3 Migration into OECD countries 1990–2000*

Peder J. Pedersen, Mariola Pytlikova** and Nina Smith****

Introduction

As the previous chapter showed, many OECD countries expect to face the problem of declining and ageing populations in coming decades. This will impose increasing pressure on their welfare systems. Immigration of young people to these ageing OECD countries is often cited as one of the possible solutions to this problem. However, the opponents of this solution point to the findings of recent studies on immigrants' economic performance in a number of European countries. They show that immigrants as a group actually tend to be more welfare-dependent than natives (see Riphahn (1999), Hammarstedt (2000), Storesletten (2003), and Wadensjö and Orrje (2002)). Thus, increasing the immigration flows may not be a solution to the problem of population ageing, but might instead impose a higher fiscal burden for the receiving economies. This suspicion is strengthened by change in the composition of immigrants to the OECD countries in recent decades. While labor migration flows dominated until the 1970s, refugee immigrants and family reunion migration from non-Western or less developed countries are now growing sources of net immigration in many OECD countries (see Chiswick and Hatton (2002)). These immigrants show lower rates of social mobility, skills transferability and skills acquisition, implying that they have difficulties entering the labor market (see Borjas (1994) and Chiswick (1986; 2000)).

Why has the composition of immigrants changed compared to a few decades ago? What are the driving forces behind recent immigration? The classical explanation is that relative real wages and employment opportunities are some of the main determinants of international migration. Other

* We are grateful to Anna Kossowska for very helpful research assistance. We would also like to thank Helena Skyt Nielsen, Tor Eriksson, Antonio Rodriguez, Michael Rosholm, participants at the EALE Conference, Conference on Ethnic Minorities, Integration and Marginalisation, DGPE workshop, and the Seminar on Welfare Research for several helpful comments.

more recent explanations focus on the effects of welfare-state regimes. Generous social services and benefit levels and a high tax pressure are characteristics of many OECD countries nowadays. According to Borjas (1987; 1999a; 1999b), the generosity of the welfare state may play an important role in migrants' decision when choosing a country of destination – the so-called "welfare magnet effect".

On the other hand, a number of non-economic factors are also considered highly important regarding the migration decision. Beside classic factors as "love and wars", these include random events, environment, climate, language and aspects of "cultural distance". Regarding the last factor, it is a standard result that the more "foreign" or distant the new culture is and the larger the language barrier, the less likely an individual is to migrate. However, changes and improvements in communication, continued globalization of the economy 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'. If the concerned ethnic group is already present in the destination country, this may induce further immigration from the ethnic group concerned.

Thus, an interesting question is: how much do the 'pure' economic factors like relative wages or incomes, employment opportunities, tax pressure and social expenditure level explain migration behavior, and how much is explained by other factors like immigration policies, social networks, cultural and linguistic distance, threat to own freedom and safety, random events or love?

Despite a wide body of theoretical and empirical studies on the determinants of migration existing in the literature, the evidence from a multi-country perspective has been rather scant. Due largely to data limitations, most studies have only focused on the migration flows into one country. In this chapter, we add to the empirical evidence by analyzing the determinants of gross migration flows into a large number of OECD countries. We estimate a number of annual regressions using panel data econometric techniques on the flow of immigrants from 129 countries to 26 OECD countries for the period 1990–2000.

Our results indicate that gross migration flows respond to economic determinants, but the traditional factors as cultural and linguistic distance are important as well. We further find the network effect to be a significant driving force in immigration development.

The rest of the chapter is organized as follows. The second section surveys earlier research in the area. The third section describes the database collected for this study, and the fourth section describes immigration development and trends in the OECD countries. The fifth section presents a model of international migration. Results from the

econometric analyses are given in the sixth section. Finally, the seventh section offers some concluding remarks.

Review of earlier research

The classical economic theories on migration have focused on differences in income opportunities as the main determinant of international migration (see Hicks (1932) and Sjaastad (1962)). However, in reality, the incentives to migrate measured only by differentials in expected earnings have failed to explain why so few people move given huge differences in wages across the world.

Some modifications within the neo-classical framework have been introduced, for example, the probability of being employed or unemployed (Harris and Todaro 1970; Jackman and Savouri 1991). Further, the decision to migrate has been seen as a family or household decision. A move takes place only if the net gain accruing to some members exceeds the others' net loss (Mincer 1978; Holmlund 1984). A further step is made by the new economics of labor migration, which sees labor migration as a risk-sharing behavior in families. In contrast to individuals, households may diversify their resources, such as labor, in order to minimize risks to the family income (Stark 1991).

Another theory is based on migration networks. Immigrants do not have all the information on the alternatives for potential immigration targets and often they perform only limited research. One possible way to reach relatively good and safe decisions in the face of uncertainty is to decide on the basis of the migration network's information. Massey *et al.* (1993) define migration networks as ". . . sets of interpersonal ties that connect migrants, former migrants, and non-migrants in origin and destination areas through ties of kinship, friendship, and shared community origin".

The models of migration networks have been based on the network externalities theory. Positive externalities exist if the immigrant utility (utility of newly coming immigrants and previous immigrants) grows in response to an increase in the number of newcomers. The network externalities theory distinguishes between so-called "community effects", which increase the utility of a community (i.e. inflow of people from the same nation helps creating subcultures), and "family effects", which only increase the utility of friends and relatives (Carrington *et al.* 1996). However, there might also be a negative externality stemming from continuously increasing immigration population. The growing number of immigrants increases competition in the market and may reduce wages, so that accelerated migration could put a strain on immigrants' well-being.

Nevertheless, immigration flows may not stop even if the immigration creates negative externalities (see Epstein (2002), Bauer *et al*. (2002) and Heitmueller (2003)).

An important question in most recent literature is the importance of selection processes in the migration decision (see Borjas (1999c) for an overview). One of the first contributions in this area is found in Borjas (1987). Within the framework of the Roy model (1951), Borjas looked at the skill differentials between immigrants and natives in relation to the variance in the wage distribution. The composition of the migration flows by skill is determined by the individuals' position in the home-country wage distribution and the cross-country variance differential. Above-average performers in the home labor market are potential emigrants to a country with high wage dispersion. On the other side, below-average performers are potential migrants to a country with low wage dispersion. Thus the model predicts that a country with low wage dispersion will have an over-representation among the below-average performing immigrants. The more positively selected migrants are, the more successful their adjustment in the new country, and the more beneficial their impact on the destination economy and society. The selection theory was tested on data for immigration flows to the United States during the period 1951–1980. Borjas found that the lower the source-country income level (per capita) and the higher the source-country inequality, the larger is the inflow rate.

Borjas (1999b) focuses on the level of welfare programs as a pull factor for potential immigrants, that is, a 'welfare magnet' effect. The theories of self-selection are combined with the fact 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 welfare income is basically a substitute for earnings during the period of searching for a job. Borjas (1999b) investigates whether immigrants' location choices after arrival to the United States are influenced by the dispersion in the welfare benefits. He argues that immigrant welfare recipients will be clustered in the states that offer the highest welfare benefits – while the native welfare recipients will be much more dispersed across the states. His empirical work indicates a negative selection of immigrants into California – a state with a relatively generous system compared to other United States states.

The selection theories and the Borjas studies have gained considerable attention, some supportive and some critical (Jasso and Rosenzweig (1990); Chiswick (2000)). For example, one of the important assumptions of the Borjas model is the non-existence of fixed out-of-pocket money costs, which in reality are quite high (e.g., transportation costs,

housing), and which are considered very important in human capital migration models (Chiswick 2000). These migration costs constitute huge barriers to migration especially for low-skilled people from poor countries characterized by an unequal income distribution. Therefore, there could very well be a positive selection from countries with an unequal income distribution.

Such considerations seem to be reflected in results from empirical studies, which fail to give clear support to the Borjas selection theory. Zavodny (1997) finds, based on studies of immigration to the United States, that immigrants do not respond to interstate differentials in welfare generosity, but rather to differences in the sizes of the foreign-born populations. By using aggregate data on immigration to the United States from eighteen countries of origin in 1982 and 1992, her results indicate that new immigrants are attracted to areas with large immigrant populations, indicating that network effects dominate. Because earlier immigrants have been disproportionately located in high-welfare states, it may appear that high welfare benefits attract immigrants (though of course these two parallel factors are difficult to disentangle). Like Zavodny, Urrutia (2001) found no evidence that United States immigrant settlement was determined by high levels of welfare benefits. Urrutia (2001) finds that the relative costs of migration present the main explanation of the observed migration pattern. Countries with relatively low (high) fixed costs, for example, due to geographical distance, are more likely to send immigrants from the bottom (top) of the distribution of abilities. Likewise the results in Chiquiar and Hanson (2002), using Mexico and United States census data, fail to support the selection hypothesis.

In a study by Hatton and Williamson (2002), based on time series on migration flows to the United States the results are more mixed. They find significant and quantitatively important effects of source country per capita income and education and they also confirm the Borjas-Roy selection model as they find that larger source-country inequality increases emigration to the United States. On the other hand, a number of other factors are also found to be important, like distance, language and the stock of former immigrants, indicating that network effects or herding behavior also play a major role in international migration.

Some empirical research on this issue has been conducted for European countries as well (see Hatton and Williamson (2002) for the United Kingdom and the survey on studies of migration into Germany by Fertig and Schmidt (2000)). By using data from the European Community Household Panel, Boeri *et al.* (2002) examine whether welfare dependency is larger in countries with more generous benefit systems. Their findings are consistent with the view that welfare benefits distort the

composition of immigrants, both in terms of observable and unobservable characteristics. They argue that although the effects are quantitatively moderate, some of the most generous countries seem to act as welfare magnets.

As regards studying determinants of international migration in a multi-country perspective, Mayda (2004) has carried out a recent study on the migration flows into fourteen OECD countries. Her results show that income prospects in destination countries and distance are major determinants of migration flows. In this study, we are able to further extend the number of countries included in Mayda's analysis, and we also have access to information on a large number of characteristics for both source and destination countries.

The database

It is not an easy task to collect data on international migration flows because a number of problems arise with respect to availability, variations of definitions of immigrants and migrations flows, and difficulties in getting comparable data from many countries on variables which may combine to explain migration flows. In order to have more precise data on immigration, we have contacted the statistical bureaus in the twenty-six selected destination OECD countries and asked them for detailed information on immigration flows and stocks in their respective country during the period 1989–2000. This information is supplemented by published OECD statistics from "Trends in International Migration" publications.[1] Besides flow and stock information, we have collected a number of other time-series variables, which are used in the estimation of migration behavior. These variables are collected from different sources. OECD, World Bank, UN (United Nations), ILO (International Labour Organization), and IMF (International Monetary Fund) publications. The Appendix contains a list of all the variables used in estimated models, including definitions and data sources for each variable.

In total, the data set contains information on immigration flows and immigration stocks in twenty-six OECD countries from 129 countries of origin.

Although our data set presents substantial progress over those used in earlier research, a number of problems remain. First of all, the data set is unbalanced, with missing observations in the panel. For the majority of destination countries, we have information on migration flows and the

[1] Unfortunately, we are not able to distinguish whether the immigrants are job- or study-related people, tied movers in relation to family re-unions or refugees and asylum seekers.

stocks of immigrants for most of the years, but with different numbers of observation for each destination country (see Appendix, Table 3.A1, for means, standard deviations and number of observations for each destination country on gross migration flows, stock and other variables we have used in our analysis). There are missing observations regarding explanatory variables for some countries of origin as well (see Appendix, Table 3.A2). Second, as noted in almost all the chapters in this volume, different countries use different definitions of an "immigrant"[2] and different sources for their migration statistics.[3] Further, information on our data set is given in Pedersen *et al.* (2004).

Description of migration trends

During the 1980s and the beginning of the 1990s, immigration inflows increased in almost all OECD countries. Figure 3.1 shows the development of total volume of gross immigration inflows into seventeen OECD countries (see note 1 in Figure 3.1) during the period 1990–2000. According to Figure 3.1 the immigration flows peaked in 1991, reaching more than 3.7 million in this year.

