International Labour Organization

ILO Global Estimates on International Migrant Workers

Results and Methodology

- Labour Migration Branch
  Conditions of Work and Equality Department
- Department of Statistics

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Results and Methodology
Third edition

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Preface

International migrant workers constitute nearly 5 per cent of the global labour force and are an integral part of the world economy. Labour migration not only benefits the migrant worker, but also the communities they become part of, as well as their origin countries. Yet, the gains of labour migration can be diminished when migration policies are not informed by an evidence-base and insufficiently linked to employment policies. Harnessing the potential of labour migration toward development gains requires well-informed and effective policymaking, based on up to date and sound data.

The UN *2030 Sustainable Development Agenda* (UN 2015) recognizes migration as an important aspect of development policy, urging governments to "facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies" (target 10.7) and to "protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment" (target 8.8). The *2020 Sustainable Development Goals Report* (UN 2020) provides a timely set of data as this year both SDGs 8 and 10, among others, will be reviewed at the High-Level Political Forum on Sustainable Development in July 2021.

Recognizing the importance of timely, reliable and comparable data and the need for international standards on labour migration data, the ILO has developed *Guidelines Concerning Statistics of International Labour Migration* that were adopted by the 20th International Conference of Labour Statisticians (ICLS) (ILO 2018a). With the adoption of the *Global Compact for Safe, Orderly and Regular Migration (GCM)* in 2018 by the UN General Assembly (UN 2019), countries have committed to improved migration governance and cooperation to facilitate orderly migration. The ILO supports the capacity-building efforts of countries in data collection and contributes to the regional and global knowledge building and dissemination on international labour migration statistics. To support this work, ILO has established and maintains the world's largest and most robust global labour migration database.

This third edition of the *ILO Global Estimates on International Migrant Workers: Results and Methodology* presents the most recent estimates on the stock of international migrant workers, disaggregated by age, sex, country-income group and region, and the estimation methodology. The periodic publication of this report provides information on recent trends on labour migration and therefore, contributes to achieving the Sustainable Development Goals as well as supporting policymaking at the country, regional and global levels.

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▶ Acknowledgements

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This report would have not been possible without the strong support of Manuela Tomei, Director, ILO Conditions of Work and Equality Department, and Rafael Diez de Medina, Director, ILO Department of Statistics.

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▶ Acronyms and abbreviations

GCM	Global Compact for Safe, Orderly and Regular Migration
ICLS	International Conference of Labour Statisticians
ILMS	International Labour Migration Statistics (database)
ILOSTAT	ILO data portal on labour statistics
IOM	International Organization for Migration
ISIC	International Standard Industrial Classification of All Economic Activities
LFPR	Labour force participation rate
LFS	Labour force survey
OECD	Organisation for Economic Co-operation and Development
SDGs	Sustainable Development Goals
UNDESA	United Nations. Department of Economic and Social Affairs
UNHCR	Office of the United Nations High Commissioner for Refugees
UNRWA	United Nations Relief and Works Agency for Palestine Refugees in the Near East

Executive summary

The COVID-19 pandemic has been having an unparalleled impact on the global economy and the world of work. The ILO estimates that 93 per cent of the world's workers were residing in countries with some form of COVID-19-related workplace closure measures in early January 2021, with many international migrants remaining among the most vulnerable. In many regions, international migrant workers account for an important share of the labour force, making vital contributions to their destination countries' societies and economies, and delivering essential jobs in critical sectors like health care, transportation, services, agriculture and food processing. Yet many migrant workers are often to be found in temporary, informal or unprotected jobs, which has exposed them to an even greater risk of insecurity, layoffs and worsening working conditions. Moreover, the COVID-19 impacts on women migrant workers appear to have intensified already existing vulnerabilities, as they are over-represented in low-paid and low-skilled jobs and have limited access to and fewer options for support services.

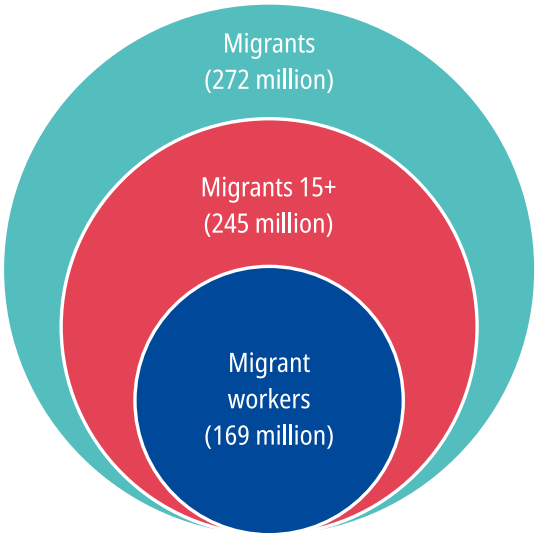
The COVID-19 pandemic has affected the magnitude and characteristics of international labour migration. This third edition of the *Global Estimates on International Migrant Workers* takes 2019 as its reference year, predating the onset of the COVID-19 crisis, and it offers a benchmark against which the COVID-19 driven changes can be analysed in future work.

The ILO estimates that 169 million people are international migrant workers

In 2019, the UNDESA estimated the stock of international migrants worldwide to be 272 million, 245 million of which are working age (aged 15 and over). The number of international migrant workers totalled 169 million in the same year. The 2019 estimate indicates an increase of 5 million migrant workers (3.0 per cent) from the 2017 estimate of 164 million migrant workers, and an increase of 19 million (12.7 per cent) from the 2013 estimate of 150 million migrant workers.

International migrant workers are defined as migrants of working age, who during a specified reference period, were in the labour force of the country of their usual residence, either in employment or in unemployment. For the purposes of this report, the term "international migrants" refers to usual residents in a given country who are foreign-born (or foreign citizens when place of birth information is not available). The term "migrants of working age" is a subset of international migrants, comprising those aged 15 years and over.

Global estimates of the stock of international migrants and migrant workers, 2019



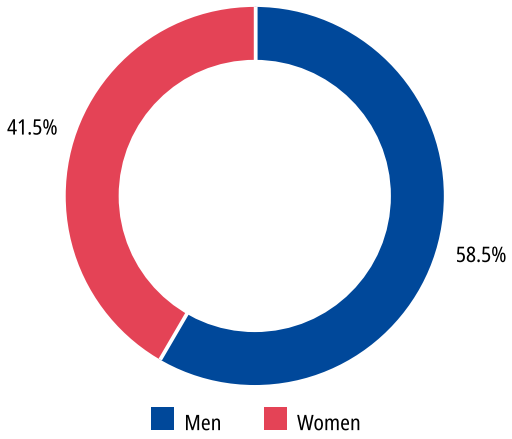
International migrant workers constitute 4.9 per cent of the global labour force

While globally migrant workers constitute 4.9 per cent of the labour force of destination countries, this figure is highest at 41.4 per cent in the Arab States. The labour force participation rate of migrants at 69.0 per cent is higher than the labour force participation of non-migrants at 60.4 per cent.

Among international migrant workers, 99 million are men and 70 million are women

Women constitute 41.5 per cent and men 58.5 per cent of migrant workers. The smaller share of women migrant workers can be explained by their lower representation among international migrants (47.9 per cent) on one hand, and their relatively lower labour market participation rate as compared to men (59.8 per cent vs. 77.5 per cent) on the other. Women face more economic and non-economic obstacles as migrant workers, and there is a higher likelihood that women migrate as accompanying family members for reasons other than to find work. They can experience gender discrimination in the labour market and lack of social networks that make it difficult to reconcile work and family life in a foreign country. All of these are possible factors reducing women's representation among migrant workers.

