METHODOLOGY FOR ESTIMATING
THE INTERNATIONAL MIGRANT STOCK BY SEX, AGE AND ORIGIN

1. Reference years
The dataset *Trends in International Migrant Stock: The 2013 Revision* (United Nations database, POP/DB/MIG/Stock/Rev.2013) contains estimates of the total number of international migrants by country or area by sex, age and origin. Estimates refer to 1 July of the reference year, namely 1990, 2000, 2010 and 2013.

2. Types of data, definitions and sources
Most of the statistics used to estimate the international migrant stock by country or area were obtained from population censuses. Additionally, population registers and nationally representative surveys provided information on the number and composition of international migrants.

In estimating the international migrant stock, international migrants have been equated with the foreign-born whenever possible. In most countries lacking data on place of birth, information on the country of citizenship of those enumerated was used as the basis for the identification of international migrants, thus effectively equating international migrants with foreign citizens.

The approach of equating international migrants with foreign citizens when estimating the migrant stock has important shortcomings. In countries where citizenship is conferred on the basis of *jus sanguinis*, people who were born in the country of residence may be included in the number of international migrants even though they may have never lived abroad. Conversely, persons who were born abroad and who naturalized in their country of residence are excluded from the stock of international migrants when using citizenship as the criterion to define international migrants.

Using country of citizenship as the basis for the identification of international migrants has also an important impact on the age distribution of international migrants. In countries where citizenship is conferred mainly on the basis of *jus sanguinis*, children born to international migrants tend to be considered foreign citizens and are thus included in the count of international migrants. Conversely, in countries where citizenship is conferred mainly on the basis of *jus soli*, children born to international migrants are granted citizenship upon birth and are thus excluded from the migrant stock.

Despite these drawbacks, information by country of citizenship was used because ignoring it would have resulted in a lack of data for 47 countries or areas, equal to nearly 20 per cent of all counties and areas of the world.

The coverage of refugees in population censuses is uneven. In countries where refugees have been granted refugee status and allowed to integrate, they are normally covered by the population census as any other international migrant. In such cases, there is no reason to make a special provision for the consideration of refugees in estimating the international migrant stock. However, in many countries, refugees lack freedom of movement and are required to reside in camps or other designated areas. In these cases, population censuses may ignore refugees. Furthermore, when refugee flows occur rapidly in situations of conflict, it is uncommon for a population census to take place soon after and to reflect the newly arrived refugee population.

Consequently, for many countries hosting large refugee populations, the refugee statistics reported by international agencies are the only source of information on persons who are recognized as refugees or find themselves in refugee-like situations. In order to ensure that the estimates of the international migrant stock reflect properly the numbers of refugees, the figures on refugees reported by the Office of the United Nations High Commissioner for Refugees (UNHCR) and the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNWRA) were added to the estimates of the international migrant stock for most developing countries. For developed countries, where refugees

admitted for resettlement as well as recognized asylum-seekers are routinely included in population counts, be it by censuses or population registers, no such adjustment was made.

3. Data coverage

Among the 232 countries or areas included in this publication, 211, representing 91 per cent of the total, had at least one data source on the total migrant stock by sex since the 1990 census round[1], while 86 per cent of countries or areas had at least one data source on the age of international migrants, and 75 per cent had at least one data source on the origin of international migrants.

The availability of data on total migrant stock, as well as on the age and origin of international migrants differs significantly between countries and regions (Table 1). In Africa, 17 per cent of countries did not have a recent data source on total migrant stock, while 21 per cent and 38 per cent of countries did not have recent data on the age or origin of international migrants, respectively. Asia also had a relatively large number of countries or areas with no recent data on international migrants or their basic demographic characteristics. In Asia, 12 per cent of the countries did not have a recent data source on total migrant stock, 28 per cent on the age of international migrants, and 36 per cent on the origin of international migrants.