As regards the composition of gross immigration flows by source-country continent, we observe in Figure 3.1 that on average, Europe constitutes a source for almost 50 percent of all immigration flows. The

[2] In definitions of immigration flows, some countries like Australia, Canada, the Netherlands, New Zealand, Poland, the Slovak Republic and the US define an "immigrant" by country of origin or country of birth. Austria, the Czech Republic, Denmark, Finland, Greece, Iceland, Italy, Norway and Sweden define an immigrant by citizenship. Some countries like Belgium, France, Hungary, Germany, Japan, Luxembourg, Portugal, Spain, Switzerland and the UK define an immigrant by nationality. For immigration stock, the definition of immigrant population differs among countries as well: the majority of countries, especially Australia, Austria, Canada, Denmark, Iceland, the Netherlands, New Zealand, Poland, the Slovak Republic, Sweden, the UK and the US define immigrant population by country of origin or country of birth. Some, like the Czech Republic, Finland, Greece, Italy and Norway define immigrant population by citizenship and others like Belgium, France, Hungary, Germany, Japan, Luxembourg, Portugal, Spain and Switzerland define immigrant population by nationality. The differences in definition of immigrant population in the case of immigration stock are relatively important. The first one, by country of origin/birth takes into account foreign-born population, i.e. the first generation immigrants, and thus it contains also immigrants that have obtained citizenship. The second and third definitions, by citizenship and nationality, include second and higher generation foreigners, but do not cover naturalized citizens. Thus, the nature of legislation on citizenship and naturalization plays a role.

[3] For example, Belgium, Germany, Luxembourg, the Netherlands, Switzerland, and the Scandinavian countries use data based on population registers, while the majority of southern and eastern European countries use data based on issuing residence permits. Australia, Canada, New Zealand, and Poland use data from censuses: some countries like Greece, the UK, and the US use labor force surveys while others, like France and Japan, use information from various sources, including employer-reported social security data.

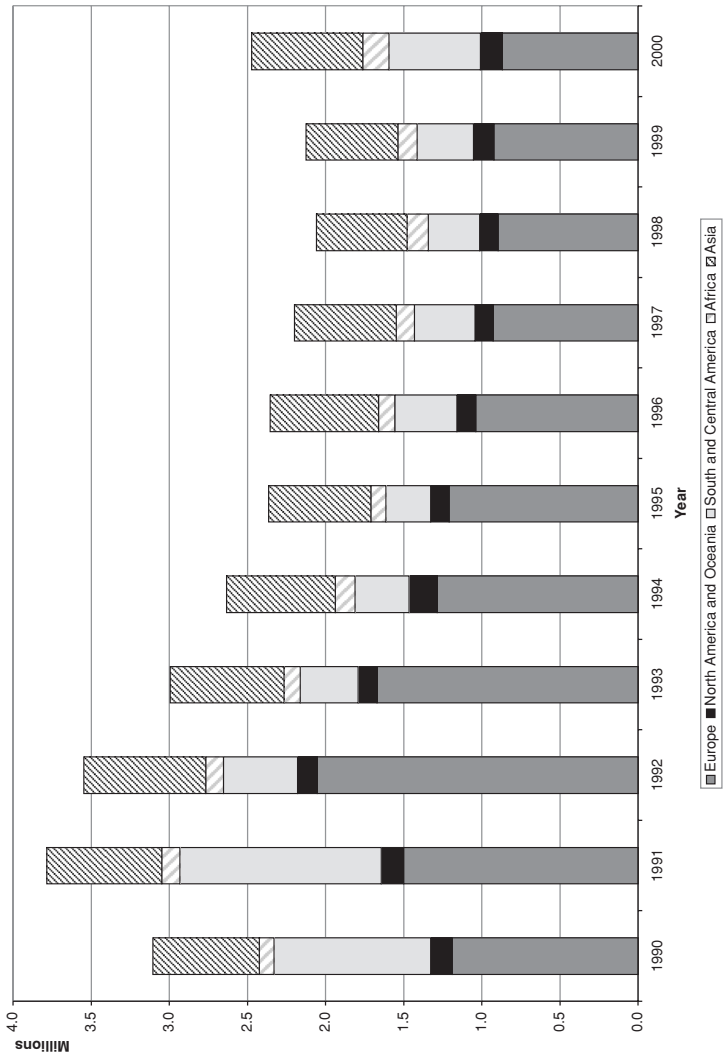

Figure 3.1. Total volume of gross immigration inflows to 17 OECD countries, 1990–2000, By source-country continent.[1]
Note 1: The included destination countries are: Australia, Belgium, Canada, Denmark, Finland, France, Germany, Hungary, Japan, Luxembourg, New Zealand, Norway, Poland, Spain, Sweden, Switzerland and the United States. These countries are selected because we have annual data for all years, i.e. no missing observations on flows, for these countries. The following countries have been excluded due to missing observations on flows for some years: Austria, Czech Republic, Greece, Iceland, Italy, Netherlands, Portugal, Slovak Republic and the United Kingdom.
Source: Own calculations.

observed dynamic development of immigration flows from Europe was mostly due to the removal of the Iron Curtain in 1989 and the Yugoslavian civil war, which gave rise to a large increase of migration within Europe in the early 1990s. This can be seen from Figure 3.2, in which we show immigration flows from European Union[4] and the rest of Europe[5] as a percentage of total European flows. The percentage of immigrants coming from countries other than Europe reached 80 percent of all immigration flows from Europe in 1992 (see Figure 3.2). In the most recent years (legal) migration flows from these countries seem to have stabilized, mainly due to immigration restrictions. The immigration flows stemming from EU member countries have been very stable over time, fluctuating around 320,000 annually.

The distribution of OECD immigration flows by source-country continents has been relatively stable since the early 1990s (see Figure 3.1). We observe a slight increase in overall immigration flows at the end of the decade, especially from South American, African and Asian countries. It should be noted that Figures 3.1 and 3.2 describe gross migration flows, not net flows. If there are large differences with respect to out-migration behavior for the different immigrant groups, the net migration flows may be very different from the gross flows. Non-Western immigrants tend to have much lower return and out-migration rates than Western immigrants in many countries, and thus the stocks of OECD immigrants from different regions may still be changing despite the apparently quite stable development in Figure 3.1

Figure 3.3 shows stock of foreign population as a percentage of total population in twenty seven OECD countries in the years 1990 and 2000. The stocks of immigrants in OECD countries vary considerably, ranging from 37 percent in Luxembourg in 2000, to less than 1 percent in the Slovak Republic.

It is also apparent from Figure 3.3, that migration flows have changed in the sense that some countries, for example, Australia and Canada, have experienced a much smaller growth in their immigrant population during the latest decade compared to relatively new immigration countries like Austria, Denmark, Iceland, Luxembourg, and some of the southern European countries.

The decomposition of immigrants' stock by continents of origin in the years 1990 and 2000 is shown in Figure 3.4. The highest proportion of immigrants residing in OECD countries originates from Europe and the

[4] Here we consider the "old" EU made up of 15 Member States.
[5] We mean the following countries: Albania, Bulgaria, Cyprus, Czech Republic, Hungary, Poland, Romania, Slovakia, Turkey, all states of Former USSR (Union of Soviet Socialist Republics) and the former Yugoslavia.

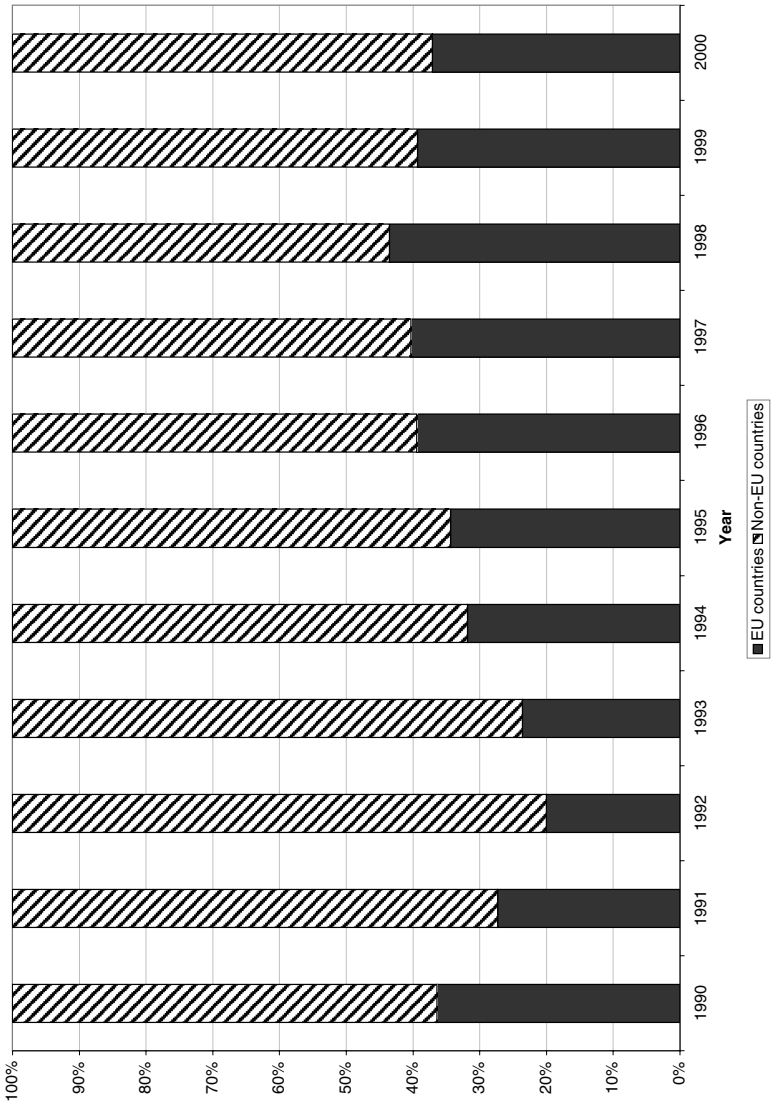

Figure 3.2. Gross immigration inflows from EU- and non-EU-countries as a percentage of total inflows from Europe into 17 OECD countries, 1990–2000.[1]
Note 1: See Figure 3.1.
Source: Own calculations.

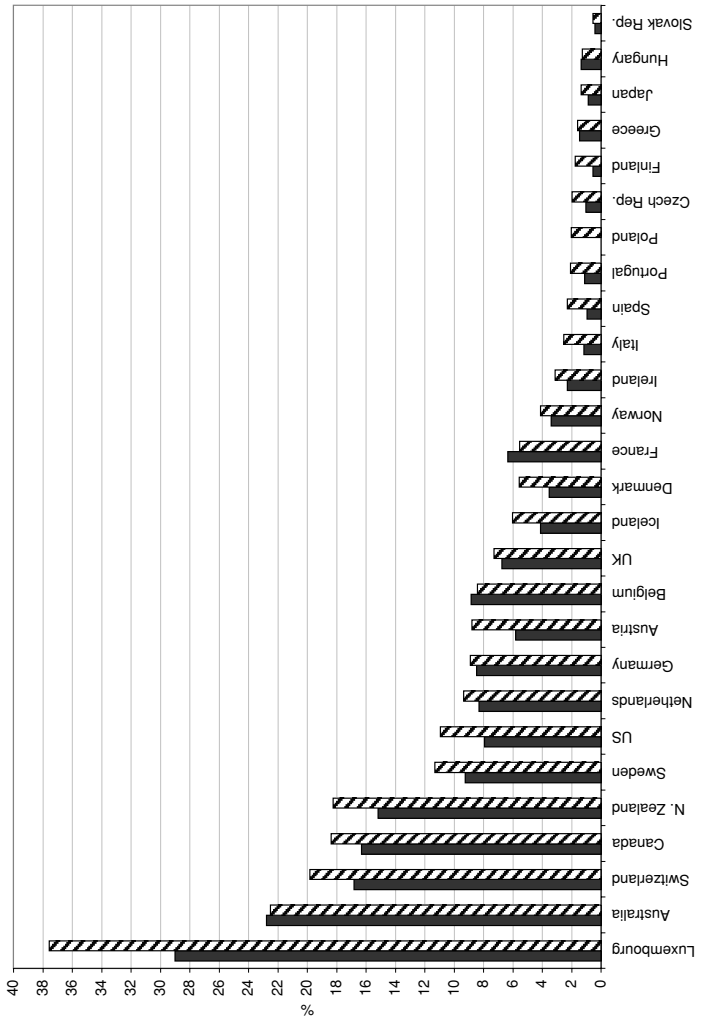

Figure 3.3. Stock of foreign population as a percentage of total population in 1990 and 2000 in selected OECD countries.
Note 1: Due to data availability the figure shows information on: 1991 instead of 1990 for Austria, Iceland, Italy and Spain; 1991 and 2001 instead of 1990 and 2000, respectively, for Canada, Luxembourg and New Zealand; 1999 instead 2000 for France; 1997 instead of 2000 for Greece; 1994 instead of 1990 for Czech Republic; 1994 and 1999 instead of 1990 and 2000 respectively for Hungary; 1995 instead of 1990 for Slovak Republic and 1992 instead of 1990 for United Kingdom.
Source: Own calculations.