▶ **Global distribution of international migrant workers by sex, 2019**



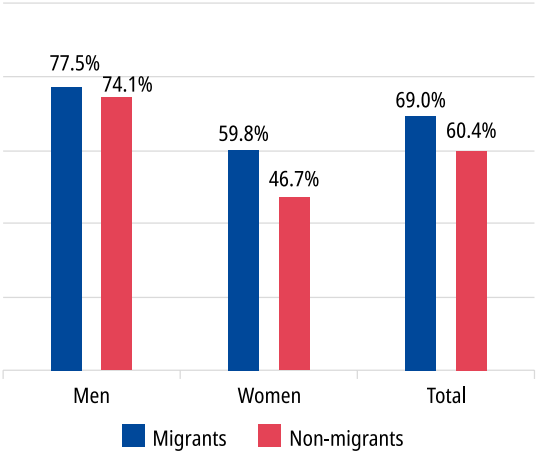
Women migrant's contribution to the female labour force in destination countries is higher (5.2 per cent) compared to that of migrant men (4.6 per cent) in the male labour force. This has to do with the significantly larger labour force participation gap between migrant and non-migrant women (13.1 percentage points) as compared to migrant and non-migrant men (3.4 percentage points). It should also be noted that the global share of women among migrant workers masks significant differences across geographic regions, with regions such as Northern, Southern and Western Europe having above 50.0 per cent female share among migrant workers as compared to below 20.0 per cent in the Arab States.

International migrants have higher labour force participation than non-migrants but rates are decreasing for both groups

Over time, while migrants have tended to have higher labour force participation rates, the rates for both migrants and non-migrants have fallen. In 2013, migrant workers constituted 72.7 per cent of migrants of working age but 70.0 per cent in 2017 and 69.0 per cent in 2019.

The decline in the labour force participation of international migrants is likely to be generated by factors that also affect non-migrant populations. The ILO projects that the general decline in participation rates observed since 1990 will continue until at least 2030. Likely drivers include demographic changes (e.g. aging populations in most high-income countries), technological change, labour market and immigration policies. In the case of international migrants, added factors may include labour market discrimination and barriers to obtaining employment, insufficient language proficiency and challenges related to the limited access to recognition of their skills and qualifications in destination countries.

▶ **Global labour force participation rates of migrants and non-migrants by sex, 2019**

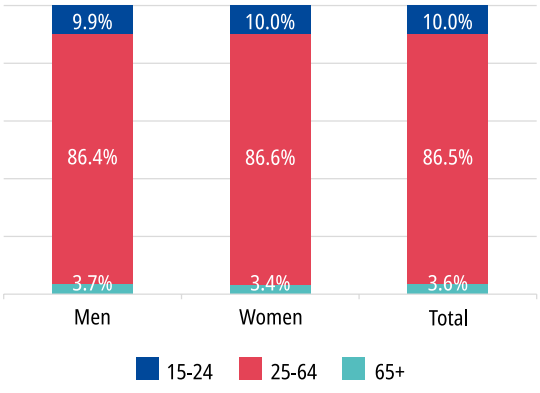


The large majority of international migrant workers consists of prime-age adults but the share of youth is increasing

Prime-age adults (aged 25–64) constitute 86.5 per cent of migrant workers. The shares of youth (aged 15–24) and older workers (aged 65 and over) among migrant workers are lower at 10.0 per cent and 3.6 per cent, respectively. It should be noted that youth constitute 12.9 per cent, prime-age adults 74.7 per cent, and older workers 12.4 per cent of the working age migrant population.

The share of youth among international migrant workers has increased over time, from 8.3 per cent in 2017 to 10.0 per cent in 2019. In contrast, the share of older workers (aged 65 plus) reduced from 5.2 per cent to 3.6 per cent over the same time period, leaving the share of prime-age adults constant. The heavy representation of prime-age adults can be explained by this age group's better ability to migrate to a foreign country (in terms of financial means and social networks) and their higher potential gains than younger migrants with less years of experience, or older migrants with less remaining economically active years. The increase in youth migration is likely to be the result of high youth unemployment rates in many developing countries and the phenomenon of the "youth bulge".

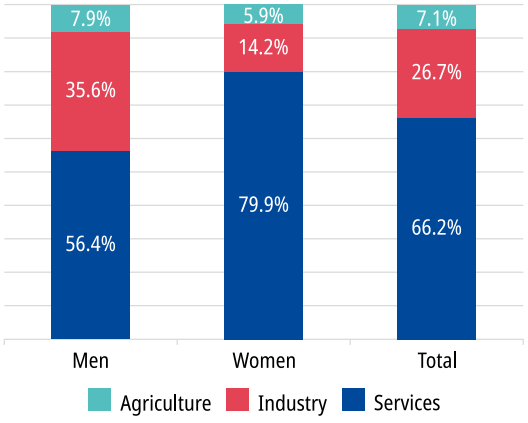
▶ **Global age composition of international migrant workers, 2019**



Most international migrant workers are concentrated in services sector

Sector figures show that 66.2 per cent of migrant workers are in services, 26.7 per cent are in industry and 7.1 per cent are in agriculture. However, substantial gender differences exist within the sectors. In the case of women, 79.9 per cent are in services, 14.2 per cent are in industry and 5.9 per cent in agriculture. Compared to women, the distribution of men migrant workers between industry and services is relatively more balanced, with 35.6 per cent of men employed in industry and 56.4 per cent in services. The remaining 7.9 per cent of men migrant workers are in agriculture. A higher representation of women migrant workers in services may, in part, be explained by a growing labour demand in the care economy, including health and domestic work. These sub-sectors have a predominantly female labour force and rely heavily on women migrant workers. Men migrant workers are more present in industry, finding work in the manufacturing and construction sub-sectors.

▶ **Global distribution of international migrant workers by broad category of economic activity, 2019**



A comparison of 2013 estimates to 2019 estimates suggests different patterns of change for men and women migrant workers by category of economic activity. In the case of women, there has been a sharp drop in agriculture (from 11.1 per cent to 5.9 per cent) and a nearly commensurate rise in services (from 73.7 per cent to 79.9 per cent). In the case of men, a decline is detected in agriculture (from 11.2 per cent to 7.9 per cent) and services

(from 69.1 per cent to 56.4 per cent), while their engagement in industry rose from 19.8 per cent in 2013 to 35.6 per cent in 2019.

The changes observed in the sectoral distribution of women migrant workers parallel the general trends of women's falling worldwide employment in agriculture and industry and rising employment in services. In the case of men, the global trends point to a declining employment in agriculture, stagnant employment in industry and rising employment in services. A plausible explanation for the rise in industrial employment for migrant men could be that there is a growing labour demand in this sector in lower-middle- and upper-middle-income countries. The increase in the share of migrant workers in upper-middle-income countries and a drop in high-income countries gives support to this conjecture.

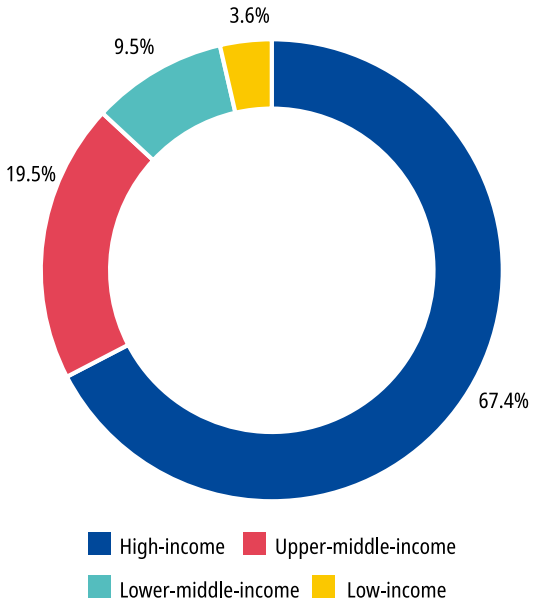
More than two-thirds of international migrant workers are concentrated in high-income countries

Of the estimated 169 million international migrant workers, 113.9 million (67.4 per cent) are in high-income countries and 33 million (19.5 per cent) in upper-middle-income countries, so that 86.9 per cent of international migrant workers are found in either of the two country income groups. The rest are in lower-middle-income (9.5 per cent) and low-income countries (3.6 per cent).

Migrant workers make up a substantial proportion of the labour force of high-income countries with migrant men constituting 18.7 per cent of the male labour force, while women 17.6 per cent of the female labour force. In contrast, in low-income, lower-middle-income and upper-middle-income countries the share of migrant workers does not exceed 2.5 per cent.

That the majority of migrant workers are found in high-income and upper-middle-income countries is a regularity observed in previous editions of this report, and, among other reasons, can be explained by the greater employment opportunities in these countries. However, it is interesting to note that the share of migrant workers in high-income countries has fallen from 74.7 per cent in 2013 to 67.4 per cent in 2019, while the respective share in upper-middle-income countries increased from 11.7 per cent in 2013 to 19.5 per cent in 2019. This may have to do with the rising employment opportunities in upper-middle-income countries, demographic changes, as well as evolving migration policies.