TABLE 1. DISTRIBUTION OF COUNTRIES BY AVAILABILITY OF DATA FOR THE ESTIMATION OF THE TOTAL NUMBER, AGE AND ORIGIN OF INTERNATIONAL MIGRANTS SINCE THE 1990 CENSUS ROUND

	Total number of countries or areas	Countries or areas with at least one data source on international migrant stock					
		Number			Percentage		
		Total by sex	By age	By origin	Total by sex	By age	By origin
World	232	211	200	174	91	86	75
Developed regions	56	53	53	51	95	95	91
Developing regions	176	158	147	123	90	84	70
Africa	58	48	46	36	83	79	62
Asia	50	44	36	32	88	72	64
Europe	48	45	45	43	94	94	90
Latin America and the Caribbean	48	47	47	40	98	98	83
Northern America	5	5	5	5	100	100	100
Oceania	23	22	21	18	96	91	78

4. Standardization of age groups

Data on the age of international migrants are presented for standard five-year age groups commonly used in demographic analysis, that is, 0 to 4, 5 to 9, etc. In many cases, the available data required some form of redistribution to ensure that the reported data could be used for estimates by five-year age group. The most common reason for redistribution was that the data contained at least one age group spanning ten years or more. In addition, a significant number of datasets included age groups that did not end in a 4 or a 9. Lastly, in several datasets the oldest age group was larger than 65 and over. Various demographic methods, including interpolation and Sprague coefficients, were used to standardize the age groups.

5. Standardization of the place of origin

Data on the origin of international migrants follow the "Standard country or area codes for statistical use" (ST/ESA/STAT/SER.M/49/Rev.3), available at http**:**//unstats.un.org/unsd/methods/m49/m49.htm. In many cases, the available data required some form of redistribution to ensure that the reported data were consistent with the standard country or area codes. The most common reason for redistribution was that the data contained at least one origin spanning more than one country or region. In addition,

[1] The 1990 round of population censuses covers the period 1985 to 1995. Figures for the 2010 census round (2006-2015) are still incomplete.

a significant number of datasets included an origin that was not part of the standard list of countries or areas. Various methods, including applying a constant distribution of migrants by country of origin based on the relevant major area or region of destination and aggregating the values into the category "Other North" and "Other South", were used to standardize the place of origin.

6. Estimates for countries with two or more data sources

For countries or areas with at least two data points, interpolation or extrapolation was used to estimate the migrant stock for the four reference years. For the total migrant stock, estimates were also adjusted on the basis of other relevant information, including the estimated size of the total population in the country of destination. In relation to the age of international migrants, the estimation method took into consideration the change in the size of the migrant stock, the ageing of the migrant stock, the age distribution of newly arriving and departing migrants, and the age distribution of the total population in the country of destination. Certain variations in these assumptions have been applied for specific groups, such as refugees who tend to be younger than other international migrants. For the origin of international migrants, estimates were also adjusted on the basis of other relevant information, including the overall size and growth rate of the migrant stock in the country of destination and the growth rates of migrant stock by origin in the relevant major area or region of destination.

7. Estimates for countries with only one data source

For countries or areas with only one data source, different approaches were utilised. For the total migrant stock, the growth rates of the relevant major area or region were considered. In relation to the age of international migrants, the estimation method also took into consideration the change in the size of the migrant stock, the ageing of the migrant stock and the age distribution of newly arriving and departing migrants and the age distribution of the total population in the country of destination. The age distribution of the newly arriving migrants is based on a combination of the migrant stock in the destination country and Castro's migration models. Certain variations in these assumptions have been applied for specific groups, such as refugees who tend to be younger than other international migrants. For the origin of international migrants, estimates were also adjusted on the basis of other relevant information, including the overall size and growth rate of the migrant stock in the country of destination. In addition, where the change in the total stock was relatively minor (under five per cent), a constant distribution of the origin was used. Where the change was more significant and there was information about a relevant event that might affect the distribution of the origin, such as the movement of refugees, this information was taken into consideration.

8. Estimates for countries with no data

For countries or areas without any data sources, another country or group of countries was used as a model. These "model" countries were selected on the basis of various characteristics, including the use of the same criterion for enumerating international migrants, geographical proximity and migration experience.