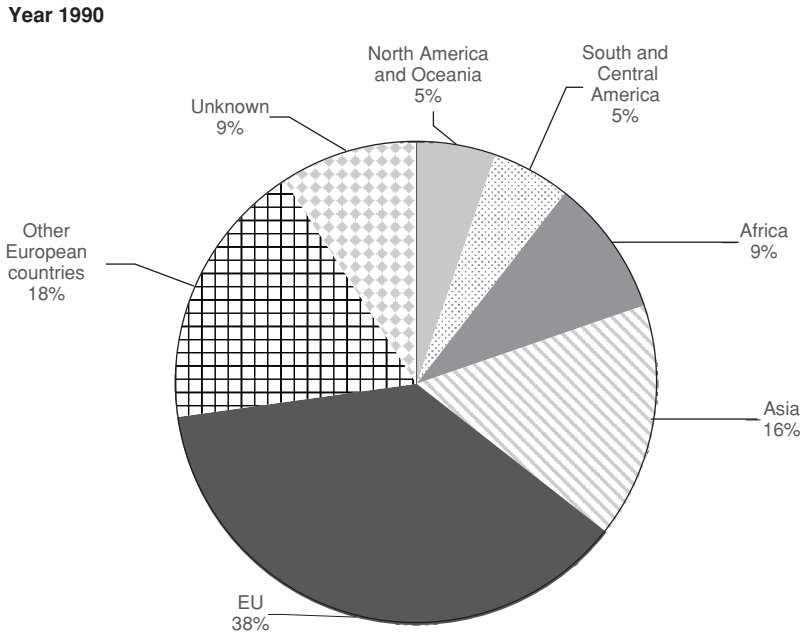

Figure 3.4. Proportion of total immigration stock in OECD countries by continents of origin, 1990 and 2000.
Note 1: Due to data availability the figure shows information on: 1991 instead of 1990 for Austria, Iceland, Italy and Spain; 1991 and 2001 instead of 1990 and 2000, respectively, for Canada, Luxembourg and New Zealand; 1999 instead 2000 for France; 1997 instead of 2000 for Greece; 1994 instead of 1990 for Czech Republic; 1995 instead of 1990 for Slovak Republic and 1992 instead of 1990 for United Kingdom. Hungary and Poland have been excluded due to non-detailed information on countries of origin and missing year 1990 in the case of Poland.
Source: Own calculations.

majority of them come from EU member countries. Nevertheless, the proportion has changed over time, and has dropped from 38 percent in 1990, to 31 percent in 2000. At the same time the share of immigrants from countries other than the EU has increased sharply by 6 percentage points, from 18 percent of total stock in 1990 to 24 percent in 2000. Further, we observe a slight growth in the share of immigrants from Asia, Africa and South and Central America, with an increase by 2, 1 and 1 percentage point respectively.

There are large variations in the composition of immigrant stocks across individual OECD countries and the composition is changing over time

(see Table 3.1). One common trend observed in almost all OECD countries is a falling share of foreign population from the EU, North America and Oceania. Thus, although there has been a relatively stable development of immigration flows, the share of immigrants from these countries of origin is in fact falling due to a high propensity to return migration.[6]

In some countries, like Luxembourg, Belgium, and Switzerland, the large stock of immigrants stems mainly from other OECD countries (working in EU institutions and the financial sector) while in other countries, to some extent in new immigration countries, the proportion of immigrants who stem from poor source countries is large. Typical examples are southern European countries, where the proportion of immigration stock from Africa, Asia, and South and Central America is relatively high mostly due to geographical and linguistic[7] proximity. Scandinavian countries – relatively new immigration countries – experienced a sharp increase in the numbers of immigrants of African and Asian origin which, almost doubled over the decade studied.[8] The traditional immigration countries like Australia, Canada, and New Zealand have all encountered a significant increase in population of Asian origin. The United Kingdom has historically had a large proportion of people coming from the Asian continent (mainly former colonies). Nevertheless, the increase in their share has been rather moderate.

The largest share of immigrant population in the United States originates, not surprisingly, from South and Central America mostly due to the well-represented Mexican immigrant population. The share has further grown by 5 percentage points, reaching 41.5 percent of the entire immigrant population in the United States.

Nearly all OECD countries have experienced an increase in foreign population from European countries outside the EU (which, for our period, includes those countries that joined in 2004). But the proportion is especially high in countries like Germany, Austria, and Switzerland. The Nordic countries experienced a fairly large increase in the stock from non- EU origins, with the highest increase in Finland, where the share of non- EU immigrants reached nearly 52 percent of the total foreign population. This is mostly due to a large movement from Estonia that shares common Nordic history and language proximity.[9]

The non-EU nationals are also well-represented among foreigners in the Central European OECD Member States – Czech and Slovak

[6] Mostly highly educated, professionals, students etc.
[7] Language plays a role for immigrants coming from southern and Central America.
[8] Except for Norway.
[9] The Estonian language belongs to the same Finno-Ugric family of languages as Finnish and Hungarian.

Table 3.1 *Proportion of immigration stock in particular OECD countries by continents of origin, 1990 and 2000*

Share of Immigration stock by continents of origin:	EU (15) countries (in %)		Other European countries (in %)		North America and Oceania (in %)		South and Central America (in %)		Africa (in %)		Asia (in %)		Unknown (in %)		Total (in %)	
OECD	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000
Australia	48.9	37.0	6.1	8.6	7.6	11.2	0.0	0.0	1.4	2.6	12.2	19.8	23.8	20.8	100	100
Austria	18.7	15.9	37.5	61.2	1.6	1.0	0.4	0.6	1.7	1.6	4.4	1.9	35.8	17.8	100	100
Belgium	62.2	65.9	10.6	10.0	1.5	1.7	0.3	0.6	19.1	16.0	1.8	2.8	4.6	3.0	100	100
Canada	41.0	29.8	8.8	11.1	6.8	5.5	6.8	7.1	3.5	4.4	24.7	35.1	8.6	7.0	100	100
Czech Rep	12.5	6.9	66.3	70.6	3.9	1.9	0.7	0.3	1.6	1.0	14.3	16.1	0.6	3.2	100	100
Denmark	39.5	22.0	22.8	27.4	3.7	2.8	1.9	1.8	4.5	8.7	25.5	28.5	2.1	8.8	100	100
Finland	46.7	19.6	22.2	51.8	8.0	3.5	0.6	1.0	3.7	8.0	9.8	15.9	9.0	0.2	100	100
France	36.6	37.6	8.5	10.0	0.9	1.1	0.5	1.6	42.8	40.8	3.8	7.3	6.8	1.6	100	100
Germany	31.5	26.3	51.8	52.7	2.0	1.8	0.8	1.1	3.4	3.4	8.8	10.2	1.7	4.4	100	100
Greece	31.3	27.5	22.9	33.7	12.5	10.7	2.8	2.0	9.8	7.3	19.8	16.0	0.8	2.8	100	100
Iceland	61.7	47.5	8.2	20.3	14.2	10.6	0.5	1.2	1.2	1.7	7.4	13.5	6.7	5.3	100	100
Italy	11.6	11.4	11.7	26.4	6.4	1.7	0.0	7.7	30.5	30.1	13.7	18.5	26.1	4.3	100	100
Japan	2.2	2.1	0.1	0.3	4.5	4.0	6.5	18.1	0.1	0.3	85.5	72.8	1.0	2.3	100	100
Luxembourg	92.7	85.5	2.8	7.9	1.3	0.9	0.4	2.0	1.4	1.6	1.4	1.6	0.1	0.6	100	100
Netherlands	20.8	18.7	19.2	19.7	1.7	1.9	15.6	14.4	16.8	17.0	20.5	21.8	5.3	6.4	100	100
New Zealand	52.2	37.8	1.0	1.4	15.3	14.8	0.2	0.3	1.6	4.2	10.7	19.5	19.1	22.1	100	100

Norway	41.0	45.5	9.4	17.0	7.8	5.4	4.5	2.0	5.4	5.7	29.0	19.6	2.8	4.9	100	100
Poland	–	20.3	–	73.7	–	1.4	–	0.0	–	0.1	–	1.0	–	3.6	–	100
Portugal	17.0	27.3	0.0	0.0	8.3	5.1	15.4	12.5	40.2	45.1	0.0	2.6	19.1	7.5	100	100
Slovak Rep.	8.8	8.0	70.5	72.3	3.6	2.6	0.6	0.5	2.4	1.4	9.2	10.8	4.8	4.4	100	100
Spain	48.3	35.5	1.6	5.4	4.0	1.8	17.0	22.1	15.3	26.1	6.8	6.1	7.0	3.0	100	100
Sweden	51.4	37.7	18.4	26.0	2.1	1.9	5.7	5.5	1.9	4.4	15.1	21.5	5.5	3.0	100	100
Switzerland	71.6	56.8	19.7	27.6	1.4	1.5	1.3	2.1	1.7	2.4	3.3	4.9	1.1	4.8	100	100
UK	30.0	27.7	6.1	7.0	7.9	8.2	3.6	4.3	12.2	14.8	28.2	28.6	12.1	9.4	100	100
U. S.	15.3	10.6	6.4	3.7	0.7	1.4	36.6	41.5	1.3	2.0	23.3	25.5	16.3	15.3	100	100

Note 2: Due to data availability the figure 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 2000 for France; 1997 instead of 2000 for Greece; 1994 instead of 1990 for Czech Republic; 1995 instead of 1990 for Slovak Republic and 1992 instead of 1990 for United Kingdom. Ireland and Hungary have been excluded due to non-detailed information on countries of origin.
Source: Own calculations.

Republics, Hungary, and Poland. It is apparent from the development in Figure 3.3 and Table 3.1 that the new EU Member States became emigration and immigration countries all at the same time. Although the proportion of foreigners per population is still very low in the Czech and Slovak Republics and Poland, it has risen significantly over time; (see Figure 3.3). The major influx of foreigners comes from non-EU countries (see Table 3.1), and in particular from the former USSR (Union of Soviet Socialist Republics) countries, Romania, Bulgaria, and the former Yugoslavia.

There may be many factors explaining the changing composition of immigration observed above. Besides differences in return migration behavior, there might be different factors driving migration flows. Moreover, the determinants of migration may vary in time and across various countries of origin. The next section, describes in detail some particular determinants of migration and we present a formal model of migration flows.

A model of international migration

Standard neoclassical theory assumes that potential migrants have utility-maximizing behavior, that they compare alternative potential destination countries and choose the country which provides the best opportunities, all else being equal. Immigrants' decision to choose a specific destination country depends on many factors, which relate to the characteristics of the individual, the individual's country of origin and all potential countries of destination. Following Zavodny (1997) we consider individual *k's* expected utility in country *j* at time *t* given that the individual lived in the country *i* at time *t−1*

$$U_{ijkt} = U(S_{ijkt}, D_{ij}, X_{ikt}, X_{jkt}) \tag{1}$$

where S_{ijkt} is a vector of characteristics that affects an individual's utility of living in country *j* at time *t*, given that the individual lived in country *i* at time *t−1*. For example, an individual may want to move to a country where his friends or family members are. D_{ij} reflects time-independent, fixed-out-of-pocket, and psychological/social costs of moving from country *i* to country *j*. X_{ikt} and X_{jkt} are vectors of push and pull factors that vary across time and affect individual *k's* choice where *i* denotes source country and *j* denotes destination country, ($i = 1, \ldots, 129$, and $j = 1, \ldots, 26$); *t* is time period ($t = 1, \ldots, 11$). We assume that the utility of an individual has a linear form:

$$U_{ijkt} = \alpha_1 S_{ijkt} + \alpha_2 D_{ij} + \alpha_3 X_{ikt} + \alpha_4 X_{jkt} + \varepsilon_{ijkt} \tag{2}$$

where ε_{ijkt} represents an idiosyncratic error term and α_1, α_2, α_3 and α_4 are vectors of parameters of interest to be estimated. A potential immigrant maximizing his utility chooses the country with the highest utility at time t conditional on living in country i at time $t-1$. Thus, we can write the conditional probability of individual k choosing country j from 26 possible choices as:

$$\Pr(j_{kt}/i_{kt-1}) = \Pr[U_{ijkt} = \max(U_{ki1t}, U_{ki2t}, \ldots, U_{ki26t})] \tag{3}$$

Model (3) might be used for estimation of the determinants of the individual's locational choice.[10] However, as we use macro data, we aggregate up to population level by summing over k individuals. The number of individuals migrating to country j, that is, whose utility is maximized in that country, is given by:

$$M_{ijt} = \sum_k \Pr[U_{ijkt} = \max(U_{ki1t}, U_{ki2t}, \ldots, U_{ki26t})] \tag{4}$$

where M_{ijt} is the number of immigrants moving to country j from country i at time t. This migration measure represents an 'ex ante' measure of the migration flows. The resulting and observed 'ex post' flow may of course also be affected by migration policy, illegal immigration etc. We assume a linear form of the variables that influence the locational choice of immigrants. Hence we have:

$$M_{ijt} = \beta_1 S_{ijt} + \beta_2 D_{ij} + \beta_3 X_{it} + \beta_4 X_{jt} + \mu_{ijt}, \tag{5}$$

where μ_{ijt} is an error term assumed to be *iid* with zero mean and constant variance. We normalize the immigration flows by population size in destination country, that is, we use the immigration rate, m_{ijt}, instead of immigration flow in absolute numbers as the dependent variable. m_{ijt} is defined as immigration flow to country j from country i divided by population size in country j in the period t. All time-varying explanatory variables are lagged by one year in order to account for information on which the potential immigrants base their decision to move. Further, we include the normalized lagged stock of immigrants, s_{ijt-1}, that is, the stock of immigrants from source country i, divided by population in destination country j. The (normalized) stock of immigrants s_{ijt-1} is expected to catch the existence of "networks" – links between sending and receiving

[10] The model does not take into account potential out-migration or return migration. Since the stock of immigrants is the net result of in- and outflow mechanisms, and since out-migration is non-negligible for many immigrant groups, this topic is also very important when explaining the composition of immigrant groups in different countries. However, in this study we only focus on gross immigration.

countries. Through the "networks" the potential migrants receive information about the immigration country – about the possibility of getting a job, about economic and social systems, immigration policy, people and culture. It facilitates easier immigration and further easier adaptation of newly coming immigrants into the new environment.

We have further included destination countries fixed or random effects, c_j, in order to capture unobserved time constant factors influencing immigration flows,[11] for example, differences in national immigration policy (see Fertig and Schmidt (2000) for the importance of the homogeneity assumptions).

Thus, the model to be estimated is:

$$m_{ijt} = \beta_1 s_{ijt-1} + \beta_2 D_{ij} + \beta_3 X_{it-1} + \beta_4 X_{jt-1} + c_j + \mu_{ijt} \qquad (6)$$

D_{ij} contains variables reflecting costs of moving to a foreign country. First, we include a variable describing cultural similarity denoted *neighbouring country*. It is a dummy variable assuming the value of 1 if the two countries are neighbors, 0 otherwise. The variable *colony* is a dummy variable assuming the value of 1 for countries ever in colonial relationship, 0 otherwise. This variable is included because the past colonial ties might have some influence on cultural distance: provide better information and knowledge of potential destination country and thus lower migration costs, which could encourage migration flows between these countries. Further, we include a variable *linguistic distance*, which is a dummy variable equal to 1 for common language in two countries, 0 otherwise. In order to control for the direct costs (transportation costs) of migration, we use the measure of the *distance in kilometres* between the capital areas in the sending and receiving countries. We also include a variable *trade volume*, which is refined as the total trade values (both imports and exports) for all country pairs.[12] We expect that the business ties represented by the volume of trade could have (positive) effects on international migration. Moreover, this variable is often considered as an indicator of globalization.

The explanatory variables included in X_{it-1} and X_{jt-1} cover a number of push and pull factors such as the economic development measured by GDP (Gross Domestic Product) per capita in destination and source

[11] We have also estimated a model with both destination and source countries, fixed effects, but it does not result in different results. Moreover, we found source countries fixed effect hard to interpret bearing in mind the large range of source countries.

[12] Import and export values from Direction of Trade Statistics are expressed in nominal US dollar prices. The values in constant prices would be more suitable for our analysis. However, we decided to use the nominal ones as it is a quite complex task getting suitable export and import deflators.

countries (which are supposed to catch relative income opportunities in the two countries), employment opportunities in the sending and receiving countries, measured by unemployment rates, and demographic and political factors. The hypothesis is that a higher (lower) level of economic development in the destination country will lead to higher immigration rates because potential immigrants expect to experience better (worse) income opportunities. 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 Hatton and Williamson (2002). 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 when GDP levels increase further, migration may again decrease because the economic incentives to migrate to other countries decline. The GDP variable is supplemented by a variable reflecting the educational level of the source country, measured by adult *illiteracy rate*. It is expected, following Harris and Todaro (1970), that a low (high) unemployment rate in the destination (source) country will cause higher immigration flows. We also include a variable capturing population pressure, for example, population in the source country *i* divided by population in destination country *j*. The higher the relative population in the source countries, the larger migration pressure is expected. A more appropriate measure, which we are not able to include because of data limitations, would be the proportion of the population in the younger adult age groups, because a large proportion of migration flows is driven by these age groups, see, for example, Fertig and Schmidt (2000).

The political pressure in the source country may also influence migration. Therefore, we include the variable *freedom house index* which intends to measure the degree of freedom, political rights and civil liberties in the countries. The variable is taking on values from one to seven, with one representing the highest degree of freedom and seven the lowest. Violated political rights and civil liberties are expected to increase migration flows.

We include some variables which are assumed to capture potential pull factors relating to the "welfare magnet" theories, as presented by Borjas (1987; 1999a; 1999b). We have experimented with two variables: public social expenditure and tax revenue, both expressed as a percentage of GDP in the potential destination countries. Since the variables are highly correlated, we only include one of them at a time. In the estimations presented, only the relative tax level is included. We have also experimented with distributional indicators by including Gini coefficients as measures of inequality. However, we have had difficulties in getting comparable and reliable information for the majority of countries on this variable, and at the moment we are not able to include this factor in our study. Moreover,

since we use aggregated macro data, we are not able to test directly for selectivity effects saying that there is a negative or positive selection from a given source country into a given destination, that is, that immigrants from the poor countries being at the lower part of income distribution may be more likely to move to the countries with more comprehensive welfare programs while immigrants from the upper end of the skill distribution in the poor countries may prefer destination countries with low tax pressure and lower social standards.

All variables used in the estimations, except dummy variables, are in logs, that is, the estimated coefficients represent impact elasticities. The model given by (6) has been estimated by pooled OLS (Ordinary Least Squares) as well as by panel data estimators, that is, fixed effects and random effects estimators.

Results

The results from estimating a model of the log gross flows between the 129 source countries (*i*) and the 26 OECD destination countries (*j*) on annual unbalanced panel data for the period 1990–2000 are presented in Table 3.2.

Column 1 shows the estimates using OLS and excluding the lagged stock of immigrants from country *i* in country *j*, while column 2 includes the stock variable. Comparing the two columns indicates that the existing stock of immigrants of a given ethnic origin is an important factor explaining future migration flows, exactly as it is found in other studies (Zavodny (1997); Hatton and Williamson (2002)). The explanatory power (R^2) of the model increases from 51 to 72 percent when including the stock variable,[13] thus, this variable is included in all subsequent models. The highly significant coefficient to the stock variable indicates the existence of strong network effects. This could consist of a number of possible mechanisms, that is, as a background for family reunification or as indicators of faster access to the labour market in the new country, the more people already there from your own ethnic group.

When comparing the pooled OLS results with the panel models treating destination country in columns 3–4 as fixed or random effects, the overall impression is that the results regarding sign and statistical significance are quite robust across the different specifications. However, as expected, the

[13] In order to see whether this result is not driven by the drop in observations when including the stock variable as regressor, we have estimated the model in column (1) without the stock variable and including exactly the same observations as in columns (2)–(5), i.e. 7268 observations. The explanatory power increased in similar fashion, from 53 to 72 percent.

Table 3.2 *Estimation of migration flows from 129 source countries (i) to 27 (OECD) destination countries (j), 1990–2000*

Dependent variable: m_{ijt} = Gross Flows per 1000 inhabitants *Independent variables*:	OLS	OLS	FE (c_j)	RE (c_j)
S_{ijt-1} Stock of Foreigners/Pop.(j)	–	0.615 [0.009]***	0.636 [0.008]***	0.614 [0.008]***
D_{ijt-1} Neighbouring country (0/1)	0.394 [0.064]***	0.098 [0.053]*	–	−0.004 [0.046]
Linguistic distance (0/1)	1.274 [0.060]***	0.347 [0.058]***	–	0.388 [0.051]***
Colony (0/1)	0.237 [0.087]***	−0.061 [0.077]	–	0.385 [0.070]***
Distance in kilometres	−0.395 [0.018]***	−0.212 [0.016]***	–	−0.089 [0.016]***
Trade volume	0.280 [0.008]***	−0.006 [0.008]	0.129 [0.012]***	0.074 [0.013]***
X_{jt-1} GDP per cap PPP, j	2.131 [0.062]***	1.422 [0.056]***	0.788 [0.226]***	0.892 [0.167]***
Unemployment rate, j	−0.286 [0.030]***	−0.097 [0.025]***	−0.267 [0.029]***	−0.266 [0.029]***
Tax revenue in j/GDP, j	−0.682 [0.089]***	−0.203 [0.074]***	−0.093 [0.310]	0.115 [0.255]
X_{it-1} Population (i)/Population (j)	0.399 [0.008]***	0.191 [0.007]***	0.039 [0.010]***	0.107 [0.012]***
GDP per cap PPP, i	−0.003 [0.037]	−0.143 [0.031]***	−0.266 [0.029]***	−0.192 [0.030]***
Unemployment rate, i	0.100 [0.022]***	−0.088 [0.019]***	−0.005 [0.017]	−0.022 [0.017]
Illiteracy rate, i	−0.018 [0.018]	−0.198 [0.016]***	−0.205 [0.013]***	−0.194 [0.014]***
Freedom House Index, i	0.055 [0.043]	0.137 [0.037]***	0.200 [0.032]***	0.170 [0.032]***
Fixed/Random effects of destination, c_j	No	No	Yes	Yes
Constant term included	Yes	Yes	Yes	Yes
No of observations	9689	7268	7268	7268
Adjusted R-squared	0.510	0.722	0.795	0.706

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

absolute size of the coefficients is generally larger when applying OLS on the pooled samples of countries while the panel data estimators which control for country-specific fixed or random effects generally are smaller in numerical magnitude. To be able to know which model, fixed or random effects, fits our panel data context best, one should first establish whether there is a correlation between the unobserved factors influencing immigration flows and the explanatory variables. If the unobserved factors c_j correlate with the explanatory variables, then the fixed effects panel data model has priority. If they are unrelated, then the random effects model is preferred. From the econometric point of view, a standard procedure is to test for this correlation by using a Hausman specification test. In our panel data context, the Hausman test actually confirms the random effects assumption of zero correlation between explanatory variables and country-specific effects.[14]

Concentrating on the results from the random effects estimation (RE) in column 4, the elasticity of the flow of immigrants from country i with respect to the stock of immigrants in country j is estimated to be about 0.6, implying that on average an increase in the stock of immigrants of 10 percent from a given source country induces an increase in annual gross flow of about 6 percent of new immigrants from this source country. Since we control for other country-specific factors, this result is mainly explained by the existence of network effects which seem to be both statistically significant and quantitatively of a considerable size. Similar results are found in Zavodny (1997) and Hatton and Williamson (2002).

In regressions estimated by RE panel data technique, the dummy variable for source and destination countries being neighbors is found to be insignificant. The other distance-related dummy variables, linguistic distance and a dummy for the source country having in the past been a colony to the destination country, are consistently found to have the expected positive impact on migration flows with most coefficients being significant. Finally, in this group of variables, the distance between countries measured in kilometres and the pair wise trade volume between source and destination countries are both significant with expected signs. Increasing distance and smaller trade volume imply lower migration flows and vice versa.

The next block of variables in Table 3.2 contains the pull factors in the destination countries. GDP per capita as a pure measure of gross income comes out with significant positive coefficients. In the same way, we find consistently that higher unemployment in destination countries has a significantly dampening impact on migration. The welfare state

[14] It gives chi-squared (10) =8.48.

attractor among the pull factors is measured by the tax pressure needed to finance the welfare state. The effect is negative, but the tax level is only significant in the OLS estimations where we do not control for other country-specific factors.[15]

Thus, it seems that the tax level variable as a welfare state measure does not act as an attractor in migration flows. Zavodny (1997) also found that controlling for country-specific factors and network effects resulted in welfare state variables becoming insignificant regarding immigration to the USA. However, in our multi-destination countries case we get a negative coefficient to the welfare state variable in OLS regressions while Zavodny (1997) gets a positive coefficient when not controlling for stock and fixed effects.

Next, we come to a block of source-country push factors. The first of these is a simple pair wise population ratio between source and destination country populations. Not surprisingly, the coefficient is significantly positive in all specifications. Further, we enter GDP per capita in source countries finding significantly negative coefficients, that is, higher income in source countries has a dampening impact on emigration from these countries.