▶ **International migrant workers by income level of countries, 2019**



Three subregions host the majority of international migrant workers: Northern, Southern and Western Europe, Northern America and the Arab States

The world's 169 million migrant workers are distributed amongst the major regions as follows: Europe and Central Asia, 37.7 per cent; Americas, 25.6 per cent; Arab States, 14.3 per cent; Asia and the Pacific, 14.2 per cent; and Africa, with only 8.1 per cent. As regards the origin of international migrants, the Asia and Pacific region ranks first (being the region of origin for one-third of international migrants), followed by Europe and Central Asia, the Americas, Africa and the Arab States.

The majority of migrant workers are found in three subregions: 24.2 per cent are in Northern, Southern and Western Europe, 22.1 per cent in Northern America and 14.3 per cent in the Arab

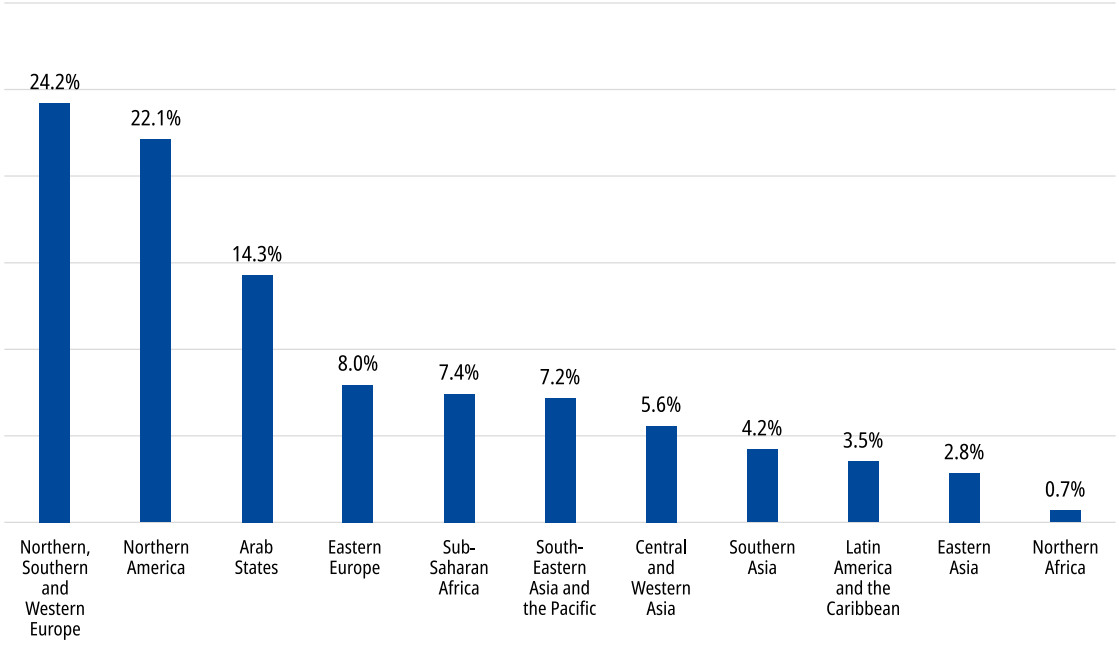
States. Collectively, these three regions host 60.6 per cent of migrant workers in 2019.

In Northern, Southern and Western Europe, migrant workers make up 18.4 per cent of the labour force. In North America, their share increases to 20.0 per cent. The highest share is observed in the Arab States at 41.4 per cent, which is due to the relatively small population size of this subregion and the substantially higher labour force participation of migrants as compared to non-migrants.

Within these three subregions, men migrant workers are evenly distributed, but women migrant workers are more heavily concentrated in Northern America (24.9 per cent) and Northern, Southern and Western Europe (29.4 per cent). Only 6.0 per cent of women migrant workers are in the Arab States, which could be partially attributed to the limited employment opportunities this region offers to them outside of the care economy (including domestic work).

The importance of the top three regions in terms of the number of international migrant workers they host has not diminished over time. In 2013 and 2017, they were home to 60.2 per cent and 60.8 per cent of migrant workers, respectively.

▶ Distribution of international migrant workers by broad subregion, 2019



▶ 1. Introduction

Labour migration has the potential to benefit both origin and destination countries. Migration makes it possible for workers to take up productive work in destination countries and contribute to their overall economic output and growth when migration systems are fair and well-managed. Quite often, migrants are engaged in jobs in labour-intensive agriculture, manufacturing, construction and the care economy. In destination countries with aging populations, their contribution can be important in meeting labour shortages, rejuvenating the labour force and supporting the social security system. For origin countries, remittances received increase national savings, promoting investment and general economic well-being. On an individual level, migration allows workers to achieve a higher standard of living and increase the well-being of their families left behind through income transfers. Through the diaspora and return migrants, knowledge and skills are shared among countries, leading to higher global productivity and output.

The UN *2030 Sustainable Development Agenda* recognizes migration as an important aspect of development policy, urging governments to "facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies" (target 10.7) and to "protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment" (target 8.8). The *Global Compact for Safe, Orderly and Regular Migration (GCM)*, formally endorsed by the UN General Assembly in 2018 and expressly rooted in the 2030 Agenda (para. 6), is an important step in this direction (UN 2019). A major obstacle in the formulation and implementation of labour migration policies is the lack of comprehensive official statistical data on international migrant workers at the national, regional and global levels. Having up-to-date statistical information for the design, implementation and monitoring of evidence-based labour migration policies is a prerequisite for improved governance, better migrant workers' protection, stronger migration and development linkages, and more effective international cooperation. The GCM recognizes the data gaps and the need for harmonized methodologies to produce internationally comparable data on international migration and calls on countries to "Collect and utilize accurate and disaggregated data as a basis for evidence-based policies" (Objective 1).

In order to address the above challenges, the *ILO Global Estimates on International Migrant Workers* (ILO 2015) were intended to advance the knowledge base on international labour migration and thereby, help promote effective and efficient policy making. This current third edition is part of the periodic publication of global and regional estimates of international migrant workers, their regional distribution and characteristics, providing important insights into changing labour migration patterns and development trends.

Further, recognizing the importance of labour migration – and the various challenges in its measurement – the ILO has drafted *Guidelines Concerning Statistics of International Labour Migration* which were discussed and adopted by the 20th International Conference of Labour Statisticians (ICLS) (ILO 2018a). The Guidelines promote appropriate concepts, definitions and methodologies for the measurement of international labour migration, and the production and dissemination of labour migration data that allow for international comparison.

The Guidelines use the term international labour migration to refer to the "process and outcome of international labour migration and, in particular, to the following three concepts: international migrant workers, for-work international migrants and return international migrant workers". The estimates presented in this third edition of the *ILO Global Estimates on International Migrant Workers*

cover the first group, presenting global and regional estimates of the stock of international migrant workers. The concepts of "working age population", "labour force", "employment" and "unemployment" are defined in line with the latest international standards concerning statistics of work, employment and labour underutilization adopted at 19th ICLS (ILO 2013).

International migrant workers are defined as persons of working age present in the country of measurement and who are in one of the following two categories (ILO 2018a, para. 14a and 14b):

a. usual residents: international migrants who, during a specified reference period, were in the labour force of the country of their usual residence, either in employment or in unemployment;

b. not usual residents, or non-resident foreign workers: persons who, during a specified reference period, were not usual residents of the country but were present in the country and had labour attachment to the country, i.e., were either in employment supplying labour to resident producer units of that country or were seeking employment in that country.

The estimates presented in this third edition of the *ILO Global Estimates on International Migrant Workers* cover only category (a) above, due to lack of data. The report[1] covers 189 countries and territories and takes 2019 as its reference year. Time lags in the release of country data, on which the estimates are based, and the need to incorporate as many countries as possible to produce sound estimates resulted in 2019 being chosen as the reference year, predating the onset of the COVID-19 pandemic.

