

**Directorate for Employment Labour and Social Affairs, DELSA**

## **COUNTING IMMIGRANTS AND EXPATRIATES IN OECD COUNTRIES: A NEW PERSPECTIVE<sup>1</sup>**

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## SUMMARY

Since the end of the 1990s, issues related to international migration, and more particularly to the international mobility of highly-qualified workers, are receiving increasing attention from policy-makers. This reflects, among other reasons, the increasing international movements that have been taking place following the fall of the Iron Curtain and in conjunction with the growing globalisation of economic activity. Despite these increased movements and the heightened policy interest in this area, the quality and comparability of international data on migration have scarcely kept pace.

In particular, data that are generally available on migration flows do not provide a clear idea of the relative scale of movements across countries and data on total immigrant stocks have suffered from differing national views concerning who is an “immigrant”. In addition to the lack of comparability on immigrant populations, most OECD member countries have little information at their disposal on their expatriates. In developing countries, the question of the international mobility of highly-qualified workers is generally manifested through a concern about the so called “brain drain” and the loss of economic potential which could result from this.

With the 2000 round of censuses, however, virtually all OECD countries have incorporated in their census a question on the country of birth of persons enumerated, as well as on their nationality. With this information, it is possible to provide, for the first time, a detailed, comparable and reliable picture of immigrant populations in OECD countries, reflecting the cumulative effect of movements within and to the OECD area over the past decades. And with additional information on the educational attainment of migrants, the cumulative impact of flows of human capital can be depicted and, in particular, the conventional wisdom on the brain drain confronted with actual data.

Results presented in this paper based on the new database on immigrants and expatriates in OECD countries, show that (i) the percentage of the foreign-born in European OECD countries is generally higher than the percentage of foreigners; (ii) international migration is quite selective towards highly skilled migrants; (iii) in most OECD countries, the number of immigrants with tertiary education exceeds the number of highly qualified expatriates to other OECD countries; and (iv) among non-member countries the impact of the international mobility of the highly skilled is diverse: the largest developing countries seem not be significantly affected and indeed may benefit from indirect effects associated with this mobility while some of the smallest countries, especially in the Caribbean and in Africa, face significant “emigration rates” of their elites.

## Introduction

1. Since the end of the 1990s, issues related to international migration, and more particularly to the international mobility of highly-qualified workers, are receiving increasing attention from policy-makers. This reflects, among other reasons, the increasing international movements that have been taking place following the fall of the Iron Curtain and in conjunction with the growing globalisation of economic activity. In addition, demographic imbalances between developed and developing countries and large differences in real wages have tended to encourage the movements of workers from economies where they are in surplus to those where they are most in need. Moreover, many OECD countries have been attempting to attract qualified human resources from abroad, which their increasingly knowledge-intensive economies need in order to sustain economic growth in face of ageing populations. Despite these increased movements and the heightened policy interest in this area, the quality and comparability of international data on migration have scarcely kept pace.

2. In particular, data that are generally available on migration flows do not provide a clear idea of the relative scale of movements across countries. In the so-called settlement countries (Australia, Canada, New Zealand and the United States), only “permanent” migrants are counted as immigrants, that is, persons who are admitted to the country and granted the right of permanent residence upon entry. Persons who are granted temporary permits may not even figure in the official migration statistics. In other countries, immigrants consist of persons who are enrolled onto a population register, which is a file of persons residing in the country that is generally maintained at the municipal level. To be registered, a person entering from outside the country must intend to stay in the country for more than a specified minimum period and have a residence permit (if required) of at least the minimum duration. In some countries (e.g. Belgium, Japan), the minimum period is three months, in others one year (Sweden, Finland). In practice, this means that international students, for example, will often be counted as immigrants in these countries, whereas in the settlement countries, they would not figure in the official migration statistics. Although the solution would normally be to harmonise the statistics across countries, for a number of technical reasons, progress in this area is exceedingly slow.

3. As with international data on annual flows, those on the total immigrant stocks have suffered from differing national views concerning who is an “immigrant”. In the settlement countries, immigrants are considered to be persons who are foreign-born, that is, who at some stage have immigrated into the country of residence.<sup>1</sup> For these countries, the acquisition of nationality is relatively easy and it is rare to see statistics on persons of foreign nationality.<sup>2</sup>

4. In other countries, immigrants are considered precisely to be persons of foreign nationality. However, because persons born abroad can acquire the nationality of the country of residence and because persons born in a country do not necessarily acquire thereby the citizenship of the country of birth, statistics on the foreign population may not yield the same result as those on the foreign-born population. This would not be problematical if it were possible to produce data on both bases. But this was not the case for many countries until fairly recently, with the result that it was customary to see international statistics for two sets of generally non-overlapping countries, those applying the concept of a foreign country of birth to define the immigrant population and those for whom foreign nationality was the determining criterion.

5. As immigrant populations have grown in many countries and naturalisations have become more common, estimates based on these different concepts have become less and less comparable across countries. While new arrivals of foreign citizens tend to increase the size of the foreign population, those already there may acquire the citizenship of the host country and become nationals. As a result, the magnitude of the population of foreign citizenship may tend to remain more or less stable or to grow slowly, while the number of foreign-born persons continues to increase.

6. In addition to the lack of comparability on immigrant populations, most OECD member countries have little information at their disposal on their expatriates.<sup>3</sup> And those which have some information do not necessarily have a clear picture of the countries of destination or of the exact magnitudes of persons who have left the country. Finally, rare are the countries which have a precise picture of their expatriates by duration of stay abroad, level of qualification, occupation or branch of industry.

7. In developing countries, the question of the international mobility of highly-qualified workers is generally manifested through a concern about the so called “brain drain” and the loss of economic potential which could result from this. In OECD countries, the retention of qualified persons and the return of expatriates constitute important challenges to which several countries have tried to respond.<sup>4</sup> Several recent studies undertaken at the OECD have demonstrated that the question is more complex than is often depicted (OECD, 2002; Dumont JC. and JB. Meyer, 2003). These studies also highlight the deficiencies and the gaps in the statistical data available, making it difficult to grasp the complex international mobility patterns of highly skilled workers. To date, only one study has attempted to estimate rates of emigration by country of origin and by level of qualification (Carrington and Detragiache, 1998).<sup>5</sup> This study is widely cited but is now somewhat dated (it uses data from the 1990s), and is subject to a number of biases which limit its usefulness.

8. As a result, current statistics tend to show a rather imperfect image of the actual extent of migration in general and of the movements of the highly skilled in particular, both with respect to movements from developing to developed countries but also within the OECD area as well. With the 2000 round of censuses, however, virtually all OECD countries have incorporated in their census a question on the country of birth of persons enumerated, as well as on their nationality. With this information, it is possible to provide, for the first time, a detailed, comparable and reliable picture of immigrant populations within OECD countries, reflecting the cumulative effect of movements within and to the OECD area over the past decades. Not only can immigrant populations be compared on a common basis across countries, but the extent of migration from a single source country to each OECD country as well as to the OECD as a whole can be determined. And with additional information on the educational attainment of migrants, the cumulative impact of flows of human capital can be depicted and, in particular, the conventional wisdom on the brain drain confronted with actual data. As will be seen, the picture which emerges will confirm a certain number of commonly held views about international migration movements, but also reveal quite a few surprises.

9. This document is divided into four sections. The first section describes the new database that is the source of the information in this document. The second section presents the basic results derived from the new database on immigrants and expatriates in OECD countries. The third and fourth sections will discuss in detail the results on expatriates from OECD and non-member countries. The fifth section provides an overview of recent policy measures related to movements of the highly skilled in OECD countries. A summary and conclusions follow.

### **A new comparable database on international migrants**

10. The information presented in this document is based on a data collection launched in July 2003, addressed to OECD National Statistical Offices (NSOs)<sup>6</sup> and aimed at obtaining census data on the stock of the foreign-born population in OECD countries. The core objective of the project was to better measure and characterise foreign-born populations and especially, to obtain, by aggregating across receiving OECD countries, data on expatriates by country of origin.

11. The new database on immigrants and expatriates in OECD countries (see Box 1) is the first internationally comparable data set with detailed information on the foreign-born population for almost all member countries of the OECD. In addition, using the data base, it is possible to calculate ‘emigration

rates<sup>7</sup> to OECD countries by level of qualification and country of origin for approximately 100 countries. This provides a broad view of the significance of highly skilled emigration, for both OECD and less developed countries.

### **Box 1. Development of a database on international migrants in OECD countries**

Most censuses in member countries were conducted around the year 2000 and the results are currently available for almost all of them. Due to their comprehensive coverage, censuses are particularly well-adapted to identifying and studying small population groups. In several countries, however, there is no population census and it has been necessary to turn to data from population registers or from large-sample surveys. Census data were actually used for 23 of the 29 participating countries and other sources for the remainder (see Annex 1 for more detailed information); Iceland did not participate in the exercise. The data base currently includes data on the foreign-born in OECD countries by detailed place of birth, nationality and educational attainment (three levels). The data are incomplete for two countries and will be available in a revised version of the database in the near future.

The database covers 227 countries of origin and 29 receiving countries within the OECD area. Only 0.46% of the total population of all OECD countries did not report its place of birth and 0.24% did not report a specific country for the place of birth (either a region was specified or no answer was given). The level of education was reported for more than 98% of the population 15 years of age or older. Finally, complete information (i.e. detailed education and detailed place of birth) is available for 97.8% of the OECD population aged 15+. 'Emigration rates' by level of qualification have been calculated for more than 100 countries.

Data adjustments have been necessary for only two situations. Firstly, data for Japan and Korea were not available by country of birth. For these two countries, it has been assumed that the reported country of nationality is the country of birth. This seems a reasonable assumption for the foreign-born, given the very low rate and number of naturalisations in these two countries. However, it will tend to overestimate the number of foreign-born relative to other countries, because persons born in Japan or Korea to foreigners will tend also to be recorded as foreign and thus be classified as foreign-born.

The same assumption could not be made for Germany, where the available source was the Microcensus, a large-scale household sample survey.<sup>8</sup> This source identifies whether or not a person was born abroad, but not the country of birth. Equating country of birth and country of nationality for Germany would have attributed "Germany" as the country of birth to naturalised foreign-born persons, whose numbers are not negligible, and to the numerous "ethnic" German immigrants who obtained German nationality upon entry into Germany. Another data source (the German Socio-Economic Panel) was used to adjust the data for Germany where this was possible (see Annex 1 for more details).

## **2. Immigrants and expatriates in OECD countries: first results**

12. Table 1 compares the incidence of the foreign and foreign-born populations for almost all OECD countries. As is evident, it is in the settlement countries (i.e. Australia, Canada and New Zealand), as well as in Luxembourg and Switzerland, that the percentage of the foreign-born is highest, close to or exceeding 20% in all of these. In addition, certain European countries (e.g. Austria, Germany, the Netherlands and Sweden) have a percentage of immigrants at least as high as that recorded in the United States (approximately 12%).<sup>9</sup> Likewise, the percentage of the foreign-born population exceeds 10% of the total population in Belgium, France, Greece and Ireland. These figures are appreciably higher than those generally presented for the immigrant population, measured on the basis of foreign nationality and which never exceed 10%, except for Luxembourg and Switzerland. It is clear that many European countries have

managed to admit and absorb immigrants in considerable numbers over the past decades, significantly more than is evident from looking at statistics on the resident foreign population.