We find a negative impact on migration flows from unemployment in the source countries. In a regional context inside a country this would be a counterintuitive result as higher unemployment is expected to push people to other regions. Here, however, we deal with international mobility which is expected to be much more costly in both financial and other terms. Higher unemployment in a low-income country could simply indicate a situation making it more difficult due to financial restrictions to finance migration to another, eventually distant, country. The negative coefficient of the illiteracy rate indicates the same tendency. Migration to the rich OECD countries increases when the educational level in source countries increases. Overall, 'poverty' effects seem to be among the important determinants for migration flows. Higher economic growth in source countries is thus expected to create counteracting impacts on out-migration incentives. Unemployment will go down and educational standards will go up, acting to reduce the barriers to migration. But, at the same time, income goes up with a counteracting effect and the net effect becomes indeterminate.

[15] It might be argued that controlling for country-specific factors partly 'kills' the welfare effect because the characteristics of different welfare regimes are quite stable in most cases over an eleven-year period as used in our estimations. Further, we have tried several specifications with social expenditure as a proportion of GDP. This variable was insignificant as well.

Finally, we have included the Freedom House Index among the source-country push factors. The effect is positive and significant, indicating that lower degrees of freedom create out-migration incentives, part of it being in the form of refugees.

Next, we show in Table 3.3 the separate results from the RE estimation disaggregated by continents of origin. Comparing with the results in Table 3.2, the importance of networks seems to be universal across continents of origin. The variables linguistic distance and colony seem to be significantly negative with respect to Africa as the continent of origin, in contrast to the results in Table 3.1. Further, we see that the insignificant coefficient to relative tax revenues in the RE estimation in Table 3.2 is the net outcome of insignificant coefficients regarding the flows from European and overseas Anglo-Saxon countries while the coefficient is found to be significantly negative for Latin America and Asia as continents of origin. A possible interpretation of this is that relative tax revenues function as a proxy variable for the tightness of immigration policies towards people from low income countries.

Conclusions

In this chapter, we present results from empirical work on the migration flows from 129 countries into 26 OECD countries during the years 1990–2000. The estimations are made using both pooled OLS and panel data models and a very comprehensive database of potentially important background factors. The background factors include variables measuring the "distance" in different ways as well as linguistic and historical ties between the countries. Further, a number of economic variables are used, including indicators of the extent of national welfare state programs which could be among the attractors in international migration flows. This allows us to examine the economic or non-economic determinants of international migration flows.

A very robust key result of our econometric analysis is that the network effects measured as the coefficient to the stock of immigrants of own national background already resident in a country have a large positive effect on immigration flows, and, networks play an important role in explaining current immigration flows. Further, linguistic closeness, former colonial and current business ties are important factors, although the magnitude of the impact on migration flows varies for different groups of destination countries. Geographic distance, on the other hand, has a negative impact on migration flows. This suggests that the costs of migration play an important role.

Table 3.3 *Estimation of migration flows from 129 source countries (i) to 27 (OECD) destination countries (j), random effects (RE) panel data model, disaggregating by continents of origin 1990–2000*

Dependent variable: m_{ijt} = Gross Flows per 1000 inhabitants *Independent variables:*	Europe	North America and Oceania	South and Central America	Africa	Asia
	0.570 [0.012]***	0.471 [0.041]***	0.669 [0.020]***	0.737 [0.035]***	0.657 [0.017]***
D_{ijt-1} Neighbouring country (0/1)	0.022 [0.055]	0.711 [0.379]*	0.421 [0.300]	−0.022 [0.285]	−1.545 [0.448]***
Linguistic distance (0/1)	0.346 [0.081]***	0.165 [0.142]	0.486 [0.208]**	−0.308 [0.146]**	0.355 [0.140]**
Colony (0/1)	0.274 [0.098]***	−0.524 [0.726]	−0.134 [0.208]	−0.729 [0.258]***	−0.057 [0.173]
Distance in kilometres	−0.030 [0.040]	0.071 [0.112]	−0.700 [0.161]***	−0.250 [0.125]**	−0.208 [0.072]***
Trade volume	0.154 [0.023]***	0.106 [0.058]*	0.037 [0.028]	0.149 [0.035]***	0.003 [0.026]
X_{jt-1} GDP per cap PPP, j	1.410 [0.246]***	0.549 [0.512]	0.716 [0.364]**	0.194 [0.383]	0.497 [0.277]*
Unemployment rate, j	−0.179 [0.042]***	−0.095 [0.088]	−0.273 [0.053]***	−0.327 [0.079]***	−0.403 [0.062]***
Tax revenue in j/GDP, j	0.433 [0.378]	0.534 [0.642]	−0.920 [0.469]**	−0.673 [0.515]	−0.833 [0.413]**
X_{it-1} Population (i)/Population (j)	0.070 [0.019]***	0.231 [0.076]***	0.330 [0.033]***	0.111 [0.045]**	0.125 [0.025]***
GDP per cap PPP, i	−0.461 [0.059]***	−0.269 [0.645]	−0.654 [0.108]***	−0.218 [0.084]***	−0.184 [0.059]***
Unemployment rate, i	−0.119 [0.027]***	−0.206 [0.192]	0.196 [0.050]***	−0.075 [0.059]	−0.117 [0.032]***
Illiteracy rate, i	−0.184 [0.022]***	−1.018 [0.649]	−0.062 [0.080]	−0.100 [0.153]	−0.208 [0.029]***
Freedom House Index, i	0.239 [0.056]***	1.429 [0.891]	0.135 [0.070]*	−0.395 [0.120]***	0.052 [0.062]
Fixed/Random effects of destination, c_j	Yes	Yes	Yes	Yes	Yes
Constant term included	Yes	Yes	Yes	Yes	Yes
No of observations	3646	553	1151	561	1357
Adjusted R-squared	0.638	0.747	0.774	0.786	0.742

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

The impact from economic factors is measured by entering GDP per capita (PPP–Purchasing power parity–adjusted) and unemployment rates in both destination and source countries and tax pressure. Migration flows tend to react positively to higher income gaps and to react negatively to depressed labor markets in destination countries. In contrast to the simple welfare magnet hypothesis, it turns out that across our full set of cases, the coefficient to the tax pressure as a welfare state indicator becomes negative or insignificant. When we look at the results disaggregated on continents of origin there seems to be a clear pattern, that is, the tax variable is insignificant for immigration flows from high income countries and significantly negative for the flows from Latin America and Asia. This pattern could reflect the impact from restrictive welfare state immigration policies dominating the welfare magnet mechanism.

Due to data availability, migration flows in the present approach are based on aggregate measures – no distinction can be made between the three main flows of migrants, being job- or study-related people (mostly intra-OECD), tied movers in relation to family reunions and finally refugees. In the long term, welfare magnet mechanisms might influence these flows in the direction pointed out in Borjas (1999b). In the short to intermediate term, however, job movers are only in incomplete ways entitled to social benefits in source countries, the flows of tied movers are by nature strongly influenced by the stock of immigrants in a destination country, that is, the network effect, and finally the flow of refugees consists of convention refugees, where entry depends on political decisions, and spontaneous individual asylum seekers, where the conditions for granting a residence permit depend on national immigration policies.

To sum up, the evidence from the analysis of gross migration flows in twenty seven OECD countries presented in this chapter shows that migration flows respond to economic differences across the countries and that many other non-economic measures like linguistic closeness, cultural distance and costs of migration are important as well. We find strong network effects in driving international migration flows.

Appendix
Description, definitions and sources of the Basic variables

Migration flows (ij): Gross flow of migrants from country *i* to country *j*.
Source: National statistical offices and "Trends in International Migration" SOPEMI 2000 OECD.

Stock of immigrants (ij): Stock of foreigners of country *i* –origin residing in country *j*.
Source: National statistical offices and "Trends in International Migration" SOPEMI 2000 OECD.

Population (i), Population (j): 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 (i), GDP (j): 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 United States. 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 rate (i), Unemployment rate (j): Unemployment, total (percent of total labor force). Unemployment refers to the share of the labor force that is without work but available for, and seeking employment. Definitions of labor force and unemployment differ by country.
Source: World Bank: International Labor Organization, Key Indicators of the Labor Market database.

Illiteracy rate (i): Adult illiteracy rate is the percentage of people ages 15 and above who cannot, with understanding, read and write a short, simple statement on their everyday life.
Source: World Bank (United Nations Educational, Scientific, and Cultural Organization.)

Public social Expenditure/GDP (j): 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. Public social expenditure is shown as a percentage of GDP (SNA93).
Source: OECD Social Expenditure Database (SOCX).

Tax Revenue/GDP (j): 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 and as a percentage of GDP.
Source: World Bank: International Monetary Fund, Government Finance Statistics Yearbook and data files, and World Bank and OECD GDP estimates.

Distance between countries (ij): distance between capitals in km.
Source: MapInfo, own calculations.

Freedom house index (j): It represents scores of political rights, civil liberties, and freedom. These are measured on a scale of one to seven, with one representing the highest degree of freedom and seven the lowest.
Source: Annual Freedom in the World Country Scores 1972–73 to 2001–2002.

Linguistic distance (ij): A dummy for a common language in two countries. This dummy has a value 1 for a common language in two countries and 0 for no common language.
Source: Ethnologue: Languages of the World, 14th edn. www.ethnologue.com/web.asp

Colony (ij): A dummy for countries ever in colonial relationship. This dummy has a value 1 for a common historical past of two countries, 1 and 0 otherwise.
Source: The dataset freely available at the webpage of Andrew K. Rose and used for the paper: Rose, A. (2002): "Do We Really Know that the WTO Increases Trade?" NBER Working Paper No 9273.

Neighbors (ij): A dummy for neighboring countries. This dummy has a value 1 for a common border between two countries 1 and 0 otherwise.
Source: MapInfo, own calculations.

Trade volume (ij): Trade volume represents bilateral trade flows that are based on IMF Direction of Trade data; the IMF data lists total trade values (both imports and exports) for all country pairs for all years.
Source: IMF Direction of Trade Statistics, Yearbooks 1989–2001.

REFERENCES

Bauer, Thomas, Gil S. Epstein, and Ira N. Gang 2002 "Herd Effects or Migration Networks? The Location Choice of Mexican Immigrants in the U.S." IZA Discussion Paper No 551. Bonn: Institute for the Study of Labor, August ftp://ftp.iza.org/dps/dp551.pdf.

Boeri, Tito, Gordon H. Hanson, and Barry McCormick 2002 *Immigration Policy and the Welfare System: A Report for the Fondazione Rodolfo Debenedetti*. Oxford: Oxford University Press.

Borjas, George J. 1987 "Self-Selection and the Earnings of Immigrants." *American Economic Review* 77(4) (September): 531–53.

Borjas, George J. 1994 "Immigration and Welfare, 1970–1990." NBER Working Paper No 4872. Cambridge, MA: National Bureau of Economic Research. September.

Borjas, George J. 1999a. "Immigration and Welfare Magnets." *Journal of Labor Economics* 17(4, Part 1) (October): 607–37.

Borjas, George J. 1999b. *Heaven's Door: Immigration Policy and the American Economy*. Princeton, NJ: Princeton University Press.

Borjas, George J. 1999c. "The Economic Analysis of Immigration." Chapter 28 In *Handbook of Labor Economics*, Volume 3A, edited by Orley Ashenfelter and David Card. Amsterdam: Elsevier Science, North-Holland, 1697–1760.

Carrington, William J, Enrica Detragiache, and Tara Vishwanath 1996 "Migration with Endogenous Moving Costs." *American Economic Review* 86(4): 909–30.

Chiquiar, Daniel, and Gordon H. Hanson 2002 "International Migration, Self-Selection, and the Distribution of Wages: Evidence from Mexico and the United States." 9242. NBER.

Chiswick, Barry R. 1986 "Is the New Immigration Less Skilled Than the Old?" *Journal of Labor Economics* 4(2): 168–92.

Chiswick, Barry R. 2000 "Are Immigrants Favorably Self-Selected? An Economic Analysis." in *Migration Theory: Talking Across Disciplines*, Caroline Brettell and James Frank Hollifield (eds) New York: Routledge, 61–76.

Chiswick, Barry R., and Timothy J. Hatton 2002 "International Migration and the Integration of Labor Markets." IZA Discussion Paper No 559. Bonn: Institute for the Study of Labor. August. ftp://ftp.iza.org/dps/dp559.pdf.

Epstein, Gil S. 2002 "Information Cascades and Decision to Migrate." IZA Discussion Paper No 445. Bonn: Institute for the Study of Labor. March. ftp://ftp.iza.org/dps/dp445.pdf.