The COVID-19 pandemic has been having an unparalleled impact on the global economy and the world of work. The ILO estimates that 93 per cent of the world's workers were residing in countries with some form of COVID-19-related workplace closure measures in early January 2021 (ILO 2021), with many international migrants remaining among the most vulnerable (ILO 2020a). In many regions, international migrant workers account for an important share of the labour force, making vital contributions to their destination countries' societies and economies, and delivering essential jobs in critical sectors like health care, transportation, services, agriculture and food processing. Yet, many migrant workers are often to be found in temporary, informal or unprotected jobs, which has exposed them to an even greater risk of insecurity, layoffs and worsening working conditions. Moreover, the COVID-19 impacts on women migrant workers appear to have intensified already existing vulnerabilities, as they are over-represented in low-paid and low-skilled jobs and have limited access to and fewer options for support services.

The COVID-19 pandemic has affected the magnitude and characteristics of international labour migration. This third edition of the Global Estimates on International Migrant Workers offers a benchmark against which the COVID-19 driven changes can be analysed in future work.

The data for this report mainly come from the database of the UN Department of Economics and Social Affairs (UNDESA) and the ILO.[2] The benchmark population and migrant stock data are respectively data taken from the UNDESA *World Population Prospects 2019*[3] and the UNDESA *International Migrant Stock 2019*.[4]

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[1] Previous editions were ILO 2015 and 2018b.

[2] Details on benchmark and national data used are available in ILO 2018b, Part II, sections 3 and 4.

[3] See the UNDESA database at: https://population.un.org/wpp/.

[4] See the data set: https://www.un.org/development/desa/pd/content/international-migrant-stock.

The benchmark labour force data come from the ILO modelled estimates,[5] and the national labour force data by migrant status are mainly taken from the International Labour Migration Statistics (ILOSTAT/ILMS) database[6] of the ILO, which is the only global labour migration database, containing, at the moment, 51 indicators. The estimation is based on available national data from 124 countries and territories compared to only 67 in the previous report.[7] The coverage of the ILMS database has significantly expanded over the past three years owing to important efforts made by the ILO towards data collection, making more harmonized data available – including sector data, allowing for estimation of the distribution of international migrant workers by category of economic activity. In addition to using more and better national data, this third edition also benefits from an improved methodology, including a unified imputation method for men and women.[8] These advancements result in estimates of significantly better quality,[9] compared to the previous editions. Therefore, caution should be exercised when comparing the 2019 estimates to those of 2013 and 2017.

The ILO's report is organized in two main parts, as described below:

- **Part I** "Main Results": Following the introductory Section 1, Section 2 presents the global and regional estimates of the stock of international migrant workers, as well as estimates by country income group, all disaggregated by sex and age.

- **Part II** "Estimate Methodology" starts with Section 3, which covers the statistical methodology. It describes the international and national data sources, data aggregation by geographical region and country income groups, and disaggregation by age, sex, and category of economic activity. Section 4 is on data quality.

- **Annexes A** and **B** provide supplementary information on the geographical and country income classifications and on the availability of data used to compile the material presented in the report. **Annex C** presents the ISIC Revision 4 of Industrial Classification of All Economic Activities.

[5] See ILOSTAT at: https://ilostat.ilo.org/topics/population-and-labour-force/.

[6] See ILOSTAT at: https://ilostat.ilo.org/topics/labour-migration/.

[7] For the rest of the countries for which national data were not available, imputations were made. See ILO 2018b, Part II section on Results and Methodology.

[8] Details on the imputation method is available in ILO 2018b, Part II, subsection 3.4.

[9] The quality of the estimates is discussed in ILO 2018b, Part II, section 4.

PART I
MAIN RESULTS

▶ 2. Global and regional estimates

This section of the report presents the global estimates[10] of the stock of international migrant workers for 2019 broken down by sex, age, and category of economic activity.[11] The global estimates are followed by estimates by country income group and geographic regions again broken down by sex and age.

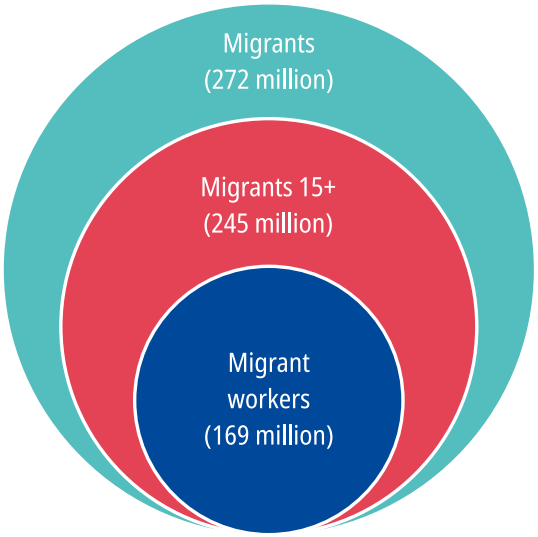
2.1 Global estimates

2.1.1 Overall picture

The UNDESA estimates the stock of international migrants worldwide at 272 million, of which 245 million are of working age (aged 15 and over) in 2019.[12] The stock of international migrant workers in the same year totals 169 million (figure 2.1). The 2019 estimate is up by 5 million (3.0 per cent) from the 2017 estimate and by 19 million (12.7 per cent) as compared to the 2013 estimate.

In 2019, international migrants constituted 4.3 per cent of the working age population (aged 15 and over) while migrant workers constituted 4.9 per cent of the labour force of destination countries. Despite the global rise in the number of migrant workers over time, their share among migrants of working age is decreasing. In 2013, migrant workers constituted 72.7 per cent of migrants of working age but 70.0 per cent in 2017 (ILO 2015 and 2018b). Their share in 2019 is estimated at 69.0 per cent. The decreasing share of migrant workers could be attributed to the continuous rise in the number of migrants of working age and a decline in their labour force participation.

▶ **Figure 2.1**
Global estimates of the stock of international migrants and migrant workers, 2019



The changes observed in the labour force participation of international migrants is likely to be generated by forces that have also been affecting non-migrant populations. The ILO projects that the general decline in participation rates observed since 1990 will continue until at least 2030 (ILOSTAT 2018b; Krueger 2017). Likely drivers include demographic trends (e.g. aging populations in most high-income countries), changes in production technology, labour market and immigration policies. In the case of international migrants, added factors may include labour market discrimination and barriers to obtaining employment, insufficient language skills and limited access to recognition of their skills and qualifications in destination countries (ILO 2016a).

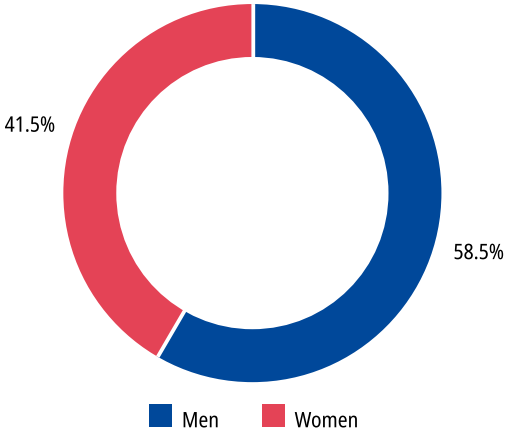
[10] Details in tables and figures are subject to rounding, and therefore may not add to totals.

[11] The distribution concerns employed and unemployed migrant workers under the assumption that the distribution by category of economic activity of the unemployed with past work experience is broadly the same as their employed counterparts. For details see Part II of this report on Estimate Methodology.

[12] The database can be accessed at: https://www.un.org/development/desa/pd/content/international-migrant-stock.

The decreasing labour force participation of migrants may have important implications both for origin and destination countries. For the former, it may translate into lower remittances. Available evidence suggests that remittances received by developing countries can be important in meeting currency shortages, increasing domestic investment and alleviating household poverty (ILO 2016b; World Bank 2019). For the destination countries, it will mean loss of potential gains in the form of higher macroeconomic output, economic growth, and contribution to social security systems. Further, in the case of high-income destination countries, these developments may become more acute challenge due to the demographic changes, as many non-migrants are transitioning out of the labour force.

▶ **Figure 2.2**
Global distribution of international migrant workers by sex, 2019



2.1.2 Gender composition

The majority of international migrant workers are men. The 2019 estimates indicate that there are 99 million men migrant workers and 70 million women migrant workers (table 2.1). Accordingly, men constituted 58.5 per cent of international migrant workers while women constituted 41.5 per cent (figure 2.2). This distribution has remained stable compared to 2013. The number of women migrant workers has actually increased over time from 66.6 million in 2013 to 68.1 million in 2017 and finally to 70 million in 2019. However, the increase has been faster in the case of men with the result that globally men continue to be over-represented among international migrants and migrant workers. The global average masks important differences by regions, a point discussed in Section 2.3.

