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# TRENDS IN INTERNATIONAL MIGRANT STOCK: THE 2015 REVISION

## CD-ROM DOCUMENTATION

United Nations

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**Department of Economic and Social Affairs**
Population Division

# TRENDS IN INTERNATIONAL MIGRANT STOCK: THE 2015 REVISION

## CD-ROM DOCUMENTATION

United Nations

The Department of Economic and Social Affairs of the United Nations Secretariat is a vital interface between global policies in the economic, social and environmental spheres and national action. The Department works in three main interlinked areas: (i) it compiles, generates and analyses a wide range of economic, social and environmental data and information on which States Members of the United Nations draw to review common problems and take stock of policy options; (ii) it facilitates the negotiations of Member States in many intergovernmental bodies on joint courses of action to address ongoing or emerging global challenges; and (iii) it advises interested Governments on the ways and means of translating policy frameworks developed in United Nations conferences and summits into programmes at the country level and, through technical assistance, helps build national capacities.

The Population Division of the Department of Economic and Social Affairs provides the international community with timely and accessible population data and analysis of population trends and development outcomes for all countries and areas of the world. To this end, the Division undertakes regular studies of population size and characteristics and of all three components of population change (fertility, mortality and migration). Founded in 1946, the Population Division provides substantive support on population and development issues to the United Nations General Assembly, the Economic and Social Council and the Commission on Population and Development. It also leads or participates in various interagency coordination mechanisms of the United Nations system. The work of the Division also contributes to strengthening the capacity of Member States to monitor population trends and to address current and emerging population issues.

This database was prepared by Pablo Lattes and Clare Menozzi, under the supervision of Bela Hovy.

**Note**

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EXPLANATORY NOTES

**The dataset makes use of the following symbols:**

Two dots (..) indicate that data are not reported separately.
A hyphen (-) indicates that the item is not applicable.
A minus sign (-) before a figure indicates a decrease.
A full stop (.) is used to indicate decimals.
A zero (0) indicates that the value is zero, rounded to zero or that data are not available.
Use of a hyphen (-) between years, for example, 1990-2000, signifies the full period involved, from 1 July of the first year to 1 July of the second year.

Numbers and percentages in tables do not necessarily add to totals because of rounding.

**References to countries and areas:**

The designations "developed regions" and "developing regions" are intended for statistical convenience and do not necessarily express a judgement about the stage reached by a particular country or area in the development process. The term "country" as used in this publication also refers, as appropriate, to territories or areas.

Countries and areas are grouped geographically into six major areas: Africa; Asia; Europe; Latin America and the Caribbean; Northern America; and Oceania. These major areas are further divided into 22 geographical regions. The names and composition of geographical areas follow those of "Standard country or area codes for statistical use" available at http://unstats.un.org/unsd/methods/m49/m49.htm as of 1 November 2015.

Developed regions comprise Europe, Northern America, Australia and New Zealand, and Japan.

Developing regions comprise all regions of Africa, Asia (excluding Japan), Latin America and the Caribbean plus Melanesia, Micronesia and Polynesia.

The group of least developed countries, as defined by the United Nations General Assembly, currently comprises 48 countries: Afghanistan, Angola, Bangladesh, Benin, Bhutan, Burkina Faso, Burundi, Cambodia, Central African Republic, Chad, Comoros, Democratic Republic of the Congo, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gambia, Guinea, Guinea-Bissau, Haiti, Kiribati, Lao People's Democratic Republic, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Myanmar, Nepal, Niger, Rwanda, São Tomé and Príncipe, Senegal, Sierra Leone, Solomon Islands, Somalia, South Sudan, Sudan, Timor-Leste, Togo, Tuvalu, Uganda, United Republic of Tanzania, Vanuatu, Yemen and Zambia.

The designation sub-Saharan Africa refers to all of Africa except Algeria, Egypt, Libya, Morocco, Tunisia and Western Sahara.

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The CD-ROM entitled *Trends in International Migrant Stock: The 2015 revision* provides estimates of the international migrant stock by age, sex and origin for the mid-point (1 July) of each year: 1990, 1995, 2000, 2005, 2010 and 2015.

## A. DESCRIPTION OF THE DATASET

This section describes the worksheets contained in three Excel workbooks:
(a) UN_MigrantStock_2015.xls,
(b) UN_MigrantStockByAge_2015.xls, and
(c) UN_MigrantStockByOriginAndDestination_2015.xls.

Each worksheet has a name located on its tab. The description of each worksheet is presented below following its name.

*1.    Worksheets providing general information*

**Contents:** The workbook opens on this worksheet, which provides an index to the rest of the worksheets in the workbook and has links that take the user to the selected worksheet by clicking either on the name (left column) or on the title of each table.

**Annex:** *Classification of countries and areas by major area and region.* This worksheet presents the list of countries or areas ordered alphabetically and the major area and region to which each belongs. It also identifies the countries or areas included in the developed and developing regions, the group of least developed countries, the less developed regions excluding least developed countries, and in sub-Saharan Africa. In this series, 232 countries or areas are covered and their classification by development group, major area and region is the one currently used by the Population Division.

**Notes:** This worksheet lists the notes that provide certain specificities about the countries or areas covered or the nature of the estimates presented

*2.    Worksheets providing estimates*

The workbook UN_MigrantStock_2015.xls contains 6 data tables, the workbook UN_MigrantStockByAge_2015.xls contains 30 data tables, and the workbook UN_MigrantStockByOrigin AndDestination_2015.xls contains 18 data tables. Each table is presented on a separate worksheet. The estimates in all tables refer to the mid-point (1 July) of each year indicated.

The data tables have a consistent layout that includes a first column showing the sort order of the items listed, a second column showing the name of each country, area and geographical grouping, a third column showing the existence of notes that provide special information on particular entries (see the description of the worksheet Notes above), and a fourth column showing the "country code" for each country, area or geographical grouping. For countries or areas, this code consists of three digits and was established by the International Standards Organization (ISO). For geographical groupings, the codes presented are those used by the Population Division. The fifth column contains codes indicating the type of data used in deriving the estimates presented. The codes used are: B, which indicates that estimates were derived from data on the foreign-born population; C, which indicates that estimates were derived from data on foreign citizens; R, which indicates that the number of refugees or persons in refugee-like situations as reported by the Office of the United Nations High Commissioner for Refugees (UNHCR) or, where appropriate, the United Nations Relief and Works Agency for Palestine Refugees in the Near East

(UNRWA) were added to the estimates, and I, which indicates that there were no data on international migrants for the country or area concerned and that the estimates presented were imputed.

The content of the workbook UN_MigrantStock_2015.xls is as follows:

**Table 1** *International migrant stock at mid-year by sex and by major area, region, country or area, 1990-2015*. This table presents the complete set of estimates of the international migrant stock by sex and by major area, region, country or area.

**Table 2** *Total population at mid-year by sex and by major area, region, country or area, 1990-2015 (thousands)*. This table presents estimates of the total population obtained from *World Population Prospects: The 2015 Revision*.

**Table 3** *International migrant stock as a percentage of the total population, 1990-2015*. The percentages shown are calculated by dividing the entries in Table 1 by those in Table 2 and expressing the results in percentages.

**Table 4** *Female migrants as a percentage of the international migrant stock by major area, region, country or area, 1990-2015*. The figures are obtained by dividing the number of female international migrants by the total migrant stock in Table 1 and expressing the result as a percentage.

**Table 5** *Annual rate of change of the migrant stock by sex and by major area, region, country or area, 1990-2015 (percentage)*. The worksheet presents the estimated exponential annual rate of change of the international migrant stock, expressed as a percentage.

**Table 6** *Estimated refugee stock at mid-year by major area, region, country or area, 1990-2015*. The worksheet presents the number of refugees, the refugee population as a percentage of the total migrant stock and the estimated exponential rate of change of the refugee population per year expressed as a percentage. All indicators are based on the estimates of refugee populations or persons in refugee-like situations prepared by the Office of the United Nations High Commissioner for Refugees (UNHCR) and, where appropriate, by the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA).

The content of the workbook UN_MigrantStockByAge_2015.xls is as follows:

**Table 1** *International migrant stock at mid-year by age and sex and by major area, region, country or area, 1990*. This table presents the complete set of estimates of the international migrant stock by age and sex and by major area, region, country or area for 1990.

**Table 2** *International migrant stock at mid-year by age and sex and by major area, region, country or area, 1995*. This table presents the complete set of estimates of the international migrant stock by age and sex and by major area, region, country or area for 1995.

**Table 3** *International migrant stock at mid-year by age and sex and by major area, region, country or area, 2000*. This table presents the complete set of estimates of the international migrant stock by age and sex and by major area, region, country or area for 2000.

**Table 4** *International migrant stock at mid-year by age and sex and by major area, region, country or area, 2005*. This table presents the complete set of estimates of the international migrant stock by age and sex and by major area, region, country or area for 2005.

**Table 5** *International migrant stock at mid-year by age and sex and by major area, region, country or area, 2010*. This table presents the complete set of estimates of the international migrant stock by age and sex and by major area, region, country or area for 2010.

**Table 6** *International migrant stock at mid-year by age and sex and by major area, region, country or area, 2015*. This table presents the complete set of estimates of the international migrant stock by age and sex and by major area, region, country or area for 2015.

**Table 7** *Total population at mid-year by age and sex and by major area, region, country or area, 1990 (thousands)*. This table presents estimates of the total population obtained from *World Population Prospects: The 2015 Revision*. The estimates refer to 1990.

**Table 8** *Total population at mid-year by age and sex and by major area, region, country or area, 1995 (thousands)*. This table presents estimates of the total population obtained from *World Population Prospects: The 2015 Revision*. The estimates refer to 1995.

**Table 9** *Total population at mid-year by age and sex and by major area, region, country or area, 2000 (thousands)*. This table presents estimates of the total population obtained from *World Population Prospects: The 2015 Revision*. The estimates refer to 2000.

**Table 10** *Total population at mid-year by age and sex and by major area, region, country or area, 2005 (thousands)*. This table presents estimates of the total population obtained from *World Population Prospects: The 2015 Revision*. The estimates refer to 2005.

**Table 11** *Total population at mid-year by age and sex and by major area, region, country or area, 2010 (thousands)*. This table presents estimates of the total population obtained from *World Population Prospects: The 2015 Revision*. The estimates refer to 2010.

**Table 12** *Total population at mid-year by age and sex and by major area, region, country or area, 2015 (thousands)*. This table presents estimates of the total population obtained from *World Population Prospects: The 2015 Revision*. The estimates refer to 2015.

**Table 13** *International migrant stock as percentage of the total population by age and sex and by major area, region, country or area, 1990*. The percentages shown are calculated by dividing the entries in Table 1 by those in Table 7 and expressing the results in percentages. The estimates refer to 1990.

**Table 14** *International migrant stock as percentage of the total population by age and sex and by major area, region, country or area, 1995*. The percentages shown are calculated by dividing the entries in Table 2 by those in Table 8 and expressing the results in percentages. The estimates refer to 1995.

**Table 15** *International migrant stock as percentage of the total population by age and sex and by major area, region, country or area, 2000*. The percentages shown are calculated by dividing the entries in Table 3 by those in Table 9 and expressing the results in percentages. The estimates refer to 2000.

**Table 16** *International migrant stock as percentage of the total population by age and sex and by major area, region, country or area, 2005*. The percentages shown are calculated by dividing the entries in Table 4 by those in Table 10 and expressing the results in percentages. The estimates refer to 2005.

**Table 17** *International migrant stock as percentage of the total population by age and sex and by major area, region, country or area, 2010*. The percentages shown are calculated by dividing the entries in Table 5 by those in Table 11 and expressing the results in percentages. The estimates refer to 2010.

**Table 18** *International migrant stock as percentage of the total population by age and sex and by major area, region, country or area, 2015*. The percentages shown are calculated by dividing the entries in Table 6 by those in Table 12 and expressing the results in percentages. The estimates refer to 2015.

**Table 19** *Percentage distribution of the international migrant stock by age and sex and by major area, region, country or area, 1990*. The percentages shown are calculated by dividing the entries in Table 1 for the individual age groups by the total of these age groups for males and females separately and expressing the results in percentages. The estimates refer to 1990.

**Table 20** *Percentage distribution of the international migrant stock by age and sex and by major area, region, country or area, 1995*. The percentages shown are calculated by dividing the entries in Table 2 for the individual age groups by the total of these age groups for males and females separately and expressing the results in percentages. The estimates refer to 1995.

**Table 21** *Percentage distribution of the international migrant stock by age and sex and by major area, region, country or area, 2000*. The percentages shown are calculated by dividing the entries in Table 3 for the individual age groups by the total of these age groups for males and females separately and expressing the results in percentages. The estimates refer to 2000.

**Table 22** *Percentage distribution of the international migrant stock by age and sex and by major area, region, country or area, 2005*. The percentages shown are calculated by dividing the entries in Table 4 for the individual age groups by the total of these age groups for males and females separately and expressing the results in percentages. The estimates refer to 2005.

**Table 23** *Percentage distribution of the international migrant stock by age and sex and by major area, region, country or area, 2010*. The percentages shown are calculated by dividing the entries in Table 5 for the individual age groups by the total of these age groups for males and females separately and expressing the results in percentages. The estimates refer to 2010.

**Table 24** *Percentage distribution of the international migrant stock by age and sex and by major area, region, country or area, 2015*. The percentages shown are calculated by dividing the entries in Table 6 for the individual age groups by the total of these age groups for males and females separately and expressing the results in percentages. The estimates refer to 2015.

**Table 25** *Female migrants as a percentage of the international migrant stock by age and by major area, region, country or area, 1990*. The figures are obtained by dividing the number of female international migrants by the total migrant stock in Table 1 and expressing the result as a percentage. The estimates refer to 1990.

**Table 26** *Female migrants as a percentage of the international migrant stock by age and by major area, region, country or area, 1995*. The figures are obtained by dividing the number of female international migrants by the total migrant stock in Table 2 and expressing the result as a percentage. The estimates refer to 1995.

**Table 27** *Female migrants as a percentage of the international migrant stock by age and by major area, region, country or area, 2000*. The figures are obtained by dividing the number of female international migrants by the total migrant stock in Table 3 and expressing the result as a percentage. The estimates refer to 2000.

**Table 28** *Female migrants as a percentage of the international migrant stock by age and by major area, region, country or area, 2005*. The figures are obtained by dividing the number of female

international migrants by the total migrant stock in Table 4 and expressing the result as a percentage. The estimates refer to 2005.

**Table 29** *Female migrants as a percentage of the international migrant stock by age and by major area, region, country or area, 2010.* The figures are obtained by dividing the number of female international migrants by the total migrant stock in Table 5 and expressing the result as a percentage. The estimates refer to 2010.

**Table 30** *Female migrants as a percentage of the international migrant stock by age and by major area, region, country or area, 2015.* The figures are obtained by dividing the number of female international migrants by the total migrant stock in Table 6 and expressing the result as a percentage. The estimates refer to 2015.

The content of the workbook UN_MigrantStockByOriginAndDestination_2015.xls is as follows:

**Table 1** *Total migrant stock at mid-year by origin and by major area, region, country or area of destination, 1990.* This table presents the complete set of estimates of the total international migrant stock by origin and by major area, region, country or area for 1990.

**Table 2** *Male migrant stock at mid-year by origin and by major area, region, country or area of destination, 1990.* This table presents the complete set of estimates of the male international migrant stock by origin and by major area, region, country or area for 1990.

**Table 3** *Female migrant stock at mid-year by origin and by major area, region, country or area of destination, 1990.* This table presents the complete set of estimates of the female international migrant stock by origin and by major area, region, country or area for 1990.

**Table 4** *Total migrant stock at mid-year by origin and by major area, region, country or area of destination, 1995.* This table presents the complete set of estimates of the total international migrant stock by origin and by major area, region, country or area for 1995.

**Table 5** *Male migrant stock at mid-year by origin and by major area, region, country or area of destination, 1995.* This table presents the complete set of estimates of the male international migrant stock by origin and by major area, region, country or area for 1995.

**Table 6** *Female migrant stock at mid-year by origin and by major area, region, country or area of destination, 1995.* This table presents the complete set of estimates of the female international migrant stock by origin and by major area, region, country or area for 1995.

**Table 7** *Total migrant stock at mid-year by origin and by major area, region, country or area of destination, 2000.* This table presents the complete set of estimates of the total international migrant stock by origin and by major area, region, country or area for 2000.

**Table 8** *Male migrant stock at mid-year by origin and by major area, region, country or area of destination, 2000.* This table presents the complete set of estimates of the male international migrant stock by origin and by major area, region, country or area for 2000.

**Table 9** *Female migrant stock at mid-year by origin and by major area, region, country or area of destination, 2000.* This table presents the complete set of estimates of the female international migrant stock by origin and by major area, region, country or area for 2000.

**Table 10** *Total migrant stock at mid-year by origin and by major area, region, country or area of destination, 2005*. This table presents the complete set of estimates of the total international migrant stock by origin and by major area, region, country or area for 2005.

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**Table 16** *Total migrant stock at mid-year by origin and by major area, region, country or area of destination, 2015*. This table presents the complete set of estimates of the total international migrant stock by origin and by major area, region, country or area for 2015.

**Table 17** *Male migrant stock at mid-year by origin and by major area, region, country or area of destination, 2015*. This table presents the complete set of estimates of the male international migrant stock by origin and by major area, region, country or area for 2015.

**Table 18** *Female migrant stock at mid-year by origin and by major area, region, country or area of destination, 2015*. This table presents the complete set of estimates of the female international migrant stock by origin and by major area, region, country or area for 2015.

## B. METHODOLOGY FOR ESTIMATING THE MIGRANT STOCK

This section provides information on the type of data and sources that have been used to collect the information and on the methods that have been applied to estimate the number as well as the distribution of the migrant stock by age, sex and origin.

*1.    Reference years*

The dataset *Trends in International Migrant Stock: The 2015 Revision* (United Nations database, POP/DB/MIG/Stock/Rev.2015) 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, 1995, 2000, 2005, 2010 and 2015.

*2.    Types of data, definitions and sources*

Most of the data 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 population whenever this information is available, which is the case in most countries or areas. In most countries lacking data on place of birth, information on the country of citizenship of those enumerated was available, and was used as the basis for the identification of international migrants, thus effectively equating, in these cases, international migrants with foreign citizens.

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 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 46 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 all developing countries deemed not to have included refugees in their reported statistics on the stock of international migrants. 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, 213, representing 92 per cent of the total, had at least one data source on the total migrant stock since the 2000 census round[1], 75 per cent of countries or areas had at least one data source on the age of international migrants, and 81 per cent of countries or areas had at least one data source on the origin of international migrants.

TABLE 1. AVAILABILITY OF EMPIRICAL DATA ON THE INTERNATIONAL MIGRANT STOCK, OVERALL AND WITH CLASSIFICATION BY AGE AND COUNTRY OF ORIGIN, 1995 TO 2015

| | Countries or areas with at least one data source | | | | | | Total number of countries or areas |
| | Number | | | Percentage | | | |
| | Total | By age | By origin | Total | By age | By origin | |
|---|---|---|---|---|---|---|---|
| World | 213 | 175 | 188 | 92 | 75 | 81 | 232 |
| Africa | 47 | 33 | 37 | 81 | 57 | 64 | 58 |
| Asia | 45 | 35 | 37 | 90 | 70 | 74 | 50 |
| Europe | 46 | 42 | 46 | 96 | 88 | 96 | 48 |
| Latin America and the Caribbean | 47 | 42 | 45 | 98 | 88 | 94 | 48 |
| Northern America | 5 | 5 | 5 | 100 | 100 | 100 | 5 |
| Oceania | 23 | 18 | 18 | 100 | 78 | 78 | 23 |

The availability of data on total migrant stock, as well as on the age and origin of international migrants differs significantly between major areas (table 1). In Africa, 19 per cent of countries did not have a recent data source on total migrant stock, while 43 per cent and 36 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, 10 per cent of the countries did not have a recent data source on total migrant stock, while 30 per cent were lacking recent data on the age of international migrants, and 26 per cent on the origin of international migrants.

## 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 (open-ended) age group had a starting age lower than 75 years. 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, 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

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[1] The 2000 census round covers the period 1995-2004, while the 2010 census round covers the period 2005-2014.

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 six reference years from 1990 to 2015. The growth rate was computed as follows:

$$r_{0,1} = ln(Mig_1 - Mig_0)/t_{0,1}$$

Where $Mig_1$ refers to the migrant stock in year 1 and $Mig_0$ to the migrant stock in year 0 and $t_{0,1} = (Year_1 - Year_0)$.

The estimates of the total migrant stock took into account the estimated size of the total population in the country of destination based on the *World Population Prospects: The 2015 Revision*. Specific country circumstances such as sudden in or out-migration due to conflict, economic booms or busts, and major changes in migration policies were also taken into consideration.

In relation to the age of international migrants, the estimation method took into consideration changes 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 based on the *World Population Prospects: The 2015 Revision*. For each of these aspects, country and time-period specific weights were assigned. The age distribution of the newly arriving migrants is based on a combination of the migrant stock in the destination country and Rogers and Castro's migration models (1981).[2] In addition, whenever possible, data on refugees by age and sex were estimated separately using data on the age distribution of refugees reported by UNHCR. These estimates were then added to the estimates of other international migrants by age and sex.

For the origin of international migrants, interpolation or extrapolation was used to estimate the international migrant stock for each country or area of origin. Where necessary, estimates were 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. The latter adjustments were done to ensure that the recorded change in the stock by origin was consistent with the change in the total migrant stock.

## 7. *Estimates for countries with only one data source*

For countries or areas with only one data source, the following approaches were utilised.

For the total migrant stock, the growth rates of the total migrant stock in the relevant major area or region were used, where appropriate, to estimate changes in migrant stock levels.

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. Certain variations in these assumptions have been applied for specific groups, such as refugees who tend to be younger than other international migrants.

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[2] Rogers, Andrei and Luis J. Castro (1981). *Model Migration Schedules*. Research Report 81-30. Laxenberg, Austria: International Institute for Applied Systems Analysis. See also United Nations (1992). *Preparing migration data for subnational population projections* (United Nations publication, Sales No. E.92.XIII.6).

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), the distribution by origin at the start of the period was left constant. Where the change was five per cent or more and there was information about a relevant event that might affect the distribution of the origin, such as the movement of refugees from certain countries or areas, this information was taken into consideration by adding data on the number of refugees by country or area of origin.

*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.

Estimates based on a regional or country model are identified by the symbol (I), signifying that they were obtained by imputation. In total estimates for six countries or areas were obtained by imputation: Bosnia and Herzegovina, the Democratic People's Republic of Korea, Eritrea, Holy See, Somalia and Western Sahara.[3]

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[3] For Bosnia and Herzegovina estimates were imputed based on data for Croatia, Serbia and the Former Yugoslav Republic of Macedonia; for the Democratic People's Republic of Korea based on data for Eastern Asia; for Eritrea based on data for Ethiopia and Sudan; for Holy See based on data from the 2015 revision of World Population Prospects; for Somalia based on data for Nigeria; and for Western Sahara based on data for Mauritania and Senegal.

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## Department of Economic and Social Affairs
## POPULATION DIVISION

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