Fertig, Michael, and Christoph M. Schmidt 2000 "Aggregate-Level Migration Studies as a Tool for Forecasting Future Migration Streams." IZA Discussion Paper No 183. Bonn: Institute for the Study of Labor. August. ftp://ftp.iza.org/dps/dp183.pdf.

Hammarstedt, Mats 2000 "The Receipt of Transfer Payments by Immigrants in Sweden," *International Migration* 38(2): 239–68.

Harris, John R. and Michael P. Todaro 1970 "Migration, Unemployment and Development: A Two-Sector Analysis." *American Economic Review* 60(1): 126–42.

Hatton, Timothy J., and Jeffrey G. Williamson 2002 "What Fundamentals Drive World Migration?" 9159 National Bureau of Economic Research.

Heitmueller, Axel 2003 "Coordination Failures in Network Migration." IZA Discussion Paper No 770. Bonn: Institute for the Study of Labor. April. ftp://ftp.iza.org/dps/dp770.pdf.

Hicks, Sir John R. 1963 *The Theory of Wages* 2nd edn London: Macmillan.

Holmlund, Bertil 1984 *Labor Mobility: Studies of Labor Turnover and Migration in the Swedish Labor Market*. Stockholm: Almqvist & Wiksell International.

Jackman, Richard, and Sawas Savouri 1991 *Regional Migration in Britain: An Analysis of Gross Flows Using NHS Central Register Data*. London: Centre for Economic Performance, 27.

Jasso, Guillermina, and Mark R. Rosenzweig 1990 "Self-Selection and the Earnings of Immigrants: Comments." *American Economic Review* 80(1): 298–304.

Massey, Douglas S, Joaquin Arango, Graeme Hugo, Ali Kouaouci, Adela Pellegrino, and J. Edward Taylor 1993 "Theories of International Migration: Review and Appraisal." *Population and Development Review* 19(3): 431–66.

Mayda, Anna Maria 2004 "International Migration: A Panel Data Analysis of Economic and Non-Economic Determinants." Discussion Paper Series No 1590 Institute for the Study of Labor (12A), Germany: Bonn May.

Mincer, Jacob 1978 "Family Migration Decisions." *The Journal of Political Economy* 86(5): 749–73.

Pedersen, Peder J., Mariola Pytlikova, and Nina Smith 2004 "Selection or Network Effects? Migration Flows into 27 OECD Countries, 1990–2000." IZA Discussion Paper No 1104. Bonn: Institute for the Study of Labor. April. ftp://ftp.iza.org/dps/dp1104.pdf.

Riphahn, Regina T. 1999 "Immigrant Participation in Social Assistance Programs: Evidence from German Guestworkers." CEPR Discussion Series No 2318 (December) Center for Economic Policy Research, London.

Sjaastad, Larry A. 1962 "The Costs and Returns of Human Migration." *The Journal of Political Economy* 70(5): 80–93.

Roy, Andrew D. 1995 "Some Thoughts on the Distribution of Earnings," *Oxford Economic Papers*, New Series, Vol 3, No 2. (June 1951), 135–46.

Stark, Oded 1991 *The Migration of Labor*. Oxford, UK: Blackwell.

Storesletten, Kjetil 2003"Fiscal Implications of Immigration–Net Present Value Calculation." *Scandinavian Journal of Economics*, 105(3): 487–506.

Urrutia, C. 2001 "On the Self-Selection of Immigrants". Manuscript, Universidad Carlos III de Madrid.

Wadensjö, Eskil and Helena Orrje 2002 *Immigration and the Public Sector in Denmark*. Aarhus: Aarhus University Press.

Zavodny, Madeline 1997 "Welfare and the Locational Choices of New Immigrants," *Economics Review* (Federal Reserve Bank of Dallas), Second Quarter, 2–10.

Appendix

Table 3.A.1 *Descriptive statistics of basic variables for OECD destination countries (means, standard deviations and number of years observed in the data set)*

Mean (std) No. of obs years with information	Australia>	Austria>	Belgium>	Canada>	Czech Republic>	Denmark>	Finland>	France>	Germany>	Greece>	Hungary>	Iceland>	Ireland>	Italy>
Immigration flows*	3 830 (4 320) 183 89–00 (12)	1 508 (2 446) 238 86–00 (5)	927 (1 707) 630 90–00 (11)	2 029 (4 267) 1 046 89–00 (12)	83 (398) 1 003 93–00 (8)	206 (560) 1 520 89 -00 (12)	65 (264) 1 524 89–00 (12)	824 (1 604) 1 143 89–00 (12)	15 951 (31 208) 546 89–00 (12)	184 (458) 1 134 89–97 (8)	1 151 (3 395) 158 89–99 (11)	25 (96) 630 92–00 (9)	5 036 (2 660) 14 94–00 (7)	3412 (6 251) 146 96–00 (5)
Sum of immigration flows **	58 409 (19 760)	29 038 (29 310)	48 656 (12 478)	176 902 (55 537)	6 973 (5 085)	26 091 (6 413)	8 262 (2 136)	78 465 (20 171)	725 797 (192 338)	17 297 (11 208)	15 158 (9 125)	1 325 (1 514)	5 875 (5 149)	14 515 (27 865)
Immigration stock ***	148 943 (236 324) 108 90,95-96, 99-00 (5)	5 811 (19 172) 249 91,96– 99,00 (6)	15 755 (38755) 656 89–00 (12)	50 787 (1 595 564) 377 91,96,01 (3)	1 582 (6 389) 894 93–00 (8)	1.776 (3 918) 1 520 89–00 (12)	649 (1 758) 1 085 89–00 (12)	41 416 (113 211) 159 90, 99 (2)	57 261 (204 320) 1 364 89–00 (12)	1 188 (2 613) 1 136 89–98 (9)	8 084 (14 883) 74 94–97,99 (5)	82 (272) 1 528 89–00 (12)	– – –	15 034 (22 491) 519 91–00 (10)
Sum of immigration stock****	1 340 486 (1 575 127)	120 581 (219 624)	861 306 (16 602)	1 157 930 (1 620 004)	117902 (89 299)	225 023 (38 322)	58 697 (23093)	548 757 (1 222 297)	6 508 701 (775 077)	112 498 (65 207)	49 850 (59 270)	10 457 (3 145)	–	650 211 (401 031)
Population (in thousands)	18 000 (725) 1 548 89–00 (12)	7 959 (153) 1 548 89–00 (12)	10 100 (99) 1 548 89–00 (12)	29 100 (1 089) 1 548 89–00 (12)	10 300 (18) 1 548 89–00 (12)	5 227 (69) 1 548 89–00 (12)	5 088 (68) 1 548 89–00 (12)	57 700 (7387) 1 548 89–00 (12)	78 400 (7 058) 1 548 89–00 (12)	10 400 (166) 1 548 89–00 (12)	10 200 (103) 1 548 89–00 (12)	266 (8) 1 548 89–00 (12)	3 613 (89) 1 548 89–00 (12)	57 300 (342) 1 548 89–00 (12)

(*cont.*)

Table 3.A.1 (*cont.*)

Mean (std) of obs years with information	Australia>	Austria>	Belgium>	Canada>	Czech Republic>	Denmark>	Finland>	France>	Germany>	Greece>	Hungary>	Iceland>	Ireland>	Italy>
GDP per capita PPP (constant 1995 int$)	21 219 (1 757) 1 548 89–00 (12)	22 591 (1 597) 1 548 89–00 (12)	21 632 (1 259) 1 548 89–00 (12)	22 480 (1 451) 1 548 89–00 (12)	11 743 (749) 1 290 91–00 (10)	23 899 (1 529) 1 548 89–00 (12)	19 864 (1 529) 1 548 89–00 (12)	21 095 (948) 1 548 89–00 (12)	30 047 (1 287) 1 548 89–00 (12)	13 225 (906) 1 548 89–00 (12)	4 612 (3 816) 89–00 (12)	22 866 (1 584) 1 548 89–00 (12)	18 259 (4 597) 1 548 89–00 (12)	20 989 (953) 1 548 89–00 (12)
Unemployment rate (% of the labour force)	8.153 (1.472) 1 548 89–00 (12)	5.013 (0.602) 1 548 89–00 (12)	8.431 (1.264) 1 548 89–00 (12)	9.142 (1.432) 1 548 89–00 (12)	4.823 (2.322) 1 419 90–00 (11)	7.146 (1.647) 1 548 89–00 (12)	11.007 (4.495) 1 548 89–00 (12)	10.794 (1.180) 1 548 89–00 (12)	7.592 (1.146) 1 548 89–00 (12)	9.509 (1.506) 1 548 89–00 (12)	8.562 (2.703) 1 419 90–00 (11)	3.044 (1.336) 1 548 89–00 (12)	11.613 (3.723) 1 548 89–00 (12)	10.624 (1.186) 1 548 89–00 (12)
Tax revenue (% of GDP)	29.073 (1.096) 1 419 89–99 (11)	42.533 (1.342) 1 548 89–00 (12)	44.575 (1.159) 1 548 89–00 (12)	37.167 (0.711) 1 548 89–00 (12)	40.025 (14.401) 1 032 93–00 (8)	48.892 (1.151) 1 548 89–00 (12)	45.642 (1.194) 1 548 89–00 (12)	44.158 (1.059) 1 548 89–00 (12)	36.800 (1.782) 1 548 89–00 (12)	32.142 (3.210) 1 548 89–00 (12)	42.620 (3.033) 1 548 89–00 (12)	32.633 (2.068) 1 548 89–00 (12)	33.275 (1.170) 1 548 89–00 (12)	41.633 (1.952) 1 548 89–00 (12)
No of years with complete info on all variables	5	5	11	3	8	12	12	2	12	8	5	9	0	5

Table 3.A.1 (*cont.*)

Mean (std) No of obs years with information	Japan	Luxembourg	Netherlands	New Zealand	Norway	Poland	Portugal	Slovak Republic	Spain	Sweden	Switzerland	United Kingdom	United States
Flows of immigrants to the country *	15 423 (16 862) 163 89–00 (12)	886 (814) 93 89–00 (12)	938 (1 754) 823 95–00 (6)	3 962 (4 944) 106 89–00 (12)	529 (936) 638 89–00 (12)	409 (516) 150 89–00 (12)	209 (534) 238 92–00 (9)	17 (90) 499 97–00 (4)	1190 (5030) 525 89–00 (12)	365 (1 216) 1440 89–00 (12)	889 (3 088) 1460 89–00 (12)	879 (1 473) 707 91–00 (10)	7 566 (35 316) 1463 89–00 (12)
Sum of immigration flows to the country **	209 494 (36 018)	6 867 (394)	64 350 (18 716)	34 996 (4 373)	28 101 (4 969)	5 118 (1 917)	4 153 (5 928)	704 (998)	52 047 (86 327)	43 821 (11 941)	108 145 (35 081)	51 805 (29 475)	922 410 (332 837)
Stock of immigrants in the country ***	34 548 (110 834) 246 90,95, 97–00 (6)	3 825 (9 460) 387 89–00 (12)	10 792 (31 109) 773 90,95–00 (7)	11 330 (35 080) 125 91,96,01 (3)	2 798 (4 072) 663 89–00 (12)	20 204 (55 505) 37 01 (1)	6 172 (8 300) 264 89–00 (12)	201 (696) 757 95–00 (6)	11 997 (19 930) 447 91–00 (10)	9 056 (23 666) 1155 89–00 (12)	10 356 (40 218) 1456 89–00 (12)	51 590 (90 234) 655 92–00 (9)	300 190 (791 623) 620 90, 94–00 (8)
Sum of immigration stock in the country ****	708 234 (720 044)	123 348 (17 246)	695 195 (620880)	118 018 (206 090)	154 599 (16 952)	62 295 (278 686)	135 780 (34 750)	12 672 (12 812)	446 883 (243 560)	871 670 (75 939)	1 256 522 (91 264)	2 815 967 (1452974)	15 500 000 (11 100 000)

(*cont.*)

Table 3.A.1 (*cont.*)