The lower representation of women among international migrant workers is likely due to two reasons: (1) women are under-represented among international migrants of working age; and (2) women migrants have lower labour force participation than men migrants. Table 2.2 presents the sex composition of migrant and non-migrant populations. Women are equally represented in the overall population and the working age population, but not in the migrant working age population. In 2019, there were 128 million men migrants compared to 117 million women migrants of working age. Furthermore, in 2019, the labour force participation rate of men migrants at 77.5 per cent was substantially higher than the corresponding rate estimated for women at 59.8 per cent, a pattern observed in previous years as well. The higher likelihood for women to migrate as accompanying family members for reasons other than to work may,

▶ **Table 2.1**
Global estimates of international migrant workers, 2019 (millions)

	Men	Women	Total
Total population aged 15+	2868	2867	5735
Migrant population aged 15+	128	117	245
Non-migrant population aged 15+	2740	2750	5490
Total workers	2128	1354	3482
Migrant workers	99	70	169
Non-migrant workers	2029	1284	3313

in part, explain these observations.[13] However, greater economic and non-economic obstacles faced by women may also explain their lower migration probability. Gender discrimination[14] in the labour market, lack of social networks[15] and difficulties in reconciling work and family life[16] in a foreign country are possible factors reducing women's labour force participation and expected benefits from labour migration.

The share of migrant workers, as a proportion of all workers, is higher (4.9 per cent) than the share of migrants as a proportion of the working age population. This is due to the fact that migrants have a higher labour force participation rate (69 per cent), than non-migrants (60.4 per cent) (figure 2.3 and table 2.3). The participation gap between migrants and non-migrants is particularly large among women at 13.1 percentage points as compared to men at 3.4 percentage points.

▶Table 2.2
Sex composition of the international migrant worker population, 2019 (percentage)

	Men	Women	Total
Total population aged 15+	50.0	50.0	100
Migrant population aged 15+	52.1	47.9	100
Non-migrant population aged 15+	50.0	50.0	100
Total workers	61.1	38.9	100
Migrant workers	58.5	41.5	100
Non-migrant workers	61.2	38.8	100

▶Table 2.3
Population ratios and labour force participation rates of international migrant workers by sex, 2019 (percentage)

	Men	Women	Total
Migrants as a proportion of population aged 15+	4.5	4.1	4.3
Migrant workers as a proportion of all workers	4.6	5.2	4.9
Labour force participation rate of total population	74.2	47.2	60.7
Labour force participation rate of migrant population	77.5	59.8	69.0
Labour force participation rate of non-migrant population	74.1	46.7	60.4

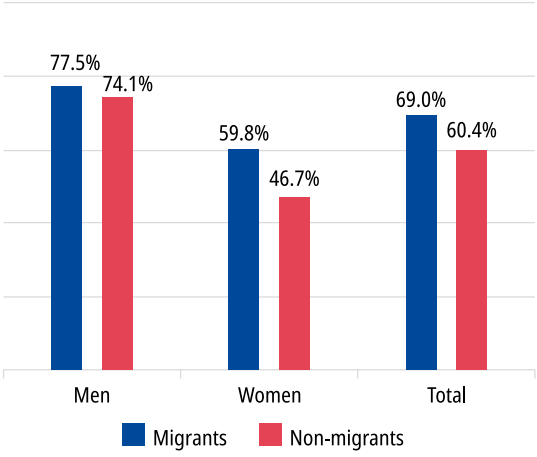
[13] Although patterns of migration may differ between skilled and low-skilled women and among countries, there is evidence that women follow men, particularly within the framework of family reunion programmes. See for instance: Cerrutti and Massey 2001; Donato 2010; Docquier et al. 2012; and Holst et al. 2012.

[14] Extensive literature examines whether women migrants are "doubly disadvantaged" on account of their sex and migration status and finds evidence for it. Among others, see for instance: Adsera and Chiswick 2007; Rebhun 2008; De Jong and Madamba 2001; Meghani 2016; and Esim and Smith 2004.

[15] Non-market institutions such as social networks have been shown to be important in migrant workers' access to the labour market in destination countries and for their labour market outcomes (See Borjas, 1992; Munshi, 2003; Beaman, 2012). Women migrants may not benefit to the same extent from social networks as men due to their exclusion from male networks or gendered nature of professions chosen by men and women. Relevant literature suggests that in the context of migration, networks can be more important in women's decision making as social norms may restrain women's movement especially if on their own, due in part to greater risks they are perceived to face during migration (Curran and Rivero-Fuentes 2003; Davis and Winters 2001).

[16] A higher proportion of migrant than non-migrant women with children report not using childcare services for reasons related to availability and cost, and are found to be less likely to benefit from informal child care support (OECD, 2020, pp. 87-88).

▶ **Figure 2.3**
Global labour force participation rates of migrants and non-migrants by sex, 2019

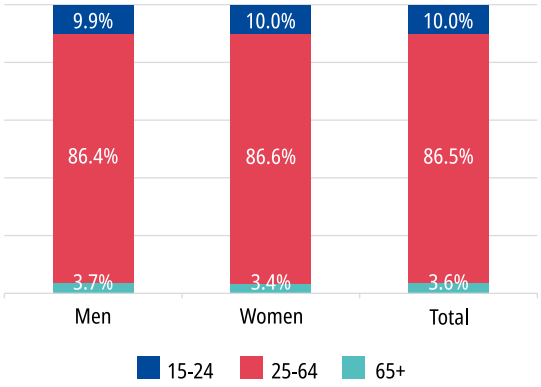


2.1.3 Age composition

Prime-age adults (aged 25–64) constitute the overwhelming majority of international migrant workers (table 2.4 and figure 2.4). The size of this group was estimated at 146.2 million in 2019, youth workers (aged 15–24) at 16.8 million, and older workers (aged 65 and over) at 6 million. The share of prime-age adults among migrant workers was estimated at 86.5 per cent in 2019.

In 2019, youth constituted 12.9 per cent, prime-age adults 74.7 per cent and older workers 12.4 per cent of the working age migrant population. The fact that prime-age adults constitute the majority of migrant workers was also observed in the previous edition of this report. It could be explained by this age group's better ability to migrate to a foreign country (in terms of financial means and social networks) and their higher potential gains than younger (less years of experience) and older (less economically active years remaining) migrants.

▶ **Figure 2.4**
Global age composition of international migrant workers, 2019



The share of youth among international migrant workers showed an increase over time, from 8.3 per cent in 2017 to 10.0 per cent in 2019.[17] In contrast, the share of older migrant workers reduced from 5.2 per cent to 3.6 per cent over the same period, leaving the share of prime-age adults constant.

The increasing representation of youth among migrant workers over time is observed for both men and women. A decline is observed in the number and share of older migrant workers for both sexes, with a more pronounced change for women.

These developments suggest an increasing migration tendency among youth workers and a decreasing one (or perhaps a return migration

▶ **Table 2.4**
Global estimates of international migrant workers by age, 2019 (millions)

Age group	Men	Women	Total
15–24	9.8	7.0	16.8
25–64	85.4	60.7	146.2
65 +	3.7	2.4	6.0
Total	98.9	70.1	169.0

[17] The 2013 edition of this report did not provide a breakdown by age groups (ILO 2015).

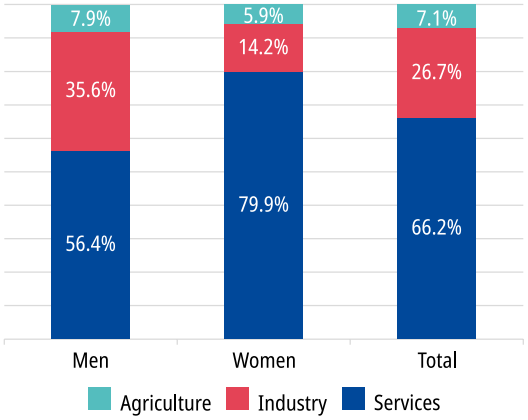
tendency) among older workers. High youth unemployment rates in many developing countries and the phenomenon of "youth bulge"[18] in some of them may help explain the increasing number and share of youth migrant workers (ILO 2020b). From the perspective of destination countries, the compositional shift towards younger workers is likely to be positive; increasing the likelihood of a higher participation rate and lower dependency ratio among migrant populations. For origin countries, however, the effect would be reversed, and would be particularly challenging if youth workers move permanently to foreign countries, which could result in a shrinking labour force, brain drain and resulting impacts on economic growth and development prospective.