**Table 1. Percentage of foreign-born and non-citizens in the total population in OECD countries**

	Percentage of foreign-born	Percentage of non- citizens
Mexico	0.5	..
Turkey	1.9	..
Poland	2.1	0.1
Slovak Republic	2.5	0.5
Finland	2.5	1.7
Hungary	2.9	0.9
Czech Republic	4.5	1.2
Spain	5.3	3.8
Portugal	6.3	2.2
Denmark	6.8	5.0
Norway	7.3	4.3
United Kingdom	8.3	..
France	10.0	5.6
Netherlands	10.1	4.2
Greece	10.3	7.0
Ireland	10.4	5.9
Belgium	10.7	8.2
Sweden	12.0	5.3
United States	12.3	6.6
Germany	12.5	..
Austria	12.5	8.8
Canada	19.3	5.3
New Zealand	19.5	..
Switzerland	22.4	20.5
Australia	23.0	7.4
Luxembourg	32.6	36.9
Japan <sup>1</sup>	..	1.0
Korea <sup>1</sup>	..	0.3
<b>Weighted average for above countries</b>	<b>7.8</b>	<b>4.5</b>

1. In the absence of place-of-birth data for Japan and Korea, it has been assumed that all non-citizens are foreign-born and that nationals are native-born (see Annex 1 for further details).

Source: See Annex 1, Secretariat calculations and OECD 2003 for the percentage of foreigners in the United Kingdom and Germany.

13. Caution, however, needs to be exercised in interpreting the data for some countries. In France, but also in Portugal, for example, the foreign-born population includes a significant proportion of persons born abroad as citizens and repatriated from former colonies. Thus, about 1.6 million people born with French nationality outside of France (mainly in Algeria) are counted in the population census of 1999. A similar situation occurs for other countries and in particular the United States, because of persons born overseas of American parents (for instance, children born to military personnel stationed abroad).

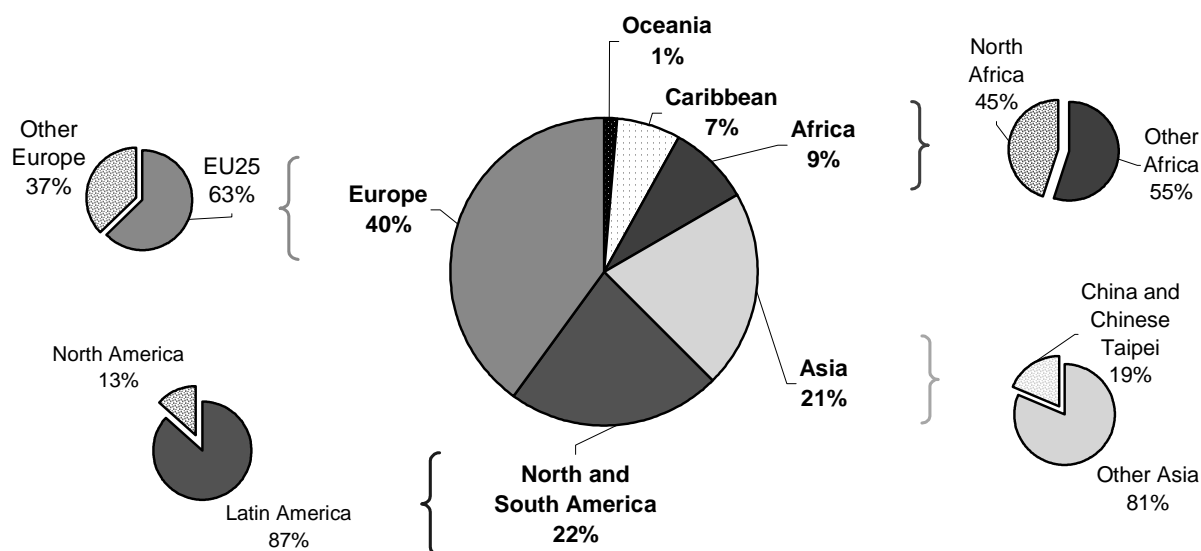
Unfortunately, few countries<sup>10</sup> collect information on nationality at birth, which is what is needed to distinguish the immigration of non-citizens from the entries of persons born as citizens abroad. Estimates for the share of the foreign-born taking into account this phenomenon are presented in Table A1 in Annex 2 for countries for which it is possible to do so.

14. For certain countries, in particular the United States, Australia or Canada, statistics on non-citizens are seldom published. Such statistics provide another perspective on migration. For example, 6.6% of the population of the United States does not have United States citizenship. The figure for Australia is 7.4%, that for Canada 5.3%, levels comparable to those recorded in some European countries such as France, Sweden, Denmark and the Netherlands. It is clear that for these countries as well, data on persons of foreign citizenship would not give an accurate picture of the magnitude of their immigrant populations.

15. The differences between the statistics on non-citizens and on the foreign-born are partly attributable to the varying requirements across countries for obtaining the citizenship of the country of residence, and to the fact that in many countries, persons born in the country of parents of foreign nationality do not automatically acquire the citizenship of the host country. Table A2 in Annex 2 confirms that in Australia and in Canada, but also in Sweden and the Netherlands<sup>11</sup>, a large share of the foreign-born acquires the citizenship of the host country. On the other hand, the acquisition of citizenship is more difficult and less common in Luxembourg and Switzerland.<sup>12</sup>

16. The distribution of foreign-born residents in OECD countries by area of origin (see Chart 1 and Table A3 in Annex 2) is equally informative. In the OECD zone, people born in North Africa (Algeria, Tunisia and Morocco) are at least as numerous as persons born in China. Migrants originating from North Africa are concentrated in three European countries (i.e. France, Spain and the Netherlands). On the whole, Asians and Latin Americans (excluding Caribbean countries) account for more than 15 million immigrants each. Spain, a recent immigration country, alone has received more than 740 000 people from Latin America, and the United States, approximately 13.5 million. However, it is continental Europe (including Turkey and central Eastern Europe), which accounts for the largest number of expatriates to OECD countries. There are, for example, nearly 2 million immigrants from the enlarged European Union (EU25) in each of Canada, Australia, France and Germany.

Chart 1. Foreign-born by region of origin in OECD countries, percentages



Note: "Other Europe" and "Other Africa" include data for not stated European countries and not stated African countries, respectively.

Source: See Annex 1, Secretariat calculations.

17. The countries which practise a selective immigration policy based on human capital criteria stand out in Table A4 in Annex 2 as the countries with the highest percentages of highly qualified immigrants.<sup>13</sup> This is the case for example in Australia, Canada and to a lesser extent the United Kingdom, Ireland, Korea, Norway and New Zealand, where 30 to 42% of immigrants have a higher education degree. In addition, in a number of countries, foreign-born persons with a doctoral degree account for a high proportion of all persons holding such degrees in the host country. In the United States, even if a significant part of the immigrants are not highly qualified, more than 440 000 foreign-born persons hold a PhD<sup>14</sup>. This accounts for approximately 25% of the total stock of PhDs in the country. The proportion of foreign-born doctorates in Sweden is comparable and in Australia and Canada it stands even higher, at 45% and 54%, respectively.

18. The situation in Austria, Finland, France, the Netherlands, Portugal, Spain or Turkey differs significantly. In these countries, at least 50% of the foreign-born have less than upper-secondary education. In Austria, the difference between the percentage of low-qualified among the foreign and native-born populations is particularly large (approximately 16 percentage points). This is also the case in Poland and the Czech Republic.

### 3. Expatriates of OECD member countries residing in another member country

19. Much attention has been directed in recent years within OECD countries at the emigration of highly qualified persons, attracted to countries where job opportunities are more prevalent and research funding more generous. Solid evidence regarding the extent of this phenomenon has been notably absent from the public debate. Although the database described here does not allow one to remedy this as yet with respect to recent departures, it does provide a broad overall picture of expatriation over the past decades.

20. Table A5 in Annex 2 presents the complete data on expatriates from OECD countries. It gives the stock of persons born in one OECD country and residing in another (see Box 2 for more information on alternative methods for obtaining data on expatriates). In the 29 OECD countries currently under review,



36.3 million persons, i.e. 46% of the total foreign-born population, come from another OECD country. In certain host countries, such as Luxembourg, the Slovak Republic, Ireland, Mexico, the Czech Republic and to a lesser extent Switzerland and Belgium, the share of the foreign-born from other OECD countries is very high (between 65% and 85%). At the other extreme, it is close to 24% in Hungary, Poland and Korea and only 11% in Japan.

21. The largest expatriate group consists of persons born in Mexico, with nearly 9.5 million people, of whom the vast majority are resident in the United States. The number of persons born in Germany and in the United Kingdom residing in other OECD member countries is also large, more than 3 million people for each of them. The number of persons born in Turkey, Italy and Poland and residing in other OECD countries amounts to over 2 million persons each.

### **Box 2 : Counting expatriates: Methods and limits**

Identifying and counting expatriates abroad is not without difficulties and different methods may produce different estimates. There are three main types of estimates, each of them with its advantages and shortcomings: (i) statistics of people registered in embassies and consulates overseas; (ii) emigration surveys in origin countries; and (iii) compilation of statistics from receiving countries.

Administrative data from embassies and consulates provide an interesting source for estimating the stock of nationals abroad. Indeed in most cases expatriates need to register to receive social benefits or pension payments, to pay taxes, to vote overseas, to renew identity papers, or simply to report their presence in the country. Unfortunately, because registration is not always compulsory or enforced, the data coverage is not perfect and may vary a lot from one country to another. For instance, the estimate of French citizens living in other OECD countries by the Ministry of Foreign Affairs (1.4 million in 1999) is more than double the number of official registrations at consulates. Furthermore, because people do not necessarily deregister and because some people may register even for short stays abroad (especially in countries where there is some risk), overestimation is also a problem.

Several countries have included specific questions on residents temporarily overseas in Censuses or have implemented specific surveys to identify their nationals abroad. It is possible to ask an interviewed household member how many usual members of the household are currently abroad. This type of estimate, however, covers only short stays abroad (including those for reasons of tourism) and excludes many long-term emigrants, because the situations in which the entire household has settled overseas are not covered.

In this paper, the expatriate community is identified by compiling the data on the foreign born by place of birth in all OECD countries. The estimate is thus based on the place of birth and is not directly comparable to the other sources mentioned previously (see Table 2). One of the major problems with this approach is that it is not always possible to identify foreign-born persons who were citizens of their current country of residence at birth (e.g. children born overseas of national parents). This situation can be particularly problematic for countries which have had important communities abroad. Another problem arises from the fact that some people do not report their place of birth in censuses. Persons not specifying a place of birth represent 10% of the total population in the Slovak Republic, about 5.7% in Australia, and 4% in New-Zealand and Switzerland (see Table A1 in Annex 2). Furthermore, some censuses do not identify systematically all countries of origin (e.g. Korea only records 17 foreign nationalities in its Census). Consequently, the estimates presented in this paper on expatriates by country of origin should be considered a lower bound.