Mean (std) No of obs years with information	Japan	Luxembourg	Netherlands	New Zealand	Norway	Poland	Portugal	Slovak Republic	Spain	Sweden	Switzerland	United Kingdom	United States
Population (in thousands)	125 000 (1 155) 1 548 89–00 (12)	409 (18) 1 548 89–00 (12)	15 400 (327) 1 548 89–00 (12)	3 617 (165) 1 548 89–00 (12)	4 350 (83) 1 548 89–00 (12)	38 500 (227) 1 548 89–00 (12)	9 894 (59) 1 548 89–00 (12)	5 366 (20 629) 1 548 89–00 (12)	39 200 (217) 1 548 89–00 (12)	8 744 (125) 1 548 89–00 (12)	697 (168) 1 548 89–00 (12)	58 500 (703) 1 548 89–00 (12)	262 000 (8 789) 1 548 89–00 (12)
GDP per capita (constant 1995 int $)	22 476 (964) 1 548 89–00 (12)	35 351 (6 780) 1 548 89–00 (12)	21 770 (1 745) 1 548 89–00 (12)	16 568 (1121) 1 548 89–00 (12)	27 812 (2 912) 1 548 89–00 (12)	7 332 (975) 1 548 89–00 (11)	13 460 (1228) 1 548 89–00 (12)	9 301 (960) 1 548 89–00 (12)	15 214 (1 262) 1 548 89–00 (12)	19 930 (1 124) 1 548 89–00 (12)	25 670 (422) 1 548 89–00 (12)	20 020 (1 467) 1 548 89–00 (12)	28 069 (1 872) 1 548 89–00 (12)
Unemployment rate (% of the labour force)	3.12 (0.928) 1 548 89–00 (12)	2.417 (0.787) 1 548 89–00 (12)	5.591 (1.503) 1 548 89–00 (12)	7.698 (1.499) 1 548 89–00 (12)	4.709 (0.965) 1 548 89–00 (12)	12.507 (2.415) 1 548 90–00 (11)	5.464 (1.180) 1 548 89–00 (12)	12.886 (3.037) 1 290 91–00 (10)	18.868 (3.171) 1 548 89–00 (12)	5.675 (2.418) 1 548 89–00 (12)	3.048 (1.638) 1 548 89–00 (12)	7.552 (1.709) 1 548 89–00 (12)	5.574 (1.054) 1 548 89–00 (12)
Tax revenue (% of GDP)	28.158 (1.350) 1 548 89–00 (12)	41.100 (1.188) 1 548 89–00 (12)	42.892 (1.423) 1 548 89–00 (12)	36.900 (1.012) 1 548 89–00 (12)	41.492 (0.846) 1 548 89–00 (12)	37.584 (1.960) 1 290 91–00 (10)	32.058 (1.679) 1 548 89–00 (12)	33.256 (1.817) 645 96–00 (5)	33.692 (0.831) 1 548 89–00 (12)	50.925 (1.984) 1 548 89–00 (12)	32.717 (1.759) 1 548 89–00 (12)	35.492 (1.210) 1 548 89–00 (12)	26.942 (2.118) 1 548 89–00 (12)
No of years with complete info on all variables	6	12	6	3	12	1	9	4	10	12	12	9	8

* mean and std for each particular migration flow from country *j* to country *i*
** mean and std for the sum of migration flows to country *i*
*** mean and std for stock of immigrants originating from country *j* residing in country *i*
**** mean and std for the sum of stocks of immigrants in country *i*

Table 3.A.2 *Descriptive statistics of basic variables for source countries (mean, standard deviation and number of years with information)*

Mean (std) (Years with information)	Population (in thous)	GDP per cap, PPP, (1995 int $)	Unemployment rate	Illiteracy rate	Freedom House Index	Mean (std) (Years with information)	Population (in thous)	GDP per cap, PPP, (1995 int $)	Unemployment rate	Illiteracy rate	Freedom House Index
Afghanistan	21 600	–	–	–	7.52	Cambodia	10 800	1428	–	35.85	6.52
	(3 171)	–	–	–	(0.41)		(990)	(143)	–	(2.07)	(1.01)
	(12)				(12)		(12)	(12)		(12)	(12)
Albania	3 300	2725	12.33	19.44	4.63	Cameroon	13 100	1691	–	36.00	6.96
	(85)	(500)	(3.69)	(2.72)	(1.49)		(1 131)	(146)	–	(4.68)	(0.48)
	(12)	(12)	(12)	(12)	(12)		(12)	(12)		(12)	(12)
Algeria	28 100	4811	24.96	40.88	6.45	Canada	29 100	22480	9.14	0.00	1.10
	(1 834)	(181)	(4.08)	(4.96)	(1.03)		(1 089)	(1453)	(1.43)	(0.00)	(0.00)
	(12)	(12)	(12)	(12)	(12)		(12)	(12)	(12)	(12)	(12)
Angola	11 500	1974	–	52.00	6.95	Cape Verde	73 152	3512	–	31.44	2.09
	(1 232)	(283)	–	(0.00)	(0.53)		(115 012)	(422)	–	(3.53)	(1.79)
	(12)	(12)		(12)	(12)		(12)	(12)		(12)	(12)
Argentina	35 000	10375	12.19	3.75	2.03	Chad	6 598	837	–	65.83	6.71
	(1 563)	(1076)	(4.53)	(0.39)	(0.62)		(672)	(60)	–	(5.19)	(0.41)
	(12)	(12)	(12)	(12)	(12)		(12)	(12)		(12)	(12)
Australia	18 000	21220	8.15	0.00	1.10	Chile	14 300	7002	6.13	5.12	2.46
	(725)	(1760)	(1.47)	(0.00)	(0.00)		(725 150)	(1132)	(1.85)	(0.60)	(0.62)
	(12)	(12)	(12)	(12)	(12)		(12)	(12)	(12)	(12)	(12)
Austria	7 959	225901	5.01	0.00	1.10	Chinese	–	–	–	20.00	3.12
	(153)	(1 756)	(0.60)	(0.00)	(0.00)	Taipei	–	–	–	(0.00)	(1.15)
	(12)	(12)	(12)	(12)	(12)					(12)	(12)

(*cont.*)

Table 3.A.2 (*cont.*)

Mean (std) (Years with information)	Population (in thous)	GDP per cap, PPP, (1995 int $)	Unemployment rate	Illiteracy rate	Freedom House Index	Mean (std) (Years with information)	Population (in thous)	GDP per cap, PPP, (1995 int $)	Unemployment rate	Illiteracy rate	Freedom House Index
Azerbaijan	7 602 (312) (9)	2098 (454) (9)	0.69 (0.40) (9)	–	6.28 (0.43) (9)	China	1 210 000 (43 300) (12)	2397 (705) (12)	2.78 (0.29) (12)	19.76 (2.51) (12)	7.68 (0.04) (12)
Bangladesh	121 000 (7 317) (12)	1214 (118) (12)	26.64 (14.52) (8)	62.18 (2.21) (12)	3.06 (0.98) (12)	Colombia	39 000 (2 548) (12)	5618 (208) (12)	11.83 (4.29) (12)	10.01 (1.12) (12)	3.57 (0.80) (12)
Belarus	10 200 (74) (9)	4030 (542) (9)	1.88 (1.20) (9)	0.44 (0.07) (9)	5.60 (0.98) (9)	Côte d'Ivoire	13 700 (1 454) (12)	1530 (97) (12)	– –	56.50 (3.46) (12)	6.46 (0.06) (12)
Belgium	10 100 (99) (12)	21632 (1261) (12)	8.43 (1.26) (12)	0.00 (0.00) (12)	1.14 0.05 (12)	Croatia	4 586 (177) (11)	4 454 (623) (11)	15.06 (3.82) (11)	2.47 (0.51) (11)	4.31 (0.78) (11)
Benin	5 413 (536) (12)	806 (47) (12)	– –	68.83 (3.77) (12)	3.51 (2.20) (12)	Cuba	11 000 (180) (12)	– –	– –	4.16 (0.53) (12)	7.7 (0.00) (12)
Bolivia	7 343 (601) (12)	2079 (84) (12)	5.74 (2.08) (8)	18.500 (2.54) (12)	2.06 (0.44) (12)	Cyprus	723 (28) (12)	12976 (1468) (12)	2.58 (0.56 (10)	4.33 (1.39) (12)	1.11 (0.03) (12)
Bosnia Herzegovina	3 957 (340) (9)	– –	39.28 (0.31) (4)	1.50 (0.00) (9)	5.93 (0.56) (9)	Czech Republic	10 300 (18) (12)	11743 (750) (11)	4.82 (2.32) (11)	0.00 (0.00) (12)	1.90 (1.48) (12)
Brazil	160 000 (7 695) (12)	4 327 (209) (12)	6.54 (2.06) (9)	17.08 (1.52) (12)	2.77 (0.52) (12)	Denmark	5 227 (69) (12)	23899 (1531) (12)	7.15 (1.65) (12)	0.00 (0.00) (12)	1.10 (0.00) (12)
Bulgaria	8 385 (177) (12)	5754 (582) (12)	14.26 (4.95) (11)	2.23 (0.43) (12)	2.82 (1.51) (12)	Dominican Republic	7 771 (458) (12)	4453 (604) (12)	17.25 (2.25) (8)	18.66 (1.48) (12)	2.79 (0.873) (12)

Burkina Faso	9 910 (814) (12)	867 (43) (12)	– –	80.42 (2.57) (12)	5.78 (0.80) (12)	Ecuador	11 300 (825) (12)	3127 (77) (12)	8.56 (1.92) (11)	10.50 (1.38) (12)	2.37 (0.29) (12)
Burundi	6 077 (469) (12)	682 (110) (12)	– –	58.17 (3.85) (12)	7.30 (0.48) (12)	Egypt	58 800 (3 973) (12)	2830 (207) (12)	9.32 (1.41) (9)	49.24 (2.84) (12)	6.32 (0.48) (12)
El Salvador	5 736 (411) (12)	3834 (362) (12)	8.21 (0.92) (10)	24.55 (2.21) (12)	2.99 (0.49) (12)	Honduras	5 557 (531) (12)	2336 (40) (12)	3.77 (0.63) (9)	28.75 (2.42) (12)	2.72 (0.49) (12)
Estonia	1 464 (73) (9)	7984 (1149) (9)	7.19 (4.46) (9)	0.20 (0.01) (9)	2.68 (1.69) (9)	Hong Kong	6 264 (416) (12)	20883 (1649) (12)	2.86 (1.57) (12)	8.41 (1.26) (12)	– –
Ethiopia	58 000 (4 605) (12)	567 (40) (12)	– –	66.73 (3.565) (12)	5.85 (1.17) (12)	Hungary	10 200 (103) (12)	9718 (856) (12)	8.56 (2.70) (11)	0.81 (0.10) (12)	1.71 (0.89) (12)
Fed Rep of Yugoslavia	10 600 (63) (12)	– –	23.42 (2.62) (11)	1.50 (0.00) (12)	6.11 (0.71) (12)	Iceland	266 (8) (12)	22866 (1586) (12)	3.04 (1.34) (12)	0.00 (0.00) (12)	1.10 (0.00) (12)
Fiji	133 (209) (12)	4314 (330) (12)	5.83 (0.34) (7)	9.43 (1.53) (12)	4.83 (1.22) (12)	India	939 000 (57 4000) (12)	1817 (242) (12)	– –	47.12 (2.74) (12)	3.03 (0.89) (12)
Finland	5 088 (68) (12)	19865 (1531) (12)	11.01 (4.50) (12)	0.00 (0.00) (12)	1.10 (0.00) (12)	Indonesia	196 000 (11 100) (12)	2589 (306) (12)	17.86 (2.48) (7)	16.99 (2.57) (12)	6.42 (1.31) (12)
Former USSR	– –	7122.58 (1457) (6)	– –	0.41 (0.89) (6)	5.95 (0.56) (2)	Iran	59 500 (3 236) (12)	4849 (419) (12)	– –	30.58 (4.50) (12)	6.62 (0.08) (12)

(*cont.*)

Table 3.A.2 (*cont.*)

Mean (std) (Years with information)	Population (in thous)	GDP per cap, PPP, (1995 int $)	Unemployment rate	Illiteracy rate	Freedom House Index	Mean (std) (Years with information)	Population (in thous)	GDP per cap, PPP, (1995 int $)	Unemployment rate	Illiteracy rate	Freedom House Index
Former	–	–	–	1.10	–	Iraq	21 000	–	–	49.94	7.69
Yugoslavia	–	–	–	(0.89)	–		(1 783)	–	–	(3.67)	(0.03)
				(12)			(12)			(12)	(12)
France	57 700	21094	10.79	0.00	1.20	Ireland	3 613	18259	11.61	0.00	1.12
	(739)	(740)	(1.18)	(0.00)	(0.00)		(89)	(4602)	(3.72)	(0.00)	(0.04)
	(12)	(12)	(12)	(12)	(12)		(12)	(12)	(12)	(12)	(12)
Gaza Strip	–	–	–	–	–	Israel	5 594	16279	8.76	7.44	1.59
	–	–	–	–	–		(511)	(1478)	(1.35)	(1.33)	(0.43)
							(12)	(12)	(12)	(12)	(12)
Georgia	5 371	2327	–	–	4.57	Italy	57 300	20989	10.62	1.94	1.18
	(67)	(1348)	–	–	(1.04)		(342)	(954)	(1.19)	(0.27)	(0.06)
	(9)	(9)			(9)		(12)	(12)	(12)	(12)	(12)
Germany	78 400	21780	7.59	0.00	1.20	Jamaica	2 527	3445	15.93	15.67	2.24
	(7 058)	(1261)	(1.15)	(0.00)	(0.00)		(788)	(95)	(0.45)	(1.69)	(0.05)
	(12)	(12)	(12)	(12)	(12)		(12)	(12)	(11)	(12)	(12)
Ghana	17 100	1625	–	35.67	5.02	Japan	125 000	22476	3.12	0.00	1.35
	(1 432)	(93)	–	(4.65)	(1.35)		(1 155)	(966)	(0.93)	(0.00)	(0.38)
	(12)	(12)		(12)	(12)		(12)	(12)	(12)	(12)	(12)
Guatemala	9 890	3380	–	35.50	3.76	Jordan	4 056	3621	14.40	14.25	4.76
	(897)	(157)	–	(2.70)	(0.53)		(569)	(95)	(0.99)	(2.900)	(0.90)
	(12)	(12)		(12)	(12)		(12)	(12)	(3)	(12)	(12)
Greece	10 400	13226	9.51	3.97	1.27	Kazakhstan	16 000	3938	11.64	0.91	6.26
	(166)	(907)	(1.51)	(0.87)	(0.05)		(472)	(604)	(2.27)	(0.21)	(0.43)
	(12)	(12)	(12)	(12)	(12)		(9)	(9)	(5)	(9)	(9)

Guinea	6 505 (574) (12)	1677 (86) (12)	– –	– –	6.68 (0.41) (12)	Kenya	26 400 (2 332) (12)	987 (36) (12)	21.30 (0.00) (1)	23.92 (4.00) (12)	6.49 (0.78) (12)
Guinea-Bissau	936 (403) (12)	823 (80) (12)	– –	67.83 (3.83) (12)	4.81 (1.48) (12)	Korea North (Dem. Rep.)	21 100 (858) (12)	– –	– –	3.17 (0.69) (12)	7.70 (0.00) (12)
Haiti	7 265 (526) (12)	1738 (272) (12)	– –	55.76 (3.49) (12)	6.04 (1.27) (12)	Korea South (Rep. of Korea)	44 900 (1 531) (12)	10856 (1861) (12)	3.23 (1.57) (12)	3.00 (0.00) (12)	2.23 (0.05) (12)
Laos	4 753 (400) (12)	1149 (162) (12)	– –	58.30 (4.29) (12)	7.38 (0.39) (12)	Nigeria	110 000 (10 600) (12)	798 (22) (12)	7.05 (5.74) (4)	44.42 (5.34) (12)	6.42 (1.13) (12)
Latvia	2 534 (109) (9)	6669 (1707) (9)	11.43 (5.54) (9)	0.21 (0.01) (9)	2.23 (0.85) (9)	Norway	4 350 (83) (12)	27812 (2915) (12)	4.71 (0.97) (12)	0.00 (0.00) (12)	1.10 (0.00) (12)
Lebanon	4 028 (239) (12)	3379 (774) (12)	18.76 (0.21) (5)	17.04 (1.98) (12)	6.40 (0.30) (12)	Pakistan	124 000 (10 500) (12)	1634 (72) (12)	5.21 (1.05) (12)	61.07 (2.71) (12)	4.56 (1.21) (12)
Libya	4 732 (326) (12)	– –	– –	26.33 (4.22) (12)	7.61 (0.30) (12)	Paraguay	4 652 (378) (12)	4413 (92) (12)	5.86 (1.16) (7)	8.33 (1.03) (12)	4.24 (0.83) (12)
Lithuania	3 629 (69) (9)	7634 (1373) (9)	11.52 (6.15) (9)	0.57 (0.09) (9)	1.47 (0.45) (9)	Peru	23 800 (1 417) (12)	4044 (337) (12)	8.04 (1.17) (9)	12.46 (1.54) (12)	4.66 (1.19) (12)
Luxembourg	409 (18) (12)	35351 (6788) (12)	2.42 (0.79) (12)	0.00 (0.00) (12)	1.10 (0.00) (12)	Philippines	69 000 (5 062) (12)	3484 (105) (12)	8.70 (0.75) (12)	6.23 (1.02) (12)	2.74 (0.51) (12)

(*cont.*)

Table 3.A.2 (*cont.*)

Mean (std) (Years with information)	Population (in thous)	GDP per cap, PPP, (1995 int $)	Unemployment rate	Illiteracy rate	Freedom House Index	Mean (std) (Years with information)	Population (in thous)	GDP per cap, PPP, (1995 int $)	Unemployment rate	Illiteracy rate	Freedom House Index
Madagascar	13 200	782	–	38.17	3.41	Poland	38 500	7332	12.51	0.34	1.88
	(1 332)	(51)	–	(2.92)	(1.24)		(227)	(976)	(2.42)	(0.06)	(0.87)
	(12)	(12)		(12)	(12)		(12)	(11)	(11)	(12)	(12)
Malawi	9 231	510	–	44.50	4.79	Portugal	9 894	13460	5.46	10.41	1.12
	(629)	(35)	–	(2.82)	(2.37)		(59)	(1230)	(1.18)	(1.74)	(0.04)
	(12)	(12)		(12)	(12)		(12)	(12)	(12)	(12)	(12)
Malaysia	20 900	6658	3.55	16.14	5.05	Romania	22 700	5379	7.44	2.47	4.02
	(1 768)	(1107)	(1.16)	(2.36)	(0.47)		(257)	(328)	(2.14)	(0.38)	(1.80)
	(12)	(12)	(9)	(12)	(12)		(12)	(12)	(10)	(12)	(12)
Mali	9 516	654	–	78.25	3.96	Russian Fed.	147 000	7130	8.84	0.62	4.24
	(815)	(36)	–	(2.42)	(1.86)	Rep.	(1 232)	(1462)	(3.96)	(0.11)	(1.10)
	(12)	(12)		(12)	(12)		(9)	(9)	(10)	(9)	(9)
Morocco	26 600	3142	18.03	56.63	5.38	Rwanda	6 843	977	–	40.50	7.09
	(1 606)	(105)	(2.44)	(3.54)	(0.52)		(792)	(121)	–	(4.78)	(0.53)
	(12)	(12)	(10)	(12)	(12)		(12)	(12)		(12)	(12)
Mexico	89 300	7286	3.52	10.46	3.86	Sao Tome	25	–	–	37.00	2.18
	(5 872)	(405)	(1.23)	(1.268)	(0.78)	and Principe	(38)	–	–	(0.00)	(1.77)
	(12)	(12)	(12)	(12)	(12)		(12)			(1)	(12)
Mozambique	16 000	656	–	61.89	4.46	Saudi Arabia	32 800	11395	–	29.50	7.59
	(1 267)	(83)	–	(3.59)	(1.48)		(49 600)	(459)	–	(3.46)	(0.27)
	(12)	(12)		(12)	(12)		(12)	(12)		(12)	(12)
Myanmar	43 900	–	–	17.44	–	Senegal	8 468	1259	–	67.62	4.31
(Burma)	(2 564)	–	–	(1.39)	–		(787)	(56)	–	(3.10)	(0.29)
	(12)			(12)			(12)	(12)		(12)	(12)

Nepal	20 300	1070	1.10	64.50	3.392
	(1 675)	(90)	(0.00)	(3.91)	(0.62)
	(12)	(12)	(1)	(12)	(12)
Netherlands	15 400	21769	5.59	0.00	1.10
	(327)	(1747)	(1.50)	(0.00)	(0.00)
	(12)	(12)	(12)	(12)	(12)
New Zealand	3 617	16568	7.70	0.00	1.10
	(165)	(1123)	(1.50)	(0.00)	(0.00)
	(12)	(12)	(12)	(12)	(12)
Niger	9 031	743	–	86.67	5.92
	(1 069)	(46)	–	(1.55)	(1.58)
	(12)	(12)		(12)	(12)
Sri Lanka	18 300	2595	11.91	9.95	4.05
	(811)	(343)	(2.40)	(1.02)	(0.53)
	(12)	(12)	(11)	(12)	(12)
Suriname	134	–	12.61	30.00	3.48
	(162)	–	(2.84)	(0.00)	(1.12)
	(12)		(8)	(1)	(12)
Sweden	8 744	19929	5.68	0.00	1.10
	(125)	(1125)	(2.42)	(0.00)	(0.00)
	(12)	(12)	(12)	(12)	(12)
Switzerland	697	25670	3.05	0.00	1.10
	(168)	(422)	(1.64)	(0.00)	(0.00)
	(12)	(12)	(12)	(12)	(12)
Syria	14 400	2847	6.30	30.74	7.70
	(1 410)	(258)	(0.51)	(3.35)	(0.00)
	(12)	(12)	(2)	(12)	(12)
Slovak Republic	5 366	9300	12.89	0.00	2.55
	(20 629)	(961)	(3.04)	(0.00)	(1.34)
	(10)	(10)	(10)	(10)	(10)
Somalia	7 930	–	–	60.00	7.617
	(562)	–	–	(0.00)	(0.28)
	(12)			(1)	(12)
South Africa	39 400	8713	21.61	16.93	3.13
	(2 611)	(311)	(4.22)	(1.41)	(2.14)
	(12)	(12)	(8)	(12)	(12)
Spain	39 200	15832	18.87	3.08	1.17
	(217)	(1264)	(3.17)	(0.49)	(0.05)
	(12)	(12)	(12)	(12)	(12)
Ukraine	51 000	5178	7.16	0.49	3.98
	(1 051)	(1820)	(4.38)	(0.07)	(0.99)
	(9)	(9)	(8)	(9)	(9)
United Kingdom	58 500	20020	7.55	0.00	1.19
	(703)	(1469)	(1.71)	(0.00)	(0.03)
	(12)	(12)	(12)	(12)	(12)
United States	262 000	28069	5.57	0.00	1.10
	(8 789)	(1875)	(1.05)	(0.00)	(0.00)
	(12)	(12)	(12)	(12)	(12)
Uzbekistan	22 900	1349	5.79	1.10	7.18
	(1 455)	(116)	(4.62)	(0.20)	(0.72)
	(9)	(9)	(8)	(9)	(9)
Venezuela	22 100	5537	10.23	9.36	2.66
	(1 613)	(251)	(2.10)	(1.28)	(0.97)
	(12)	(12)	(11)	(12)	(12)

(*cont.*)

Table 3.A.2 (*cont.*)

Mean (std) (Years with information)	Population (in thous)	GDP per cap, PPP, (1995 int $)	Unemployment rate	Illiteracy rate	Freedom House Index	Mean (std) (Years with information)	Population (in thous)	GDP per cap, PPP, (1995 int $)	Unemployment rate	Illiteracy rate	Freedom House Index
Tajikistan	5 763 (326) (9)	1139 (582) (9)	1.63 (0.94) (6)	1.33 (0.37) (9)	6.72 (1.32) (9)	Vietnam	73 300 (4 217) (12)	1415 (268) (12)	– –	8.14 (1.01) (12)	7.69 (0.03) (12)
Tanzania	29 200 (2 861) (12)	463 (12) (12)	3.30 (0.14) (3)	31.58 (4.18) (12)	6.01 (0.69) (12)	Yemen	14 800 (1 843) (12)	660 (64) (11)	11.50 (0.00) (1)	60.92 (4.74) (12)	5.75 (0.57) (10)
Thailand	58 700 (1 652) (12)	5247 (792) (12)	1.87 (0.80) (12)	6.15 (1.10) (12)	3.19 (1.10) (12)	Zaire (Dem. Rep. of Congo)	44 600 (4 881) (12)	1050 (323) (12)	– –	46.17 (4.82) (12)	7.33 (0.46) (12)
Tunisia	8 977 (478) (12)	4807 (515) (12)	6.49 (0.69) (7)	35.73 (4.11) (12)	6.23 (0.48) (12)	Zambia	8 844 (806) (12)	787 (79) (12)	13.70 (1.31) (2)	27.50 (3.46) (12)	4.66 (1.54) (12)
Turkey	61 000 (3 721) (12)	5194 (382) (12)	7.47 (0.76) (12)	18.69 (2.52) (12)	4.03 (1.08) (12)	Zimbabwe	11 300 (828) (12)	2482 (135) (12)	5.97 (0.78) (3)	15.75 (2.81) (12)	5.80 (0.46) (12)
Uganda	19 000 (2 032) (12)	945 (125) (12)	3.08 (2.27) (5)	38.83 (3.85) (12)	5.63 (0.84) (12)						

P1: FQF/FGC P2: FQF
0521861934c03b.xml CUUK445B-Parsons & Smeeding March 11, 2006 15:49