2.1.4 Distribution of migrant workers by broad category of economic activity[19]

Most international migrant workers are engaged in services. 2019 estimates indicate that 66.2 per cent are in services, 26.7 per cent in industry and 7.1 per cent in agriculture (figure 2.5).

The distribution of men and women migrant workers by category of economic activity shows substantial differences with a greater concentration of women in services than men. In 2019, 79.9 per cent of women migrant workers were in services, 14.2 per cent were in industry and 5.9 per cent in agriculture. Compared to women, the distribution of men migrant workers between industry and services was relatively more balanced, with 35.6 per cent of men employed in industry in 2019 and 56.4 per cent in services. The remaining men migrant workers (7.9 per cent) were in agriculture. A higher representation of women migrant workers in services may, in part, be explained by a growing labour demand in the care economy, including in health and domestic work (ILO 2015 and 2018c). These sub-sectors, involving predominantly a female workforce, tend to rely heavily on women migrant workers. On the other hand, men migrant workers are relatively more present in industry, including construction, a sub-sector dominated by migrant workers in many countries, as well as in manufacturing.

▶ **Figure 2.5**
Global distribution of international migrant workers by broad category of economic activity, 2019



Comparing 2013 estimates to 2019 estimates[20] suggest different patterns of change for men and women migrant workers by category of economic activity (ILO 2015). In the case of women, a sharp drop in agriculture (from 11.1 per cent to 5.9 per cent) and a nearly commensurate rise in services (from 73.7 per cent to 79.9 per cent) is observed. In the case of men, a decline is observed in agriculture (from 11.2 per cent to 7.9 per cent) and services (from 69.1 per cent to 56.4 per cent), with the result that the share of migrant men engaged in industry rose from 19.8 per cent in 2013 to 35.6 per cent in 2019.

The changes observed in the sectoral distribution of women migrant workers parallel the general trends of women's falling worldwide employment in agriculture and

[18] "Youth bulge" refers to the demographic phenomenon of a relatively high population share of youth due to high fertility but low child and infant mortality.

[19] The distribution concerns employed and unemployed migrant workers and the assumption that the distribution by category of economic activity of the unemployed with past work experience is broadly the same as their employed counterparts. For details see Part II of the report on Methodology (ILO 2018a). This classification is based on ISIC Rev. 4 (UNDESA 2008). See also https://unstats.un.org/unsd/classifications/Family/Detail/27) and https://ilostat.ilo.org/resources/concepts-and-definitions/description-employment-by-economic-activity/.

[20] Estimates based on 2017 are not available.

industry and rising employment in services.[21] In the case of men, the global trends point to a falling employment in agriculture, stagnant employment in industry and rising employment in services. A plausible explanation for the rise in industrial employment for migrant men could be that in lower-middle- and upper-middle-income countries there is a growing labour demand in this sector. The increase in the share of migrant workers in upper-middle-income countries and a drop in high-income countries could support this conjecture.

2.2 Estimates by country income group

Countries are divided into four income groups following the World Bank's classification as low-income, lower-middle-income, upper-middle-income and high-income.[22] Note that the number of countries classified under each category changes over time, and with it the population size of groups. Therefore, caution should be exercised while making comparisons across time.

2.2.1 Overall picture

In 2019, the number of workers worldwide totalled 3.5 billion. The distribution of workers according to country income groups in 2019 were as follows: 7.5 per cent were in low-income countries, 31.9 per cent in lower-middle-income countries, 42.6 per cent in upper-middle-income countries and 18.0 per cent in high-income countries (table 2.5).

Of the estimated 169 million international migrant workers, 67.4 per cent (113.9 million) were in high-income countries in 2019 (table 2.5, figure 2.6). Another 33 million (or 19.5 per cent) were in upper-middle-income countries, so that a total of 86.9 per cent of international migrant workers were concentrated in upper-middle-income and high-income countries. The rest were in lower-middle-income (9.5 per cent) and low-income countries (3.6 per cent). More job opportunities and higher standards of living are likely factors that attract migrants to high-income countries.

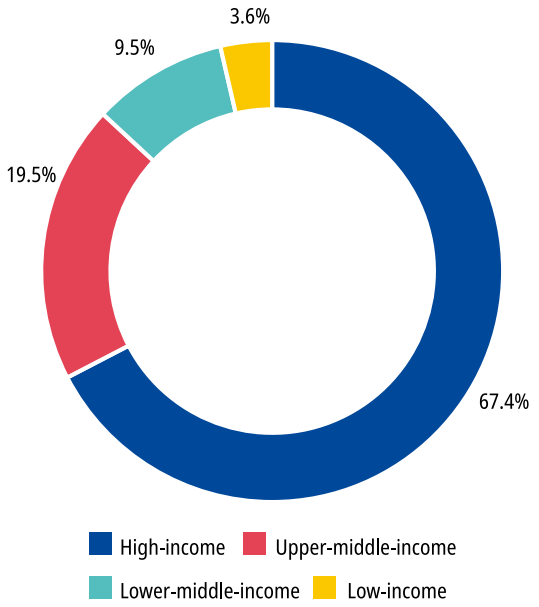
▶Table 2.5
International migrant workers by income level of countries, 2019 (millions)

	Low-income	Lower-middle-income	Upper-middle-income	High-income	Total
Total workers (millions)	261.1	1111.6	1484.3	625.2	3482.2
Distribution of workers (%)	7.5	31.9	42.6	18.0	100
Migrant population aged 15+ (millions)	8.9	25.6	48.6	161.7	244.8
Distribution of migrant population aged 15+ (%)	3.6	10.5	19.9	66.1	100
Migrants as a proportion of population aged 15+ (%)	2.3	1.3	2.1	15.7	4.3
Migrant workers (millions)	6.1	16.0	33.0	113.9	169.0
Distribution of migrant workers (%)	3.6	9.5	19.5	67.4	100
Migrant workers as a proportion of all workers (%)	2.3	1.4	2.2	18.2	4.9

[21] Employment by sex and economic activity, ILO modelled estimates, Nov. 2020, see the ILOSTAT database at https://ilostat.ilo.org/data/.

[22] See Annex A, which is based on 2020 World Bank classifications, available at: https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups.

▶ **Figure 2.6**
International migrant workers by income level of countries, 2019



▶ **Figure 2.7**
Distribution of all workers and international migrant workers by income level of countries, 2019

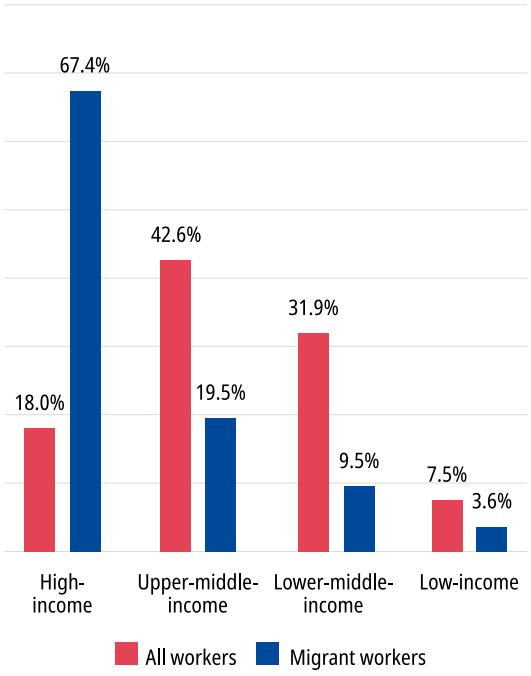
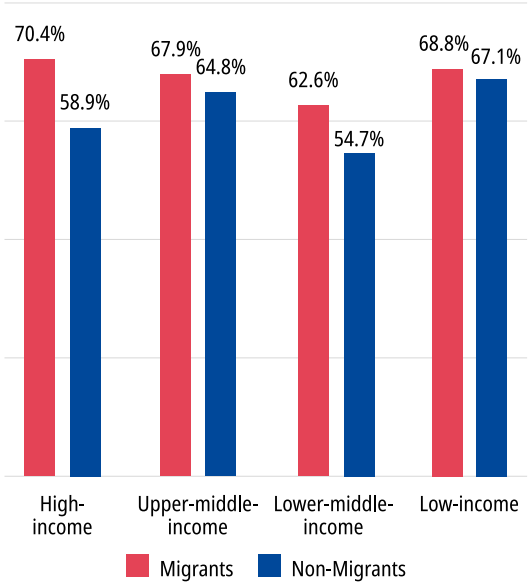


Figure 2.7 contrasts the distribution of all workers to international migrant workers by country income groups. High-income countries are home to 18.0 per cent of workers but 67.4 per cent of international migrant workers globally. All other income groups have considerably lower proportion of international migrant workers compared to their proportion of workers.

