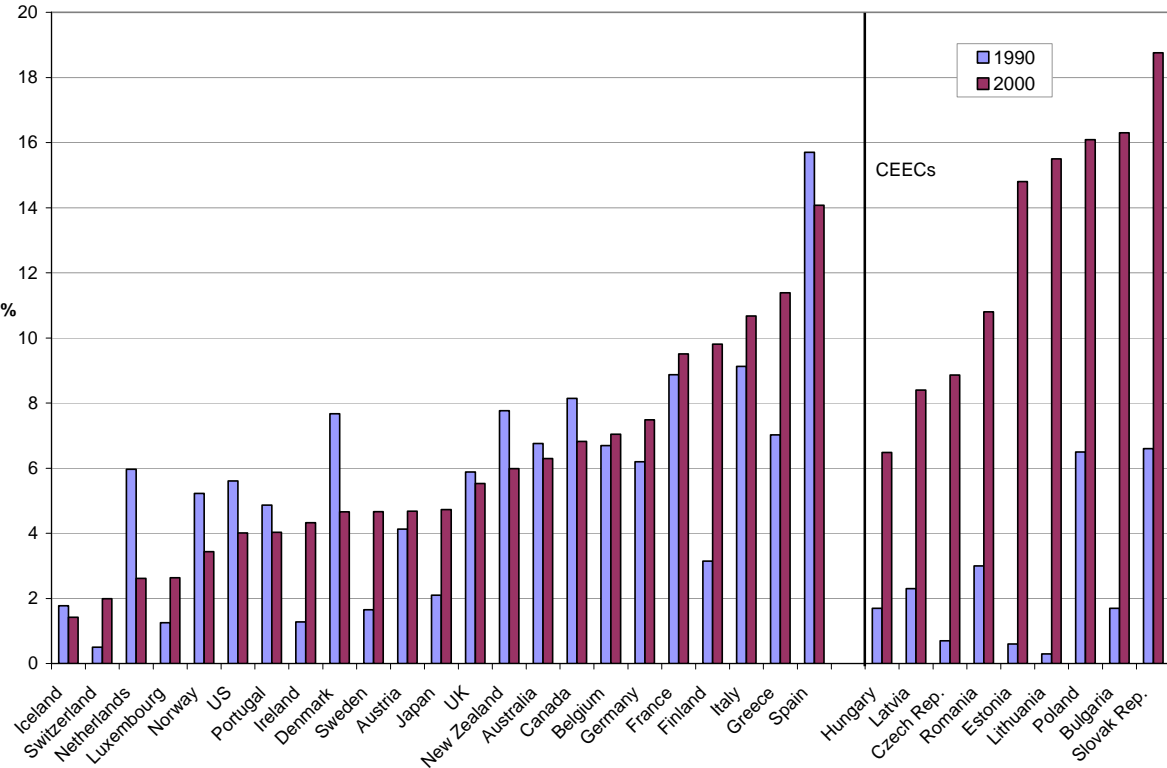
Source: The World Bank: World Development Indicators.

The period after the fall of the Iron Curtain has also been characterized by transition of the labor markets from the nearly full employment that the countries enjoyed as centrally planned economies towards relatively high unemployment, see Figure 4.2. As a result, the unemployment rates in CEE countries were among the highest in OECD in 2000, see Figure 4.2.

⁵⁰ However, it might also be due to measurement problems of the GDP level in 1989.

These economic pull/push factors in the form of higher GDP levels and sharply growing unemployment rates at the source countries, together with the suddenly acquired freedom of international mobility compared to the period before 1989, created strong incentives to migrate.

Figure 4.2: Unemployment rates in the OECD countries, 1990 and 2000.



Source: The World Bank: World Development Indicators. Year 1991 and 1992 instead of year 1990 has been used for the Slovak Republic, Lithuania and Romania, and for Latvia, respectively.

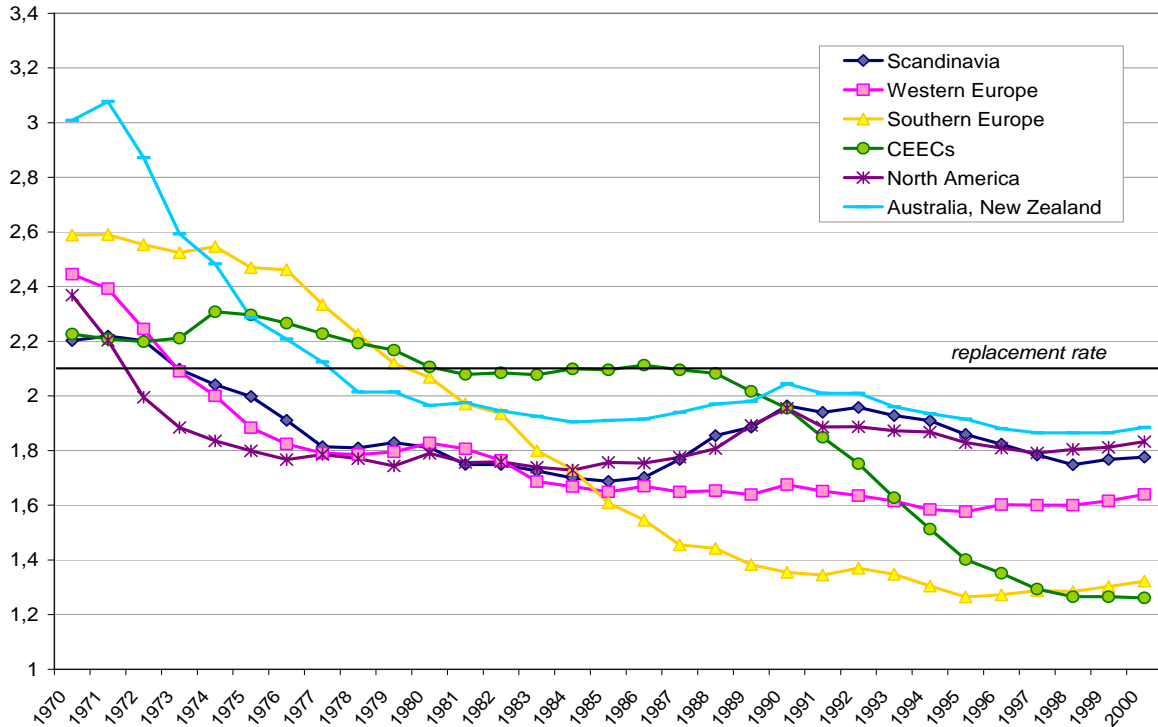
4.3.2. Demographic factors

As already mentioned, the socio-demographic structure of a source country population is important from the migration potential point of view. All CEECs except the Slovak Republic⁵¹ experienced a slow shrinkage of their population during the nineties. It is mostly because of the development in fertility rates⁵², see Figure 4.3. The fertility in those countries has decreased even more than in other

⁵¹ But even the population in the Slovak Republic started to decline after the year 2000.
⁵² A decreasing population size in CEE is partly related to decreasing life expectancy of men, but mainly it stems from very low fertility rates.

European countries or in the United States and Australia. In the year 2000, the average CEE fertility was only 1.25 children per woman, which is far below the replacement rate of 2.1. Thus, similarly to most of the EU-15 countries, the CEECs will be confronted with rapidly aging populations and shortages on the labor markets over future decades.

Figure 4.3: Development in fertility rates. Groups of OECD countries 1970-2000.



Source: The World Bank: World Development Indicators.

However, because of the higher fertility in the 1970s and 1980s, most countries in the CEE still have relatively young populations compared to other OECD countries⁵³, see Figure 4.3.

The populations in the CEECs are relatively well-educated. The gross secondary and tertiary enrollment rates are comparable to the rest of the developed OECD countries, see Table 4.2. In the case of gross tertiary enrollment rates, some CEECs,

⁵³ There are several reasons why the fertility rates have been relatively higher during the years of communist regime in the 1970s and 1980s. First, the strong post-war generations came to their fertility age. Second, married couples with children had priority on a housing list; and last but not least, there were no (exciting) job careers for young people, and at the same time they had no possibilities to travel abroad and explore the world.

e.g. the Baltic countries Latvia and Estonia, have even higher enrollment rates than the OECD average.⁵⁴

Table 4.2: Gross enrollment rates, secondary and tertiary, year 2000.

Year 2000	Gross Secondary Enrollment Rate	Gross Tertiary Enrollment Rate
Czech Republic	87.9	29.8
Hungary	98.6	40.0
Poland	98.4	55.5
Slovak Republic	86.6	30.3
Estonia	107.0	57.5
Latvia	90.9	63.1
Lithuania	95.2	52.5
Bulgaria	92.4	40.8
Romania	80.2	27.3
Developed OECD average	114.0	55.9

Source: The World Bank: World Development Indicators.

As discussed in the previous section, the more educated and the young are more likely to migrate as they have higher gains from migration. The relatively larger share of the young population in the CEECs compared to other OECD countries and relatively high level of education in the CEE source countries may have a positive effect on migration pressures from those countries.

4.3.3. Language

The ability to speak a foreign language is an important factor in the potential migrants' decision making. Fluency in particular languages plays a key role in the transfer of human capital to a foreign country and therefore it helps the immigrant to be successful at the destination country's labor market, see e.g. Chiswick and Miller (2002, 2004), Dustmann and Fabbri, (2003) and Dustmann et al. (2003).

Table 4.3 shows the proportion of the populations in the CEECs that is able to communicate in a foreign language. There is still a prevalence of Russian as a

⁵⁴ However, an important question is how transferable educations from those countries are. Another question is related to the quality of education. Especially troublesome are the disciplines within the social sciences, which suffered a lot during the forty years of communist regime. For a discussion on this issue, see e.g. Ammermueller et al. (2005).

foreign language⁵⁵, especially in the Baltic countries. English is a popular language in most of the countries followed by German, which is known especially in countries on the border to Germany and Austria, i.e. the Czech and Slovak Republics, where German has a long historical tradition.

At the same time, the knowledge of at least one widely used foreign language became a necessary requirement to obtain a job in the CEECs.⁵⁶ The Eurobarometer survey of 10,000 young people in CEECs reveals that language proficiency is cited by 81% of the young people in the CEE countries as an essential skill for finding a good job in their home countries compared with 44% of their counterparts in the “old” EU-15 countries, see European Commission (2002). Hence knowledge of a foreign language is considered to be an important part of the human capital on the CEE labor markets.

Table 4.3: Proportion of the populations in the CEECs with a knowledge of foreign language, 2000.

In %	Czech ⁵⁷ Republic	Hungary	Poland	Slovak Republic	Estonia	Latvia	Lithuania	Bulgaria	Romania	Average
English	22	14	22	18	28	26	21	14	16	20
German	27	14	15	22	11	13	15	6	4	14
Russian	19	2	24	30	53	60	78	20	3	32
French	4	2	3	2	1	1	3	3	10	3
Spanish	1	1	1	1	0	1	0	1	1	1
Italian	2	1	1	1	0	0	0	1	4	1

Source: European Commission: Candidate Countries Eurobarometer (CCB). Response to a question: Which languages can you speak well enough to take part in a conversation apart from your mother tongue?

Table 4.4 shows the choice of two languages that people in the CEECs find most useful. English is chosen to be among the two important languages by on average 88% of the interviewed people. German has the highest popularity in the countries

⁵⁵ Except in Romania and Hungary.

⁵⁶ One of the reasons is that those countries, mostly small open economies, experience a strong interaction with the Western world in their trade and other relations, and at the same time a relative lack of people with the “widely spoken” language skills.

⁵⁷ Both the Czech and Slovak Republics have many people speaking Slovak (21%) and Czech (45%), respectively, due to a common historical past.

bordering on Germany, but also in other CEECs. Russian is important for the Baltic countries and French for Romania.⁵⁸

This suggests an interesting hypothesis to test, namely, that potential migrants prefer to choose a destination with a “widely spoken” language as the native language. There may be two different forces driving this migration pattern. First, knowledge of particular foreign languages increases the chances of a potential immigrant to be successful at the foreign labor market and helps to lower his/her costs of migration. As one or two of the “widely spoken” languages are taught at schools in the CEECs, the immigrants from those countries are more likely to migrate to destinations, where the languages are spoken. Second, the foreign language proficiency is considered to be an important part of human capital at the local CEE labor markets. Thus, the learning/practicing/improving of “widely spoken” language in the “native” countries serves as a pull factor especially for temporary migrants.

Table 4.4: The two most useful foreign languages in the CEECs, 2000.

In %	Czech Republic	Hungary	Poland	Slovak Republic	Estonia	Latvia	Lithuania	Bulgaria	Romania	Average
English	89	91	92	91	92	93	86	76	86	88
German	69	80	74	75	25	31	46	41	29	52
Russian	9	2	9	5	32	34	32	15	1	15
French	12	7	11	8	9	6	8	13	51	14
Spanish	4	2	2	3	2	1	3	4	4	3
Italian	1	3	2	1	0	1	3	3	8	2

Source: European Commission: Candidate Countries Eurobarometer (CCB). Response to a question: In your opinion, which languages do you think are the most useful to know apart from your mother tongue?

From the discussion above and Tables 4.3 and 4.4, it seems that the English- and German-speaking countries are preferred to other countries. Thus, those languages would constitute an additional pull factor in emigration from the CEECs.

4.3.4. Networks

Migration networks help to reduce the direct and indirect migration costs and therefore they play an important role in the decision making of potential migrants.

⁵⁸ It is mostly due to linguistic closeness between the two languages as Romanian belongs to the Romanic family of languages.

As can be seen in Table 4.5, there have been around 2.5 and 2.9 million CEE migrants living abroad in 1990 and 2000, respectively. This amounts to 2.5 and 3% of the CEE source countries' populations in 1990 and 2000, respectively.

Table 4.5: Central and Eastern European stock of immigrants by group of host countries, 1990 and 2000.

	1990		2000		Increase in absolute numbers
	Absolute	% of CEE population	Absolute	% of CEE population	
Western Europe	758.193	0,781	965.724	0,954	27,37 %
Southern Europe	104.636	0,114	209.974	0,210	100,67 %
Scandinavia	105.689	0,104	133.623	0,131	26,43 %
The US, Canada	1.096.715	1,060	1.198.210	1,174	9,26 %
Australia, New Zealand	146.339	0,207	131.103	0,186	-10,41 %
CEECs	243.989	0,266	265.406	0,291	8,78 %
Total	2.455.561	2,532	2.904.040	2,946	18,26 %

Note: Due to data availability, the table shows information on: 1991 instead of 1990 for Austria, Iceland, Italy and Spain; 1991 and 2001 instead of 1990 and 2000, respectively, for Canada, Luxembourg and New Zealand; 1999 instead of 2000 for France; 1997 instead of 2000 for Greece; 1994 instead of 1990 for the Czech Republic; 1995 instead of 1990 for the Slovak Republic and 1992 instead of 1990 for the UK. Spain has records of the stock from Poland and the Czech and Slovak Republics only. UK numbers do not contain Baltic countries: Estonia, Latvia and Lithuania. Ireland and Portugal have been excluded due to non-detailed information on CEE countries of origin, Poland due to having only one year (2001) census data.

Source: National statistical offices, Own calculations.

The highest share of migration stock from those countries can be found in North America⁵⁹ followed by Western European countries, specifically Germany⁶⁰,

⁵⁹ I made the following division of host countries: *Scandinavia*: Denmark, Iceland, Finland, Sweden, Norway; *Western Europe*: Austria, Belgium, France, Germany, Luxembourg, the Netherlands, Switzerland, the UK; *Southern Europe*: Greece, Italy, Portugal, Spain; *North America*: the US and Canada; *Oceania*: Australia and New Zealand; *CEECs*: the Czech and Slovak Republics, Poland.

⁶⁰ However, the numbers for Germany do not include “Aussiedler” ethnic Germans, who moved in large numbers from CEECs to Germany during the nineties. Obviously, if the numbers were included, the share of CEE migration stock in Germany would be much higher.

Austria⁶¹ and the UK, and by Southern European countries. Scandinavian countries and Oceania have around the same number of CEE foreigners, i.e. around 5% of the CEE immigrants.

Comparing the development over the nineties, one observes an increase in the population of CEE origin in all groups of destination countries except Australia and New Zealand, see Table 4.5. The largest relative growth has been in Southern Europe, where the number of CEE immigrants almost doubled mostly due to a significant increase of Romanians and Bulgarians. Further, the CEE migration stock increased in Western Europe and Scandinavian countries by 27 and 26%, respectively.

It is interesting that the numbers of CEE immigrants have increased in Central and Eastern European OECD countries as well. The migration stock in those countries has been on a relatively low level due to the fact that during the communist regime it was relatively difficult to migrate between the countries of the former communistic bloc.⁶² Not surprisingly, the acquired freedom of movement after 1989 also resulted in a higher migration between the CEECs themselves albeit the economic push/pulls were not as strong as factors between CEECs and other developed OECD countries.

4.3.5. Where did Central and Eastern Europeans go?

In the following section, I address the first part of the question from the paper's title: "Where did Central and Eastern Europeans go? Table 4.6 shows main destinations and average emigration flows from CEECs over the period 1989-2000.

From a quick look at Table 4.6, it is obvious that Germany is a principle destination of Central and Eastern European emigrants. At the same time, neighboring and nearby countries are important too, e.g. Austria for the Czech and Slovak Republics and Hungary; Spain, Italy and Greece for Bulgaria and Romania; and Scandinavia

⁶¹ In Austria, most of the foreign-born population is of Czech origin. However, these immigrants did not come during the latest decade – the majority of them (90%) came during the period shortly after the Second World War (Lebhart, 2003).

⁶² It was even hard to move from one region to another within one country.

for the Baltic countries.⁶³ The average annual migration flow of Central and Eastern Europeans to Germany is spinning around 200,000. More than half of the average annual inflow is of Polish origin.⁶⁴ The biggest migration waves from Poland came during the early nineties.⁶⁵ During the second half of the decade, the flows stabilized at around 70,000 annually. Taking into account such a magnitude of Polish migration inflows and the fact that there were 300,000 Poles residing in Germany in 2000, one may think that migration from Poland to Germany mostly is a temporary phenomenon, i.e. the majority of the Polish immigrants emigrate within a fairly short time period.

Besides Germany and neighboring countries as destinations, a significant part of the migration flows goes to the US and Canada. The US are in fact a second main destination for Central and Eastern Europeans with an average annual flow of 27,000 persons, see Table 4.6.

The only country that does not have Germany as a main destination country is Estonia. Here, the main emigration flows go to Finland. It is probably because Estonia and Finland share a common Nordic history and physical and language proximity. As regards to the last one, Estonian language belongs to the same Finno-Ugric family of languages as Finnish and Hungarian. Hungary and the Czech Republic present themselves as popular destinations for Romanians and Slovaks, respectively.⁶⁶ Although the economic push/pulls are not that large compared to other countries, there is substantial migration due to the chain migration and geographical, historical and cultural proximity between those countries.

Overall, the highest emigration flows as a percentage of home country population were experienced by Poland followed by Romania, with an average annual emigration rate equal to about 0.4%. The lowest emigration rates were registered from Latvia and the Czech Republic, 0.14 and 0.17%, respectively, see Table 4.6.

⁶³ The UK is not among top destinations simply due to the fact that the flow statistics are based on applications for settlement only. Therefore the numbers of CEE immigrants in the UK are heavily underestimated. The development in CEE migration stocks in the UK suggests that the gross migration flows must be substantial.

⁶⁴ I.e. 110,000, which equals 0.3% of the entire Polish population.

⁶⁵ The highest number of Poles, around 260,000, came in 1989 just after the fall of the Iron Curtain.

⁶⁶ Hungary is also among top-six for the Slovak Republic.

Table 4.6: Central and Eastern European gross emigration flows and their main destinations, annual average over the years 1989-2000; in absolute numbers and as a percentage of the source countries' populations.

Source: CZECH REPUBLIC			HUNGARY			POLAND		
<i>Main destinations:</i>	Absolute	%	<i>Main destinations:</i>	Absolute	%	<i>Main destinations:</i>	Absolute	%
Germany	12 163	0.118	Germany	18 290	0.180	Germany	110 279	0.287
Austria	1 388	0.014	Austria	2 219	0.022	US	17 104	0.045
Slovakia	942	0.009	US	1 102	0.011	Canada	6 720	0.018
US	570	0.006	Canada	644	0.006	Austria	4 416	0.012
Canada	450	0.004	Netherlands	405	0.004	Italy	3 673	0.010
Switzerland	342	0.003	Switzerland	383	0.004	France	1 530	0.004
<i>Total</i>	17 197	0.167	<i>Total</i>	24 359	0.239	<i>Total</i>	152 179	0.396
SLOVAK REPUBLIC			BULGARIA			ROMANIA		
<i>Main destinations:</i>	Absolute	%	<i>Main destinations:</i>	Absolute	%	<i>Main destinations:</i>	Absolute	%
Germany	7 827	0.146	Germany	11 606	0.139	Germany	42 593	0.189
Czech Rep.	3 835	0.072	Spain	2 168	0.026	Italy	10 185	0.045
Austria	1 756	0.033	US	1 987	0.024	Hungary	9 958	0.044
US	555	0.010	Greece	1 588	0.019	Spain	8 618	0.038
Hungary	333	0.006	Canada	693	0.008	US	5 563	0.025
Canada	273	0.005	Austria	632	0.008	Canada	3 240	0.014
<i>Total</i>	15 626	0.291	<i>Total</i>	20 686	0.248	<i>Total</i>	86979	0.385
ESTONIA			LATVIA			LITHUANIA		
<i>Main destinations:</i>	Absolute	%	<i>Main destinations:</i>	Absolute	%	<i>Main destinations:</i>	Absolute	%
Finland	1 307	0.094	Germany	2 182	0.090	Germany	2 652	0.075
Germany	1 230	0.089	US	406	0.017	Spain	2 283	0.064
Sweden	176	0.013	Denmark	197	0.008	US	574	0.016
Denmark	175	0.013	Sweden	80	0.003	Denmark	252	0.007
US	166	0.012	Canada	77	0.003	Norway	121	0.003
Norway	72	0.005	Norway	73	0.003	UK	97	0.003
<i>Total</i>	3 331	0.240	<i>Total</i>	3 347	0.138	<i>Total</i>	6 587	0.185

Note 1: Due to data availability there are missing numbers of: Estonians, Latvians and Lithuanians going to Italy, Spain and the UK; Czechs, Slovaks and Bulgarians going to Italy; and Hungarians, Estonians, Latvians and Lithuanians going to Italy and Spain. For the UK, the numbers of CEE immigrants are heavily underestimated as the flow statistics are based on applications for settlement only. Ireland and Portugal have been excluded due to missing information on CEE countries of origin.

Source: National statistical offices; Own calculations.

Thus, there seem to be many similar, but also many different patterns in emigration from these countries. The next section focuses on “why did they migrate” and hence analyses determinants of Central and Eastern European emigration.

4.4. ECONOMETRIC ANALYSIS OF DETERMINANTS OF CENTRAL AND EASTERN EUROPEAN EMIGRATION

In the following section, I estimate a migration model that is based, as in previous studies, on a human capital framework. Besides relative incomes, unemployment rates in destination and source countries and distance between each pair of countries, I add other variables into the model that are discussed in the previous sections and which are relevant when explaining determinants of migration from CEE countries. The migration model central in this paper has the following form:

$$m_{ijt} = \beta_1 + \beta_2 s_{ijt-1} + \beta_3 (GDP_j / GDP_i)_{t-1} + \beta_4 u_{jt-1} + \beta_5 u_{it-1} + \beta_6 welfare_{jt-1} + \beta_7 teg_{it-1} + \beta_8 dist_{ij} + \beta_9 neighb_j + \beta_{10} foreignlang_i + \mu_{ij} + \varepsilon_{ijt} \quad (4.1)$$

where j represents each destination country ($j = 1, \dots, 18$), i each source country ($i = 1, \dots, 9$) and t time period ($t = 1, \dots, 10$). β_1 to β_{10} are parameters to be estimated, μ_{ij} is a country-specific fixed effect and ε_{ijt} is an error term. The migration rate, m_{ijt} , is defined as *gross migration flow* to country j from country i divided by source country population at the end of the period t . The network links between sending and receiving countries are captured by the lagged *stock of immigrants* from i country of origin living in j country, divided by the source country population, s_{ijt-1} . The difference in economic developments between two countries is measured by *GDP per capita PPP* and enters the equation as the *GDP ratio*. Employment prospects in sending and receiving countries are captured by *unemployment rates*, which enter the model separately for receiving and sending countries, u_j and u_i . Next, *welfare* denotes a variable capturing potential “*welfare magnet*” effects.⁶⁷ I use two different specifications, Tax Revenue and Public Social Expenditure as a percentage of GDP.⁶⁸ In order to control for direct costs of migration, I use a

⁶⁷ However, one may argue that the access to the welfare systems became limited for the CEE emigrants. This trend reflects immigration policies that have gradually become more and more restrictive.

⁶⁸ The first alternative, *Tax Revenue Level*, has been used to catch a “welfare magnet” effect in a study by Pedersen et al. (2004).

measure of the *Distance in Kilometers* between the capital areas in the sending and receiving countries. I also include a variable *Neighboring Country*, which is a dummy variable assuming the value of 1 if the two countries are neighbors, 0 otherwise.

Finally, I experiment with dummies for foreign languages. I define the following dummy variables: *English* language dummy with assigned value of 1 for Australia, Canada, the UK and the US, 0 otherwise. *German* language dummy with the value 1 for Austria, Germany, Luxembourg and Switzerland, 0 otherwise, and finally *French* language dummy with the value 1 for Belgium, Canada, France and Luxembourg, 0 otherwise.

To reduce a risk of simultaneity bias, the explanatory variables enter the regression analysis with a one-year lag. Another reason for lagging the explanatory variables is that we expect the migration decision to be a decision which takes time, and therefore past (lagged) values of the determining factors are more appropriate to use than actual, non-lagged variables. All variables except dummy variables are in logarithms to express impact elasticities.

4.4.1. Estimation results

Table 4.7 shows pooled OLS estimates with “robust” Hubert/White/sandwich variances.⁶⁹ In column 1, the model includes the relative income, unemployment rates in destination and origin countries and the distance variables. The relative income and distance variables have the expected sign and are significant. However, the unemployment rates in destinations and origins have unexpected positive and negative effect, respectively.

Concerning the positive effect of unemployment in destinations, one might argue that this is a signal of some welfare magnet pull, as indicated by the Roy model of migration, see Borjas (1987), or welfare magnet theory, see Borjas (1999). In this case one would expect that the coefficient to destinations’ unemployment rate will decrease when including the “tax revenue” variable, which serves as a proxy for the

⁶⁹ As a first step, I estimate the migration flows from 9 CEE countries to 18 OECD destination countries. The following destination countries are considered: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Italy, the Netherlands, Norway, Spain, Sweden, Switzerland, the UK and the US.

welfare magnet. But the coefficient to destinations' unemployment rate is even greater in regressions with the tax revenue variable, see columns 2 to 4 in Table 4.7. Furthermore, the coefficient to the tax has an unexpected negative sign.

As for the unexpected negative coefficient to the unemployment rate in the source countries, one possible explanation is that there are poverty constraints for potential migrants in the CEECs, i.e. higher unemployment constitutes difficulties with financing the costs of migration. Such an effect is often found in other studies on the determinants of international migration, e.g. Faini and Venturini (1994), Hatton and Williamson (2002) and Pedersen et al. (2004). Another explanation may be the existence of the so-called “wage curve”, see Blanchflower and Oswald (1994).⁷⁰

In the second column, the educational level in CEECs measured by gross tertiary enrollment rate is added into the model. This variable reveals a positive effect of education. This implies that the more educated population the higher is the migration flow from this country, which is well in line with the human capital theoretical expectations.

In column 3, the dummies for “widely spoken” foreign languages – *English, German and French* – enter the model. The explanatory power (adjusted R-square) of the model increases notably from 23% to 44% when including the language dummies, showing that taking effects of foreign language into account is important. The language dummies have expected positive signs and are statistically significant, meaning that Central and Eastern Europeans prefer to migrate to countries with a “widely spoken” language rather than to other destinations, all other things being equal. English and German show the strongest positive effects, which is in line with the hypothesis and with the facts related to language skills in the CEECs, which were discussed in the previous section.

Finally, in the last column in Table 4.7, the lagged stock of immigrants of a given CEE origin enters the model. The coefficient is positive and highly significant,

⁷⁰ The “wage curve” literature shows that wages in countries with low unemployment tend to be higher, *ceteris paribus*, than in countries with high unemployment rates. This might be the case for CEE countries as confirmed by some empirical evidence from those countries, see e.g. Blanchflower (2001), Huitfeldt (2001) or Galuscak and Munich (2003).

which indicates a strong network effect. However, once the “network” effect is included, the coefficient to the English language dummy is switching its sign. One of the possible explanations of the change is that well-established CEE migration networks exist in the “traditional” immigration countries like the US, Canada and Australia, which are at the same time English-speaking countries.

Table 4.7. Estimation of migration flows from 9 CEE source countries (i) to 18 (OECD) destination countries (j), 1990-2000.

<i>Dependent variable:</i>				
m_{ijt} = Gross Flows per 1000 inhabitants	(1)	(2)	(3)	(4)
<i>Independent variables:</i>				
Stock of Foreigners/Pop (<i>j</i>)	-	-	-	0.713 [0.022]***
GDP per cap PPP ratio (<i>ij</i>)	1.635 [0.166]***	2.019 [0.166]***	1.466 [0.152]***	1.433 [0.114]***
Unemployment Rate, (<i>j</i>)	0.539 [0.115]***	0.917 [0.119]***	0.790 [0.111]***	0.582 [0.080]***
Unemployment Rate, (<i>i</i>)	-0.115 [0.080]	-0.268 [0.083]***	-0.170 [0.073]**	-0.481 [0.079]***
Tax Revenue (<i>j</i>)	-	-3.948 [0.322]***	-1.489 [0.356]***	-2.741 [0.253]***
Tertiary Enrollment Rate (<i>j</i>)	-	0.505 [0.154]***	0.504 [0.133]***	0.719 [0.100]***
Distance in Kilometers (<i>ij</i>)	-0.291 [0.056]***	-0.831 [0.071]***	-0.978 [0.085]***	-0.640 [0.073]***
Neighbouring Country (0/1)	1.394 [0.222]***	1.017 [0.197]***	0.734 [0.170]***	-0.267 [0.126]**
English (0/1)	-	-	2.096 [0.179]***	-1.018 [0.151]***
German (0/1)	-	-	1.958 [0.159]***	0.588 [0.108]***
French (0/1)	-	-	0.768 [0.087]***	0.672 [0.085]***
Constant Term	-4.306 [0.457]***	11.646 [1.523]***	3.453 [1.610]**	8.097 [1.195]***
No of observations	1175	1175	1175	890
Adjusted R-squared	0.14	0.23	0.44	0.77

Notes: 10, 5 and 1% levels of confidence are indicated by *, ** and ***, respectively. Standard errors are in parentheses.

Aside the variables considered in the model, there are other unobservable factors that shape international migration flows and that are characteristic for particular countries or pairs of countries. In the presence of the unobserved country-specific heterogeneity, the pooled OLS estimator is biased and inconsistent, see Baltagi (2005). There are two frequently used panel data techniques that control for unobserved heterogeneity, namely fixed-effect (within) and random effect GLS

estimator. The fixed-effects estimates are calculated from differences within each country across time; the random effects estimates are more efficient, but they are consistent only if the country-specific effects are uncorrelated with other explanatory variables.

In the context of international migration, there is a question whether to account for destination country specific effects, μ_i , or pair of countries specific effects, μ_{ij} . Destination country unobservable effects might represent characteristics of immigration policy practices in each destination country, as well as climate, weather, openness towards foreigners or culture. On the other hand, pair of countries unobservable effect might capture traditions, historical and cultural ties between two particular countries of destination and origin, as well as immigration policy between the two countries. Therefore, I present both cases in Table 4.8 using the fixed and random panel data techniques.⁷¹

Columns 1 and 2 (3 and 4) of Table 4.8 show the results of the regressions that control for unobservable destination country (pair of countries) specific fixed and random effects, respectively. F-test and Breush and Pagan LM test at the bottom of Table 4.8 show that both fixed and random effects are significant and thus the pooled OLS estimate indeed suffers from an omission variable bias. In order to decide, which estimator, fixed or random effects, is more suitable, one needs to establish a relationship between the country-specific effects and the explanatory variables. The Hausman test comparing the destination fixed-effect estimates in columns 1 and 3 with the random-effects estimates in columns 2 and 4, respectively, rejects the null hypothesis of independence between the unobservable effects and the explanatory variables for both specifications; see Hausman test at the bottom of Table 4.8. Therefore the fixed effects estimator is preferred.

The results from the panel regressions are not very different from the pooled OLS regressions, albeit the numerical size of the coefficients usually is smaller. There are, however, few changes worth mentioning. The coefficient to the unemployment rate in destination countries switched its sign and became significantly negative in the panel data regressions, which is in line with the theory. But the coefficient to the

⁷¹ Further, I tried to add year dummy variables in order to control for common idiosyncratic shocks over the decade under analyses, e.g. waves connected to the fall of the Iron Curtain, or for business cycle. The dummies didn't add much to the results; therefore I do report the results from the regressions in the Appendix – see Appendix, Tables 4.C1 and 4.C2.

source countries' unemployment variable stays significantly negative. Hence, the higher unemployment rate the less likely people decide to migrate, which is again in line with findings of other studies on international migration such as e.g. Faini and Venturini (1994), Hatton and Williamson (2002) and Pedersen et al. (2004).

Table 4.8. Estimation of migration flows from 9 CEE source countries (i) to 18 (OECD) destination countries (j), 1990-2000.

<i>Dependent variable:</i>				
m_{ijt} = Gross Flows per 1000 inhabitants	(1)	(2)	(3)	(4)
Independent variables:	FE(j)	RE(j)	FE(ij)	RE(ij)
Stock of Foreigners/Pop (<i>i</i>)	0.382 [0.030]***	0.452 [0.029]***	0.410 [0.048]***	0.586 [0.034]***
GDP per cap PPP ratio (<i>ij</i>)	1.589 [0.114]***	1.488 [0.115]***	0.964 [0.312]***	0.903 [0.195]***
Unemployment Rate, (<i>j</i>)	-0.349 [0.089]***	-0.211 [0.087]**	-0.438 [0.069]***	-0.247 [0.066]***
Unemployment Rate, (<i>i</i>)	-0.228 [0.054]***	-0.263 [0.055]***	-0.070 [0.059]	-0.176 [0.052]***
Tax Revenue (<i>j</i>)	1.459 [0.896]	-0.853 [0.626]	1.526 [0.728]**	-1.029 [0.480]**
Tertiary Enrollment Rate (<i>i</i>)	0.525 [0.086]***	0.608 [0.086]***	0.207 [0.104]**	0.327 [0.089]***
Distance in Kilometers (<i>ij</i>)	-1.129 [0.103]***	-0.927 [0.098]***	-	-0.575 [0.146]***
Neighbouring Country (0/1)	-0.207 [0.144]	-0.101 [0.144]	-	-0.024 [0.304]
English (0/1)	-	0.600 [0.372]	-	-0.362 [0.312]
German (0/1)	-	0.642 [0.331]*	-	0.707 [0.227]***
French (0/1)	-	0.802 [0.334]**	-	0.850 [0.208]***
No. of destinations / pairs of countries	18	18	148	148
Fixed/Random Effects of Destination / Pair of Countries	Yes	Yes	Yes	Yes
Constant Term	-2.637 [3.283]	3.947 [2.451]	-9.478 [2.590]***	3.755 [2.291]
No of observations	890	890	890	890
Adjusted R-squared	0.86	0.68	0.95	0.94
F-test	F(17,864)=31.73 p=0.000		F(147,736)=13.60 p=0.000	
Breush-Pagan test	chi2(1) = 1513.10 p=0.000		chi2(1) = 926.45 p=0.000	
Hausman test	chi2(8) = 86.41 p=0.000		chi2(8) = 279.65 p=0.000	

Notes: 10, 5 and 1% levels of confidence are indicated by *, ** and ***, respectively. Standard errors are in parentheses.

Further, the welfare state magnet as measured by the tax pressure needed to finance the welfare state turns out to be positive in the pair of countries fixed effects

regressions. Nevertheless, the coefficient is unstable across the specifications. Thus the overall welfare magnet effect is unclear.

It is reasonable to think that the CEE source countries exhibit relatively heterogeneous migration behavior. The fixed/random effect models permit different intercepts for the countries or pairs of countries, but the slope coefficients are restrained to be the same across the countries or pairs of countries. One solution to this problem would be to estimate migration determinants separately for each individual destination and source country. Unfortunately, given the nature of the dataset, which is relatively short and unbalanced, this is not appropriate. Nevertheless, as it is of great interest, I try to avoid the problem by clustering the CEE source countries into 3 groups that are historically and culturally interconnected. First, the *Central European* group of countries contains the Czech Republic, Hungary, Poland and the Slovak Republic. Further, the three *Baltic countries*, Estonia, Latvia and Lithuania⁷² are grouped together, and finally the two South-Eastern European countries, *Bulgaria and Romania*, are clustered together.

The estimated model allows for pair of countries unobservable effects, either random or fixed effects.

4.4.2. Disaggregated results for groups of the CEE source countries

Overall, the results in Table 4.9 confirm the hypothesis that the determinants of migration differ significantly across different groups of the CEE countries. Beginning with the lagged migration stock, the network effects are relatively large for the Central European countries and Bulgaria and Romania, while the coefficient is much lower for the Baltic countries.

The income gap plays an important role in the case of migration from the South-Eastern European countries. But the effect is insignificant for the Baltic countries and the coefficient even switches its sign in the case of Central Europe. According to Table 4.9, one of the main determinants of migration common for Central Europe and the Baltic countries is the prospects of getting a job. On the other hand, the

⁷² One may argue that these countries still present a very heterogeneous sample as Estonia and Latvia culturally and historically belong to Northern Europe, where Lithuania due to its common history with Poland is more connected to Central Europe.

source country unemployment rate is an important push, too. Thus, for these two groups of countries job-seeking is a key driving force in migration.

For Bulgaria and Romania, the effect of destination unemployment rate is insignificant, and the source country unemployment rate has an unexpectedly significantly negative coefficient. This finding may indicate that poverty constraints play an important role in migration from the two countries.

Table 4.9. Estimation of migration flows from 9 CEE source countries (i) to 18 (OECD) destination countries (j), 1990-2000.

<i>Dependent variable:</i> m_{ijt} = Gross Flows per 1000 inhabitants						
	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables:	FE(ij) Central	RE(ij) Central	FE(ij) Baltic	RE(ij) Baltic	FE(ij) Bulgaria and Romania	RE(ij) Bulgaria and Romania
Stock of Foreigners/Pop (<i>i</i>)	0.623 [0.129]***	0.741 0.061]***	0.130 [0.073]*	0.318 [0.059]***	0.663 [0.106]***	0.883 [0.052]***
GDP per cap PPP ratio (<i>j</i>)	-1.324 [0.652]**	-0.833 0.356]**	0.929 [0.841]	-0.142 [0.521]	1.401 [0.590]**	0.436 [0.444]
Unemployment Rate, (<i>j</i>)	-0.518 [0.085]***	-0.415 [0.081]***	-0.345 [0.179]*	-0.287 [0.168]*	-0.268 [0.182]	0.015 [0.146]
Unemployment Rate, (<i>i</i>)	0.145 [0.113]	0.126 [0.096]	0.236 [0.124]*	0.252 [0.100]**	-0.506 [0.139]***	-0.583 [0.126]***
Tax Revenue (<i>j</i>)	0.265 [0.957]	-1.013 [0.632]	3.569 [1.557]**	0.232 [0.966]	1.556 [1.639]	-2.375 [0.690]***
Tertiary Enrollment Rate (<i>i</i>)	0.085 [0.150]	0.250 [0.119]**	0.140 [0.269]	-0.144 [0.221]	-0.112 [0.303]	0.408 [0.214]*
Distance in Kilometers (ij)	-	-0.117 [0.178]	-	-2.188 [0.315]***	-	-0.441 [0.220]**
Neighbouring Country (0/1)	-	0.167 [0.418]	-	-2.464 [0.506]***	-	-0.005 [0.638]
English (0/1)	-	-1.097 [0.399]***	-	3.125 [0.817]***	-	-0.917 [0.364]**
German (0/1)	-	1.047 [0.367]***	-	0.609 [0.344]*	-	-0.074 [0.331]
French (0/1)	-	0.957 [0.268]***	-	0.334 [0.381]	-	0.825 [0.283]***
Fixed/Random Effects of Pair of Countries	Yes	Yes	Yes		Yes	Yes
Constant Term	-2.669 [3.529]	1.805 [3.024]	-17.73[6.389]***	12.589 [4.893]**	-8.150 [5.717]	9.297 [3.404]***
No of observations	440	440	230	230	220	220
No. of pairs of countries	68	68	45	45	35	35
Adjusted R-squared	0.94	0.79	0.93	0.79	0.91	0.86
F-test	F(6,366)=8.43 p=0.000		F(6,179)=16.61 p=0.000		F(6,179)=7.55 p=0.000	
Breusch-Pagan test	chi2(1) = 459.95 p=0.000		chi2(1) = 48.19 p=0.000		chi2(1) = 24.24 p=0.000	
Hausman test	chi2(6) = 11.90 p=0.064		chi2(6) = 29.46 p=0.000		chi2(6) = 23.98 p=0.001	

Notes: 10, 5 and 1% levels of confidence are indicated by *, ** and ***, respectively. Standard errors are in parentheses.

The welfare magnet variable as proxied by the tax pressure in destination is large and positive for the Baltic countries in the fixed effects regression. This partly reflects that immigrants from the Baltic countries tend to choose Scandinavian countries as destinations. On the other hand, one might not expect such a large positive effect in regressions, which account for pair of countries fixed effects. For Bulgaria and Romania, the tax coefficient is significantly negative. Thus, the “welfare magnet” effect is still very unclear.

There are also interesting patterns to note with respect to the foreign language dummies that are shown in the random effects specifications. Beginning with the estimates for the Central European countries, German and French influence the choice of destination for Central Europeans, while for the Baltic countries English and German language dummies have positive signs, with the coefficient on English being especially large. Finally, as expected the coefficient to the French language dummy is significant and positive for Romania and Bulgaria. These findings clearly confirm the hypothesis presented in the previous sections that foreign languages play an important role in shaping the international migration.

4.5. CONCLUSIONS

In this paper, I analyze the determinants of emigration from 9 CEE countries during the first decade after the communistic break-up. Contrary to most of the previous literature, I analyze migration determinants on actual migration flows from the CEE countries into a number of destination countries. Besides economic differences between the countries, I include a number of other factors that may drive migration from those countries.

The descriptive analyses show that emigrants from Central and Eastern European countries tend to go primarily to Germany or neighboring and nearby countries. But besides Germany and neighboring countries as destinations, a significant part of the migration flows goes to the US and Canada. The US is in fact the second main destination for Central and Eastern Europeans with an average flow of 27,000 persons annually.

Results of my econometric analyses reveal that the economic push/pulls factors play an important role in international migration from those countries. The disaggregated

results show that there are large differences between the Central and Eastern European countries with respect to emigration patterns. The lagged stock of immigrants, which reflects the existence of immigrants networks, has a strong and positive effect for immigrants from Central European countries, Romania and Bulgaria, while immigrants from the Baltic countries seem to rely much less on networks. Income gaps have a positive effect on migration flows, particularly from Southeastern European countries, while employment opportunities in destination countries are main determinants of the migration flows from the Baltic and Central European countries. The results concerning potential welfare magnet effects are rather mixed.

Language is important. When controlling for other factors, Baltic emigrants tend to go to English-speaking countries and to a smaller extent to German-speaking countries. Emigrants from Central Europe prefer the German- and French-speaking countries, while Romanian and Bulgarian emigrants favor French speaking countries.

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APPENDIX:

Description and definitions of the basic variables and sources.

Gross flow of migrants from country i to country j per 1000 inhabitants in country j

Source: National statistical offices and “Trends in International Migration” SOPEMI OECD.

Stock of foreigners from country i in country j

Source: National statistical offices and “Trends in International Migration” SOPEMI OECD.

Total population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship - except for refugees not permanently settled in the country of asylum, who are generally considered part of the population of their country of origin.

Source: World Bank.

GDP per capita (constant 1995 international \$) based on purchasing power parity (PPP). PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the US dollar has in the US. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 1995 international dollars.

Source: World Bank, International Comparison Programme database

Unemployment, total (% of total labour force): Unemployment refers to the share of the labour force that is without work but available for and seeking employment. Definitions of labour force and unemployment differ by country.

Source: World Bank: International Labour Organisation, Key Indicators of the Labour Market database.

Tax revenue (% of GDP): Tax revenue comprises compulsory transfers to the central government for public purposes. Compulsory transfers such as fines, penalties, and most social security contributions are excluded. Refunds and corrections of erroneously collected tax revenue are treated as negative revenue. Data are shown for central government only.

Source: International Monetary Fund, Government Finance Statistics Yearbook and data files, and World Bank and OECD GDP estimates.

Public social expenditure as a percentage of GDP (SNA93): Social expenditure is the provision by public institutions of benefits to, and financial contributions targeted at, households and individuals in order to provide support during circumstances which adversely affect their welfare, provided that the provision of the benefits and financial contributions constitutes neither a direct payment for a particular good or service nor an

individual contract or transfer. Such benefits can be cash transfers, or can be the direct (“in-kind”) provision of goods and services.

Source: OECD Social Expenditure Database (SOCX).

School enrollment, tertiary (% gross): Gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown.

Source: WDI; United Nations Educational, Scientific, and Cultural Organization.

Distance between countries – distance between capitals in km.

Source: MapInfo, own calculations.

Neighbouring index – in the form of dummy for neighbouring countries - value 1, 0 otherwise.

Table 4.A: List of countries included in the emigration flows’ analysis:

Destination countries
Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Italy, the Netherlands, Norway, Spain, Sweden, Switzerland, the UK, the US
Source countries
Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic

Table 4.B1: Descriptive statistics of basic variables for OECD destination countries (means, standard deviations and number of observations)

Mean (St.d.) Numb. of Obs.	Australia	Austria	Belgium	Canada	Czech Republic	Denmark	Finland	France	Germany	Greece	Iceland
Immigration flows*	196.87 (307.93) 85	1 420.74 (1 513.71) 46	298.07 (438.66) 69	16 36.77 (3 477.53) 74	544.70 (1 347.23) 64	193.62 (191.88) 104	152.71 (431.71) 108	456.30 (597.37) 87	26 526.91 (42 890.21) 91	444.23 (618.71) 78	35.68 (84.28) 62
Sum of immigration flows **	1 394.50 (899.96)	5 446.17 (6 224.02)	1 713.92 (1 223.72)	10 093.42 (7 691.173)	2 905.08 (2 314.42)	1 678 (535.12)	1 374.42 (800.86)	3 308.17 (1 105.76)	201 162.40 (82 065.51)	2 887.50 (1 883.65)	184.33 (178.41)
Immigration stock ***	18 334.76 (22 874.81) 29	13 498.17 (14 803.83) 24	1 789.21 (2 081.33) 57	56 936.67 (71 571.85) 24	9 414.30 (15 077.10) 60	1 523.32 (2 931.88) 104	1 109.29 (2 568.11) 90	9 712.36 (15 761.74) 11	59 844.29 (83 639.70) 105	2 256.62 (3 224.50) 77	87.58 (178.01) 100
Sum of immigration stock****	44 309 (56 887.97)	26 996.33 (55 353.85)	8 498.75 (2 753.79)	113 873.30 (143 336.9)	47 071.50 (34 800.93)	13 202.08 (1 882.40)	8 319.67 (4 559.25)	8 903 (20 006.35)	523 637.50 (89 897.92)	14 480 (8 463.10)	729.83 (369.82)
Population	18 000 000 (728 253.50) 108	7 959 417 (153 688.40) 108	10 100 000 (99 444.38) 108	29 100 000 (1 093 661) 108	10 300 000 (18 449.79) 108	5 227 002 (69 348.17) 108	5 087 750 (68 690.44) 108	57 700 000 (741 940) 108	78 400 000 (7 088 775) 108	10 400 000 (166 711.6) 108	266 316.70 (8 433.96) 108
GDP per capita PPP (constant 1995 int.\$)	21 219.52 (1765.45) 108	22 590.97 (1 604.68) 108	21 632.55 (1 265.17) 108	22 480.15 (1458.07) 108	11 743.74 (753.69) 90	23 899.39 (1 536.27) 108	19 864.98 (1 535.56) 108	21094.68 (952.33) 108	21 780.67 (1 265.35) 108	13 225.56 (910.13) 108	22 866.21 (1 591.013) 108
Tax Revenue (% of GDP)	29.07 (1.10) 99	42.53 (1.35) 108	44.58 (1.16) 108	37.17 (0.71) 108	40.03 (1.45) 72	48.89 (1.16) 108	45.64 (1.20) 108	44.16 (1.07) 108	36.80 (1.79) 108	32.14 (3.22) 108	32.63 (2.08) 108
Unemployment rate (% of the labour force)	8.15 (1.48) 108	5.01 (0.60) 108	8.43 (1.27) 108	9.14 (1.44) 108	4.82 (2.33) 99	7.15 (1.65) 108	11.01 (4.51) 108	10.79 (1.18) 108	7.59 (1.15) 108	9.51 (1.51) 108	3.04 (1.34) 108
Public Social Expenditure (% of GDP)	16.75 (1.83) 99	27.73 (1.05) 81	26.75 (0.76) 90	19.03 (1.50) 99	18.79 (0.88) 90	31.33 (1.33) 90	29.70 (3.66) 90	28.14 (1.37) 90	26.75 (2.67) 90	21.01 (1.21) 90	19.54 (0.20) 45

* mean and st.d. for each particular migration flow from country *i* to country *j*

** mean and st.d. for the sum of migration flows to country *j* (from all countries *i*)

*** mean and st.d. for stock of immigrants originating from country *i* residing in country *j*

**** mean and st.d. for the sum of stocks of immigrants residing in country *j* (originating from all countries *i*)

Table 4.B1 (continued): Descriptive statistics of basic variables for OECD destination countries (means, standard deviations and number of observations)

Mean (St.d.) Numb. of Obs.	Italy	Netherlands	Norway	Poland	Slovak Republic	Spain	Sweden	Switzerland	UK	US
Flows of immigrants to the country *	6 928.80 (7 722.84) 10	393.77 (523.25) 60	112.62 (121.86) 68	81.15 (21.79) 13	137.81 (317.29) 32	1 278.85 (3 517.66) 27	304.06 (419.27) 97	484.36 (2 091.24) 92	245.95 (197.26) 58	3 273.55 (5 932.70) 100
Sum of immigration flows to the country **	5 774.00 (10 208.61)	1 968.83 (845.16)	638.17 (98.04)	87.92 (48.69)	367.50 (531.62)	2 877.42 (7 793.87)	2 457.83 (996.55)	3 713.42 (5 912.91)	1 188.75 (732.05)	27 279.58 (5 427.19)
Stock of immigrants in the country ***	12 404.06 (13 510.20) 34	3 337.91 (4 533.90) 54	625.79 (844.14) 72	13 729.43 (29 169.68) 7	1 519.08 (1 893.14) 48	2 870.66 (2 558.27) 32	9 453.78 (11 852.21) 102	1 982.83 (1 784.02) 92	15 329.75 (20 763.52) 53	107 166.30 (152 497.50) 52
Sum of immigration stock in the country ****	35 144.83 (30 541.49)	15 020.58 (15 203.59)	3754.75 (192.76)	8 008.83 (26 686.13)	6 076.33 (6 177.06)	7 655.08 (6 843.10)	80 357.17 (3 265.57)	15 201.67 (1 774.54)	67 706.42 (39 434.97)	464 387.40 (334 928.20)
Population	57 300 000 (343 096.10) 108	15 400 000 (328 680.10) 108	4 349 661 (83 805.93) 108	38 500 000 (227 941) 108	5 365 983 (20 718.06) 108	39 200 000 (217 580.40) 108	8 744 336 (125 971.30) 108	6 969 317 (168 586.80) 108	58 500 000 (706 125) 108	262 000 000 (8 826 596) 108
GDP per capita (constant 1995 int\$)	20 989.33 (957.31) 108	21 769.54 (1 753.36) 108	27 812.8 (2 924.72) 108	7 332.26 (979.51) 108	9 300.69 (963.75) 108	15 832.82 (1 268.15) 108	19 929.54 (1 128.93) 108	25 670.72 (423.92) 108	20 020.98 (1 473.38) 108	28 069.18 (1 881.06) 108
Tax Revenue (% of GDP)	41.63 (1.96) 108	42.89 (1.43) 108	41.49 (0.85) 108	37.58 (4.03) 90	33.26 (1.84) 45	33.69 (0.83) 108	50.93 (1.99) 108	32.72 (1.77) 108	35.49 (1.21) 108	26.94 (2.13) 108
Unemployment rate (% of the labour force)	10.62 (1.19) 108	5.59 (1.51) 108	4.71 (0.97) 108	12.51 (2.43) 99	12.89 (3.05) 90	18.87 (3.18) 108	5.67 (2.43) 108	3.05 (1.65) 108	7.55 (1.72) 108	5.57 (1.06) 108
Public Social Expenditure (% of GDP)	25.86 (1.22) 90	26.99 (1.72) 90	28.11 (0.94) 90	23.85 (2.93) 90	13.97 (0.25) 45	20.35 (1.00) 90	33.43 (2.21) 90	24.50 (3.23) 90	24.60 (2.37) 90	15.11 (0.80) 99

* mean and st.d. for each particular migration flow from country *i* to country *j*

** mean and st.d. for the sum of migration flows to country *j* (from all countries *i*)

*** mean and st.d. for stock of immigrants originating from country *i* residing in country *j*

**** mean and st.d. for the sum of stocks of immigrants residing in country *j* (originating from all countries *i*)

Table 4.B2: Descriptive statistics of basic variables for source countries (means, standard deviations and number of observations)

Mean (St.d.) Numb. of Obs.	Bulgaria	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Slovak Republic
<i>Population</i>	8 385 060 (177 345) 252	10 300 000 (18 400.72) 252	1 463 841 (73 372.32) 252	10 200 000 (103 569.50) 252	2 534 225 (108 881) 252	3 628 583 (68 583.83) 252	38 500 000 (227 334.80) 252	22 700 000 (257 589.30) 252	5 365 983 (20 662.96) 252
GDP per capita (constant 1995 int\$)	5 754.98 (582.30) 252	11 743.74 (751.28) 210	7 984.02 (1 149.26) 252	9718.76 (856.74) 252	6 668.51 (1 707.85) 252	7 633.84 (1 373.72) 231	7 332.26 (976.90) 252	5 379.71 (328.05) 231	9 300.69 (961.19) 252
Unemployment rate (% of the labour force)	8.13 (4.19) 248	8.13 (4.19) 248	8.13 (4.19) 248	8.13 (4.19) 248	8.13 (4.19) 248	8.13 (4.19) 248	8.13 (4.19) 248	8.13 (4.19) 248	8.13 (4.19) 248
Tertiary Enrollment Rate Gross	16.12 (13.37) 182	24.73 (22.62) 194	26.00 (14.60) 212	21.47 (13.60) 208	24.91 (17.54) 188	24.64 (25.85) 213	20.06 (23.41) 197	18.87 (25.37) 179	29.65 (20.69) 204
Secondary Enrollment Rate Gross	79.58 (8.00) 252	91.15 (6.84) 252	101.67 (4.59) 252	92.74 (7.45) 231	87.64 (2.57) 231	87.64 (4.63) 231	91.51 (6.96) 210	81.92 (4.82) 252	87.96 (3.24) 252
Fertility Rate	1.41 (0.26) 252	1.46 (0.31) 252	1.51 (0.33) 252	1.58 (0.21) 252	1.46 (0.35) 252	1.61 (0.27) 252	1.72 (0.26) 252	1.49 (0.26) 252	1.69 (0.30) 252

Table 4.C1. Estimation of migration flows from 9 CEE source countries (i) to 18 (OECD) destination countries (j), 1990-2000, with year dummies.

<i>Dependent variable:</i>				
m_{ijt} = Gross Flows per 1000 inhabitants	(1)	(2)	(3)	(4)
Independent variables:	FE(j)	RE(j)	FE(ij)	RE(ij)
Stock of Foreigners/Pop (<i>i</i>)	0.382 [0.030]***	0.705 [0.021]***	0.360 [0.049]***	0.565 [0.033]***
GDP per cap PPP ratio (<i>ij</i>)	1.628 [0.115]***	1.565 [0.122]***	1.004 [0.381]***	1.147 [0.190]***
Unemployment Rate, (<i>j</i>)	-0.063 [0.114]	0.767 [0.074]***	-0.149 [0.088]*	0.094 [0.079]
Unemployment Rate, (<i>i</i>)	-0.193 [0.058]***	-0.391 [0.069]***	0.024 [0.063]	-0.110 [0.058]*
Tax Revenue (<i>j</i>)	1.524 [1.040]	-2.990 [0.275]***	1.167 [0.755]	-1.502 [0.465]***
Tertiary Enrollment Rate (<i>i</i>)	0.493 [0.102]***	0.611 [0.126]***	-0.237 [0.241]	0.040 [0.154]
Distance in Kilometers (<i>ij</i>)	-1.144 [0.103]***	-0.673 [0.072]***	-	-0.626 [0.136]***
Neighbouring Country (0/1)	-0.223 [0.144]	-0.286 [0.133]**	-	-0.011 [0.283]
English (0/1)	-	-1.053 [0.152]***	-	-0.352 [0.294]
German (0/1)	-	0.577 [0.119]***	-	0.709 [0.213]***
French (0/1)	-	0.539 [0.125]***	-	0.694 [0.197]***
Fixed/Random Effects of Destination / Pair of Countries	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Constant Term	-3.087 [3.926]	9.285 [1.406]***	-7.182 [3.215]**	6.101 [2.312]***
No of observations	890	890	890	890
No. of destinations / pairs of countries	18	18	148	148
Adjusted R-squared	0.83	0.78	0.93	0.75
F-test	F(17,855)=28.79 p=0.000		F(147,727)=13.58 p=0.000	
Breusch-Pagan test	chi2(1) = 1478.56 p=0.000		chi2(1) = 1034.82 p=0.000	
Hausman test	chi2(17) = 509.79 p=0.000		chi2(15) = 115.58 p=0.000	

Notes: 10, 5 and 1% levels of confidence are indicated by *, ** and ***, respectively. Standard errors are in parentheses.

Table 4.C2. Estimation of migration flows from 9 CEE source countries (i) to 18 (OECD) destination countries (j), 1990-2000, with year dummies.

<i>Dependent variable:</i> m_{ijt} = Gross Flows per 1000 inhabitants						
	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables:	FE(ij) Central	RE(ij) Central	FE(ij) Baltic	RE(ij) Baltic	FE(ij) Bulgaria and Romania	RE(ij) Bulgaria and Romania
Stock of Foreigners/Pop (<i>ij</i>)	0.546 [0.129]***	0.711 [0.057]***	0.220 [0.076]***	0.511 [0.051]***	0.667 [0.103]***	0.872 [0.050]***
GDP per cap PPP ratio (<i>ij</i>)	0.204 [0.741]	-0.223 [0.430]	0.985 [1.197]	-0.078 [0.382]	3.293 [1.160]***	0.737 [0.597]
Unemployment Rate, (<i>j</i>)	-0.183 [0.114]	-0.063 [0.103]	-0.249 [0.209]	0.154 [0.179]	0.197 [0.208]	0.343 [0.161]**
Unemployment Rate, (<i>i</i>)	0.199 [0.162]	0.296 [0.134]**	0.335 [0.160]**	0.419 [0.175]**	0.716 [0.627]	0.378 [0.648]
Tax Revenue (<i>j</i>)	0.470 [0.958]	-1.280 [0.615]**	3.911 [1.535]**	0.051 [0.655]	2.459 [1.708]	-2.739 [0.657]***
Tertiary Enrollment Rate (<i>j</i>)	-0.097 [0.528]	0.013 [0.338]	-0.153 [0.495]	-0.344 [0.592]	0.899 [0.929]	-0.339 [0.788]
Distance in Kilometers (<i>ij</i>)	-	-0.160 [0.166]	-	-1.597 [0.197]***	-	-0.486 [0.215]**
Neighbouring Country (0/1)	-	0.138 [0.385]	-	-2.447 [0.253]***	-	-0.176 [0.591]
English (0/1)	-	-1.028 [0.377]***	-	1.679 [0.637]***	-	-0.980 [0.338]***
German (0/1)	-	1.082 [0.348]***	-	0.563 [0.209]***	-	-0.089 [0.323]
French (0/1)	-	0.764 [0.251]***	-	-0.091 [0.261]	-	0.699 [0.265]***
Fixed/Random Effects of Pair of Countries	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Constant Term	-4.718 [4.208]	2.532 [3.258]	-18.03[6.645]***	9.291 [4.065]**	-21.140[8.022]***	10.625 [3.400]***
No of observations	440	440	230	230	220	220
No. of pairs of countries	68	68	45	45	35	35
Adjusted R-squared	0.94	0.82	0.93	0.79	0.92	0.86
F-test	F(67,357)=31.94 p=0.000		F(44,170)=22.43 p=0.000		F(34,170)=8.16 p=0.000	
Breush-Pagan test	chi2(1) = 440.69 p=0.000		chi2(1) = 44.66 p=0.000		chi2(1) = 19.86 p=0.000	
Hausman test	chi2(15) = 55.39 p=0.000		chi2(15) = 44.77 p=0.000		chi2(15) = 3.63 p=0.999	

Notes: 10, 5 and 1% levels of confidence are indicated by *, ** and ***, respectively. Standard errors are in parentheses.