Table 2. OECD expatriates in other OECD countries

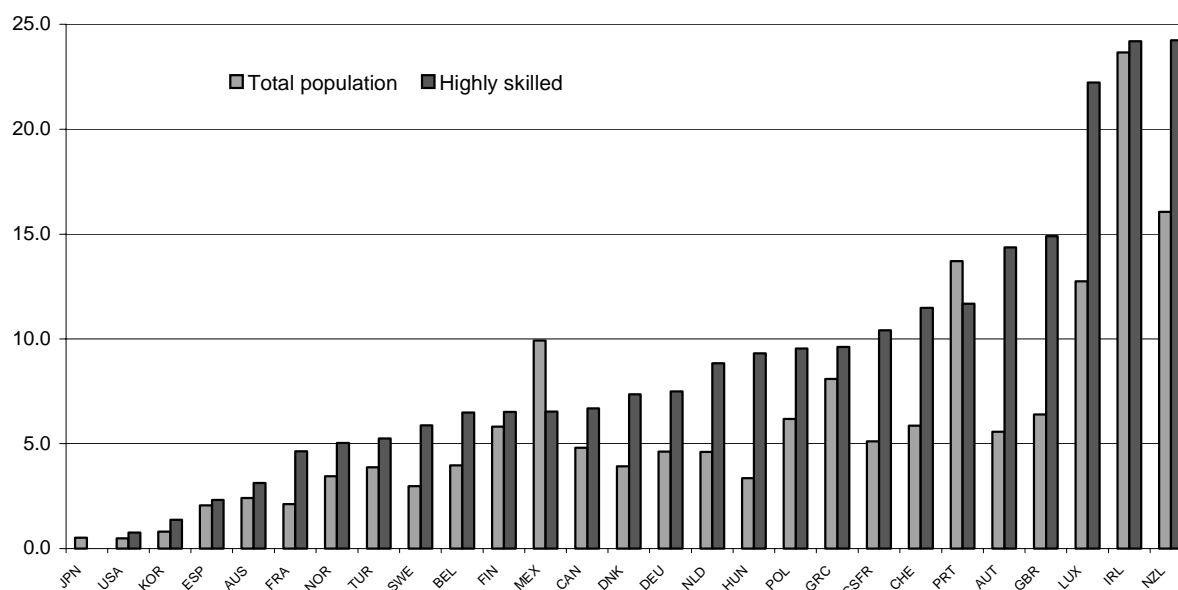
	Nationals registered abroad at embassies or consulates <sup>1</sup>	Native-born living abroad (OECD Censuses)
United States	3 071 167	1 227 249
France	1 392 764	1 119 130
Switzerland	828 036	319 176
Australia	562 668	328 405
Japan	556 561	656 690

1. 1999 for France and the United States; 2000 for Switzerland; 2001 for Australia and Japan.

Sources: Nationals registered abroad at embassies or consulates: Australia: ABS Australian Demographic Statistics Quarterly and Australian Department of Foreign Affairs and Trade; France: Ministère des Affaires étrangères, Direction des Français à l'étranger et des étrangers en France; Japan: Ministry of Foreign Affairs, Consular and Migration Affairs Department; Switzerland: DFAE, Service des Suisses de l'étranger; United States: US Census Bureau and Bureau of Consular Affairs; Native-born living abroad: OECD censuses (excluding Italy) and Secretariat calculations.

22. Expressed as a percentage of the total population, almost 24% of people born in Ireland are currently living in another OECD member country (see Chart 2). Other significant expatriate communities include persons born in New Zealand (16%), Portugal (13.7%), Luxembourg (12.8%) and Mexico (9.9%).

Chart 2. Expatriates as a percentage of all native-born, OECD countries  
Total population and highly skilled



Note: CSFR stands for "Former Czechoslovakia". Data for Korea are partial as several OECD countries do not systematically distinguish between people born in South and North Korea.  
Source: See Annex 1, Secretariat calculations based on OECD censuses.

23. A closer look at these first results reveals a number of other interesting findings. The Korean community in France, for example, is larger than those of all the other European countries<sup>15</sup>; the Dutch are more numerous in Canada than in the United States; there are nearly 110 000 British-born persons in Spain<sup>16</sup>; there are approximately 450 000 people persons born in the United States living in Europe but 4.6

million persons born in Europe and living in the United States (of which 70 600 persons were born in Austria). Other examples include the high mobility among the Scandinavian countries, the high geographical dispersion of persons of German origin or the large numbers of persons born in France and living in Portugal or born in the United States and living in Mexico or Ireland. There are almost as many British-born persons in France (84 500), as there are French-born persons in the United Kingdom (96 300).

24. Even when information on the size of expatriate communities in member countries is available, there is not often information on the characteristics of this population. Speculation on the “brain drain” regularly feeds the media in certain countries, generally without credible statistical evidence. Some national studies exist (e.g. Hugo and *alii*, 2003 ; Barre and *alii*, 2003 ; Ferrand, 2001; Saint-Paul, 2004), but they do not always make it possible to cover the topic extensively.

25. Table 3 shows the distribution of educational attainment for expatriates from each OECD country living in other OECD countries. It reveals the relative importance of the migration of highly qualified persons (i.e. persons with tertiary education). It is for the United States and Japan that the proportion of expatriates with tertiary education is highest (almost 50%). The selectivity of emigration with respect to qualifications, measured by the difference between the proportion of expatriates and that of the native-born with tertiary-level attainment, highlights several European countries, notably France, Austria and Switzerland (at least 20 percentage points difference). Hungary and Denmark also have a relatively significant proportion of their expatriates who are graduates of higher education institutions compared to the native-born. On the other hand, emigration originating from Portugal, Turkey, Mexico or the Slovak Republic is essentially not highly qualified.

26. With the notable exceptions of some Central and Eastern European Countries as well as Mexico, Ireland, Korea and Finland, highly skilled immigration towards OECD countries from the rest of the world systematically exceeds highly skilled emigration from OECD countries to other OECD countries (see Chart 3)<sup>17</sup>. On this measure (and provided that expatriation of the highly skilled to non-OECD countries can be assumed to be relatively uncommon), most OECD countries would seem to benefit from the international mobility of the highly skilled.

27. Within the OECD area, only the United States, Australia, Canada, Switzerland, Spain, Sweden, Luxembourg and Norway (in this order) are net beneficiaries of highly skilled migration from other OECD countries. The United Kingdom has 700 000 more highly skilled expatriates in OECD countries than it has highly skilled immigrants from other OECD countries. Comparable figures exceed 500 000 for Germany, 400 000 for Mexico and 300 000 for Poland. France and Belgium have almost as many highly skilled immigrants from, as expatriates, to OECD countries. This of course gives only a partial picture of brain drain / brain exchange, because it does not include movements of the highly skilled between non-OECD and OECD countries. When movements from all countries to the OECD are included, the picture changes significantly.

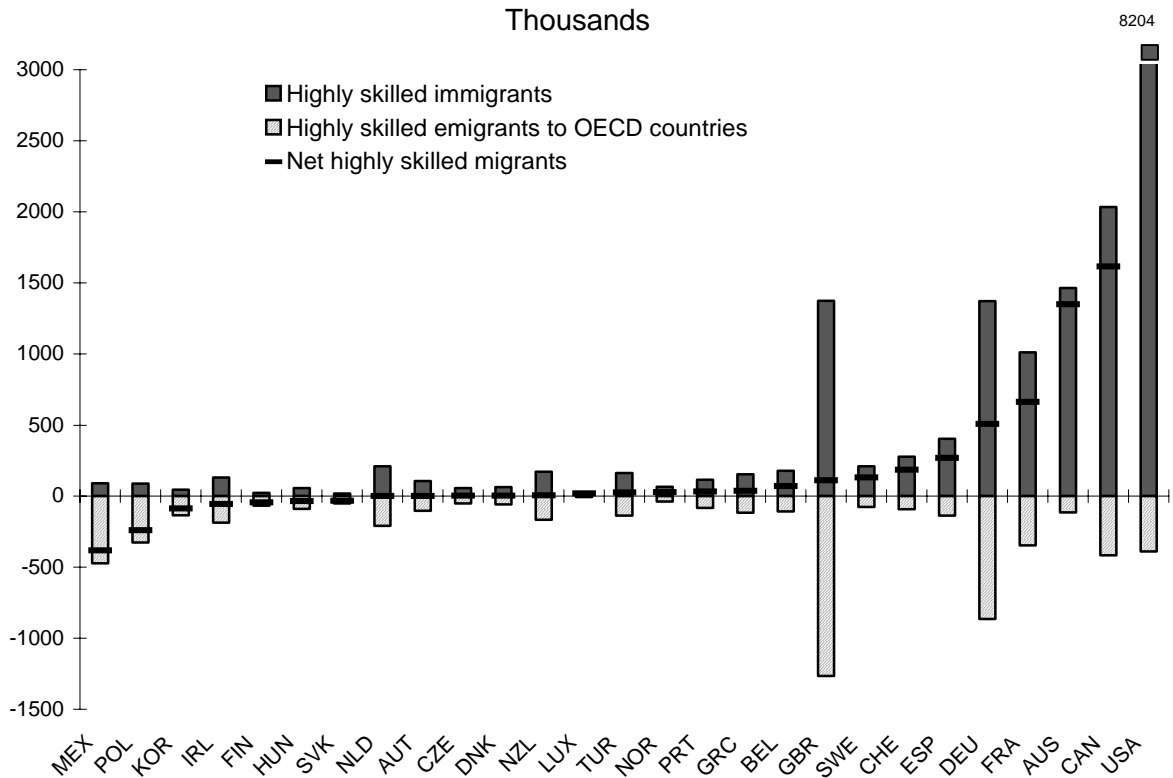
Table 3. Number and distribution of OECD expatriates by level of education

	Upper			unknown	Total
	Tertiary	secondary and post-secondary non-tertiary	Less than upper secondary		
<b>Australia</b>	116 513 45.9	84 091 33.1	53 308 21.0	13 402	<b>267 314</b>
<b>Austria</b>	105 149 30.0	164 504 47.0	80 401 23.0	15 970	<b>366 024</b>
<b>Belgium</b>	108 797 34.6	104 109 33.1	101 295 32.2	7 343	<b>321 544</b>
<b>Canada</b>	417 750 40.6	411 595 40.0	200 175 19.4	15 458	<b>1 044 978</b>
<b>Former CSFR</b>	32 796 30.1	46 232 42.5	29 781 27.4	1 175	<b>109 984</b>
<b>Czech Republic</b>	53 084 25.2	106 613 50.5	51 239 24.3	4 943	<b>215 879</b>
<b>Denmark</b>	59 905 37.4	61 958 38.7	38 317 23.9	12 829	<b>173 009</b>
<b>Finland</b>	67 358 26.3	108 708 42.4	80 378 31.3	8 801	<b>265 245</b>
<b>France</b>	348 432 36.4	313 538 32.8	294 700 30.8	56 911	<b>1 013 581</b>
<b>Germany</b>	865 255 30.4	1201 040 42.1	783 364 27.5	84 098	<b>2933 757</b>
<b>Greece</b>	118 318 16.6	190 647 26.7	405 698 56.8	20 767	<b>735 430</b>
<b>Hungary</b>	90 246 29.6	129 452 42.4	85 451 28.0	9 773	<b>314 922</b>
<b>Iceland</b>	7 792 36.1	8 552 39.7	5 223 24.2	1 503	<b>23 070</b>
<b>Ireland</b>	186 554 27.5	143 679 21.2	347 073 51.2	115 010	<b>792 316</b>
<b>Italy</b>	300 631 13.0	619 946 26.8	1 395 714 60.3	114 048	<b>2 430 339</b>
<b>Japan</b>	281 664 49.7	220 158 38.9	64 529 11.4	9 641	<b>575 992</b>
<b>Korea</b>	134 926 44.2	116 535 38.2	53 568 17.6	7 509	<b>312 538</b>
<b>Luxembourg</b>	7 115 27.9	8 252 32.3	10 179 39.8	1 618	<b>27 164</b>
<b>Mexico</b>	472 784 5.6	2057 184 24.4	5 900 254 70.0	1 159	<b>8 431 381</b>
<b>Netherlands</b>	209 988 36.1	203 897 35.0	168 284 28.9	34 740	<b>616 909</b>
<b>New Zealand</b>	166 854 44.6	84 113 22.5	122 942 32.9	36 754	<b>410 663</b>
<b>Norway</b>	39 152 33.9	45 054 39.0	31 263 27.1	6 610	<b>122 079</b>
<b>Poland</b>	328 058 26.6	518 868 42.0	387 023 31.4	42 533	<b>1 276 482</b>
<b>Portugal</b>	82 938 6.7	295 053 24.0	850 758 69.2	39 977	<b>1 268 726</b>
<b>Slovak Republic</b>	51 798 14.0	168 803 45.5	150 445 40.5	3 524	<b>374 570</b>
<b>Spain</b>	137 708 18.7	204 284 27.8	392 793 53.5	28 228	<b>763 013</b>
<b>Sweden</b>	78 054 40.1	74 559 38.3	42 167 21.6	11 824	<b>206 604</b>
<b>Switzerland</b>	93 859 36.5	94 918 36.9	68 182 26.5	5 497	<b>262 456</b>
<b>Turkey</b>	138 323 6.4	467 630 21.7	1 547 933 71.9	41 759	<b>2 195 645</b>
<b>United Kingdom</b>	1 265 863 41.2	1 006 180 32.8	798 421 26.0	159 212	<b>3 229 676</b>
<b>United States</b>	390 244 49.9	220 869 28.3	170 665 21.8	27 762	<b>809 540</b>

Note: Population aged 15 and over.

Sources: See Annex 1, Secretariat calculations.

**Chart 3. Immigrant and emigrant population aged 15+ with tertiary education in OECD countries**



Note: Data for Korean emigrants are partial as several OECD countries do not systematically distinguish between South and North Korea.

Source: see Annex 1, Secretariat calculations.

28. The difference between the number of highly skilled emigrants to OECD countries and highly skilled immigrants from all countries is largely positive in the United States (+8.2 million), Canada and Australia, but also in France and Germany, even though these countries have a significant number of highly skilled expatriates in other OECD countries. Highly skilled immigration expressed as a percentage of the total highly skilled workforce is particularly significant (over 20%) in Australia, Luxembourg, Switzerland, Canada and New Zealand. The percentage of the highly skilled who are expatriates is below 10% for most OECD countries (see Chart 2 above) and particularly low in Japan, the United States, Spain and Australia. Conversely, more than 10% of the highly skilled born in Switzerland, Portugal, Austria, or the United Kingdom are living in other OECD countries. This percentage is over 20% for three countries: Luxembourg (22.2%), Ireland (24.2%) and New Zealand (24.2%). Table 4 clearly confirms the selective character of migration (in favour of the highly skilled) in OECD countries. This phenomenon is the result of pull factors attributable to selective migration policies in receiving countries, but also to other factors such as the fact that highly qualified persons are more tuned into the international labour market (because of social capital, language skills, access to information ...) and have more resources to finance a move.

Table 4. **Persons with tertiary education by place of birth, selected OECD countries**  
Percentages

	Native-Born	Foreign-Born	Expatriates
<b>Canada</b>	31.5	38.0	40.6
<b>France</b>	16.9	18.1	36.4
<b>Germany</b>	19.5	15.5	30.4
<b>Hungary</b>	10.7	19.8	29.6
<b>Korea</b>	26.7	32.2	44.2
<b>New Zealand</b>	27.2	31.0	44.6
<b>Sweden</b>	22.8	24.2	40.1
<b>Switzerland</b>	18.1	23.7	36.5
<b>United States</b>	26.9	24.8	49.9

*Source:* see Annex 1, Secretariat calculations.

29. Among non-member countries the biggest expatriate community is that originating in the former USSR with 4.2 million people, followed by the former Yugoslavia (2.2 million), India (1.9 million), the Philippines (1.8 million), China (1.7 million), Vietnam (1.5 million), Morocco (1.4 million) and Puerto Rico (1.3 million)<sup>18</sup>. Among persons with tertiary education, the former USSR still ranks first (1.3 million) with India having the second largest expatriate community (1 million). (See Table A6 in Annex 2)

30. To estimate 'emigration rates' by level of qualification for non-member countries, information on the level of education of the relevant population in the country of origin is required. Two sets of estimates have been compiled for such countries, based on two data sources (see Box 3). The results are presented in Table 6 for the 15 countries with the lowest 'emigration rates' for the highly qualified aged 15 and over, as well as for the 15 countries with the highest rates. Most OECD countries, which are not included in Table 5, would tend to fall among countries having lower rates.

31. Among countries with low 'emigration rates' of highly qualified persons (ie. inferior to 5%), we find most of the large countries included in the database (ie. Brazil, Indonesia, Bangladesh, India and China). At the other end of the spectrum, smaller countries, a number of which are islands such as Jamaica, Haiti, Trinidad and Tobago, Mauritius or Fiji, have more than 40% of their highly skilled populations abroad and sometimes as much as 80%. The importance of the size of the origin country is confirmed by simple correlation analysis (see Chart 4a).

32. This first result stresses the heterogeneity of situations among non-member countries and the possibility that emigration of highly skilled workers may adversely affect small countries, preventing them from reaching a critical mass of human resources, which would be necessary to foster long-term economic development<sup>19</sup>. In addition, labour market might be too small to absorb workers with highly specialized skills. Nonetheless, there may be compensating effects associated with remittances sent back to the source country by such emigrants.

Table 5. **Highly skilled expatriates from selected non-OECD countries** <sup>1</sup>  
 Percentages of total expatriates

	<i>Highly skilled aged</i> <b>Cohen and Soto (2001)</b> 15+	<i>Highly skilled aged</i> <b>Barro and Lee (2000)</b> 15+		
<b>15 non-OECD countries with the lowest percentage of highly skilled 15+ expatriates in OECD countries</b>	Brazil	1.7	Brazil	1.2
	Myanmar	1.7	Thailand	1.4
	Indonesia	1.9	Indonesia	1.5
	Thailand	1.9	Paraguay	1.8
	Bangladesh	2.0	Argentina	1.8
	Paraguay	2.0	China	2.4
	Nepal	2.1	Myanmar	2.4
	India	3.1	Peru	2.7
	Bolivia	3.1	Nepal	2.9
	China	3.2	Bangladesh	3.0
	Jordan	3.2	Bolivia	3.1
	Venezuela	3.3	India	3.4
	Costa Rica	4.0	Egypt	3.4
	Syria	4.3	Venezuela	3.5
	Egypt	4.4	Swaziland	3.5
<b>15 non-OECD countries with the highest percentage of highly skilled 15+ expatriates in OECD countries</b>	Guyana	83.0	Guyana	76.9
	Jamaica	81.9	Jamaica	72.6
	Haiti	78.5	Guinea-Bissau	70.3
	Trinidad and Tobago	76.0	Haiti	68.0
	Fiji	61.9	Trinidad and Tobago	66.1
	Angola	53.7	Mozambique	52.3
	Cyprus	53.3	Mauritius	50.1
	Mauritius	53.2	Barbados	47.1
	Mozambique	47.1	Fiji	42.9
	Ghana	45.1	Gambia	42.3
	United Rep. of Tanzania	41.7	Congo	33.7
	Uganda	36.4	Sierra Leone	32.4
	Kenya	35.9	Ghana	31.2
	Burundi	34.3	Kenya	27.8
	Sierra Leone	33.3	Cyprus	26.0

1. Two different sources for the educational attainment of non-OECD countries have been used. They are identified at the top of each column. See Box 3 and bibliography for the detailed references.

### Box 3 : Estimation of 'emigration rates' by educational attainment and country of origin

Until the constitution of the data set described in this paper, there was limited data on the extent of international mobility of the highly skilled. One study by Carrington and Detragiache (1998), which has recently been updated by Adams (2003), relies on United States census data on the foreign-born and OECD immigrant stock data from the Trends in International Migration data base to construct a data base for emigration by level of education and by country of origin. The authors use the United States 1990 Census data to determine the educational profile of immigrants by country of birth and apply it to immigrants (in many cases, foreigners) living in other OECD countries to estimate the total stocks of migrants by level of education and country of origin. The Barro and Lee (1993) database on educational attainment levels is the source for the stock of the population by level of education in countries of origin. This then becomes the denominator of reference to estimate the emigration rates.

The estimates based on this methodology are subject to a number of limitations. One significant problem concerns the assumptions made because of data availability limitations. In particular, the foreign-born population in EU countries is assumed to be the foreign population and foreigners of a particular nationality are considered to have the same educational profile as the foreign-born of the United States. As a result, the estimates tend to be problematical for small source countries and countries whose citizens tend to migrate to countries other than the United States. In addition, Cohen and Soto (2001) have shown that the Barro and Lee (1993) database on educational attainment is of uneven quality.

The database on immigrants and expatriates in OECD countries, which is the basis of this document, has direct measures of the educational attainment of immigrants for all OECD receiving countries, and thus can avoid making the assumptions made in previous studies. 'Emigration rates' can be produced by level of qualification and country of origin. The 'emigration rate' for country  $i$  and education level  $l$  ('Emigration rate $_{i,l}$ ') is calculated by dividing the expatriate population from the country of origin  $i$  and level of education  $l$  ( $Expatriates_{i,l}$ ) by the total native-born population of the same country and level of education ( $Native\ Born_{i,l} = Expatriates_{i,l} + Resident\ Native\ born_{i,l}$ ) (see also footnote 4). Three levels of qualification are considered (see Annex 1 for more details). Highly skilled persons correspond to those with a tertiary level of education.

Two sets of estimates of the  $Resident\ Native\ born_{i,l}$ , using two reference data bases for the structure of education of the population 15+ in origin countries, have been produced. The first makes use of an updated version of Barro and Lee (1993) for the year 2000 which covers 113 countries (Barro and Lee, 2000). The second database covers 95 countries (Cohen and Soto, 2001). The authors of the latter have used the OECD education database plus some other sources for non-member countries to construct a new database on human capital stock in 2000. Data for the total population come from the World Development Indicators. A Spearman rank correlation test confirms that the two calculations produce a similar classification ( $\rho=0.94$ ), despite significant differences for some countries (e.g. Argentina, Chile, Zimbabwe, Singapore and Uruguay).

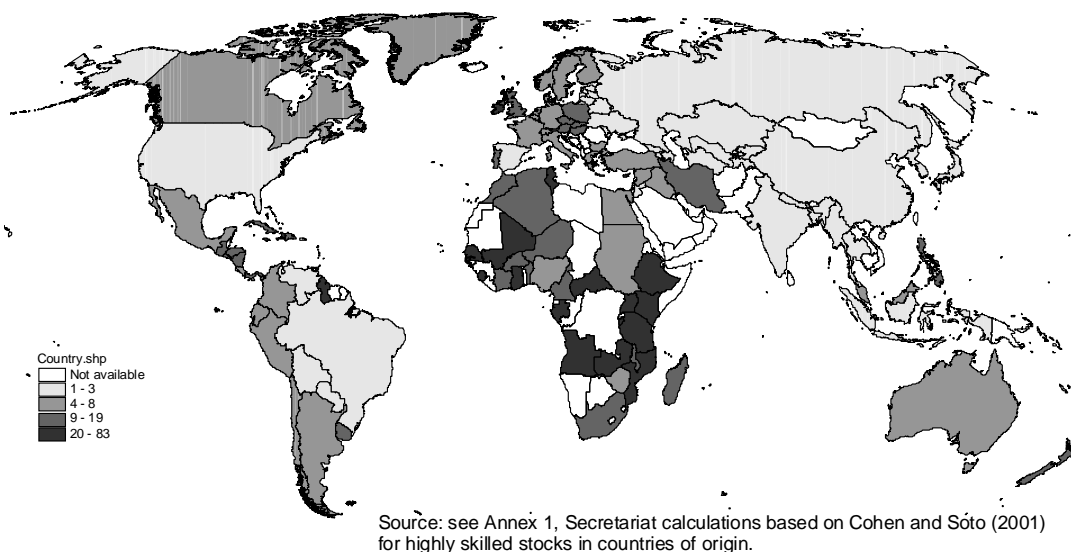
Because of differences in the population stocks between the World Bank figures and those obtained directly from OECD censuses (partly attributable to differences in reference years) and differences in the specification of levels of education, some differences appear when comparing the 'emigration rates' calculated for OECD countries from these two data sets with those discussed and presented earlier for OECD countries alone, based on census data.

33. The world map (see map 1) presents 'emigration rates' of the highly skilled for all countries, with African countries standing out as those having particularly high 'emigration rates'. Anglophone African countries as well as Portuguese-speaking countries (e.g. Mozambique and Angola, but also Cape Verde) record the highest brain drain rates. Emigration of the highly skilled is also quite significant in Central



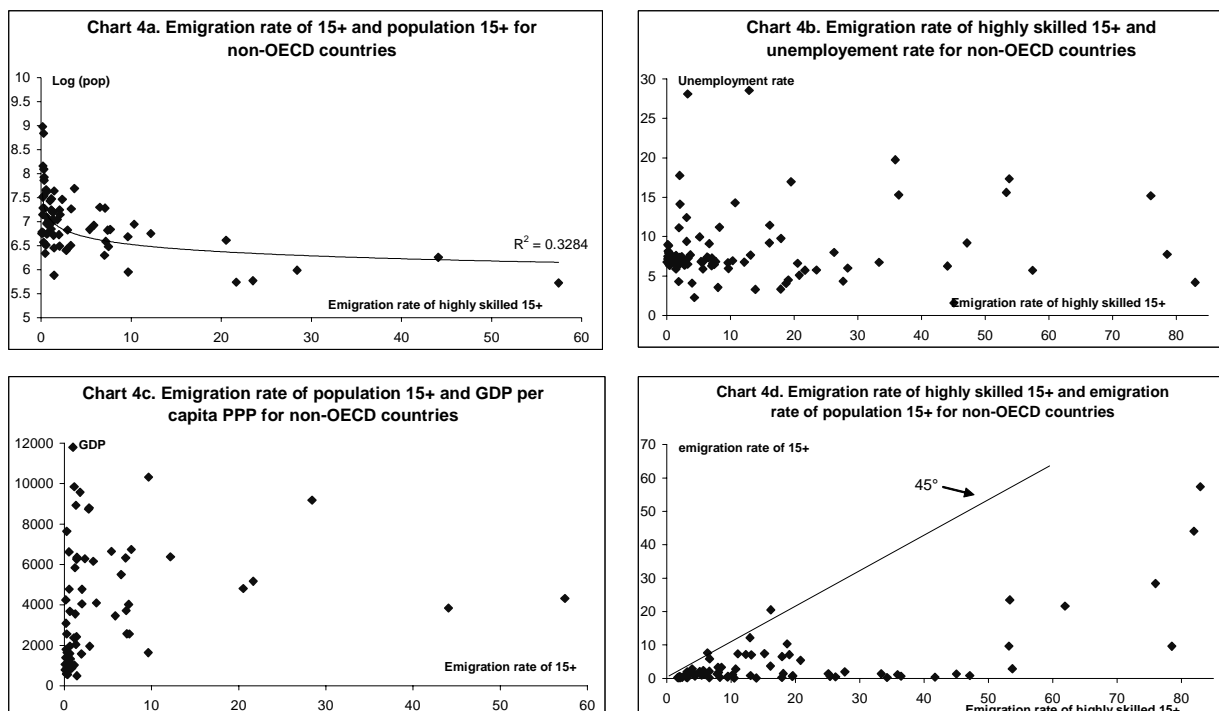
America but more moderate in Asia, with the relative exceptions of Hong Kong and Singapore. The former USSR faces intensive migration from former soviet republics towards Russia, which unfortunately it is not possible to illustrate here<sup>20</sup>. However, emigration of the highly skilled from countries of the former USSR, considered as a whole, towards OECD countries remains moderate relative to the total stock of qualified persons in these countries.

**Map 1. Percentage of expatriates to OECD countries among all highly skilled born in the country**



34. Determinants of emigration of the highly skilled are not easy to identify empirically, even though economic theory predicts that differences in wage levels and in returns to education between sending and receiving countries should be significant elements. Charts 4b and c show that the correlation between the ‘emigration rate’ of people aged 15+ or of the highly skilled is not strongly correlated to either the unemployment rate in origin countries or to GDP per capita at PPP<sup>21</sup>. On the other hand, Chart 4d illustrates the strong selectivity of migration in favour of the highly skilled. For almost all countries reviewed, the ‘emigration rate’ of the highly skilled exceeds that of persons 15 and over as a whole.

Chart 4. Emigration rate for 15+ and highly skilled 15+ associated with various socio-economic characteristics for non-OECD countries



Note: The regression curves represent a power regression in Chart 4a and a logarithmic regression in Chart 4c.

Sources: Emigration rates are calculated with Cohen and Soto (2001) data. Data on unemployment come from the ILO (Laborsta) and data on GDP per capital at PPP (2001) from World Bank (WDI).

## Recent policy measures in OECD countries for facilitating the international recruitment of the highly skilled.

35. The above paragraphs have provided a descriptive overview of, among others, movements of the highly skilled from and to OECD countries. The development of information technology and the growing role of human capital in economic growth has contributed to increasing the demand for skilled labour significantly in most OECD countries during the 1990s (OECD, 2002). IT competencies and skills, however, are not the only ones in demand. Population ageing in most OECD countries and the related increase in health care requirements are increasing the demand for medical personnel. Doctors, nurses, nursing auxiliaries and care assistants are particularly sought after in several OECD countries. The same applies to teachers, translators, human resources in science and technology or in the biomedical or agro-food sectors, for example.

36. In the medium term in several OECD countries, retiring baby-boomers will generate relatively high demand for replacement labour in these and other specific occupations. While some and perhaps many of these vacancies will be filled by native-born new entrants and re-entrants to the work force, some will also be filled by immigrants.

37. Competition is keen among OECD countries to attract human resources they lack and to retain those who might emigrate. Many countries amended their legislation in the late 1990s to facilitate the entry of skilled foreign workers and to allow foreign students to access their labour markets (under certain conditions and for specific occupations) upon graduation (see Tremblay, 2001 and OECD, 2004). Most countries introduced more flexibility into their existing labour migration policies, while others also launched more specific recruitment programmes to meet labour shortages (Doudeijns and Dumont, 2002).

The recent economic downturn did not significantly affect this trend although some countries have reintroduced restrictions in some sectors.

38. In Denmark, France, Ireland, the Netherlands and the United Kingdom, the application of labour-market-testing criteria has been relaxed for those occupations reflecting current labour market needs. These occupations include IT specialists, highly skilled workers and, in some cases, biotechnology, medicine, healthcare and education professionals, as specified, for example, in the United Kingdom's *Shortage Occupation List*<sup>22</sup>.

39. Although family preference is the cornerstone of permanent immigration policy in the United States, the country nonetheless admits a large number of permanent highly skilled foreign professionals (almost 180 000 in 2002), as well as highly skilled workers on renewable three-year visas (H-1B visas). This temporary immigration is subject to an annual quota which was set at 195 000 until the end of 2003 (it has been reduced to 65 000 since then). In 2001 in Switzerland, the quota for highly skilled workers was increased by almost 30% even though it had remained unchanged for more than 10 years prior to this. Japan and Korea share a determination to confine immigration to highly skilled workers. In the past ten years, high-skilled immigration has increased by 40% in Japan and more than ten-fold in Korea.

40. Some OECD countries have also created new programmes to facilitate the international recruitment of highly skilled workers. Norway and the United Kingdom, for instance, have introduced programmes to allow highly skilled foreign workers to come to seek work for a limited period of time. Although these programmes are still very limited (approximately 5 000 persons for each country), they represent a significant change with regard to the usual migration policies of European countries, which generally require a job offer as a prerequisite for labour migration. Germany, on its side, has developed a special programme to recruit IT specialists, which has been extended until January 2005. Approximately 15 800 permits have been granted between August 2000 and January 2004. In addition, the German authorities have recently reformed their immigration law to facilitate the entry of highly skilled workers, such as engineers, computer technicians, researchers and business leaders.

41. In settlement countries, such as Australia, Canada and New Zealand<sup>23</sup>, permanent immigration is subject to a points system with an increasing emphasis on the potential immigrant's profile (age, education, skills, work experience). Permanent skilled immigration to these countries has significantly increased in the past four years (by almost 25%) and temporary immigration of highly skilled workers is facilitated more and more. In a similar vein, the Czech Republic has recently implemented a programme aiming at recruiting highly skilled workers through a point system.

42. In addition to immigration policy measures, some OECD countries have introduced specific fiscal incentives to attract highly skilled migrants (see Table 6). Some of these offer virtual income-tax-free status for up to 5 years for certain categories of highly qualified personnel most in need, or large tax deductions (e.g. 25% in Sweden, 30% in the Netherlands, 35% in Austria or 40% in Korea). New legislation along the same lines has been adopted recently in France and is under consideration in New Zealand.

**Table 6. Fiscal incentives for highly skilled immigrants**

<b>Australia</b>	In order to encourage businesses requiring a skilled labour force to locate in Australia, since July 1, 2002, foreign source income of eligible temporary residents is exempt from tax for 4 years.
<b>Austria</b>	An individual who has not had a residence in Austria during the past 10 years, who maintains his primary residence abroad and has an assignment with an Austrian employer for less than 5 years benefits from tax deductions for up to 35% of the taxable salary income for expenses incurred in maintaining a household in Austria, educational expenses and leave allowances.
<b>Belgium</b>	Certain foreign executives, specialists and researchers residing temporarily in Belgium are eligible for a special tax regime that treats them as non-residents. Taxable income is calculated by adjusting the remuneration according to the number of days spent outside Belgium. Reimbursements of expenses incurred by an employee as a result of his temporary stay in Belgium are not subject to personal income tax.
<b>Denmark</b>	A special expatriate tax regime applies to foreigners employed by Danish-resident employers. Under qualifying contracts, salary income is taxed at a flat rate of 25% instead of the usual rates of 39% to 59%. To qualify, expatriates must reside in Denmark and earn more than 50 900 DKK a month in 2001. This tax regime is valid for up to 36 months.
<b>Finland</b>	A foreigner working in Finland may qualify for a special tax at a flat rate of 35% during a period of 24 months if he receives any Finnish-source income for duties requiring special expertise and earns a cash salary of €5,800 or more per month. This law provides that the expert has not been resident in Finland any time during the five preceding years.
<b>France</b>	Recent legislation changes which aim at encouraging foreign professionals to work in France include a 5-year tax exemption for bonuses paid to foreign expatriates where these are directly related to their assignment in France, and tax deductions for social security payments made by the expatriates in their home countries. A deduction will also be available for pension and health care payments made outside France. It applies to foreign professionals (including French nationals with a foreign labour contract who have been residing out of France for a least 10 years) coming to France from 1 January 2004.
<b>Japan</b>	For expatriates living in Japan, relocation allowances and once-a-year home-leave allowances are generally tax-free
<b>Korea</b>	Since January 2003, tax-free allowances of up to 40 per cent of salary to cover cost of living, housing, home leave and education. Tax-exempt salary for certain sectors for up to 5 years if the individual is (i) employed under a tax-exempt technology-inducement contract or (ii) a foreign technician with experience in certain industries.
<b>Netherlands</b>	Expatriates may qualify for a special facility called the “30 per cent” (previously the “35 per cent”). This enables an employer to pay, for up to 10 years, employees seconded in the Netherlands a tax-free allowance of up to 30% of regularly received employment income and a tax-free reimbursement of school fees for children attending international schools.
<b>New Zealand</b>	A government discussion document, released in November 2003, outlines proposals to exempt the foreign-sourced income of certain migrants and returning New Zealanders from New Zealand's international tax regime. It is aimed at ensuring that New Zealand's tax system does not discourage the recruitment of overseas employees. The Government has proposed two possible approaches: <ul style="list-style-type: none"> <li>• a narrow exemption that would apply for seven years and focus on those tax rules that are more comprehensive than the international norm; and</li> <li>• a second option that would apply for three years and provide eligible taxpayers with a broad exemption from paying New Zealand tax on all foreign-sourced income.</li> </ul>
<b>Norway</b>	Expatriates expected to reside in Norway for 4 years or less may be allowed a 15 per cent standard deduction from their gross income instead of itemised personal deductions.
<b>Canada</b>	Researchers can benefit from 5-year tax relief in the province of Québec on 75% of their personal income if they settle in Quebec to work in R&D in a firm.
<b>Sweden</b>	Since 1 <sup>st</sup> January 2001 foreign key personnel who are experts and scientists with knowledge and skills that are scarce in Sweden may benefit from a new expatriate regime. No taxes are paid for the first 25% of their income. This is valid for a maximum period of 10 years.
<b>United Kingdom</b>	Persons who are seconded to the UK and declare their intention to remain in the UK on a temporary basis, can claim tax relief on their housing costs and traveling costs. Non-ordinary residents can also claim tax relief for days worked outside the UK.

*Sources:* UK Home Treasury (2003), Ernst and Young (2001) and national ministries.

## Conclusions

43. If receiving countries and migrants are generally believed to profit from the opening up of borders to international migration of highly skilled human capital, the impact on sending countries is not so clear. For instance, some observers have claimed that the increase in the expected return on human capital as a result of expatriation increases incentives to invest in human capital in sending countries and that this increase is sufficient to off set the depletion effect of emigration on human resources in these countries. This argument seems problematical, both theoretically and empirically<sup>24</sup>. On the other hand, the potential negative impact of emigration on the supply of human capital needs to be seen in the context of the employment situation in the origin country (the extent of participation and unemployment, the productivity of human capital). In many cases, expatriated professionals would have had few opportunities to work at home in their field.

44. Results presented in this paper based on the new database on immigrants and expatriates in OECD countries, show that:

- The percentage of the foreign-born in European OECD countries is generally higher than the percentage of foreigners. Migration to a number of European countries (e.g. Sweden, Germany, Austria, Greece or France) is significantly higher than is generally reported and approaches levels that are as high in relative terms as observed, for example, in the United States.
- The stock figures shown here reflect migration waves over a long period. Although recent migration to OECD countries tends to come largely from non-OECD countries, migration between OECD countries continues to have a significant impact. This migration is quite selective towards highly skilled migrants, underlining the effects of the current competition between OECD countries to attract ‘the best and the brightest’ from other countries, both inside and outside the OECD area.
- In most OECD countries, the number of immigrants with tertiary education exceeds the number of highly qualified expatriates to other OECD countries. On this measure, most OECD countries would appear to benefit from the international mobility of the highly skilled. This conclusion, however, must be considered as tentative, because the database described here does not cover expatriates to OECD non-member countries.
- Among non-member countries the impact of the international mobility of the highly skilled is diverse. The largest developing countries seem not be significantly affected and indeed may benefit from indirect effects associated with this mobility (return migration, technology transfers, remittances ...). At the other end of the spectrum, some of the smallest countries, especially in the Caribbean and in Africa, face significant ‘emigration rates’ of their elites. Further analysis is needed to better understand the determinants, the dynamics and the impact of the international mobility of the highly skilled on these countries.

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<sup>1</sup> Some foreign-born persons were born abroad with the citizenship of the current country of residence; these persons would not normally be considered as immigrants. This phenomenon is common only in a certain number of countries; it can generally be ignored in most countries without risk of providing a distorted picture of the immigrant population.

<sup>2</sup> There are connotational differences between the terms “nationality” and “citizenship”. They refer to more or less the same notion, but the former tends to be used in countries where citizenship at birth is based on that of the parents (*jus sanguinis*), whereas the latter is common in countries where citizenship is granted to persons born in the country (“*jus soli*”). Hereafter, we will use the two terms interchangeably.

<sup>3</sup> The term “expatriates” is used in this paper to refer to all foreign-born persons living abroad, regardless of the current or eventual duration of their stay abroad. Obviously, many and perhaps most will never return to their country of birth to live.

<sup>4</sup> Some of the measures adopted include reinforcing tax incentives to promote return migration, seeking to enhance the environment for scientific and technical research or improving the status of certain professions.

<sup>5</sup> See also Adams (2003), who applied the methodology developed by Carrington and Detragiache (1998) to more recent data.

<sup>6</sup> The network created associates statisticians from NSOs in 29 member countries, as well as observers from several multilateral organisations (the ILO, Eurostat, the European Commission, the UN statistics division, the UN Economic Commission for Europe).

<sup>7</sup> ‘Emigration rates’ are calculated by dividing the number of foreign-born residing in OECD countries and originating in a particular country by the total number of natives from that country, including those no longer living in the country. It does not correspond to the usual definition of an emigration rate, which relates flows of migrants over a certain period of time to the initial stock of persons in the origin country.

<sup>8</sup> The last German census was conducted in 1987.

<sup>9</sup> The 2000 United States Census enumerated close to 8 million more persons than had been anticipated on the basis of the post-censal population projections. Most of these were believed to be undocumented aliens.

<sup>10</sup> Six countries have provided detailed information on nationality at birth (Belgium, Canada, France, Norway, Switzerland and the United States).

<sup>11</sup> Portugal could have been added to this list, but in this case the result would be largely attributable to persons repatriated from Angola in the mid-1970s.

<sup>12</sup> In a recent referendum in Switzerland, a proposal to facilitate the acquisition of nationality for “third-generation” immigrants was rejected.

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<sup>13</sup> There is, to a certain extent, an implicit assumption here, which is that persons born abroad were educated abroad. This is obviously not always the case.

<sup>14</sup> The figure is approximately 422 000 if one excludes the foreign-born offspring of American parents.

<sup>15</sup> There are also a significant number of Japanese born-persons in France (14 300) but fewer than Japanese-born persons living in the United Kingdom (37 500).

<sup>16</sup> These are likely to be mostly retired.

<sup>17</sup> Stocks of persons, both emigrants and immigrants, are being considered here. In the case of Ireland, an analysis of net flows of migrants would produce a rather different picture, including for the highly skilled.

<sup>18</sup> For practical reasons, as most OECD countries have identified Puerto Rico as separate country, Puerto Rico has been considered as such in the database. People born in Puerto Rico and living in the United-States are thus considered as foreign-born (see Annex 1 for more details).

<sup>19</sup> Dumont (1999) shows that “convergence groups” of countries can be identified based on the human capital stock (education and health) available at the beginning of the period considered.

<sup>20</sup> As the database only covers OECD countries, it is not possible to evaluate migration from former soviet Republics to Russia. For more information and estimates on this issue, see Eisenbaum (2005 forthcoming).

<sup>21</sup> Since current migrant stocks reflect the cumulative impact of different historical migration waves, it is not entirely surprising to find no strong correlation with recent GDP per capita at PPPs or unemployment rates in origin countries. Ideally, this analysis would be carried out using the difference in receiving and host-country unemployment rates together with the wage gap minus the expected cost of migration. Further analysis is needed to better understand the main determinants of international migration in general and of highly skilled migration in particular.

<sup>22</sup> IT occupations were withdrawn from the list in the UK in 2002 because of the economic downturn in this sector. A special regulation for IT specialists was also rescinded in 2004 in France.

<sup>23</sup> Following a comprehensive review of its skilled immigration policy, New Zealand has recently introduced a new Skilled Migrant Category to replace the General Skills Category. This change is a deliberate policy shift to promote the active recruitment of the skilled migrants that New Zealand needs (see Little 2004 for details).

<sup>24</sup> Commander, Kangasniemi and Winters (2004) show that the conditions to be met to reach such a result are indeed very restrictive and depend on the size of migration flows, the type of selection process in receiving countries as well as the functioning of the education system in source countries.



## ANNEX 1 : DATA SOURCES AND DATA AVAILABILITY

Of the 29 countries taking part in the project, 23 have population censuses and seven have population registers. Other sources were identified by some countries but the census or the population register is generally the most suitable source (see attached table on data sources).

For the great majority of the countries involved, data by country of birth are available. For some countries the situation is, however, more problematic. In the case of Japan, for example, the data by country of origin and level of education were not published or processed at the time of the drafting of this document even if they appear in the census. In the case of the Netherlands, the data on education are not available from the population register and it was thus necessary to use the labour force survey averaged over several years (2000-2002), in order to estimate the foreign-born by level of education and country of birth (for those countries of birth for which there were samples large enough to support reliable estimates).

Korea and Japan do not identify the foreign-born in their censuses. For these countries, because naturalisations are rare, nationality can serve as a reasonable proxy for country of birth. This approximation was not possible, however, in the case of Germany where the only data available, from the annual Microcensus (1999-2002), does not record the place of birth, although it does record the nationality and whether or not a person was born in Germany. In this case to compile data on expatriates the following assumptions and adjustments were made: (i) for non-German citizens born abroad, it was assumed that their place of birth was the same as their nationality; (ii) for "unknown" place of birth or nationality in the Microcensus, a response was attributed according to the distribution observed when a response was available; and (iii) for German citizens born abroad, the German Socioeconomic Panel (GSOEP), which does identify the place of birth, was used for those countries for which the sample was large enough to produce reliable estimates. The data included in the publicly available OECD data file, however, does not include the adjustments which were made through the GSOEP.

With regard to the structure of the levels of qualification retained, it was decided to take into consideration five levels compatible with the International Standard Classification of Education (ISCED): ISCED 0/1/2: Less than upper secondary; ISCED 3/4: Upper secondary and post-secondary non-tertiary; ISCED 5A: "Academic" tertiary; ISCED 5B: "Vocational" tertiary; ISCED 6: Advanced research programmes. The detail at the higher levels, however, was available only for a subset of countries. For France, Switzerland, Luxembourg and Austria 5A and 6 are not distinguishable; for the United States, Turkey, Mexico and Spain 5A and 5B are not distinguishable; for the Slovak Republic, Korea, Netherlands and Hungary 5A, 5B and 6 are not distinguishable.

The objective was to minimize residual (i.e. "other") categories, with regard to the coding of countries of birth. An attempt was made to preserve the maximum information available while distinguishing between continental/regional residual categories whenever this was possible (ie. "other Africa", "other Europe", "other Asia", "other South and Central America and Caribbean", "other Oceania", "other North America").

With regard to split, recomposed or newly constituted countries, there was little choice but to respect the coding in the national data collection, which varies from one country to another. In the United States, for example, people born in Korea have the choice of three ways to indicate their country of birth: Korea, North Korea or South Korea. More than 80% of them (80% of the nationals and 85% of foreigners) indicated having been born in Korea<sup>3</sup>, without further specification. In the censuses of many OECD

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<sup>3</sup> It is not possible to distinguish between Koreans who emigrated to the United States before and after 1953.

countries the Czech Republic and the Slovak Republic are aggregated under the name of the former Czechoslovakia. The same applies to the former USSR and the former Yugoslavia and Yemen.

To produce a consistent list of countries of birth across receiving countries, some minor adjustments had to be made, especially with respect to small islands and overseas territories. This recoding explains the small differences that might exist with national estimates for foreign-born and native-born populations. The following recodings were carried out:

<b>AUS</b>	<b>DNK</b>	<b>FRA</b>	<b>GBR</b>	<b>PRT</b>	<b>USA<sup>4</sup></b>
<ul style="list-style-type: none"> <li>• Heard &amp; McDonald Islands</li> </ul>	<ul style="list-style-type: none"> <li>• Faeroe Islands</li> <li>• Greenland</li> </ul>	<ul style="list-style-type: none"> <li>• French southern territories</li> <li>• Tromelin Island</li> <li>• Guadeloupe</li> <li>• Martinique</li> <li>• Reunion</li> <li>• Juan De Nova Island</li> <li>• Guyane</li> <li>• Mayotte</li> <li>• Saint-Pierre-et-Miquelon</li> </ul>	<ul style="list-style-type: none"> <li>• Channel Islands</li> <li>• Isle of Sark</li> <li>• Isle of Man</li> </ul>	<ul style="list-style-type: none"> <li>• Madeira Islands</li> <li>• Azores Islands</li> </ul>	<ul style="list-style-type: none"> <li>• US minor island</li> <li>• Christmas isle</li> <li>• Wake Island</li> <li>• Palmyra Atoll</li> <li>• Navassa Island</li> <li>• Midway Islands</li> <li>• Johnston Atoll</li> <li>• Howland Island</li> <li>• Baker Island</li> </ul>

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<sup>4</sup> People born in Puerto Rico are considered as foreign born in the United States.

## Data sources

<u>Country</u>	<u>Data year(s)</u>	<u>ISO code</u>	<u>Type of source</u>	<u>Source description</u>
Australia	2001	AUS	CEN	Australian Census of Population & Housing
Austria	2001	AUT	CEN	Census of Population
Belgium	2001	BEL	GSS	General Socio-Economic Survey
Canada	2001	CAN	CEN	Census of Population
Czech Rep	2001	CZE	CEN	Census of population
Denmark	Yearly since 1981	DNK	REG	Register-based population and labour force statistics
Finland	Yearly	FIN	REG	Population statistics
France	1999	FRA	CEN	Census of Population
Germany	Yearly	DEU	LFS	Microcensus
Greece	2001	GRC	CEN	Census of population
Hungary	2001	HUN	CEN	Census of Population
Ireland	2002	IRL	CEN	Census of Population
Italy	2001	ITA	CEN	Census of Population
Japan	2000	JPN	CEN	Census of Population
Korea	2000	KOR	CEN	Census of population
Luxembourg	2001	LUX	CEN	Census of Population
Mexico	2000	MEX	CEN	Census of population
Netherlands	1995-2000	NDL	REG	Matched data from the Population Registers, the Tax Department and the Ministry of Justice
Netherlands	Yearly	NDL	LFS	Labour Force Survey
New Zealand	2001	NZL	CEN	Census of Population and Dwellings
Norway	Varies	NOR	REG	Various administrative and statistical registers
Poland	2001	POL	CEN	Census of population
Portugal	2001	PRT	CEN	Census of population
Slovak Rep	2001	SVK	CEN	Census of population
Spain	2001	ESP	CEN	Census of Population
Sweden	Yearly	SWE	REG	Total Population Register TPR
Sweden	Yearly	SWE	EDU	Education register
Switzerland	2000	CHE	CEN	Census of Population
Turkey	2000	TUR	CEN	Census of Population
United Kingdom	2001	GBR	CEN	Census of Population
United States	2000	USA	CEN	Census 5% Public Use Microdata Sample

**ANNEX 2**

Table A1. Stocks and percentages of non-citizens and foreign-born in OECD countries (Total population)

	Native-born		Total	Foreign-born		Total	Place of birth unknown	Grand Total	Percentage of foreign-born <sup>1</sup>	Percentage of non citizens
	Citizens	Non-Citizens		Citizens	Non-Citizens					
AUS	13411351	34173	13629487	2739559	1263728	69926	1066542	18769242	23.0	7.4
AUT	6913512	115840	7029527	408093	593420	1019	867	8032926	12.5	8.8
BEL	9001480	194443	9196437	447555	650705	935	718	10296350	10.7 (9.3)	8.2
CAN	23920315	1725	23922040	4150095	1566920			29639055	19.3 (19.0)	5.3
CHE	5109295	338107	5447402	459569	1111187		269852	7288010	22.4 (20.2)	20.5
CZE	9556459	20018	9577084	357355	90411	711	204499	10230060	4.5	1.2
DEU		71973166	71973166		10256084			82229250	12.5	5.0
DNK	4939264	42973	4982237	145508	215545		25064	5368354	6.8	3.8
ESP	38603844	71326	38675170	671514	1500687			40847371	5.3	1.7
FIN	5031826	12928	5044912	54131	75867	1450	4755	5181115	2.5	5.6
FRA	52142848	509598	52652446	3114654	2753588			58520688	10.0 (7.4)	1.0
GBR		53923642	53923642		4865563			58789205	8.3	7.0
GRC	9705670	105248	9811203	466165	656382	93	254	10934097	10.3	0.9
HUN	9896815	8520	9905384	208259	84485	187		10198315	2.9	5.9
IRL	3405941	7290	3458479	179034	216971	4011		3858495	10.4	1.0
JPN <sup>2</sup>	125625759		1.26E+08	1294341				126920100		0.3
KOR <sup>2</sup>	45985289		45985289	18590	135105	15707		46136101	32.6	36.9
LUX	257446	37249	294695		124062		2192	439539	0.5	4.2
MEX			94925622			492617	2065173	97483412	10.1	4.3
NLD	14268673	103025	14371698	1050600	564777			15987075	7.3 (6.7)	0.1
NOR	4195719	22752	4218483	158865	174875	29		4552252	19.5	2.2
NZL	2890869		2890869	22212		676335	147813	3737229	2.1	0.5
POL	36765038	10135	36871281	741880	29748	3654	583517	38230080	6.3	2.2
PRT	9692065	11987	9704645	431357	219633	482		10356117	2.5	0.5
SVK	4673150	5888	4720630	98392	18403	2277	539753	5379455	12.0	5.3
SWE	7826472	71123	7897595	672990	404606		479	8975670	1.9	6.6
TUR		66525256	66525256	997314	262061		1155	67785786	12.3 (11.1)	
USA	246787150		2.47E+08	16069523	18565268	34634791		281421941		
<b>Total</b>	<b>690606250</b>	<b>1724348</b>	<b>9.8E+08</b>	<b>33663214</b>	<b>32572775</b>	<b>16391080</b>	<b>4912633</b>	<b>1067587290</b>	<b>7.8</b>	<b>4.5</b>

1. Figures in parentheses indicate the percentage of foreign-born in total population after excluding foreign-born citizens at birth.

2. In the absence of place of birth for Japan and Korea, it has been assumed that all non-citizens are foreign-born and that nationals are native-born (see annex 1 for further details).  
Sources: see Annex 1, Secretariat calculations

**Table A2 : Acquisition of citizenship in receiving countries**

	Total number of foreign-born	Foreign-born with the citizenship of the country of residence	Percentage of foreign born with the citizenship of the country of residence
AUS	4 003 287	2 739 559	68.4
AUT	1 001 513	408 093	40.7
BEL	1 098 260	447 555	40.8
CAN	5 717 015	4 150 095	72.6
CHE	1 570 756	459 569	29.3
CZE	447 766	357 355	79.8
DNK	361 053	145 508	40.3
ESP	2 172 201	671 514	30.9
FIN	129 998	54 131	41.6
FRA	5 868 242	3 114 654	53.1
GRC	1 122 547	466 165	41.5
HUN	292 744	208 259	71.1
IRL	396 005	179 034	45.2
LUX	142 652	18 590	13.0
NLD	1 615 377	1 050 600	65.0
NOR	333 740	158 865	47.6
POL	771 628	741 880	96.1
PRT	650 990	431 357	66.3
SVK	116 795	98 392	84.2
SWE	1 077 596	672 990	62.5
USA	34 634 791	16 069 523	46.4

Sources: see Annex 1, Secretariat calculations.

**Table A3: Stocks of total foreign-born by region of origin, OECD countries**

	of which:			of which:			Latin America		North America		Caribbean		Oceania		EU25		Other Europe		Unknown
	North African countries			Asia			America		America										
	Africa	%	Asia	%	America	%	America	%	America	%	America	%	America	%	America	%	America	%	America
AUS	191 501	2 573	1.3	1 115 655	232 320	20.8	74 893	81 018	32 000	423 428	1 889 893	264 819	6						
AUT	19 934	3 560	17.9	57 236	8 254	14.4	6 054	9 029	1 931	364 624	527 007	16 717	AUT						
BEL	247 515	139 799	56.5	68 494	9 410	13.7	20 387	18 071	3 976	1 468	621 471	117 787	12						
CAN	323 580	52 485	16.2	2 040 590	657 930	32.2	336 570	287 465	285 295	53 215	2 014 255	375 710	335						
CHE	68 801	21 153	30.7	101 599	8 318	8.2	48 327	29 319	8 834	4 787	854 305	352 962	101 822						
CZE	2 374	588	24.8	21 365	1 251	5.9	870	2 687	595	341	344 256	75 989	CZE						
DEU	175 665	51 230	29.2	567 021	4 590	4.2	47 578	81 308	785	2 249	1 180 004	77 355	DEU						
DNK	31 875	6 520	20.5	110 454	28 848	33.3	9 208	11 123	95 979	4 443	597 948	194 676	42						
ESP	423 082	343 819	81.3	86 669	2 120	11.5	744 221	25 141	261	750	51 681	44 764	1						
FIN	9 713	1 783	18.4	18 375	36 831	8.3	1 817	4 086	24 836	6 211	1 978 923	412 539	5						
FRA	2 862 569	2 296 979	80.2	444 774	154 111	9.8	79 987	58 398	232 940	170 278	1 493 235	175 577	42 541						
GBR	838 459	26 088	3.1	1 579 133	671	0.9	95 357	238 043	1 128	21 111	191 038	733 183	882						
GRC	58 275	1 416	2.4	75 854	4 002	37.3	5 486	35 683	367	298	65 057	209 815	5						
HUN	2 687	517	19.2	10 730	7 449	26.8	773	3 199	688	8 406	291 340	16 408	339						
IRL	26 650	1 238	4.6	27 768	253 096	26.1	2 793	25 624	482	8 801	25 299	6 098	1						
JPN	5 742	421	7.3	969 799	56 272	48.2	232 248	14 408	14 408	719	3 246	15 707	KOR						
KOR	5 692	1 134	19.9	4 382	1 202	27.4	1 562	1 399	274	133	116 309	11 855	1 046						
LUX	1 214	262	21.6	10 765	2 001	18.6	71 644	349 366	9 922	811	44 396	4 096	403						
MEX	280 007	163 658	58.4	367 987	34 754	9.4	221 626	29 826	93 326	13 226	340 220	269 158	1						
NLD	31 278	5 665	18.1	100 274	5 869	5.9	15 133	17 017	1 268	1 489	116 637	49 868	805						
NOR	39 351	273	0.7	175 302	62 736	35.8	3 651	21 126	17 100	156 078	271 008	14 724	207						
NZL	2 962	741	25.0	9 479	667	7.0	920	10 566	202	671	248 868	483 223	18 391						
POL	349 859	1 596	0.5	16 859	2 397	14.2	74 949	14 627	914	1 256	159 008	34 000	PRT						
PRT	404	50	12.4	1 400	142	10.1	154	945	77	64	99 931	16 097	SVK						
SVK	78 039	9 962	12.8	244 246	12 106	5.0	59 965	17 627	2 840	3 376	456 262	215 241	SWE						
SWE	12 686	1 627	12.8	83 657	1 802	2.2	1 010	15 006	216	3 265	447 739	695 795	1						
TUR	988 253	58 530	5.9	8 402 240	1 550 070	18.4	13 476 759	965 485	4 469 340	288 391	4 594 095	1 442 654	7 574						
USA	7 078 167	3 193 667	45.1	16 828 839	3 139 219	18.7	15 633 942	2 413 463	5 283 645	1 177 196	20 351 626	12 065 948	1 794 230						
Total																			

Note: Data for EU25 are limited to three countries (DEU, FRA and GBR) in statistics provided by Korea and to 16 countries (BEL, DNK, FIN, FRA, GRC, IRL, ITA, LUX, NLD, AUT, PRT, SWE, POL, ESP, HUN and GBR) in data provided by Germany.

Sources: see annex 1, Secretariat calculations.





Table A5. Stocks of persons originating in OECD countries and residing in another Member country (Total population)

Origin country	AUS	AUT	BEL	CAN	CHE	CZE	DEU	DEU	DNK	ESP	FIN	FRA	GBR	GRC	HUN	IRL	ITA	JPN	KOR	LUX	MEX	NLD	NOR	NZL	POL	PRT	SVK	SWE	TUR	USA	Total	
AUS	19313	1686	3166	20155	3420	230	7358	133341	1663	3913	656	4216	107871	20449	258	6107	6148	719	96	281	9529	1101	56142	608	1192	52	2525	2938	75314	328405		
AUT	4900	1523	20930	20590	10738	755	22702	1249	28200	4100	312	12171	19503	2252	3716	533	283	624	624	500	6746	1040	1200	4312	391	808	5987	14335	70500	391206		
BEL	27289	1658	4145	7519	490	2752	3810	1181	18913	72518	12477	632	4081	4671	520	1141	324	324	14770	735	46003	907	513	2797	2879	179	1356	8751	14705	364891		
CAN	10753	1713	4274	21595	385	28945	1910	53484	615	75899	16210	3672	616	882	616	882	677	2468	305	5768	8427	2290	7770	1555	7326	115	2471	1427	945060	1148514		
CHE	6973	54627	77	16500	11021	292	1891	39	3438	12220	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	1189	
CZE	108220	140099	83386	191140	181984	9647	136	17594	26559	135638	3582	215167	286136	101425	10173	8770	3407	920	12847	5595	123110	12880	8382	101633	24283	735	40217	273535	1241450	3330920		
DEU	90689	1090	2973	18400	4122	136	17594	5749	708	5482	18695	830	100	697	100	697	311	311	1522	245	3242	22326	1446	704	387	17	40921	3372	34084	793640		
DNK	12662	2072	36840	10785	61679	170	86160	2851	779	342071	54482	972	139	4632	1183	18279	1782	339	2120	21114	18279	1782	339	1111	13966	30	5470	1209	114190	797087		
DNK	8258	1300	2761	14395	3842	332	11067	3575	5376	11322	849	343	687	849	343	687	512	701	126	2379	7027	372	192	312	11	189341	1672	22865	293144	FIN		
FIN	108227	5903	151976	80965	98352	3633	74131	4038	156681	1089	1089	96281	6723	1738	6815	3768	1142	18664	5751	19338	3069	2283	34647	95282	1393	6155	16048	204238	1119130	FRA		
FRA	1036245	6786	26176	624305	25378	1436	89058	13615	107794	2731	84493	13303	1186	248515	10411	1184	10411	1184	3167	2688	45691	14332	218394	2630	10068	87	16428	18939	823279	3444319	GBR	
GBR	116431	3060	15089	76900	6295	1806	261329	1066	1132	468	11872	35169	1228	345	165	865	298	289	289	289	289	289	289	289	289	289	289	289	289	289	289	
GRC	22752	30953	5486	50830	12403	6200	36309	1604	1460	873	10543	13159	1586	456	266	293	239	5333	1507	987	1344	217	17283	13794	520	94095	332502	HUN	IRL			
HUN	50235	546	2989	26430	1542	67	7946	1091	4342	200	5316	53708	488	48	618	641	192	4425	499	6726	71	533	2	1349	538	164435	818397	IRL	ISL			
IRL	463	135	164	500	151	20	20	5855	306	120	333	1952	32	5	55	309	16	385	3941	84	41	34	1	3811	43	9805	28192	ISL	ITA			
ITA	218718	26099	132466	319230	234634	1035	428313	3364	26578	958	409190	107244	5929	935	3705	1127	12254	3904	17207	1506	1440	4292	1958	117	6584	2843	536370	2509000	ITA	JPN		
ITA	25471	1957	3850	27245	4388	193	1364	640	14261	37535	560	324	716	604	604	604	289	289	289	289	289	289	289	289	289	289	289	289	289	289	289	
JPN	38900	1446	4049	82890	1613	76	8056	2158	132	15852	12310	204	144	166	166	166	513	2100	5305	6347	17934	37	74	1	9574	513	156085	366479	KOR	LUX		
KOR	141	514	10459	560	1436	15	4540	245	1029	32	9895	1222	99	17	85	8	1222	61	15	827	93	30	125	3313	139	46	2690	37575	LUX	MEX		
LUX	1154	721	1150	44190	2863	524	20949	524	20949	153	333	1952	32	5	55	309	16	385	3941	84	41	34	1	3811	43	9805	28192	ISL	ITA			
MEX	83324	5248	97165	118310	16771	549	68459	4833	23153	731	27618	40438	3083	513	3512	604	3284	773	4389	4389	4389	4389	4389	4389	4389	4389	4389	4389	4389	4389	4389	
NLD	4324	742	1295	6505	1818	107	16386	5922	954	2838	13798	469	288	441	2401	2401	33	77	3582	345	50	48	3	763	290	26350	144955	NOR	NZL			
NOR	355765	245	301	9920	1148	35	538	331	86	1071	58286	506	35	2256	468	468	1006	971	17351	6702	1938	359	3473	41608	3415	477450	2278667	POL	PRT			
NZL	58110	41671	18994	182155	10679	24707	1170711	10723	16423	1173	106650	60711	15468	2685	2167	368	41690	288	10218	760	141	60	60	60	60	60	60	60	60	60	60	
POL	15441	950	21371	155990	100975	39	94258	686	56359	141	579465	36555	292	28	590	590	41690	288	10218	760	141	60	60	60	60	60	60	60	60	60	60	60
PRT	2984	15981	30	10740	3736	285372	135	1217	17	2149	5273	411	37439	332	332	332	93	23	67	306	138	1514	30	374	315	15945	384728	SVK	SWK			
SVK	6818	3214	3981	7725	6878	210	10783	18706	9424	28040	8658	22525	5428	394	1315	798	984	425	3642	32939	960	703	741	23	5335	6335	235094	ISW	ISW			
SWK	29821	125026	70793	17810	58546	222	1610735	30175	986	2150	179392	54079	76561	696	545	915	290	246	181865	8410	396	452	106	30	34083	90595	2574925	TUR	USA			
TUR	53694	7371	13925	278570	21775	2197	81308	8367	21320	2903	39464	158434	23091	2567	21541	38804	11940	1094	343597	21356	14725	13344	9010	7301	829	15143	13579	45245	120200	CSFR		
USA	2347075	494336	724539	2472720	950322	347422	4273566	176006	702881	51967	2326972	1887153	305813	69306	322590	82396	31771	119907	400740	582411	154653	376896	179012	187978	100931	519395	480034	15687540	36350872			
CSFR	57.6	50.1	65.9	53.3	64.7	77.5	51.8	48.8	32.4	39.5	39.7	39.4	27.3	23.7	80.7	10.8	23.5	84.7	81.4	36.1	46.5	54.0	23.7	28.9	84.8	47.9	37.2	47.5	46.5			

Note: FCGZE stands for "Former Czechoslovakia not included elsewhere". Data for Korea are partial as several OECD countries do not systematically distinguish South and North Korea (e.g. 529408 people in Japan and 743260 in the United States).  
Sources: see Annex 1, Secretariat calculations.

Table A6. Total number of highly skilled expatriates and percentage of highly skilled expatriates by country of birth

	Total number of expatriates	of which: highly skilled (%)	Total number of expatriates	of which: highly skilled (%)	Total number of expatriates	of which: highly skilled (%)	Total number of expatriates	of which: highly skilled (%)	Total number of expatriates	of which: highly skilled (%)
Afghanistan	129211	25.2	100052	36.6	587400	42.8	57962	42.9	52271	17.5
Albania	389264	9.1	18002	8.6	314923	28.7	314923	45.3	3390	1982
Algeria	1301076	16.4	76112	24.2	23070	33.8	646	30.7	131342	11.9
American Samoa	30659	10.4	58843	27.5	1928199	51.9	23229	39.9	342947	47.9
Andorra	3687	23.1	422277	14.0	289167	34.3	616910	34.0	763014	18.0
Angola	195674	19.6	914501	24.2	632980	45.6	68949	15.5	292247	29.7
Anguilla	1677	30.9	138711	25.2	294967	28.2	410663	40.6	42086	40.5
Antigua and Barbuda	24400	26.5	215879	24.6	792316	23.5	224531	17.9	186532	14.6
Argentina	266070	37.8	1919	33.2	162567	42.9	4948	38.0	23	17.4
Armenia	80442	30.1	66488	32.5	2430339	12.4	247497	55.1	2103	41.7
Aruba	5744	47.1	173009	34.6	796046	24.0	5633	10.0	206604	37.8
Australia	267314	43.6	5359	29.7	575992	48.9	269	28.6	262456	35.8
Austria	366023	28.7	25738	21.7	62796	41.0	3647	25.2	126372	34.1
Azerbaijan	29263	41.2	691884	12.3	43226	28.4	122079	32.1	431462	61.1
Bahamas	30750	29.2	8994	17.5	197445	37.4	14798	43.8	3094	42.4
Bahrain	7424	40.6	490267	15.4	1964	22.4	2753	36.9	249951	29.3
Bangladesh	275770	27.9	274833	51.2	672755	43.3	655162	30.8	2190	20.8
Barbados	88895	26.3	839511	7.8	37591	44.1	2187	28.5	18024	36.3
Belarus	149935	25.0	12149	22.7	4640	39.0	140631	32.6	1815	11.3
Belgium	321544	33.8	35127	24.0	264864	14.4	26074	43.9	41116	11.2
Belize	43023	20.2	35077	32.0	54153	37.4	18504	25.0	276934	29.5
Benin	13669	43.8	113838	31.2	332270	32.9	361506	30.2	371274	17.7
Bermuda	19572	34.8	1316	22.5	995	45.7	1816418	48.1	2195645	6.3
Bhutan	809	25.5	1064580	11.9	41756	33.0	173	42.2	3269	32.8
Bolivia	72400	30.4	119400	26.4	27481	43.4	1276482	25.7	1429	18.2
Bosnia-Herzegovina	536327	11.5	265245	25.4	3632	19.3	1268726	6.5	1065	8.0
Botswana	4298	37.4	109984	29.8	132843	22.1	1312753	14.7	70006	41.0
Brazil	351878	31.7	2222270	29.0	27164	26.2	384	43.3	82232	39.2
British Indian Ocean Territory	36	13.9	54776	11.8	18881	36.0	312538	43.2	753080	27.2
British Virgin Islands	2252	32.9	1013581	34.4	149014	11.8	35365	36.7	14589	23.9
Brunei Darussalam	9059	39.3	10951	35.8	75954	32.0	613168	26.3	3229676	39.2
Bulgaria	527819	14.5	20923	16.9	15024	35.2	580570	43.0	809540	48.2
Burkina Faso	6237	38.4	83419	25.0	209910	50.8	14832	34.4	70093	29.9
Burundi	10095	38.6	2933757	29.5	519	34.5	2460	10.4	48770	25.0
Cambodia	238539	15.7	150665	34.0	45034	12.6	20078	26.6	34123	40.3
Cameroon	57050	42.3	11886	23.3	96837	19.5	24722	20.3	2002	32.1
Canada	1044978	40.0	735430	16.1	5446	10.7	34969	24.5	200461	40.2
Cape Verde	83291	6.2	46825	23.2	14813	18.5	71801	10.3	1507164	23.6
Cayman Islands	2389	19.5	57742	26.1	86410	28.0	775	17.9	158	33.5
Central African Republic	9855	32.7	489772	8.2	8431381	5.6	11732	10.7	32428	19.3
Chad	5836	42.1	19684	24.5	6697	13.3	34646	35.4	34825	49.3
Chile	200366	33.0	29449	12.7	11208	24.6	104715	23.1	77345	43.3
China	1649711	39.6	305544	24.9	4709	43.8	7602	22.5		
Cocos (Keeling) Islands	2	0.0	466897	19.8	11397	16.7	40556	33.6		
Colombia	682156	25.1	93	35.5	1364754	14.8	105805	45.9		
Comoros	17723	10.7	278593	10.5	85337	26.5	374570	13.8		
Note: KOR+PRK stands for "North and South Korea". OECD countries are identified with shaded areas.										
Sources: See Annex 1, Secretariat calculations (not including Japan and Italy as receiving countries).										