In all country income groups, the labour force participation rate of international migrants is higher than non-migrants, the gap being particularly large in high-income countries estimated at 11.5 percentage points (figure 2.8). The gap is relatively smaller in upper-middle-income and low-income countries.

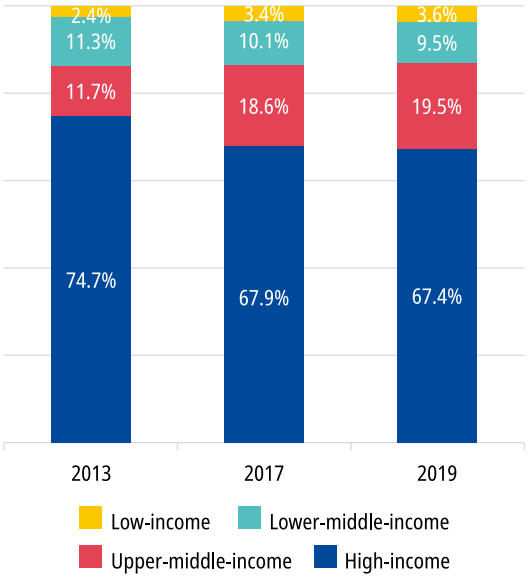
Due to the large number of migrants in high-income countries and their relatively high labour force participation rate as compared to non-migrants, migrant workers constitute 18.2 per cent of the labour force in high-income countries (table 2.5). In upper-middle-income countries, migrant worker's share in the labour force is relatively smaller at 2.2 per cent. A similar observation is made for lower-middle-income and low-income countries, where migrant workers make up 1.4 per cent and 2.3 per cent of the labour force, respectively.

▶ **Figure 2.8**
Labour force participation rates of migrants and non-migrants by income level of countries, 2019



The concentration of international migrant workers in upper-middle-income and high-income countries has remained stable at 86.4 per cent in 2013, 86.5 per cent in 2017 and 86.9 per cent in 2019 (table 2.6, figure 2.9). More substantial changes are observed within these two groups over time, with the share of international migrant workers in high-income countries falling from 74.7 per cent in 2013 to 67.4 per cent in 2019 while that of upper-middle-income countries rising from 11.7 per cent in 2013 to 19.5 per cent in 2019.[23] The higher share of migrant workers in upper-middle-income countries may be partially related to the higher demand for migrant labour in countries that make up this group and is consistent with the rising share of industrial employment that is observed among migrant men.

▶ Figure 2.9
International migrant workers by income level of countries, 2013, 2017 and 2019



High-income countries hosted in terms of absolute numbers more migrant workers in 2019 than in 2013. Furthermore, the proportion of workers (migrant and non-migrant) found in high-income countries fell over time partly due to the reclassification of countries by income and therefore, the changing population size of this group and partly because of declining labour force participation of migrants and non-migrants. In high-income countries, the slightly increasing number of migrant workers but falling number of total workers resulted in a rising share of migrant workers as a proportion of all workers from 16.3 per cent in 2013 to 18.2 per cent in 2019 (table 2.6).

2.2.2 Gender composition

In 2019, 88.6 per cent of women international migrant workers were either in high-income or in upper-middle-income countries (table 2.7, figure 2.10). The corresponding figure for men was 85.7 per cent. It should also be noted that a larger proportion of women workers (66.7 per cent) than men workers (56.7 per cent) are found in high-income and upper-middle-income countries. The positive association between the global distribution of women migrant workers and women workers in general may suggest that women migrant workers are more likely to be in countries where larger numbers of women work. This may not only signify availability of jobs but also labour markets that are more accessible for women workers.[24]

[23] The composition of country income groups changes over time in the income levels of countries. Re-categorization of countries may also impact estimates. For instance, Argentina, the Russian Federation and the Bolivarian Republic of Venezuela were in the high-income group in 2013, but in the upper-middle-income group in 2019. Indonesia and Guatemala were in the lower-middle-income group in 2013, but in the upper-middle-income group in 2019.

[24] Gender composition of migrants may be skewed towards one gender if industry and occupation demand is not gender neutral (Antman 2018).

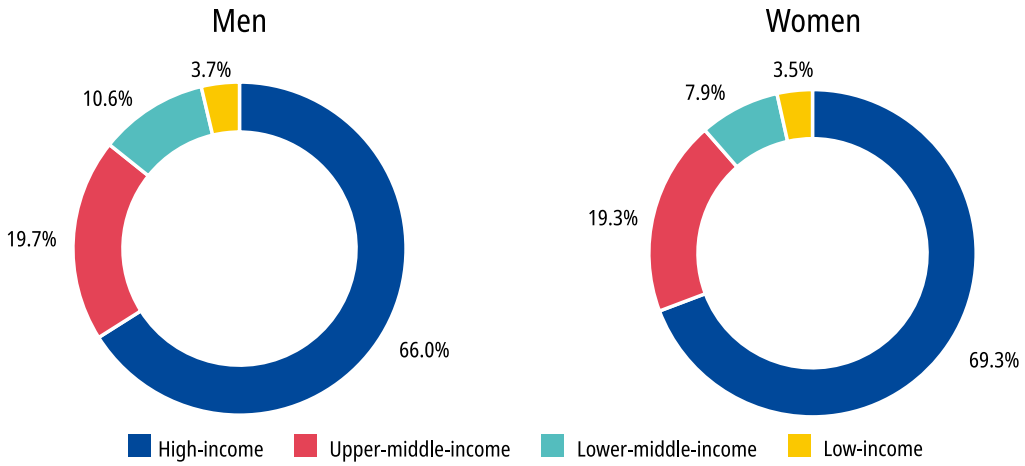
▶Table 2.6
International migrant workers, ratios by income level of countries, 2013, 2017 and 2019 (percentage)

	Low-income	Lower-middle-income	Upper-middle-income	High-income	Total
Distribution of migrant workers – 2019	3.6	9.5	19.5	67.4	100
Distribution of migrant workers – 2017	3.4	10.1	18.6	67.9	100
Distribution of migrant workers – 2013	2.4	11.3	11.7	74.7	100
Migrant workers as a proportion of all workers – 2019	2.3	1.4	2.2	18.2	4.9
Migrant workers as a proportion of all workers – 2017	1.0	1.4	2.3	18.5	4.7
Migrant workers as a proportion of all workers – 2013	1.4	1.5	1.4	16.3	4.4

▶Table 2.7
International migrant workers by sex and income level of countries, 2019

Men	Low-income	Lower-middle-income	Upper-middle-income	High-income	Total
Total workers (millions)	146.7	775.1	857.4	349.0	2128.2
Distribution of workers (%)	6.9	36.4	40.3	16.4	100
Migrant population aged 15+ (millions)	4.4	12.8	25.5	84.9	127.6
Distribution of migrant population aged 15+ (%)	3.4	10.1	20.0	66.5	100
Migrants as a proportion of population aged 15+ (%)	2.3	1.2	2.2	16.6	4.5
Migrant workers (millions)	3.7	10.5	19.5	65.3	98.9
Distribution of migrant workers (%)	3.7	10.6	19.7	66.0	100
Migrant workers as a proportion of all workers (%)	2.5	1.3	2.3	18.7	4.6
Women	**Low-income**	**Lower-middle-income**	**Upper-middle-income**	**High-income**	**Total**
Total workers (millions)	114.4	336.5	626.9	276.2	1354.0
Distribution of workers (%)	8.4	24.9	46.3	20.4	100
Migrant population aged 15+ (millions)	4.5	12.8	23.1	76.8	117.2
Distribution of migrant population aged 15+ (%)	3.8	10.9	19.8	65.5	100
Migrants as a proportion of population aged 15+ (%)	2.3	1.3	2.0	14.8	4.1
Migrant workers (millions)	2.4	5.6	13.5	48.5	70.1
Distribution of migrant workers (%)	3.5	7.9	19.3	69.3	100
Migrant workers as a proportion of all workers (%)	2.1	1.7	2.2	17.6	5.2

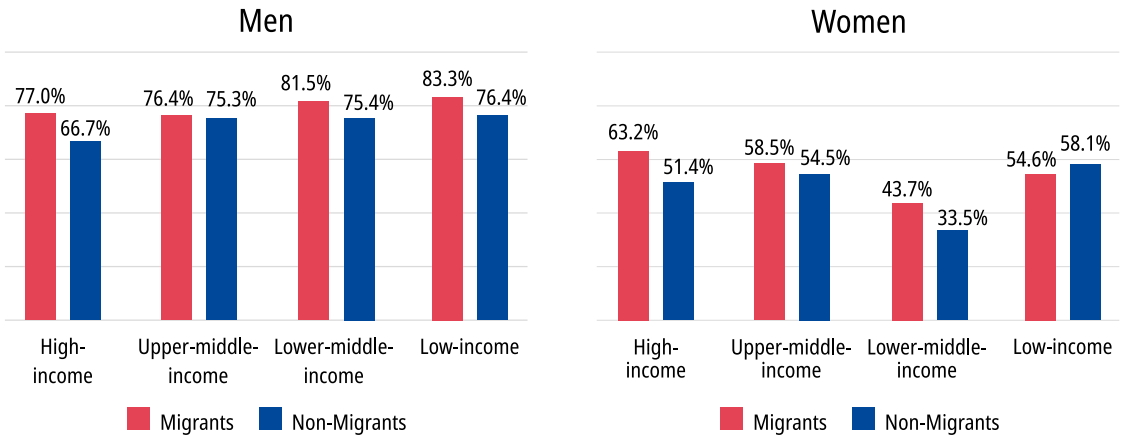
▶ Figure 2.10
International migrant workers by sex and income level of countries, 2019



In high-income countries, men migrant workers make up 18.7 per cent and women migrant workers 17.6 per cent of the male and female labour force, respectively (table 2.7). In low-income, lower-middle-income and upper-middle-income countries, the shares of men and women migrant workers in total labour force does not exceed 2.5 per cent.

In all four income groups, the labour force participation rate of men migrants was higher than non-migrants in 2019, the largest participation gap being estimated at 10.3 percentage points for high-income countries (figure 2.11). In the case of women migrants, the participation gap between migrant and non-migrants was again largest in high-income countries at 11.8 percentage points. Women migrants have higher labour force participation than non-migrants in all income groups except in low-income countries, which could be attributed to limited jobs availability and possibilities for family reunification. Another contributing factor could be the high prevalence of informal employment, which may not be fully captured by the data.[25]

▶ Figure 2.11
Labour force participation rates of migrants and non-migrants by sex and income level of countries, 2019



[25] While labour force surveys in general capture informal workers, other household surveys might not be so successful in doing so.

The higher labour force participation of international migrants in high-income and upper-middle- income countries was also observed in 2017 and 2013. The estimated participation gap between migrants and non-migrants in high-income countries exceeds 10 percentage points in all reference years. The lower labour force participation rate of non-migrants in these countries is a likely end result of aging population and access to social protection.

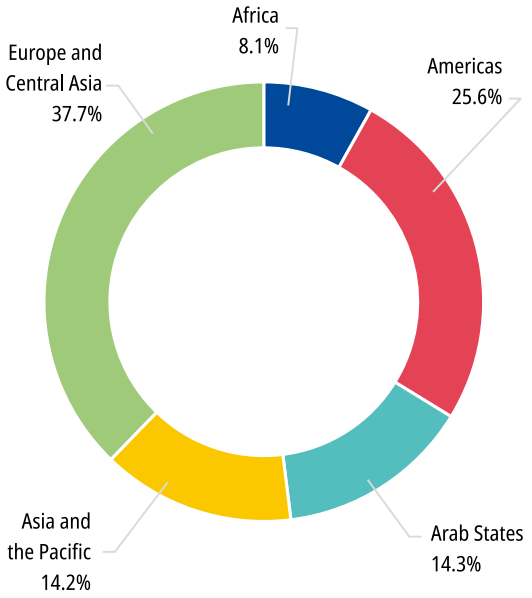
2.3 Regional estimates

2.3.1 Overall picture

Of the 169 million international migrant workers, 63.8 million or 37.7 per cent are in Europe and Central Asia (table 2.8, figure 2.12). Another 43.3 million (25.6 per cent) are in the Americas. Hence, collectively, Europe and Central Asia and the Americas host 63.3 per cent of all migrant workers. The Arab States, and Asia and the Pacific each host about 24 million migrant workers, which, in total, correspond to 28.5 per cent of all migrant workers. Africa has the smallest number of migrant workers (13.7 million) representing only 8.1 per cent of all migrant workers.

As regards the origin of international migrants, the Asia and Pacific region ranks first (being the region of origin for one-third of international migrants), followed by Europe and Central Asia, the Americas, Africa and the Arab States.[26]

▶ Figure 2.12
Distribution of international migrant workers by region, 2019



▶ Table 2.8
International migrant workers by region and sex, 2019 (millions)

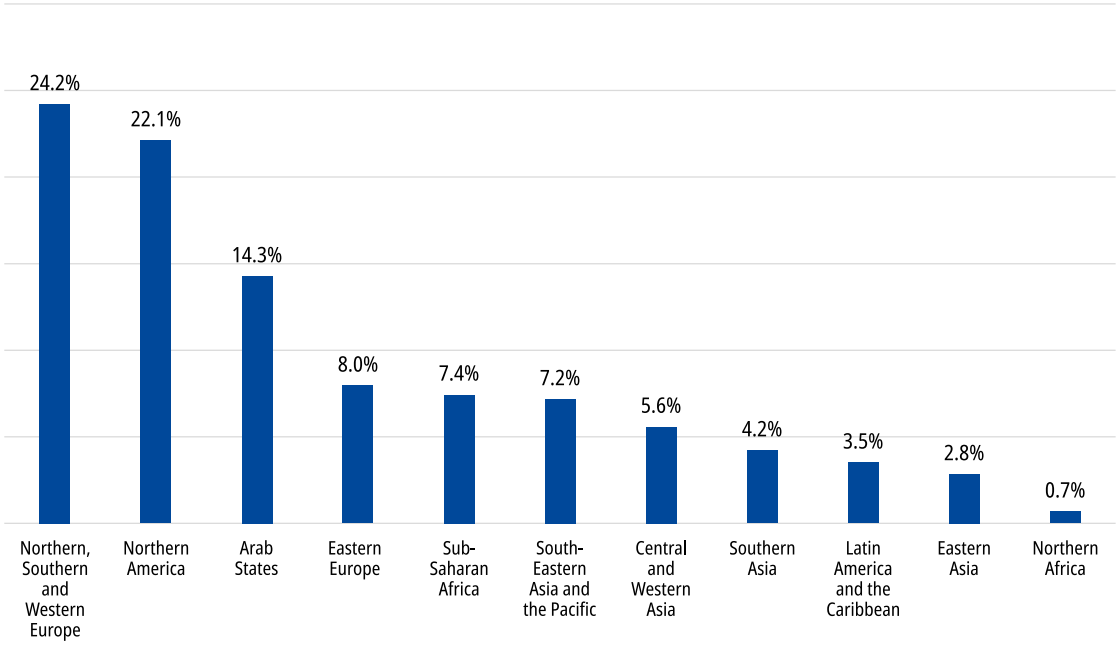
	Men	Women	Total
Africa	8.8	4.9	13.7
Americas	23.5	19.9	43.3
Arab States	19.9	4.2	24.1
Asia and the Pacific	14.9	9.1	24.0
Europe and Central Asia	31.8	32.0	63.8
Total	98.9	70.1	169.0

[26] These calculations are based on UNDESA's International Migrant Stock 2019 data, available at: https://www.un.org/development/desa/pd/content/international-migrant-stock.

Figure 2.13 shows a more detailed distribution of migrant workers by 11 geographic subregions.[27] The majority of migrant workers are found in three subregions: Northern, Southern and Western Europe (24.2 per cent); