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ABSTRACT

Selection or Network Effects? Migration Flows into 27 OECD Countries, 1990-2000*

Recent migration patterns show growing migration pressure and changing composition of immigrants in many Western countries. During the latest decade, an increasing proportion of the OECD immigrants have been from poor countries, where the educational level of the population is low. The migration patterns may be affected by the relatively generous welfare schemes in most OECD countries, but also network effects and migration policy changes may be important factors behind the observed development. This paper presents empirical evidence on immigration flows into 27 OECD countries during a period of 11 years, 1990–2000. Using a panel data model, we analyze the determinants of the migration flows. Our results indicate that traditional factors as cultural and linguistic distance are important. Network effects are also strong, but vary between source and destination countries. We do not find clear evidence that selection effects have had a major influence on the observed migration patterns until now. This may partly be explained by restrictive migration policies in many OECD countries which may have dampened the potential selection effects.

JEL Classification: J61, F22, O15

Keywords: international migration, selectivity effects, network effects, migration policy

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1. INTRODUCTION

In the near future many rich OECD countries expect to face the problem of declining and ageing populations. Demographic projections by the United Nations (UN) suggest that during the next five decades Europe and Japan might ceteris paribus lose 12 and 17% of their population, respectively, UN (2000). This will impose an increasing pressure on the welfare systems as public pension payments will absorb a growing share of total national incomes. Immigration of young people to these ageing OECD countries is one of the possible solutions that have been discussed in relation to this problem.

However, the opponents of immigration as a solution to the ageing problem fear negative impacts on the labour market, public finances and social conditions. Recent studies on immigrants' economic performance in a number of European countries show that they actually tend to be more welfare dependent than natives. 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, see Riphahn (1999), Hammarstedt (2000), Storesletten (2003), and Wadensjö and Orrje (2002). During the latest decades, immigration flows into the OECD countries have changed. While labour migration flows were dominating back in time, refugee immigrants and family union migration from Non-Western or less developed countries are now the main sources of net immigration in many OECD countries, see Chiswick and Hatton (2002). The skill level for these new migrant flows is often fairly low compared to the skill level in destination countries, see for instance Borjas (1994) and Chiswick (1986, 2000). According to SOPEMI (2003), the employment rate for Non-Western immigrants has been much lower than for natives in many European countries. The low employment rates are the main reason for the higher welfare dependency of Non-Western immigrants, see Wadensjö and Orrje (2002).

Why have the immigration flows changed compared to a few decades ago, and why do many developed countries seem to attract groups of immigrants with lower skills? The classical explanation is that relative, real wages and employment opportunities are some of the main driving factors of international migration. Other more recent explanations focus on the effects of the welfare state regimes. Generous social services and benefit levels and a high tax pressure are nowadays characteristics of many OECD countries. According to the theory, see Borjas (1987, 1999a, b), the generosity of the welfare state

may play an important role in migrants' decision of choosing country of destination, the so called "welfare magnet effect".

On the other hand, a number of non-economic factors are also highly important regarding the migration decision. Beside classic factors as "love and wars", these include luck, 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, the changes and improvements in communication, continued globalization and the 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, tax pressure and social expenditure level explain migration behaviour, 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? For the U.S. immigration, some empirical studies exist which try to quantify stock effects versus selectivity effects, but since the stock of immigrants may in itself be the result of selectivity effects, the question whether selectivity or stock effects dominate international migration has remained unanswered. In this study we try to dig a little further into this important question.

Migration policy may also play an important role. The observed (ex post) migration patterns during the latest decades are the outcome of a mix of ex ante migration forces and migration policy, see for instance Pedersen and Smith (2002). Furthermore, migration policy may induce illegal migration, which is suspected to be of a considerable size in many countries, but typically it is not included when measuring migration flows or stocks. According to Hatton and Williamson (2002), illegal migration may amount to 10-15% of OECD foreign population.

Until now, the empirical evidence concerning international migration has been fairly scarce, and most studies have only focused on the migration flows into one country.[1] In

[1] One exception is Hatton and Williamson (2002) who present aggregate estimations of migration into 80 countries (grouped into 10 regions) based on 5 years averages for the period 1970-2000. In the present study we use annual data and no grouping of countries.

this paper, we add to the empirical evidence by analyzing the migration flows into a large number of OECD countries. We estimate a number of regression models on the flow of migrants from 129 countries to 27 OECD countries annually for the period 1990-2000. The large number of destination countries included in the analysis allows us to analyse the migration patterns for groups of OECD countries which are alike with respect to welfare state regimes or migration policy, and in this way we are able to identify patterns which may not be easy to document empirically in the more country-specific studies.

The rest of the paper is organized as follows: Section 2 surveys the economic literature on international migration. Section 3 shortly describes the database collected for this study, and Section 4 describes immigration development and trends into the OECD countries. Section 5 presents the basic model on international migration we are estimating. Results from the econometric analyses are given in Section 6. Finally, Section 7 offers some concluding remarks.

2. THEORY AND LITERATURE REVIEW

The classical economic theories on migration have focused on differences in income opportunities as the main determinant of international migration. Such a view was clearly expressed by J. R. Hicks in his statement: "…differences in net economic advantages, chiefly differences in wages, are the main causes of migration" (Hicks, 1932, p. 76). This traditional view is further reflected in the empirical literature on migration of workers as the "human capital" framework (Sjaastad, 1962), which predicts that a person acting rationally decides to move if the discounted future expected benefits exceed the costs of migration. 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, e.g. 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 step further is made by the new economics of labour migration, which sees labour migration as a risk-sharing behaviour

in families. In contrast to individuals, households may diversify their resources, such as labour, in order to minimize risks to the family income (Stark, 1991).

Another theory is based on migration networks. Immigrants do not have full information on the alternatives of potential immigration targets and often they perform only limited search. One possible way to reach relatively good and safe decisions in the case of uncertainty and imperfect information is to decide on the basis of 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 only friends and relatives (Carrington et al., 1996). However, there might as well be a negative externality stemming from continuously increasing immigration population. The growing number of immigrants increases competition among immigrants on 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 labour market are potential emigrants to a country with big wage dispersion. On the other side, below-average performers are potential migrants to a country with low wage dispersion. So, the model predicts that a country with low wage dispersion will have an overrepresentation among the below-average performing immigrants. The

more positively selected migrants are, the more successful will their adjustment be 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 U.S. during the period 1951-1980. Borjas found that the lower the source-country income level (per capita) and the higher the source-country inequality are, the larger is the inflow rate.

Borjas (1999b) focuses on the level of welfare programs as a pull factor for potential immigrants and introduces the 'welfare magnet' concept.[2] The theories of self-selection are combined with the fact that potential emigrants must take into account the probability of being unemployed in the new destination country. 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 U.S. states.

The selection theories and the Borjas studies have gained a lot of attention, support as well as critique, i.e. Jasso and Rosenzweig (1990) and 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

[2] The "welfare magnet" effect was first analyzed on inter-regional, inter-state moves of the natives in connection with changes in welfare benefits levels. The results have been mixed, ranging from large welfare magnet effects (Enchautegui, 1997) to fairly modest in size or no welfare magnet effects on locational choice of low-income natives (Kaestner et al., 2001, and Meyer, 1998). Borjas (1999) has used this framework for studying the behaviour of immigrants.

of immigration to the U.S., 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 18 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 (if these earlier immigrants settled in areas with high welfare benefits, this may of course still imply that the 'welfare magnet effect' exists). Urrutia (2001) found like Zavodny no evidence that U.S. 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, e.g. 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 U.S. census data, fail to support the selection hypothesis. They examine the skill selection of people migrating from Mexico to the United States. According to the selection model, since the Mexican wage dispersion is larger than wage dispersion in the U.S., the Mexican immigrants to the U.S. should be below-average performers on the Mexican labour market. However, they found that Mexican immigrants while much less educated than U.S. natives on average are more educated than the average residents of Mexico, and thus mean income differentials seem to dominate variance differentials.

In a study by Hatton and Williamson (2002), the results are more mixed. Based on time series on migration flows to the U.S., 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 U.S. 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 behaviour 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 UK and the survey on studies of migration into Germany in Fertig and Schmidt (2000). By using European Household Panel Data, Boeri et al. (2002) examine whether the 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.

So far, there is little research on the issue of welfare magnets and selectivity of migrants for the European countries, although there are heated debates on this issue as many of the European Union member countries possess generous welfare systems and face an intensive immigration pressure. Moreover, up to present there has been no study which would cover more countries, i.e. both countries with higher and lower social safety nets.

3. 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 explain migration flows. In order to have more precise data on immigration, we have contacted the statistical bureaus in the 27 selected destination OECD countries and asked them for detailed information on immigration flows and stock in their respective country during the period 1989-2000. This information is supplemented by published OECD statistics from "Trends in International Migration" publications.[3] Besides flow and stock information, we have collected a number of other time-series variables, which are used in the estimation of migration behaviour. These variables are collected from different sources, e.g. OECD, World Bank, UN, ILO and IMF 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 dataset contains unbalanced information on immigration flows and immigration stocks in 27 OECD countries from 129 countries of origin. For the majority of destination countries, we have information on migration flows and the stocks of immigrants for most of the years although with different numbers of observation for each destination country, see Appendix, Tables A1-A2, for means and

[3] 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.

standard deviations for all flows, stock and other variables. Further, Tables A1-A2 give information for each country on the number of years for which we have information, distributed by destination countries in Table A1 and by source country in Table A2.

4. DESCRIPTION OF MIGRATION TRENDS

During the 1980s and the beginning of the 1990s, the immigration inflows increased in almost all OECD countries. According to Figure 1, which shows the development of total volume of gross immigration inflows into 10 OECD countries (see note 1 in Figure 1) during the period 1990-2000, the immigration flows increased until 1991 reaching slightly more than 3.5 million this year.

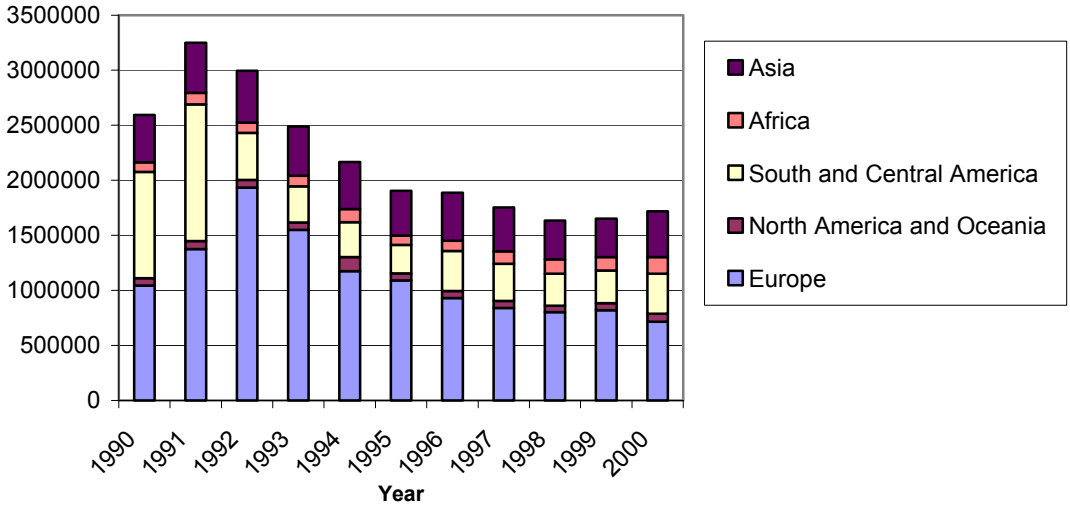
The breakdown of the Iron Curtain in 1989 and the Yugoslavian civil war gave rise to a large increase of migration within Europe in the early 1990, but in the recent years (legal) migration flows seem to have stabilized at a level of about 1.8 million immigrants per year, mainly due to immigration restrictions (SOPEMI, 2001). According to Figure 1, the distribution of OECD immigration by source-country continents and by source-country income levels has also been relatively stable since the early 1990s. It should be noted that Figure 1 describes gross migration flows, not net flows. If there are large differences with respect to out-migration behaviour for the different immigrant groups, the net migration flows may be very different from the gross flows. Non-Western immigrants tend to have a much lower out-migration rate 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 1.

However, aggregate data tell us relatively little about the migration flows and immigration practices of each country. Figure 2 digs one step deeper by showing the stock of foreign population as a percentage of total population in 25 OECD countries for which we have information for the two years 1990 and 1999. The stocks of immigrants in OECD countries vary considerably, in 1999 ranging from 36% in Luxembourg to less than 1% in the Slovak Republic. It is also apparent from Figure 2, that migration flows have changed in the sense that some of the major immigration countries back in time, for instance Australia and Canada, have experienced a much smaller growth in their immigrant population during the latest decade compared to

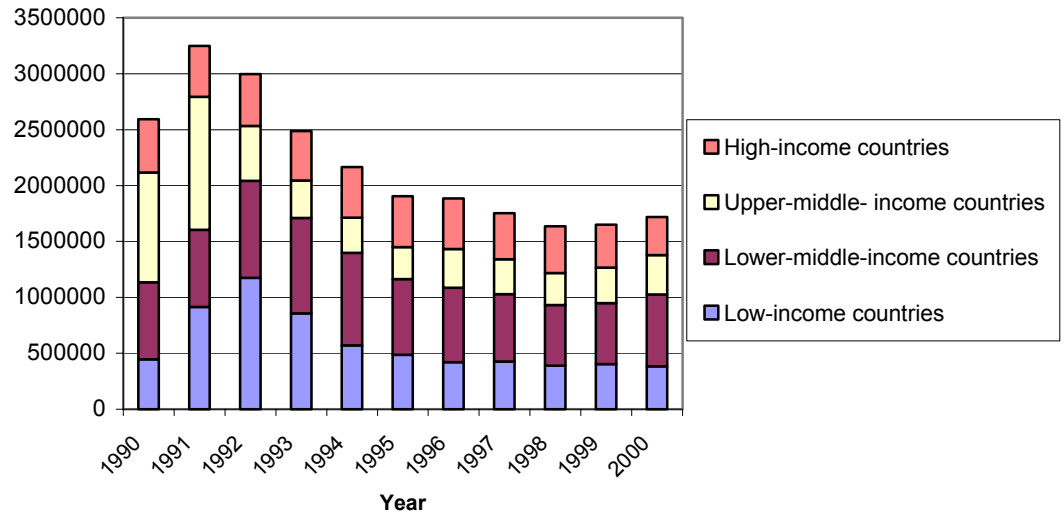
relatively new immigration countries like Austria, Denmark and some of the Southern European countries. In Appendix, Table A3, the top 5 source countries with respect to immigration stock and flows in 24 OECD countries are shown for the year 1999.

Figure 1. Total volume of gross immigration inflows to 10 OECD countries, 1990-1999.[1]

By source-country continent



By source-country income level

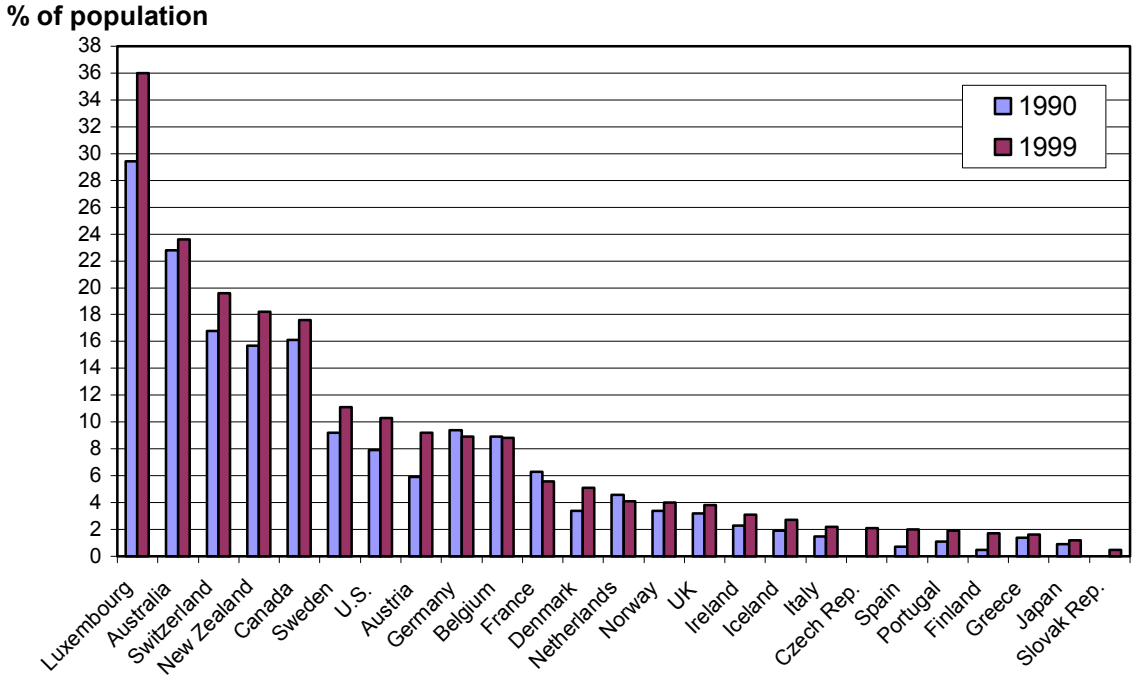


Note 1: The included destination countries are: Belgium, Denmark, Finland, France, Germany, Norway, Sweden, Switzerland, the United Kingdom and the United States.

Source: Own calculations.

As indicated in Table A3, there are large variations in the composition of immigrant stocks and flows in the OECD countries. In some countries, like Luxembourg, the large stock of immigrants mainly stems from other OECD countries (working in EU institutions and the financial sector) while in other countries, to some extent in new immigration countries like Italy, Austria and Finland, the proportion of immigrants who stem from poor source countries is large. Figure 3 shows immigration stocks originating in countries which according to World Bank classifications are categorized as poor or 'medium poor' (for a precise definition of the categories, see Appendix).

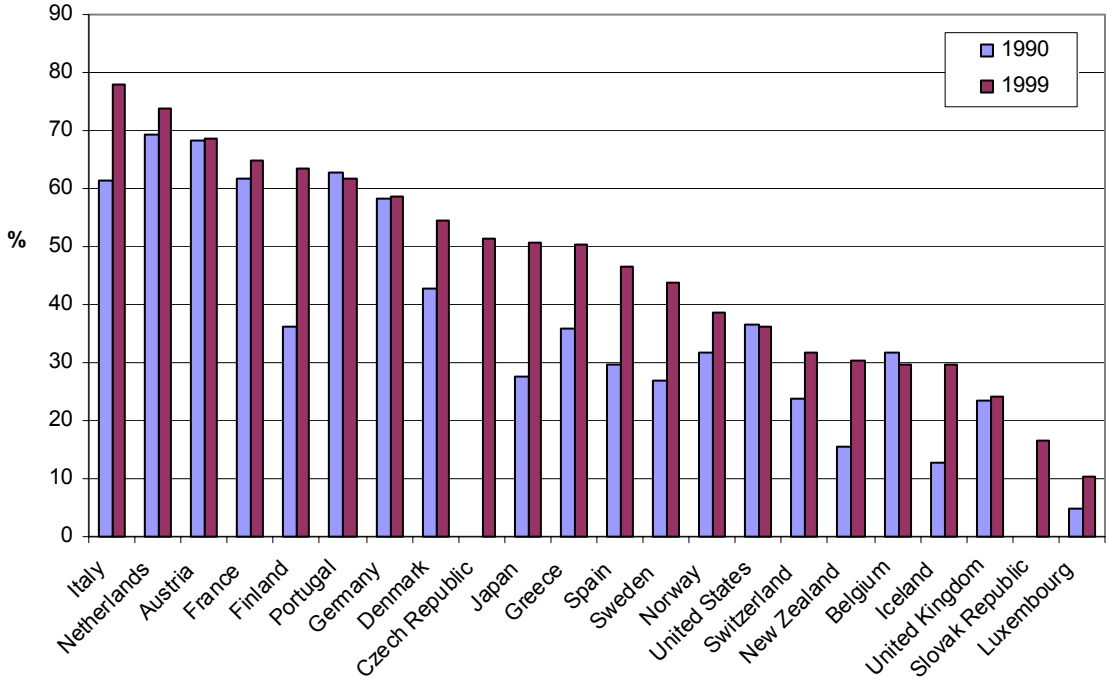
Figure 2. Stock of foreign population as a percentage of total population in 1990 and 1999 in selected OECD countries.



Source: Own calculations.

As we can see from Figure 2, the stock of immigrants coming from poor – low-income countries increased in almost all destination countries but the largest relative increases are found in countries which have experienced the largest relative growth in immigrant stock during the period 1990-1999.

Figure 3. Proportion of immigration stock in 1990 and 1999 originating from low– and lower-middle-income countries.



Note: Definition of low- and lower-middle income is given in the Appendix.

Source: Own calculations.

5. A MODEL OF INTERNATIONAL MIGRATION

Assume that potential migrants have utility-maximizing behaviour, compare alternative potential destination countries and choose the country, which provides the best opportunities, all else 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*.

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

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-fixed costs, fixedout-of-pocket and psychological/social costs of moving from country *i* to country *j*. X_{ijkt} are characteristics of country *i* and country *j* at time *t*. 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,…,129, and *j* = 1,….,27); *t* is time period (*t* = 1,…,11). We assume the utility of an individual has a linear form:

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

where ε_{ijkt} presents idiosyncratic error and $\alpha_1, \alpha_2, \alpha_3$ 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 27 possible choices as:

$$\Pr(j_{kt} / i_{kt-1}) = \Pr\left[U_{ijkt} = \max(U_{ki1t}, U_{ki2t}, ..., U_{ki27t})\right] \quad (3)$$

Model (3) might be used for estimation of the determinants of the individual's locational choice.[4] However, as we use macro data, we aggregate up to population level by summing *k* individuals. The number of individuals migrating to country *j,* i.e. whose utility is maximized in that country, is given by:

$$M_{ijt} = \sum_k \Pr\left[U_{ijkt} = \max(U_{ki1t}, U_{ki2t}, ..., U_{ki27t})\right] \quad (4)$$

where M_{ijt} is the number of immigrants moving to country *j* from country *i* at time *t*. We assume a linear form of the variables that influence locational choice of immigrant. Hence we have:

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

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, i.e. we use the immigration rate, m_{ijt}, instead of immigration flow in absolute numbers as the

[4] 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.

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}, i.e. 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 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.

In some of the models, we have further experimented with the inclusion of destination countries fixed or random effects, $c_{j,}$ in order to capture unobserved time-constant factors influencing immigration flows,[5] for instance differences in national immigration policy, see for instance 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 neighbours, 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

[5] We have also tried to estimate the model with both destination and source-country fixed effects, but it does not reveal any different results, Moreover, we found source-country fixed effects hard to interpret bearing in mind large range of source countries.

migration, we use the measure of the *Distance in Kilometers* between the capital areas in the sending and receiving countries. We also include a variable *Trade Volume,* which is defined as the total trade values (both imports and exports) for all country pairs.[6] 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 per capita in destination and source 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 growth 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*, According to Harris and Todaro (1970), it is expected that a low (high) unemployment rate in the destination (source) country will cause higher immigration flows. We also include a variable capturing population pressure, e.g. population in the source country *i* divided by population in destination country *j*. The higher the relative population in the source country is, the larger migration pressure is expected. A more appropriate measure, that 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 has been driven by these age groups, see for instance Fertig and Schmidt (2000).

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

The political pressure in the source country may also influence migration. Therefore, we include the variable *Freedom House Index* which is intended to measure the degree of freedom, political rights and civil liberties in the countries. The variable is in the form of a discontinuous variable assuming 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, 1999b). We have experimented with two variables, the public social expenditure and the 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 in Section 6, only the tax level is included. According to the welfare magnet theory, we expect higher migration flows from low-income countries into countries with higher tax levels and with higher levels of public social expenditure. We have also experimented with measures of relative remuneration of skill factors by including measures of inequality (Gini coefficients). 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.

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, i.e. that immigrants from poor countries being at the lower part of the income distribution may be more likely to move to countries with higher welfare while immigrants from the upper end of the skill distribution in the poor countries may prefer destination countries with low tax pressure and low social standards. However, we try to identify potential selection effects by adding interaction terms between welfare state measures like tax pressure and income levels in source countries. Further, in some separate estimations, we group the destination countries according to welfare state regime or migration policy regime and the source countries according to continent or economic development level in order to identify different migration patterns among these groups of countries.

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

effects estimators. Since we observed macro data for a period of 11 years, we also control for residual correlation over time by applying a robust GEE estimator which controls for potential error term correlation over time.[7]

6. RESULTS

The results from estimating a model of the log gross flows between the 129 source countries (*i*) and the 27 OECD destination countries (*j*) on annual unbalanced panel data for the period 1989-2000 are presented in Tables 1-4.

6.1 Choice of preferred econometric specification and aggregate results

In Table 1 we analyze the stability of the results with respect to the choice of different econometric specifications. 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, see Zavodny (1997) and Hatton and Williamson (2002). The explanatory power (R square) of the model increases from 45% to 75% when including the stock variable,[8] and 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, i.e. 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

[7] A problem with the fixed and random effects estimators is that the models contain lagged variables. In that case, the fixed and random effects estimators are inconsistent for time series of limited number of observations (in this case t =11). One alternative estimator is the Arellano-Bond dynamic panel data estimator which applies a first differencing of equations. However, this applying first differencing implies that we loose many observations due to the unbalanced panel structure of our data set. Instead, we apply a Generalized Estimating Equations (GEE) which corrects for error term correlation over time without reducing the number of observations in case of unbalanced data. We use the XTGEE procedure in STATA. For space reasons we mainly present the results from GEE random effect estimations, but in general our results are very robust with respect to choice of estimator. The results from OLS and fixed effects estimations of all the models are available from the authors upon request.

[8] 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. 6711 observations. The explanatory power increased in similar fashion, from 55 % to 75 %.

results regarding sign and statistical significance are quite robust across the different specifications. However, as expected, the absolute sizes of the coefficients are generally larger when applying OLS on the pooled samples of countries while the panel data estimators which controls for country-specific fixed or random effects generally are smaller in numerical magnitude.

Concentrating on the results from the GEE random effects estimation 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 0.59, implying that on average an increase in the stock of immigrants of 10 % from a given source country induces an increase in annual gross flow of about 5.9 % 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 all regressions the dummy variable for source and destination countries being neighbours is found to be insignificant. The other distance-related dummy variables, i.e. 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 both are significant with expected signs. Increasing distance and smaller trade volume imply lower migration flows and vice versa.

The next block of variables in Table 1 contains the pull factors in the destination countries. GDP per capita as a pure measure of gross income comes out with positive and – except in one specification – highly significant coefficients. In the same way, we consistently find that higher unemployment in destination countries has a significantly dampening impact on migration. Direct welfare state attractors among the pull factors are 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.[9]

Table 1. 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	OLS	OLS	FE (c_j)	GEE (c_j)	GEE (c_j)
Independent variables:					
Sijt-1 Stock of Foreigners/Pop.*(j)*	-	0.583 [0.008]***	0.589 [0.008]***	0.592 [0.008]***	0.586 [0.008]***
Dijt-1 Neighbouring Country (0/1)	0.351 [0.066]***	0.071 [0.052]	-0.008 [0.046]	0.008 [0.048]	0.005 [0.048]
Linguistic Distance (0/1)	1.258 [0.063]***	0.295 [0.057]***	0.345 [0.052]***	0.354 [0.055]***	0.357 [0.055]***
Colony (0/1)	0.409 [0.091]***	0.113 [0.084]	0.469 [0.077]***	0.451 [0.081]***	0.435 [0.081]***
Distance in Kilometers	-0.366 [0.019]***	-0.235 [0.016]***	-0.078 [0.018]***	-0.094 [0.018]***	-0.116 [0.017]***
Trade Volume	0.290 [0.009]***	0.034 [0.008]***	0.133 [0.015]***	0.112 [0.015]***	0.098 [0.014]***
Xjt-1 GDP per cap, j	1.023 [0.031]***	0.755 [0.025]***	0.327 [0.227]	0.543 [0.119]***	0.534 [0.117]***
Unemployment Rate, j	-0.500 [0.031]***	-0.223 [0.023]***	-0.265 [0.029]***	-0.265 [0.030]***	-0.266 [0.030]***
Tax Revenue in j/GDP, j	-0.763 [0.096]***	-0.351 [0.073]***	-0.312 [0.319]	-0.194 [0.284]	-0.205 [0.282]
Xit-1 Population (i)/Population (j)	0.372 [0.008]***	0.178 [0.007]***	0.082 [0.014]***	0.101 [0.014]***	0.110 [0.013]***
GDP per cap, i	-0.080 [0.023]***	-0.115 [0.018]***	-0.172 [0.020]***	-0.155 [0.020]***	-
Lowest level (0/1)	-	-	-	-	0.467 [0.080]***
Lower-middle level (0/1)	-	-	-	-	0.545 [0.055]***
Upper -middle level (0/1)	-	-	-	-	0.177 [0.044]***
Highest level (excluded)	-	-	-	-	-
Unemployment Rate, i	0.173 [0.023]***	-0.087 [0.019]***	-0.038 [0.017]**	-0.043 [0.018]**	-0.051 [0.018]***
Illiteracy Rate, i	-0.123 [0.018]***	-0.194 [0.015]***	-0.193 [0.013]***	-0.193 [0.014]***	-0.193 [0.013]***
Freedom House Index, i	0.094 [0.044]**	0.045 [0.036]	0.065 [0.032]**	0.058 [0.033]*	0.017 [0.034]
Fixed/Random Effects of Destination, c_j	No	No	Yes	Yes	Yes
Fixed/Random Effects of Source, c_i	No	No	No	No	No
Constant Term Included	Yes	Yes	Yes	Yes	Yes
No of obs	9190	6711	6711	6711	6711
Adjusted R-squared (GEE: Scale)	0.450	0.745	0.806	1.097	1.081

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

So, it seems that this welfare state measure has a dampening impact on immigration. 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

[9] 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 a 11-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 in all regressions.

coefficient to the welfare state variable while Zavodny (1997) is getting a positive coefficient when not controlling for stock and fixed effects. Below, we dig further into this question by splitting the tax coefficient according to source-country income level and by disaggregating the regressions into groups of (destination) welfare states.

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. In four of the specifications, we enter GDP per capita in source countries finding significantly negative coefficients, i.e. higher income in source countries has a dampening impact on emigration from these countries. Since this specification assumes a linear effect of GDP per capita, we are not able to observe any potential inverted U-shape GDP effect. In order to look into this possible effect, column 5 shows regressions containing indicators of income levels of source countries instead of the GDP per capita variable. Here, we use the Word Bank classification to divide the countries into different income levels: low-income, lower-middle income, upper-middle income and high income (the left-out category). The size of the coefficients indicates that source-country income level effects are more complex than indicated by the simple linear entry of GDP per capita. Compared with high-income source countries, out-migration from source countries in the lower income classes is higher from countries in the low and lower-middle level income group than in the group with a higher income level.

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 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. Thus, in 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 counter-acting effect and the net effect becomes indeterminate.

Finally, we have included the Freedom House Index among the source-country push factors. The effect is positive indicating that lower degrees of freedom create out-migration incentives, part of it being in the form of refugees. However, the effect seems to become insignificant when we allow for non-linear effects of the source-country income level.

One might argue that the very aggregate results shown in Table 1 do not really allow us to analyze potential selection effects in the migration flows since for instance the effects from the 'welfare variable' (tax pressure) according to the theory vary across groups of potential immigrants. One might expect that potential selection or welfare magnet effects would show up as different sizes or even signs of the tax variables for the different source-country income level groups. If the selection effect is strong, one might expect that for immigrants from high-income countries, the tax coefficient should be negative and numerically large, while one might expect that the effect – as an indicator of welfare programs generosity - became less negative or even positive for immigrants from low-income source countries.

In Table 2, column 1, we allow the stock and tax pressure effects to vary across source-country income level groups. The results do not confirm this expectation. There is a numerically large negative coefficient of the tax pressure variable for immigrants from upper-middle-income groups, but the effect is insignificant for the high-income group. When allowing the stock effect to vary across income groups, we find that the stock effects seem to be higher for immigrants stemming from low-income countries (61-63%) than for immigrants from high-income countries (55-56%). Thus, network effects seem to be stronger for immigrants stemming from low-income groups compared to immigrants from high-income groups when estimating on the total sample of all OECD destination countries and all source countries.

Table 2. GEE(c_j) estimations 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	All	All	Anglo-Saxon	Western Europe
Independent variables:				
Siit-1 Stock of Foreigners/Pop.*(j)**	0.586 [0.008]***	-		
Stock*Lowest GDP level	-	0.630 [0.018]***	0.958 [0.136]***	0.635 [0.019]***
Stock*Lower-middle GDP level	-	0.607 [0.011]***	0.686 [0.044]***	0.610 [0.012]***
Stock*Upper-middle GDP level	-	0.552 [0.014]***	0.493 [0.039]***	0.537 [0.016]***
Stock* High GDP level	-	0.562 [0.012]***	0.502 [0.037]***	0.589 [0.014]***
Diit-1 Neighbouring Country (0/1)	0.004 [0.048]	0.051 [0.049]	1.201 [0.254]***	0.027 [0.051]
Linguistic Distance (0/1)	0.360 [0.054]***	0.364 [0.055]***	0.400 [0.099]***	0.247 [0.061]***
Colony (0/1)	0.418 [0.081]***	0.413 [0.081]***	0.363 [0.184]**	0.584 [0.084]***
Distance in Kilometers	-0.115 [0.017]***	-0.115 [0.017]***	-0.015 [0.094]	-0.097 [0.018]***
Trade Volume	0.099 [0.014]***	0.098 [0.014]***	0.024 [0.036]	0.102 [0.015]***
Xit-1 GDP per cap, j	0.539 [0.117]***	0.543 [0.117]***	-5.614 [0.698]***	1.164 [0.203]***
Unemployment Rate, j	-0.266 [0.030]***	-0.269 [0.030]***	-1.511 [0.336]***	-0.251 [0.030]***
Tax Revenue in j/GDP, j				
Tax*Lowest GDP level	-0.435 [0.358]	-0.495 [0.358]	-3.260 [1.628]**	-0.311 [0.417]
Tax*Lower-middle GDP level	-0.369 [0.295]	-0.383 [0.295]	-2.985 [0.722]***	-0.389 [0.355]
Tax*Upper-middle GDP level	-0.640 [0.319]**	-0.669 [0.319]**	-2.385 [0.981]**	-0.984 [0.383]**
Tax*High GDP level	-0.019 [0.287]	-0.043 [0.287]	-2.708 [0.655]***	-0.716 [0.344]**
Xit-1 Population (i)/Population (j)	0.109 [0.013]***	0.112 [0.013]***	0.115 [0.040]***	0.113 [0.014]***
GDP per cap, i	-	-	-	-
Lowest level (0/1)	1.995 [0.896]**	2.305 [0.900]**	3.087 [5.593]	-0.895 [0.988]
Lower-middle level (0/1)	1.830 [0.512]***	1.879 [0.512]***	1.863 [2.611]	-0.626 [0.571]
Upper -middle level (0/1)	2.453 [0.649]***	2.422 [0.649]***	-0.660 [3.400]	1.046 [0.725]
Highest level (excluded)	-	-	-	-
Unemployment Rate, i	-0.048 [0.018]***	-0.048 [0.018]***	-0.022 [0.058]	-0.065 [0.019]***
Illiteracy Rate, i	-0.195 [0.014]***	-0.199 [0.014]***	0.040 [0.041]	-0.234 [0.014]***
Freedom House Index, i	0.018 [0.034]	0.015 [0.034]	0.237 [0.095]**	0.041 [0.036]
Random Effects of Destination, c_j	Yes	Yes	Yes	Yes
Constant Term Included	Yes	Yes	Yes	Yes
No of obs	6711	6711	471	5557
GEE: Scale	1.078	1.075	0.468	1.008

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

6.2 Migration policy regimes and traditional emigration or immigration countries

One important potential criticism of the results above is that the observed migration flows may be highly influenced by differences in migration policy among countries and over time. Thus, the observed patterns may not reflect the underlying 'true migration pressure' which OECD countries face from the relatively poor countries. We are not able directly to control for 'migration policy' which may act through a number of

parameters. Instead, we select two groups of destination countries: the Anglo-Saxon countries (the USA, Canada, Australia, New Zealand) which back in time were the typical in-migration countries and the Western European countries.[10] The Anglo-Saxon countries are characterized by selective immigration policies where immigrants are supposed to provide for themselves either by work or by being provided for by their family. The impact from these policies shows up very clearly in the ratios between immigrant and native unemployment rates, cf. OECD (2001), which are close to 1 for the Anglo-Saxon countries. For the Western European countries, on the other hand, the ratios are high which may reflect that immigration policies are characterized by entry of tied movers and refugees from less developed countries who are difficult to integrate in labour markets that are both more regulated and in many cases are having higher relative minimum wages than found in the Anglo-Saxon countries. A comprehensive discussion of these differences can be found in Boeri et al. (2002).

If the difference in migration policy regimes matters for the observed migration flow patterns, we expect to find differences regarding the sign to the welfare state proxy variable and differences regarding the importance of destination-country unemployment rates and the illiteracy rates in source countries between the two groups of destination countries. The prior expectation is that the Western European welfare states attract immigrants from source countries with less educational skills as proxied by the illiteracy rate and further attract immigrants in spite of higher unemployment.

Inspecting the results in columns 3 and 4 of Table 2, we actually find quite large differences between the Anglo-Saxon and Western European countries. For the Anglo–Saxon countries, there is a large variation across source-country income levels with respect to the network effect: for low-income countries the network effect is very large (0.96) while much lower for the high-income source countries (0.50). For immigration into Western Europe, the network effect does not vary much across source-country income groups (from 0.65 for low-income countries to 0.59 for high-income countries). This may reflect that restrictive migration policies in Western Europe have dampened or regulated the migration pressure from low-income countries.

[10] Western European countries consisting of current EU member states plus Norway and Switzerland.

The tax pressure variable also varies considerably between Anglo-Saxon countries and Western Europe. The effect is strongly negative for the Anglo-Saxon countries and does not show the expected variation across source-country groups according to the selection theory. Instead the effect seems to be numerically largest for low-income source countries, although we had expected the opposite variation. For Western European countries, we do observe a negative and numerically increasing effect of the tax pressure level with increasing income in source countries.

The distance variable coefficients also vary between Anglo-Saxon and Western European countries. The neighbouring and language variable turns out to be strongly positive and significant for the Anglo-Saxon countries but numerically smaller for the Western European countries, while the effects from distance in kilometres and trade volume are numerically strong and significant for Western Europe. This suggests that the cultural similarity and business links play a role in Western European immigration. The unemployment rate is negative and significant for both groups albeit the larger effect is – as expected - found for the Anglo-Saxon countries. In Western Europe, higher GDP per capita in destination country is working as an attractor, while the opposite is the case for Anglo-Saxon countries. The illiteracy rate and the Freedom House Index are both insignificant for the Anglo-Saxon countries, while for the Western European countries illiteracy in source countries has a dampening impact on immigration. This is contrary to what we would expect based on the selectivity theory. An alternative explanation is that illiteracy is a strong measure of migration costs. The Freedom House Index has a positive coefficient for both groups, presumably reflecting the inflow of refugees.[11]

An alternative way of splitting the destination countries into subgroups is according to type of welfare state in destination countries. In Table 3, we have applied the grouping proposed by Esping-Andersen (1990): A group of social democratic welfare states consisting of Denmark, Finland, Iceland, Norway and Sweden; A group of liberal welfare states consisting of Australia, Canada, Ireland, Japan, New Zealand, UK and the USA; A group of continental/conservative welfare states being Austria, Belgium, France, Germany, Luxemburg, the Netherlands and Switzerland; and finally a group of

[11] We have made another set of estimations where we only look at the flows from 102 non-OECD countries into the 27 OECD countries. This does not change the finding of significantly negative coefficients to the tax pressure variable of about the same magnitude in the two country groups.

Southern European welfare states consisting of Greece, Italy, Portugal and Spain.[12] The idea behind this division is to capture the fact that the tax pressure variable – and thus implicitly the level of social expenditure – only tells something about the level of public sector services, but not whether for instance immigrant groups or non-citizens are eligible to different benefits or services. In some welfare state regimes (the conservative European continental countries), the social services are generous, but only individuals who have earned their rights to the system for instance by being in the labour force are eligible, i.e. newly arrived immigrants are not eligible to a number of social services and transfers. In the Southern European welfare states, which in many respects resemble the continental European welfare states, the church and the family play a major role with respect to social services, and thus in these countries the individual immigrant does not get access to many of the features of these welfare states. This is contrary to the social democratic welfare states which are characterized by high social welfare levels, fairly universal rules and welfare schemes that to a large extent are financed by income or consumer taxes. In these countries (the Nordic countries and to some extent the Netherlands), many immigrant groups have the same rights as native citizens.[13]

Looking at Table 3, the results confirm our a priori expectations concerning selection effects to some extent, but they also show that network effects and the classical migration factors are important, despite the fact that the importance seems to vary between the different types of welfare states. The unemployment rate in destination countries has a significantly negative effect on migration flows, and especially for the liberal countries, where social safety nets are limited compared to the European welfare states, we find a large negative effect from a high unemployment level in the destination country.

The stock or network effect varies considerably between groups of welfare states. In the liberal welfare states, the network effect is extremely important for poor immigrants (coefficient is 0.96) while the effect is smallest for immigrants from high-income countries (coefficient is 0.44). For the Scandinavian social democratic and the other European welfare states, we do not observe by far the same variation across income

[12] A group of former socialist countries being the Czech Republic, Hungary, Poland and the Slovak Republic has been excluded from these analyses as those countries have been net emigration countries during the analysed decade.

[13] However, it should be noted that during the latest decade, partly as a political reaction to the immigration pressure, the eligibility rules and other conditions for receiving welfare services have been tightened, also in the social democratic welfare states. For instance Denmark has tightened the rules since the early 1990s; see Pedersen and Smith (2002).

level of source country, and there are only small and insignificant differences between the coefficients for the highest and the lowest source-country income groups.

Table 3. Estimation of migration flows from 129 source countries (i) to 23 (OECD) destination countries (j), 1990 – 2000. Disaggregating by welfare state regimes. GEE estimations (random effects,(c_j)).

Dependent variable: m_{ijt} = Gross Flows per 1000 inhabitants	Soc. Dem.	Liberal	Continental Eur. Cons.	Southern Europe
Independent variables:				
Siit-1 Stock*Lowest GDP level	0.587 [0.028]***	0.958 [0.147]***	0.627 [0.021]***	0.738 [0.032]***
Stock*Lower-middle GDP level	0.522 [0.017]***	0.650 [0.045]***	0.657 [0.014]***	0.701 [0.017]***
Stock*Upper-middle GDP level	0.421 [0.023]***	0.511 [0.042]***	0.651 [0.019]***	0.612 [0.025]***
Stock* High GDP level	0.563 [0.022]***	0.441 [0.037]***	0.598 [0.016]***	0.653 [0.018]***
Diit-1 Neighbouring Country (0/1)	0.298 [0.072]***	0.991 [0.227]***	-0.157 [0.064]**	-0.077 [0.061]
Linguistic Distance (0/1)	-0.058 [0.147]	0.459 [0.104]***	0.163 [0.056]***	0.858 [0.090]***
Colony (0/1)	1.216 [0.190]***	0.766 [0.185]***	-0.177 [0.104]*	0.620 [0.082]***
Distance in Kilometers	-0.133 [0.026]***	0.117 [0.081]	-0.048 [0.020]**	-0.257 [0.028]***
Trade Volume	0.125 [0.022]***	0.079 [0.040]**	0.056 [0.018]***	0.040 [0.020]**
Xit-1 GDP per cap, i	-0.135 [0.281]	-3.424 [0.707]***	0.174 [0.297]	8.281 [0.379]***
Unemployment Rate, j	-0.367 [0.042]***	-1.145 [0.346]***	-0.152 [0.035]***	-0.618 [0.110]***
Tax Revenue/GDP, j :				
Tax*Lowest GDP level	-2.784 [0.912]***	-4.462 [2.182]**	0.377 [0.571]	-7.115 [0.600]***
Tax*Lower-middle GDP level	0.138 [0.596]	-5.619 [1.732]***	-1.018 [0.449]**	-6.363 [0.455]***
Tax*Upper-middle GDP level	-0.616 [0.633]	-5.657 [1.876]***	-0.759 [0.494]	-6.370 [0.580]***
Tax*High GDP level	0.031 [0.553]	-6.370 [1.692]***	-0.862 [0.436]**	-4.056 [0.427]***
Xit-1 Population (i)/Population (i)	0.116 [0.021]***	0.096 [0.044]**	0.155 [0.017]***	0.121 [0.021]***
GDP per cap, I (left out Highest level)				
Lowest level (0/1)	11.636 [2.901]***	-4.842 [5.043]	-4.142 [1.560]***	10.837 [1.841]***
Lower-middle level (0/1)	0.165 [1.155]	-1.407 [2.725]	1.165 [0.899]	8.148 [1.193]***
Upper-middle level (0/1)	2.342 [1.379]*	-1.739 [3.642]	-0.106 [1.161]	7.836 [1.762]***
Unemployment Rate, i	-0.049 [0.025]*	0.022 [0.057]	-0.072 [0.023]***	0.033 [0.024]
Illiteracy Rate, i	-0.229 [0.021]***	0.016 [0.043]	-0.225 [0.018]***	-0.372 [0.018]***
Freedom House Index, i	0.055 [0.051]	0.148 [0.098]	-0.068 [0.042]	0.328 [0.047]***
Fixed/Random Effects of Destination, c_j	Yes	Yes	Yes	Yes
Constant Term Included	Yes	Yes	Yes	Yes
No of obs	2572	540	1941	1023
GEE scale	0.871	2.071	0.437	4.297

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

The effect of the magnitude of the tax pressure also varies across welfare state groups. If selection effects dominated the gross migration flows, we should expect that the most negative effects of a high tax pressure were found for high-income source countries and less negative effects were found for low-income source countries. We do find this pattern for the liberal welfare states, though the variations between coefficients are not significantly different. For the Scandinavian welfare states, we find the strongest

negative tax pressure effect for the migration flows from the poorest countries, opposite to the expectation if selection effects were dominant. For the other European countries, we do not confirm the selection effect theory either. Again, one should note that the lack of support to the selection theory may of course reflect that migration flows have been 'distorted' by migration policy restrictions.

Our results until now confirm that network effects and classical migration factors are still important for OECD immigration, but they do not in any clear way confirm or reject the selection effect hypothesis. In order to attack the question in an alternative way and test for the robustness of the above results, we have disaggregated the regressions into groups of source countries instead of destination countries in Table 4. In Table 4, the source countries are grouped according to income levels (low, lower-middle, upper-middle and high income), Thus, we allow all coefficients to vary between the four income groups (source countries), but we do not allow the coefficients to vary across groups of destination countries.

If selection effects were strong and worked as predicted by the 'welfare magnet' hypothesis, we should expect that a high tax pressure in destination countries had a more negative effect for immigration flows from rich countries compared to the more poor countries, ceteris paribus. Table 4 shows that we do not find this pattern in our data, i.e. we do not find that the immigrant flows from more poor countries are less negatively affected by a high tax pressure compared to the flows from more rich countries. The tendency seems to be the opposite. If the selection effects were strong, we might also expect that unemployment in the destination countries mainly mattered for the immigrants from the relatively rich continents. Again, this is not confirmed by our estimations.

Thus, in total, we do see some variation in mainly network effects which supports the selection theory, but many of our results are against the selection theory. Migration restriction and migration policy may have reduced the observed migration flows and account for some of the lack of support to the theory. The negative sign of the tax pressure and the results found that the tax effect becomes more negative for the poorest source country flows, may reflect that migration policy has been more restrictive in welfare states with large public sectors and high tax pressure levels. But despite the different migration policy initiatives, we still see strong network effects. To the extent that the stock of immigrants reflects past migration patterns which of course may have

been subject to selection effects, we may have that part of the selection effects are captured by the stock effects

Table 4. Estimation of migration flows from 129 source countries (i) to 27 (OECD) destination countries (j), 1990 – 2000. Disaggregating by income level of source countries. GEE estimations (random effects,(c_j)).

Dependent variable: m_{ijt} = Gross Flows per 1000 inhabitants	Source Country: Low Income	Source Country: Lower-Middle Income	Source Country: Upper-Middle Income	Source Country: High Income
Independent variables:				
S_{ijt-1} Stock of Foreigners/Pop.*(j)*	0.540 [0.029]***	0.593 [0.013]***	0.455 [0.019]***	0.628 [0.016]***
D_{ijt-1} Neighbouring Country (0/1)	0	0.310 [0.121]**	0.352 [0.123]***	0.040 [0.062]
Linguistic Distance (0/1)	0.968 [0.318]***	0.382 [0.103]***	1.075 [0.219]***	0.239 [0.071]***
Colony (0/1)	-0.518 [0.396]	0.249 [0.126]**	2.489 [0.376]***	0.292 [0.125]**
Distance in Kilometers	-0.816 [0.103]***	-0.151 [0.031]***	-0.298 [0.051]***	0.115 [0.031]***
Trade Volume	0.058 [0.036]	0.090 [0.023]***	0.138 [0.032]***	0.170 [0.028]***
X_{jt-1} GDP per cap, j	0.810 [0.224]***	0.626 [0.136]***	0.853 [0.196]***	0.470 [0.173]***
Unemployment Rate, j	-0.338 [0.101]***	-0.353 [0.048]***	-0.423 [0.076]***	-0.172 [0.042]***
Tax Revenue in j/GDP, j	-1.503 [0.709]**	-0.536 [0.398]	-0.545 [0.590]	0.246 [0.400]
X_{it-1} Population (i)/Population (j)	0.160 [0.048]***	0.122 [0.021]***	0.187 [0.034]***	0.029 [0.024]
GDP per cap, i	0.214 [0.090]**	-0.026 [0.041]	-0.474 [0.093]***	-0.065 [0.078]
Unemployment Rate, i	-0.114 [0.050]**	-0.086 [0.029]***	0.053 [0.053]	0.007 [0.035]
Illiteracy Rate, i	0.051 [0.067]	-0.192 [0.021]***	-0.126 [0.062]**	-0.214 [0.037]***
Freedom House Index, i	0.199 [0.157]	-0.089 [0.053]*	0.197 [0.076]***	-0.328 [0.131]**
Fixed/Random Effects of Destination, c_j	Yes	Yes	Yes	Yes
Fixed/Random Effects of Source, c_i	No	No	No	No
Constant Term Included	Yes	Yes	Yes	Yes
No of obs	471	2155	1082	3003
GEE: Scale	1.033	0.985	1.090	1.276

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

7. CONCLUSIONS

Based on the database and the model structure, we present the first results from empirical work on the migration flows into 27 OECD countries from 129 countries during the years 1990-2000. The estimations are made both using panel data models and using pooled OLS. We have collected a very comprehensive database of potentially important background factors and a selection of these is being used in the present estimations. 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 whether the economic or non-economic factors explain migration behaviour and whether there is some effect of the welfare state on selectivity to be found in the structure of immigration flows.

A very robust key result of our econometric analysis is that the network effects measured as the coefficient of the stock of immigrants of own national background already resident in a country has a large positive effect on immigration flows, and thus networks play an important role in explaining current immigration flows. Further, linguistic closeness, former colonial and current business ties are important factors, all with a significant impact on migration flows. Geographic distance, on the other hand, has as expected a clear negative impact on migration flows suggesting that the costs of migration play an important role.

The impact from economic factors is measured by entering GDP per capita and unemployment rates in both destination and source countries. The results typically point to effects in accordance with prior expectations, i.e. migration flows react positively to higher income gaps and react negatively to depressed labour markets in destination countries.

Next, we have experimented with a number of simple welfare state indicators, i.e. public social expenditure and tax revenues relative to GDP in destination countries. After some experiments, the tax pressure variable was chosen as the most stable indicator. In contrast to the simple welfare magnet hypothesis it turns out, however, that in the present global approach to migration flows the coefficient to this welfare state indicator consistently becomes negative, and the effect tends to be more negative for immigrants from the poorest countries. The welfare magnet indicator thus seems to function, not as an attractor, but as a barrier towards immigration. This might be explained by the fact that big relative public sectors correlate with restrictive immigration policies.

Due to data availability, migration flows in the present approach are based on aggregate measures, i.e. 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 re-unions and finally refugees. In the long run, welfare magnet mechanisms

might influence these flows in the direction pointed out in Borjas (1999b). In the short to intermediate run, 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, i.e. 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.

Overall, in a global context like the present one, many arguments thus go against the simple welfare magnet hypothesis. Nevertheless, the decomposition of regressions according to different types of immigration policies and level of welfare of destination countries reveal some interesting points. The network effect variation across income levels of source countries varies a lot in the case of Anglo-Saxon /liberal type of destination countries with large network effect for low-income countries and much smaller for high-income source countries. Contrary to that, the network effect does not vary much across source-country income groups for Western European destination countries, which might simply reflect the restrictive immigration policies. Thus, this suggests that there might be some selection through the migration networks.

To sum up, the evidence from the analysis of gross migration flows in 27 OECD countries presented in this paper 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 do not find any direct welfare magnet effects explaining migration flows. However, we find some support for the selection theory through the networks, which seems to be a strong driving force in migration process.

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APPENDIX:

Description and definitions of the basic variables and sources.

FLOWS_ij: 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 2000 OECD.

STOCK_ij: Stock of foreigners from country i in country j

Source: National statistical offices and "Trends in International Migration" SOPEMI 2000 OECD.

POPi,POP_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 US$), PPP: GDP per capita is gross domestic product divided by midyear population. GDP 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 U.S. dollars.

Source: World Bank national accounts data, and OECD National Accounts data files.

U_i, U_j: 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: International Labour Organisation, Key Indicators of the Labour Market database.

ILR_i, ILR_j: Illiteracy rate, adult total (% of people ages >15): 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.)

PSEP_i, PSEP_j: 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).

TAXR_i, TAXR_j: 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.

Dist_ij: Distance between countries – distance between capitals in km.

Source: MapInfo, own calculations.

FREE_i, FREE_j: Freedom House Index – represents scores of political rights, civil liberties, and freedom. These are measured on a one-to-seven scale, 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.

Ld2: The index of common language in two countries. This index has value 1 for common language in two countries and 0 for no common language.

Source: Ethnologue: Languages of the World, 14th edition. http://www.ethnologue.com/web.asp

Colony: **Colony index** – in the form of dummy for countries ever in colonial relationship – value 1, 0 otherwise.

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

Trade Volume: **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, 1989-2000.

Source: IMF

Dummy for Least Developed Country: United Nations definition: Forty-nine countries are in 2001 designated by the United Nations as "least developed countries" (LDCs). The list is reviewed every three years by the Economic and Social Council (ECOSOC). The criteria underlying the current list of LDCs are:

- a **low income**, as measured by a three-year average estimate of the gross domestic product (GDP) per capita;
- **weak human resources**, as measured by a composite index (Augmented Physical Quality of Life Index) based on indicators of life expectancy at birth, per capita calorie intake, combined primary and secondary school enrolment, and adult literacy;
- a **low level of economic diversification**, as measured by a composite index (Economic Diversification Index) based on the share of manufacturing in GDP, the share of the labour force in industry, annual per capita commercial energy consumption, and UNCTAD's merchandise export concentration index.

List of LDC Countries:

Africa	Angola, Benin, Burkina-Faso, Burundi, Cape Verde, Central African Republic, Chad, Comoros, Democratic Republic of the Congo, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gambia, Guinea, Guinea-Bissau, Lesotho, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Rwanda, São Tomé and Príncipe, Senegal, Sierra Leone, Somalia, Togo, Uganda, United Republic of Tanzania and Zambia
Arab States	Mauritania, Sudan and Yemen
Asia and the Pacific	Afghanistan, Bangladesh, Bhutan, Cambodia, Kiribati, Lao People's Democratic Republic, Maldives, Myanmar, Nepal, Samoa, Solomon Islands, Tuvalu and Vanuatu
Latin America and the Caribbean	Haiti

Dummies for Low-, Lower-middle, Upper-middle and High – Income countries

World Bank definitions of low-income countries, lower-middle-income countries, upper-middle-income countries and high-income countries: Economies are divided according to 2002 GNI per capita, calculated using the World Bank Atlas method. The groups are: *low income*, $735 or less; *lower middle income*, $736 - $2,935; *upper middle income*, $2,936 - $9,075; and *high income*, $9,076 or more.

1: High-income countries
Andorra; Aruba; Australia; Austria; Bahamas; Bahrain; Belgium; Bermuda; Brunei; Canada; Cayman Islands; Channel Islands; Cyprus; Denmark; Faeroe Islands; Finland; France; French Polynesia; Germany; Greece; Greenland; Guam; HongKong, China; Iceland; Ireland; Israel; Italy; Japan; Korea, Rep.; Kuwait; Liechtenstein; Luxembourg; Macao, China; Monaco; Netherlands; Netherlands Antilles; New Caledonia; New Zealand; Northern Mariana Islands; Norway; Portugal; Qatar; San Marino; Singapore; Slovenia; Spain; Sweden; Switzerland; United Arab Emirates; United Kingdom; United States; Virgin Islands (U.S.)
2: Upper-middle-income countries

American Samoa; Antigua and Barbuda; Argentina; Barbados; Botswana; Brazil; Chile; Costa Rica; Croatia; Czech Republic; Dominica; Estonia; Gabon; Grenada; Hungary; Isle of Man; Latvia; Lebanon; Libya; Lithuania; Malaysia; Malta; Mauritius; Mayotte; Mexico; Oman; Palau; Panama; Poland; Puerto Rico; Saudi Arabia; Seychelles; Slovak Republic; St. Kitts and Nevis; St. Lucia; Trinidad and Tobago; Uruguay; Venezuela;RB

3: Lower-middle-income countries and low-income countries

Albania; Algeria; Armenia; Belarus; Belize; Bolivia; Bosnia and Herzegovina; Brazil; Bulgaria; Cape Verde; China; Colombia; Cuba; Dominican Republic; Djibouti; Ecuador; Egypt, Arab Rep.; El Salvador; Fiji; Guatemala; Guyana; Honduras; Iran, Islamic Rep.; Iraq; Jamaica; Jordan; Kazakhstan; Kiribati; Macedonia, FYR; Maldives; Marshall Islands; Micronesia, Fed. Sts.; Morocco; Namibia; Paraguay; Peru; Philippines; Romania; Russian Federation; Samoa; Serbia and Montenegro; South Africa; Sri Lanka; St. Vincent and the Grenadines; Suriname; Swaziland; Syrian Arab Republic; Thailand; Tonga; Tunisia; Turkey; Turkmenistan; Ukraine; Yugoslavia, Fed. Rep.; Vanuatu; West Bank and Gaza;

4: Low-income countries

Afghanistan; Angola; Azerbaijan; Bangladesh; Benin; Bhutan; Burkina Faso; Burundi; Cambodia; Cameroon; Central African Republic; Chad; Comoros; Congo, Dem. Rep.; Congo, Rep.; Côte d'Ivoire; Equatorial Guinea; Eritrea; Ethiopia; Gambia; Georgia; Ghana; Guinea; Guinea-Bissau; Haiti; India; Indonesia; Kenya; Korea, Dem. Rep.; Kyrgyz Republic; Lao PDR; Lesotho; Liberia; Madagascar; Malawi; Mali; Mauritania; Moldova; Mongolia; Mozambique; Myanmar; Nepal; Nicaragua; Niger; Nigeria; Pakistan; Papua New Guinea; Rwanda; São Tomé and Principe; Senegal; Sierra Leone; Solomon Islands; Somalia; Sudan; Tajikistan; Tanzania; Timor-Leste; Togo; Uganda; Uzbekistan; Vietnam; Yemen, Rep.; Zambia; Zimbabwe

Source*:* World Bank

Table A1: Descriptive statistics of basic variables for OECD destination countries (means, standard deviations and number of years observed in the data set)

mean (st.d.) years with information	Australia	Austria	Belgium	Canada	Czech Republic	Denmark	Finland	France	Germany
Flows of immigrants to the country *	3 830 (4 320) (12)	1 508 (2 446) (5)	1 075 (1 613) (11)	2 029 (4268) (11)	83 (398) (8)	206 (560) (12)	65 (264) (12)	824 (1 604) (12)	18 194 (37 645) (12)
Sum of immigration flows to the country **	58 409 (19 760)	29 038 (29 310)	43 814 (12 478)	176 902 (55 537)	6 973 (5 085)	26 091 (6 413)	8 262 (2 136)	78 465 (20 171)	849 032 (293 367)
Stock of immigrants in the country ***	148 943 (236 324) (5)	5 809 (19 172) (6)	15 624 (37 917) (12)	54 491 (107 948) (2)	1 591 (6 389) (8)	1.776 (3 918) (12)	1 260 (2 405) (12)	41 416 (113 211) (2)	61 478 (211 308) (12)
Sum of immigration stock in the country ****	1 340 486 (1 575 127)	120 542 (219 544)	868 449 (21 728)	1 157 930 (1 620 004)	118 565 (89 720)	225 023 (38 322)	54 290 (22 359)	548 757 (1 222 297)	7 239 070 (815 486)
Population (in thousands)	18 000 (725) 89-00 (12)	7 959 (153) 89-00 (12)	10 100 (99) 89-00 (12)	29 100 (1 089) 89-00 (12)	10 300 (18) 89-00 (12)	5 227 (69) 89-00 (12)	5 088 (68) 89-00 (12)	57 700 (739) 89-00 (12)	78 400 (7 058) 89-00 (12)
GDP per capita (constant 1995 US$)	20 766 (1 887) 89-00 (12)	29 366 (1 756) 89-00 (12)	27 365 (1 691) 89-00 (12)	19 898 (1 246) 89-00 (12)	5 015 (260) 90-00 (11)	34 324 (2 368) 89-00 (12)	26 824 (2 511) 89-00 (12)	27 086 (1 288) 89-00 (12)	30 047 (1 287) 89-00 (12)
Unemployment rate (% of the labour force)	8.15 (1.472) 89-00 (12)	5.013 (0.602) 89-00 (12)	8.431 (1.264) 89-00 (12)	9.142 (1.432) 89-00 (12)	4.823 (2.322) 90-00 (11)	7.146 (1.647) 89-00 (12)	11.007 (4.495) 89-00 (12)	10.794 (1.180) 89-00 (12)	7.592 (1.146) 89-00 (12)
Public social expenditure as a percentage of GDP (SNA93)	16.748 (1.822) 89-99 (11)	27.732 (1.043) 90-98 (9)	26.752 (0.758) 89-99 (11)	1.903 (1.495) 89-99 (11)	18.794 (0.877) 90-99 (10)	31.33 (1.322) 89-98 (10)	29.699 (3.637) 89-98 (10)	28.143 (1.366) 89-98 (10)	26.746 (2.651) 89-98 (10)
Tax revenue (% of GDP)	29.073 (1.096) 89-99 (11)	42.533 (1.342) 89-00 (12)	44.575 (1.159) 89-00 (12)	37.167 (0.711) 89-00 (12)	40.025 (14.401) 93-00 (8)	48.892 (1.151) 89-00 (12)	45.642 (1.194) 89-00 (12)	44.158 (1.059) 89-00 (12)	36.800 (1.782) 89-00 (12)
No. of years with complete information on all variables	5	5	11	2	8	10	10	2	10

* mean and st.d. for each particular flow of immigrants from source country in the period 1989-2000
** mean and st.d. for the sum of flows of immigrants from source country in the period 1989-2000
*** mean and st.d. for each particular stock of immigrants from source country in the period 1989-2000
**** mean and st.d. for the sum of stocks of immigrants from source country in the period 1989-2000

Table A1 (continued): Descriptive statistics of basic variables for OECD destination countries (means, standard deviations and number of years observed in the data set)

mean (st.d.) years with information	Greece	Hungary	Iceland	Ireland	Italy	Japan	Luxembourg	Netherlands	New Zealand
Flows of immigrants to the country *	185 (458) (8)	1 151 (3 957) (11)	25 (96) (9)	5 036 (2 660) (7)	1 514 (3 859) (3)	17 897 (17 869) (12)	886 (814) (12)	942 (1 753) (6)	3 962 (4 944) (12)
Sum of immigration flows to the country **	17 528 (11 404)	15 158 (9 125)	1 325 (1 514)	5 875 (5 149)	15 394 (27 865)	202 836 (31 312)	6 867 (394)	64 575 (18 932)	34 996 (4 373)
Stock of immigrants in the country ***	1 192 (2 607) (9)	8 084 (14 883) (5)	82 (272) (12)	- - -	15 034 (22 491) (10)	34 548 (110 834) (6)	3 825 (9 460) (12)	11 808 (32 816) (7)	11 330 (35 080) (3)
Sum of immigration stock in the country ****	113 425 (65 301)	49 850 (59 270)	10 457 (3 145)	- -	650 211 (401 031)	708 234 (720 044)	123 348 (17 246)	666 191 (592 174)	118 018 (206 090)
Population (in thousands)	10 400 (166) 89-00 (12)	10 200 (103) 89-00 (12)	266 (8) 89-00 (12)	3 613 (89) 89-00 (12)	57 300 (342) 89-00 (12)	125 000 (1 155) 89-00 (12)	409 (18) 89-00 (12)	15 400 (327) 89-00 (12)	3 617 (165) 89-00 (12)
GDP per capital (constant 1995 US$)	11 540 (709) 89-00 (12)	4 612 (3 816) 89-00 (12)	27 425 (1 850) 89-00 (12)	19 059 (4 263) 89-00 (12)	19 102 (916) 89-00 (12)	42 149 (1 881) 89-00 (12)	44 446 (6 060) 89-00 (12)	27 127 (2 069) 89-00 (12)	16 019 (930) 89-00 (12)
Unemployment rate (% of the labour force)	9.509 (1.506) 89-00 (12)	8.562 (2.703) 90-00 (11)	3.044 (1.336) 89-00 (12)	11.613 (3.723) 89-00 (12)	10.624 (1.186) 89-00 (12)	3.12 (0.928) 89-00 (12)	2.417 (0.787) 89-00 (12)	5.591 (1.503) 89-00 (12)	7.698 (1.499) 89-00 (12)
Public social expenditure as a percentage of GDP (SNA93)	21.010 (1.200) 89-98 (10)	- - -	19.543 (0.200) 94-98 (5)	18.862 (1.383) 89-98 (10)	25.858 (1.213) 89-98 (10)	12.764 (1.478) 89-98 (10)	22.473 (0.625) 89-98 (10)	26.988 (1.714) 89-98 (10)	21.006 (1.152) 89-99 (11)
Tax revenue (% of GDP)	32.142 (3.210) 89-00 (12)	42.620 (3.033) 89-00 (12)	32.633 (2.068) 89-00 (12)	33.275 (1.170) 89-00 (12)	41.633 (1.952) 89-00 (12)	28.158 (1.350) 89-00 (12)	41.100 (1.188) 89-00 (12)	42.892 (1.423) 89-00 (12)	36.900 (1.012) 89-00 (12)
No. of years with complete information on all variables	8	0	5	0	3	6	10	6	3

* mean and st.d. for each particular flow of immigrants from source country in the period 1989-2000
** mean and st.d. for the sum of flows of immigrants from source country in the period 1989-2000
*** mean and st.d. for each particular stock of immigrants from source country in the period 1989-2000
**** mean and st.d. for the sum of stocks of immigrants from source country in the period 1989-2000

Table A1 (continued): Descriptive statistics of basic variables for OECD destination countries (means, standard deviations and number of years observed in the data set)

mean (st.d.) years with information	Norway	Poland	Portugal	Slovak Republic	Spain	Sweden	Switzerland	United Kingdom	United States
Flows of immigrants to the country *	529 (936) (12)	409 (516) (12)	209 (534) (9)	17 (90) (4)	420 (797) (11)	378 (1 284) (12)	889 (3 088) (12)	879 (1 473) (10)	7 566 (35 316) (12)
Sum of immigration flows to the country **	28 101 (4 969)	5 118 (1 917)	4 153 (5 928)	704 (998)	17 209 (7 186)	45 581 (15 595)	108 145 (35 081)	51 805 (29 475)	922 410 (332 837)
Stock of immigrants in the country ***	2 798 (4 072) (12)	20 204 (55 505) (2)	6 172 (8 300) (12)	201 (696) (6)	11 912 (19 927) (10)	9 233 (23 776) (12)	10 356 (40 218) (12)	103 515 (117 617) (3)	300 190 (791 623) (8)
Sum of immigration stock in the country ****	154 599 (16 952)	124 592 (278 686)	135 780 (34 750)	12 672 (12 812)	443 730 (238 259)	892 525 (63 188)	1 256 522 (91 264)	284 667 (494 597)	15 500 000 (11 100 000)
Population (in thousands)	4 350 (83) 89-00 (12)	38 500 (227) 89-00 (12)	9 894 (59) 89-00 (12)	5 366 (20 629) 89-00 (12)	39 200 (217) 89-00 (12)	8 744 (125) 89-00 (12)	697 (168) 89-00 (12)	58 500 (703) 89-00 (12)	262 000 (8 789) 89-00 (12)
GDP per capita (constant 1995 US$)	33 217 (3 409) 89-00 (12)	3 391 (494) 90-00 (11)	10 984 (990) 89-00 (12)	3 693 (385) 89-00 (12)	15 214 (1 262) 89-00 (12)	27 689 (1 602) 89-00 (12)	44 717 (969) 89-00 (12)	19 249 (1 351) 89-00 (12)	28 043 (2 047) 89-00 (12)
Unemployment rate (% of the labour force)	4.709 (0.965) 89-00 (12)	12.507 (2.415) 90-00 (11)	5.464 (1.180) 89-00 (12)	12.886 (3.037) 91-00 (10)	18.868 (3.171) 89-00 (12)	5.675 (2.418) 89-00 (12)	3.048 (1.638) 89-00 (12)	7.552 (1.709) 89-00 (12)	5.574 (1.054) 89-00 (12)
Public social expenditure as a percentage of GDP (SNA93)	28.110 (0.932) 89-98 (10)	23.852 (2.916) 90-99 (10)	16.603 (1.819) 89-98 (10)	13.972 (0.248) 95-99 (5)	20.350 (0.997) 89-98 (10)	33.430 (2.205) 89-98 (10)	24.504 (3.216) 89-98 (10)	24.604 (2.356) 89-98 (10)	15.112 (0.792) 89-99 (11)
Tax revenue (% of GDP)	41.492 (0.846) 89-00 (12)	38.767 (1.960) 91-99 (9)	32.058 (1.679) 89-00 (12)	33.256 (1.817) 96-00 (5)	33.692 (0.831) 89-00 (12)	50.925 (1.984) 89-00 (12)	32.717 (1.759) 89-00 (12)	35.492 (1.210) 89-00 (12)	26.942 (2.118) 89-00 (12)
No. of years with complete information on all variables	10	2	9	4	10	10	10	3	8

* mean and st.d. for each particular flow of immigrants from source country in the period 1989-2000
** mean and st.d. for the sum of flows of immigrants from source country in the period 1989-2000
*** mean and st.d. for each particular stock of immigrants from source country in the period 1989-2000
**** mean and st.d. for the sum of stocks of immigrants from source country in the period 1989-2000

Table A2: Descriptive statistics of basic variables for source countries (means and standard deviations)

mean (st.d.) years available	Population (in thousands)	GDP per capita (const. 1995 US$)	Unemployment rate (% of the labour force)	Illiteracy rate adult total (% of people ages 15 +)	Freedom House Index	No. of years with complete information on all variables
Afghanistan	21 600 (3 170) 89-00 (12)	- -	- -	- -	7.517 (0.411) 89-00 (12)	0
Albania	3 300 (85) 89-00 (12)	761 (108) 89-00 (12)	12.333 (3.687) 89-00 (12)	19.441 (2.724) 89-00 (12)	4.625 (1.490) 89-00 (12)	12
Algeria	28 100 (1 834) 89-00 (12)	1 563 (62) 89-00 (12)	24.958 (4.075) 89-00 (12)	40.876 (4.955) 89-00 (12)	6.45 (1.030) 89-00 (12)	12
Angola	11 500 (1 232) 89-00 (12)	531 (87) 89-00 (12)	- -	52 (0) 89-00 (12)	6.95 (0.534) 89-00 (12)	0
Argentina	35 000 (1 563) 89-00 (12)	7 362 (841) 89-00 (12)	12.192 (4.525) 89-00 (12)	3.751 (0.389) 89-00 (12)	2.033 (0.618) 89-00 (12)	12
Australia	18 000 (725) 89-00 (12)	20 766 (1 887) 89-00 (12)	8.15 (1.472) 89-00 (12)	0 (0) 89-00 (12)	1.1 (0) 89-00 (12)	12
Austria	7 959 (153) 89-00 (12)	29 366 (1 756) 89-00 (12)	5.013 (0.602) 89-00 (12)	0 (0) 89-00 (12)	1.1 (0) 89-00 (12)	12
Azerbaijan	7 602 (312) 89-00 (12)	394 (86) 92-00 (9)	0.689 (0.396) 91-99 (9)	- -	6.278 (0.425) 92-00 (9)	0
Bangladesh	121 000 (7 317) 89-00 (12)	315 (32) 89-00 (12)	26.638 (14.519) 89-91; 95-00 (8)	62.175 (2.209) 89-00 (12)	3.058 (0.977) 89-00 (12)	8
Belarus	10 200 (74) 89-00 (12)	1 306 (176) 90-00 (11)	1.878 (1.196) 91-99 (9)	0.443 (0.065) 89-00 (12)	5.6 (0.981) 92-00 (9)	9
Belgium	10 100 (99) 89-00 (12)	27 365 (1 691) 89-00 (12)	8.431 (1.264) 89-00 (12)	0 (0) 89-00 (12)	1.142 0.049 89-00 (12)	12
Benin	5 413 (536) 89-00 (12)	371 (22) 89-00 (12)	- -	68.833 (3.766) 89-00 (12)	3.508 (2.195) 89-00 (12)	0
Bolivia	7 343 (601) 89-00 (12)	898 (50) 89-00 (12)	5.738 (2.084) 89-96 (8)	18.500 (2.537) 89-00 (12)	2.058 (0.439) 89-00 (12)	8
Bosnia Herzegovina	3 902 (336) 89-90; 94-00 (9)	1 202 (344) 95-00 (6)	39.275 (0.305) 97-00 (4)	1.500 (0) 89-00 (12)	5.925 (0.556) 89-00 (12)	4
Brazil	160 000 (7 695) 89-00 (12)	4 327 (209) 89-00 (12)	6.544 (2.062) 89-90; 92-93; 95-99 (9)	17.079 (1.520) 89-00 (12)	2.767 (0.523) 89-00 (12)	9
Bulgaria	8 385 (177) 89-00 (12)	1 517 (143) 89-00 (12)	14.264 (4.950) 90-00 (11)	2.234 (0.433) 89-00 (12)	2.817 (1.508) 89-00 (12)	11
Burkina Faso	9 910 (814) 89-00 (12)	221 (15) 89-00 (12)	- -	80.417 (2.568) 89-00 (12)	5.783 (0.803) 89-00 (12)	0
Burundi	6 077 (469) 89-00 (12)	173 (28) 89-00 (12)	- -	58.167 (3.854) 89-00 (12)	7.3 (0.482) 89-00 (12)	0

Table A2 (continued): Descriptive statistics of basic variables for source countries (means and standard deviations)

mean (st.d.) years available	Population (in thousands)	GDP per capita (const. 1995 US$)	Unemployment rate (% of the labour force)	Illiteracy rate adult total (% of people ages 15 +)	Freedom House Index	No. of years with complete information on all variables
Cambodia	10 800 (990) 89-00 (12)	270 (18) 89-00 (12)	- -	35.847 (2.066) 89-00 (12)	6.517 (1.008) 89-00 (12)	0
Cameroon	13 100 (1 131) 89-00 (12)	667 (65) 89-00 (12)	- -	36.000 (4.680) 89-00 (12)	6.958 (0.478) 89-00 (12)	0
Canada	29 100 (1 089) 89-00 (12)	19 898 (1 246) 89-00 (12)	9.142 (1.432) 89-00 (12)	0 (0) 89-00 (12)	1.1 (0) 89-00 (12)	12
Cape Verde	73 152 (115 012) 89-00 (12)	1 265 (135) 89-00 (12)	- -	31.442 (3.527) 89-00 (12)	2.092 (1.788) 89-00 (12)	0
Chad	6 598 (672) 89-00 (12)	226 (13) 89-00 (12)	- -	65.833 (5.185) 89-00 (12)	6.708 (0.406) 89-00 (12)	0
Chile	14 300 (725 150) 89-00 (12)	4 372 (763) 89-00 (12)	5.782 (1.497) 89-99 (11)	5.122 (0.604) 89-00 (12)	2.458 (0.621) 89-00 (12)	11
Chinese Taip	- -	- -	- -	20 (0) 89-00 (12)	3.117 (1.153) 89-00 (12)	0
China	1 210 000 (43 300) 89-00 (12)	559 (162) 89-00 (12)	2.775 (0.292) 89-00 (12)	19.761 (2.510) 89-00 (12)	7.675 (0.043) 89-00 (12)	12
Colombia	39 000 (2 548) 89-00 (12)	2 272 (121) 89-00 (12)	11.036 (3.546) 89-99 (11)	10.010 (1.115) 89-00 (12)	3.567 (0.801) 89-00 (12)	11
Côte d'Ivoire	13 700 (1 454) 89-00 (12)	752 (35) 89-00 (12)	- -	56.500 (3.457) 89-00 (12)	6.458 (0.064) 89-00 (12)	0
Croatia	4 586 (177) 89-00 (12)	4 454 (623) 90-00 (11)	15.058 (3.822) 89-00 (12)	2.472 (0.506) 89-00 (12)	4.308 (0.782) 89-00 (12)	11
Cuba	11 000 (180) 89-00 (12)	- -	- -	4.159 (0.533) 89-00 (12)	7.7 (0) 89-00 (12)	0
Cyprus	723 (28) 89-00 (12)	11 789 (1 267) 89-00 (12)	2.580 (0.597) 89-98 (10)	4.333 (1.029) 89-00 (12)	1.108 (0.028) 89-00 (12)	10
Czech Republic	10 300 (18) 89-00 (12)	5 015 (260) 90-00 (11)	4.823 (2.322) 90-00 (11)	0 (0) 89-00 (12)	1.9 (1.480) 89-00 (12)	11
Denmark	5 227 (69) 89-00 (12)	34 324 (2 368) 89-00 (12)	7.146 (1.647) 89-00 (12)	0 (0) 89-00 (12)	1.1 (0) 89-00 (12)	12
Dominican Republic	7 771 (458) 89-00 (12)	1 619 (218) 89-00 (12)	17.743 (1.952) 91-97 (7)	18.658 (1.477) 89-00 (12)	2.792 (0.873) 89-00 (12)	7
Ecuador	11 300 (825) 89-00 (12)	1 517 (55) 89-00 (12)	8.564 (1.917) 89-99 (11)	10.500 (1.387) 89-00 (12)	2.367 (0.287) 89-00 (12)	11
Egypt	58 800 (3 973) 89-00 (12)	1 051 (91) 89-00 (12)	9.322 (1.413) 89-96; 97-98 (10)	49.235 (2.835) 89-00 (12)	6.317 (0.475) 89-00 (12)	10

Table A2 (continued): Descriptive statistics of basic variables for source countries (means and standard deviations)

mean (st.d.) years available	Population (in thousands)	GDP per capita (const. 1995 US$)	Unemployment rate (% of the labour force)	Illiteracy rate adult total (% of people ages 15 +)	Freedom House Index	No. of years with complete information on all variables
El Salvador	5 736 (411) 89-00 (12)	1 585 (147) 89-00 (12)	8.210 (0.915) 89-98 (10)	24.554 (2.206) 89-00 (12)	2.992 (0.491) 89-00 (12)	10
Estonia	1 464 (73) 89-00 (12)	3 842 (575) 89-00 (12)	7.192 (4.462) 89-00 (12)	0.201 (0.001) 89-00 (12)	2.675 (1.692) 89-00 (12)	12
Ethiopia	58 000 (4 605) 89-00 (12)	103 (9) 89-00 (12)	- -	66.730 (3.555) 89-00 (12)	5.85 (1.165) 89-00 (12)	0
Fed. Rep. of Yugoslavia	10 600 (63) 89-00 (12)	1 271 (90.733) 95-00 (6)	23.418 (2.620) 89-91; 93-00 (11)	1.5 (0) 89-00 (12)	6.108 (0.711) 89-00 (12)	6
Fiji	133 (209) 89-00 (12)	2 524 (158) 89-00 (12)	5.829 (0.338) 89-95 (7)	9.432 (1.533) 89-00 (12)	4.825 (1.224) 89-00 (12)	7
Finland	5 088 (68) 89-00 (12)	26 824 (2 511) 89-00 (12)	11.007 (4.495) 89-00 (12)	0 (0) 89-00 (12)	1.1 (0) 89-00 (12)	12
Former USSR	- -	- -	- -	0.4 (0) 89-00 (12)	5.95 (0.555) 89-90 (2)	0
Former Yugoslavia	- -	- -	32 (0) 99-00 (2)	2 (0) 89-00 (12)	- -	2
France	57 700 (739) 89-00 (12)	27 086 (1 288) 89-00 (12)	10.794 (1.180) 89-00 (12)	0 (0) 89-00 (12)	1.2 (0) 89-00 (12)	12
Gaza Strip	- -	- -	- -	- -	- -	0
Georgia	5 371 (67) 89-00 (12)	620 (362) 89-00 (12)	- -	- -	4.567 (1.035) 92-00 (9)	9
Germany	78 400 (7 058) 89-00 (12)	30 047 (1 287) 89-00 (12)	7.592 (1.146) 89-00 (12)	0 (0) 89-00 (12)	1.2 (0) 89-00 (12)	12
Ghana	17 100 (1 432) 89-00 (12)	375 (23) 89-00 (12)	- -	35.667 (4.650) 89-00 (12)	5.017 (1.349) 89-00 (12)	0
Guatemala	9 890 (897) 89-00 (12)	1 451 (71) 89-00 (12)	- -	35.500 (2.697) 89-00 (12)	3.758 (0.528) 89-00 (12)	0
Greece	10 400 (166) 89-00 (12)	11 540 (709) 89-00 (12)	9.509 (1.506) 89-00 (12)	3.968 (0.807) 89-00 (12)	1.267 (0.047) 89-00 (12)	12
Guinea	6 505 (574) 89-00 (12)	560 (31) 89-00 (12)	- -	- -	6.683 (0.411) 89-00 (12)	0
Guinea-Bissau	936 (403) 89-00 (12)	228 (21) 89-00 (12)	- -	67.834 (3.831) 89-00 (12)	4.808 (1.477) 89-00 (12)	0
Haiti	7 265 (526) 89-00 (12)	388 (49) 89-00 (12)	- -	55.760 (3.489) 89-00 (12)	6.042 (1.267) 89-00 (12)	0

Table A2 (continued): Descriptive statistics of basic variables for source countries (means and standard deviations)

mean (st.d.) years available	Population (in thousands)	GDP per capita (const. 1995 US$)	Unemployment rate (% of the labour force)	Illiteracy rate adult total (% of people ages 15 +)	Freedom House Index	No. of years with complete information on all variables
Honduras	5 557 (531) 89-00 (12)	705 (15) 89-00 (12)	3.767 (0.634) 90-93; 95-99 (9)	28.750 (2.423) 89-00 (12)	2.717 (0.494) 89-00 (12)	9
Hong Kong	6 264 (416) 89-00 (12)	21 543 (1 790) 89-00 (12)	2.858 (1.568) 89-00 (12)	8.407 (1.261) 89-00 (12)	- -	0
Hungary	10 200 (103) 89-00 (12)	4 612 (3 816) 89-00 (12)	8.562 (2.703) 90-00 (11)	0.811 (0.096) 89-00 (12)	1.708 (0.890) 89-00 (12)	11
Iceland	266 (8) 89-00 (12)	27 425 (1 850) 89-00 (12)	3.044 (1.336) 89-00 (12)	0 (0) 89-00 (12)	1.1 (0) 89-00 (12)	12
India	939 000 (57 4000) 89-00 (12)	376 (51) 89-00 (12)	- -	47.121 (2.736) 89-00 (12)	3.025 (0.885) 89-00 (12)	0
Indonesia	196 000 (11 100) 89-00 (12)	943.517 (119.403) 89-00 (12)	17.857 (2.481) 94-00 (7)	16.991 (2.571) 89-00 (12)	6.417 (1.311) 89-00 (12)	7
Iran	59 500 (3 236) 89-00 (12)	1 475 (126) 89-00 (12)	- -	30.578 (4.495) 89-00 (12)	6.617 (0.080) 89-00 (12)	0
Iraq	21 000 (1 783) 89-00 (12)	- -	- -	49.944 (3.668) 89-00 (12)	7.692 (0.028) 89-00 (12)	0
Ireland	3 613 (89) 89-00 (12)	19 059 (4 263) 89-00 (12)	11.613 (3.723) 89-00 (12)	0 (0) 89-00 (12)	1.117 (0.037) 89-00 (12)	12
Israel	5 594 (511) 89-00 (12)	15 317 (1 222) 89-00 (12)	8.758 (1.345) 89-00 (12)	7.441 (1.333) 89-00 (12)	1.592 (0.432) 89-00 (12)	12
Italy	57 300 (342) 89-00 (12)	19 102 (916) 89-00 (12)	10.624 (1.186) 89-00 (12)	1.940 (0.270) 89-00 (12)	1.183 (0.055) 89-00 (12)	12
Jamaica	2 527 (788) 89-00 (12)	2 144 (79) 89-00 (12)	15.927 (0.448) 89-99 (11)	15.666 (1.691) 89-00 (12)	2.242 (0.049) 89-00 (12)	11
Japan	125 000 (1 155) 89-00 (12)	42 149 (1 881) 89-00 (12)	3.12 (0.928) 89-00 (12)	0 (0) 89-00 (12)	1.350 (0.382) 89-00 (12)	12
Jordan	4 056 (569) 89-00 (12)	1 570 (63) 89-00 (12)	14.400 (0.986) 97; 99-00 (3)	14.250 (2.895) 89-00 (12)	4.758 (0.901) 89-00 (12)	3
Kazakhstan	16 000 (472) 89-00 (12)	1521 (280) 89-00 (12)	11.640 (2.266) 94-98 (5)	0.912 (0.208) 89-00 (12)	6.256 (0.433) 92-00 (9)	5
Kenya	26 400 (2 332) 89-00 (12)	342 (8.783) 89-00 (12)	21.300 (0) 94 (1)	23.917 (3.995) 89-00 (12)	6.492 (0.781) 89-00 (12)	1
Korea North (Dem. Rep. of)	21 100 (858) 89-00 (12)	- -	- -	3.167 (0.688) 89-00 (12)	7.7 (0) 89-00 (12)	0
Korea South (Rep. of Korea)	44 900 (1 531) 89-00 (12)	10 267 (1 735) 89-00 (12)	3.233 (1.576) 89-00 (12)	3 (0) 89-00 (12)	2.233 (0.047) 89-00 (12)	12

Table A2 (continued): Descriptive statistics of basic variables for source countries (means and standard deviations)

mean (st.d.) years available	Population (in thousands)	GDP per capita (const. 1995 US$)	Unemployment rate (% of the labour force)	Illiteracy rate adult total (% of people ages 15 +)	Freedom House Index	No. of years with complete information on all variables
Laos	4 753 (400) 89-00 (12)	370 (49) 89-00 (12)	- -	58.302 (4.286) 89-00 (12)	7.375 (0.390) 89-00 (12)	0
Latvia	2 534 (109) 89-00 (12)	2 535 (648) 89-00 (12)	11.044 (6.028) 92-00 (9)	0.208 (0.004) 89-00 (12)	2.233 (0.846) 92-00 (9)	9
Lebanon	4 028 (239) 89-00 (12)	2 522 (483) 89-00 (12)	18.760 (0.207) 96-00 (5)	17.044 (1.981) 89-00 (12)	6.4 (0.303) 89-00 (12)	5
Libya	4 732 (326) 89-00 (12)	- -	- -	26.333 (4.216) 89-00 (12)	7.608 (0.304) 89-00 (12)	0
Lithuania	3 629 (69) 89-00 (12)	2 154 (395) 90-00 (11)	11.520 (6.146) 91-00 (10)	0.570 (0.087) 89-00 (12)	1.467 (0.448) 92-00 (9)	9
Luxembourg	409 (18) 89-00 (12)	44 446 (6 060) 89-00 (12)	2.417 (0.787) 89-00 (12)	0 (0) 89-00 (12)	1.1 (0) 89-00 (12)	12
Madagascar	13 200 (1 332) 89-00 (12)	248 (13) 89-00 (12)	- -	38.167 (2.915) 89-00 (12)	3.408 (1.241) 89-00 (12)	0
Malawi	9 231 (629) 89-00 (12)	155 (11) 89-00 (12)	- -	44.500 (2.818) 89-00 (12)	4.792 (2.369) 89-00 (12)	0
Malaysia	20 900 (1 768) 89-00 (12)	4 014 (643) 89-00 (12)	3.550 (1.164) 89-90; 92-93; 95-99 (9)	16.136 (2.359) 89-00 (12)	5.05 (0.467) 89-00 (12)	9
Mali	9 516 (815) 89-00 (12)	265 (15) 89-00 (12)	- -	78.250 (2.423) 89-00 (12)	3.958 (1.861) 89-00 (12)	0
Morocco	26 600 (1 606) 89-00 (12)	1 332 (50) 89-00 (12)	18.030 (2.435) 89-93; 95-99 (10)	56.631 (3.537) 89-00 (12)	5.375 (0.522) 89-00 (12)	10
Mexico	89 300 (5 872) 89-00 (12)	3 364 (201) 89-00 (12)	3.517 (1.232) 89-00 (12)	10.460 (1.258) 89-00 (12)	3.858 (0.783) 89-00 (12)	12
Mozambique	16 000 (1 267) 89-00 (12)	157 (26) 89-00 (12)	- -	61.892 (3.594) 89-00 (12)	4.458 (1.483) 89-00 (12)	0
Myanmar (Burma)	43 900 (2 564) 89-00 (12)	- -	- -	17.417 (1.443) 89-00 (12)	- -	0
Nepal	20 300 (1 675) 89-00 (12)	213 (18) 89-00 (12)	1.100 (0) 99 (1)	64.500 (3.911) 89-00 (12)	3.392 (0.622) 89-00 (12)	1
Netherlands	15 400 (327) 89-00 (12)	27 127 (2 069) 89-00 (12)	5.591 (1.503) 89-00 (12)	0 (0) 89-00 (12)	1.1 (0) 89-00 (12)	12
New Zealand	3 617 (165) 89-00 (12)	16 019 (930) 89-00 (12)	7.698 (1.499) 89-00 (12)	0 (0) 89-00 (12)	1.1 (0) 89-00 (12)	12
Niger	9 031 (1 069) 89-00 (12)	215 (14) 89-00 (12)	- -	86.667 (1.548) 89-00 (12)	5.917 (1.582) 89-00 (12)	0

Table A2 (continued): Descriptive statistics of basic variables for source countries (means and standard deviations)

mean (st.d.) years available	Population (in thousands)	GDP per capita (const. 1995 US$)	Unemployment rate (% of the labour force)	Illiteracy rate adult total (% of people ages 15 +)	Freedom House Index	No. of years with complete information on all variables
Nigeria	110 000 (10 600) 89-00 (12)	256 (5) 89-00 (12)	7.050 (5.743) 91; 95-97 (4)	44.417 (5.338) 89-00 (12)	6.417 (1.129) 89-00 (12)	4
Norway	4 350 (83) 89-00 (12)	33 217 (3 409) 89-00 (12)	4.709 (0.965) 89-00 (12)	0 (0) 89-00 (12)	1.1 (0) 89-00 (12)	12
Pakistan	124 000 (10 500) 89-00 (12)	486 (24) 89-00 (12)	5.208 (1.054) 89-00 (12)	61.068 (2.706) 89-00 (12)	4.558 (1.206) 89-00 (12)	12
Paraguay	4 652 (378) 89-00 (12)	1 807 (43) 89-00 (12)	5.857 (1.163) 89-94; 96 (7)	8.333 (1.029) 89-00 (12)	4.242 (0.830) 89-00 (12)	12
Peru	23 800 (1 417) 89-00 (12)	2 152 (202) 89-00 (12)	8.044 (1.173) 89; 91-94; 96-99 (9)	12.464 (1.541) 89-00 (12)	4.658 (1.187) 89-00 (12)	9
Philippines	69 000 (5 062) 89-00 (12)	1 098 (43) 89-00 (12)	8.700 (0.747) 89-00 (12)	6.232 (1.017) 89-00 (12)	2.742 (0.508) 89-00 (12)	12
Poland	38 500 (227) 89-00 (12)	3 391 (494) 90-00 (11)	12.507 (2.415) 90-00 (11)	0.344 (0.056) 89-00 (12)	1.875 (0.873) 89-00 (12)	11
Portugal	9 894 (59) 89-00 (12)	10 984 (990) 89-00 (12)	5.464 (1.180) 89-00 (12)	10.414 (1.743) 89-00 (12)	1.117 (0.037) 89-00 (12)	12
Romania	22 700 (257) 89-00 (12)	1 532 (121) 89-00 (12)	7.440 (2.139) 91-00 (10)	2.467 (0.375) 89-00 (12)	4.017 (1.795) 89-00 (12)	10
Russian Fed. Rep.	147 000 (1 232) 89-00 (12)	2 714 (586) 89-00 (12)	8.840 (3.957) 91-00 (10)	0.616 (0.106) 89-00 (12)	4.242 (1.102) 89-00 (12)	10
Rwanda	6 843 (792) 89-00 (12)	241 (42) 89-00 (12)	- -	40.500 (4.795) 89-00 (12)	7.092 (0.528) 89-00 (12)	0
Sao Tome and Principe	25 (38) 89-00 (12)	349 (11) 89-00 (12)	- -	37 (0) 89-00 (12)	2.183 (1.768) 89-00 (12)	0
Saudi Arabia	32 800 (49 600) 89-00 (12)	7 055 (303) 89-00 (12)	- -	29.500 (3.457) 89-00 (12)	7.592 (0.273) 89-00 (12)	0
Senegal	8 468 (787) 89-00 (12)	560 (24) 89-00 (12)	- -	67.617 (3.099) 89-00 (12)	4.308 (0.285) 89-00 (12)	0
Slovak Republic	5 366 (20 629) 89-00 (12)	3 693 (385) 89-00 (12)	12.886 (3.037) 91-00 (10)	0 (0) 89-00 (12)	2.55 (1.337) 89-00 (12)	10
Somalia	7 930 (562) 89-00 (12)	- -	- -	60.000 (0) 89-00 (12)	7.617 (0.277) 89-00 (12)	0
South Africa	39 400 (2 611) 89-00 (12)	3 954 (118) 89-00 (12)	21.612 (4.215) 93-00 (8)	16.929 (1.401) 89-00 (12)	3.133 (2.144) 89-00 (12)	8
Spain	39 200 (217) 89-00 (12)	15 214 (1 262) 89-00 (12)	18.868 (3.171) 89-00 (12)	3.075 (0.488) 89-00 (12)	1.167 (0.047) 89-00 (12)	12

Table A2 (continued): Descriptive statistics of basic variables for source countries (means and standard deviations)

mean (st.d.) years available	Population (in thousands)	GDP per capita (const. 1995 US$)	Unemployment rate (% of the labour force)	Illiteracy rate adult total (% of people ages 15 +)	Freedom House Index	No. of years with complete information on all variables
Sri Lanka	18 300 (811) 89-00 (12)	705 (94) 89-00 (12)	11.909 (2.402) 90-00 (11)	9.945 (1.019) 89-00 (12)	4.05 (0.534) 89-00 (12)	11
Suriname	134 (162) 89-00 (12)	931 (107) 89-00 (12)	12.613 (2.844) 90; 92-98 (8)	30.000 (0) 89-00 (12)	3.475 (1.115) 89-00 (12)	8
Sweden	8 744 (125) 89-00 (12)	27 689 (1 602) 89-00 (12)	5.675 (2.418) 89-00 (12)	0 (0) 89-00 (12)	1.1 (0) 89-00 (12)	12
Switzerland	697 (168) 89-00 (12)	44 717 (969) 89-00 (12)	3.048 (1.638) 89-00 (12)	0 (0) 89-00 (12)	1.1 (0) 89-00 (12)	12
Syria	14 400 (1 410) 89-00 (12)	768 (83) 89-00 (12)	6.300 (0.505) 89; 91 (2)	30.740 (3.346) 89-00 (12)	7.7 (0) 89-00 (12)	2
Tajikistan	5 763 (326) 89-00 (12)	620 (331) 89-00 (12)	1.633 (0.939) 92-97 (6)	1.329 (0.373) 89-00 (12)	6.722 (1.319) 92-00 (9)	6
Tanzania	29 200 (2 861) 92-00 (9)	183 (4) 92-00 (9)	3.300 (0.142) 91-93 (3)	31.583 (4.179) 92-00 (9)	6.008 (0.693) 92-00 (9)	3
Thailand	58 700 (1 652) 89-00 (12)	2 529 (375) 89-00 (12)	1.867 (0.804) 89-00 (12)	6.149 (1.095) 89-00 (12)	3.192 (1.104) 89-00 (12)	12
Tunisia	8 977 (478) 89-00 (12)	2 066 (220) 89-00 (12)	6.486 (0.689) 89-95 (7)	35.730 (4.109) 89-00 (12)	6.225 (0.479) 89-00 (12)	7
Turkey	61 000 (3 721) 89-00 (12)	2 821 (243) 89-00 (12)	7.470 (0.759) 89-00 (12)	18.689 (2.524) 89-00 (12)	4.033 (1.084) 89-00 (12)	12
Uganda	19 000 (2 032) 89-00 (12)	293 (37) 89-00 (12)	2.660 (2.439) 89; 92-94; 97 (5)	38.833 (3.854) 89-00 (12)	5.633 (0.840) 89-00 (12)	5
Ukraine	51 000 (1 051) 89-00 (12)	1 014 (604) 89-00 (12)	7.163 (4.383) 93-00 (8)	0.491 (0.067) 89-00 (12)	3.975 (0.987) 89-00 (12)	8
United Kingdom	58 500 (703) 89-00 (12)	19 249 (1 351) 89-00 (12)	7.552 (1.709) 89-00 (12)	0 (0) 89-00 (12)	1.192 (0.028) 89-00 (12)	12
United States	262 000 (8 789) 89-00 (12)	28 043 (2 047) 89-00 (12)	5.574 (1.054) 89-00 (12)	0 (0) 89-00 (12)	1.1 (0) 89-00 (12)	12
Uzbekistan	22 900 (1 455) 89-00 (12)	504 (63) 89-00 (12)	0.400 (0.082) 92-00 (9)	1.101 (0.195) 89-00 (12)	7.175 (0.715) 89-00 (12)	9
Venezuela	22 100 (1 613) 89-00 (12)	3 478 (152) 89-00 (12)	10.227 (2.102) 89-99 (11)	9.359 (1.277) 89-00 (12)	2.658 (0.972) 89-00 (12)	11
Vietnam	73 300 (4 217) 89-00 (12)	272 (53) 89-00 (12)	- -	8.140 (1.011) 89-00 (12)	7.692 (0.028) 89-00 (12)	0
Yemen	14 800 (1 843) 89-00 (12)	282 (24) 90-00 (11)	11.500 (0) 99 (1)	60.917 (4.741) 89-00 (12)	5.75 (0.571) 91-00 (10)	1

Table A2 (continued): Descriptive statistics of basic variables for source countries (means and standard deviations)

mean (st.d.) years available	Population (in thousands)	GDP per capita (const. 1995 US$)	Unemployment rate (% of the labour force)	Illiteracy rate adult total (% of people ages 15 +)	Freedom House Index	No. of years with complete information on all variables
Zaire (Dem. Rep. of the Congo)	44 600 (4 881) 89-00 (12)	159 (45) 89-98 (10)	- -	46.171 (4.821) 89-00 (12)	7.333 (0.463) 89-00 (12)	0
Zambia	8 844 (806) 89-00 (12)	425 (38) 89-00 (12)	13.700 (1.312) 96 (1)	27.500 (3.457) 89-00 (12)	4.658 (1.537) 89-00 (12)	1
Zimbabwe	11 300 (828) 89-00 (12)	642 (31) 89-00 (12)	5.967 (0.781) 94; 97; 99 (3)	15.750 (2.807) 89-00 (12)	5.8 (0.463) 89-00 (12)	3

Table A3: Importance of the top 5 source countries in the total gross immigration flows and stocks, OECD countries 1999.

Destination country + top 5 source countries	*Inflows in 1999, absolute numbers*	*Inflows % of total inflow volume*	*Stock in 1998, % of total stock*	Destination country + top 5 source countries	*Inflows in 1999, absolute numbers*	*Inflows % of total inflow volume*	*Stock in 1998, % of total stock*	*Destination country + top 5 source countries*	*Inflows in 1999, absolute numbers*	*Inflows % of total inflow volume*	*Stock in 1998, % of total stock*
Australia				**Germany**				**N. Zealand**			
New Zealand	21.900	23,7	7,5	Fed. Rep of Yugoslavia	87.770	13,0	9,8	UK	12.082	21,3	31,3
UK	9.200	10,0	27,4	Poland	72.210	10,7	3,9	Australia	10.254	18,0	8,1
China	6.800	7,4	2,8	Turkey	47.097	7,0	28,8	Japan	4.016	7,1	1,2
South Africa	5.700	6,2	1,4	Italy	34.540	5,1	8,4	US	2.399	4,2	1,9
India	4.600	5,0	2,0	Russian Fed.	27.777	4,1	1,1	Canada	7.770	1,6	1,1
Austria											
Fed. Rep. of Yugoslavia	13.483	18,6	14,6	**Greece**				**Norway**			
Germany	7.459	10,3	8,2	Bulgaria	1.153	9,1	3,7	Yugoslavia	6.407	15,3	4,5
Turkey	7.208	10,0	12,6	Egypt	1.105	8,7	0,4	Sweden	6.044	14,4	12,5
Poland	5.120	7,1	2,9	Ukraine	905	7,2	0,8	Denmark	2.734	6,5	11,2
Bosnia & Herc.	3.887	5,4	15,7	Albania	806	6,4	3,0	UK	2.014	4,8	6,5
				Germany	758	6,0	5,7	Iraq	1.999	4,7	2,0
Belgium											
France	7.900	13,7	11,8	**Hungary**				**Portugal**			
Netherlands	6.200	10,7	9,4	Romania	6.000	39,9	39,9	Brazil	1.200	11,2	11,2
Morocco	4.900	8,5	14,0	Former Yugoslavia	1.700	11,3	11,1	Spain	1.000	9,7	5,7
				Ukraine	1.600	11,0	8,5	Guinea-Bissau	1.000	9,2	7,3
Former Yugosl.	4.800	8,8	0,7	China	1.000	6,4	5,5	Cape Verde	1.000	9,1	22,6
Germany	3.100	5,3	3,8	Germany	700	4,5	5,9	Angola	900	8,9	9,3
Canada				**Iceland**				**Spain**			
China	29.100	15,3	4,6	Poland	255	13,3	17,4	Switzerland	3.781	13,4	1,2
India	17.400	9,2	4,7	Denmark	182	9,5	34,7	France	3.276	11,6	5,5
Pakistan	9.300	4,9	-	Sweden	126	6,6	24,0	Venezuela	3.074	10,9	1,0
Phillippines	9.200	4,8	3,7	Philippines	99	5,2	7,0	Germany	2.985	10,6	8,1
Korea	7.200	3,8	-	United States	99	5,2	20,8	Argentina	1.707	6,0	2,4
Czech Rep.	3.235	32,6	87,7	**Italy**				**Sweden**			
Slovak Rep.	1676	16,9	10,0	Albania	37.200	13,9	7,3	Iraq	5.500	16,0	4,5
Ukraine	808	8,2	7,9	Morocco	24.900	9,3	11,7	Finland	3.400	9,8	18,4
Vietnam	718	7,2	-	For.Yugoslavia	24.500	9,1	3,3	Norway	2.000	5,8	6,1
Russian Fed.	560	5,7	17,8	Romania	20.900	7,8	3,0	Denmark	1.300	3,7	5,6
Germany				China	11.000	4,1	3,0	Former Yugoslavia	1.200	3,4	4,8
Denmark				**Japan**				**Switzerland**			
Iraq	1.980	6,9	4,0	China	55.700	19,8	18,0	Former Yugoslavia	12.600	14,7	23,8
Norway	1.693	6,1	2,1	Philippines	47.600	16,9	7,0	Germany	11.000	12,9	7,3
Germany	1.521	5,5	8,7	United States	27.700	9,8	2,8	France	6.200	7,3	4,2
Sweden	1.437	5,2	4,8	Brazil	21.900	7,8	14,7	Italy	6.000	7,0	24,9
United States	1.329	4,8	4,7	Korea South	17.100	6,1	42,2	Portugal	5.000	5,8	10,1
Finland											
Russian Fed.	2.129	26,8	19,8	**Luxembourg**				**UK**			
Estonia	714	9,0	12,2	France	2.185	18,5	13,1	US	44.800	16,2	5,4
Sweden	688	8,7	9,1	Portugal	2.061	17,5	38,4	Australia	33.400	12,0	2,3
Fed. Rep. of Yugoslavia	373	4,7	3,5	Belgium	1348	11,4	9,7	South Africa	24.100	8,7	1,8
Iraq	294	3,7	3,1	Germany	696	5,9	6,7	India	19.600	7,1	6,3
				Italy	553	4,3	12,4	New Zealand	15.800	5,7	1,7
France				**Netherlands**				**United States**			
Morocco	14.100	16,4	15,4	UK	5.000	6,4	5,9	Mexico	147.573	22,8	26,7
Algeria	11.400	13,2	14,6	Germany	4.500	5,7	8,2	China	32.204	5,0	4,2
Turkey	5.700	5,4	6,4	Morocco	4.400	5,6	19,4	Philippines	31.026	4,8	4,3
Tunisia	4.000	4,7	4,7	Turkey	4.200	5,4	15,4	India	30.207	4,7	2,8
United States	2.700	3,1	0,7	United States	3.300	4,3	2,0	Vietnam	20.393	3,2	2,9

Source: Information from national statistical offices, SOPEMI and own calculations.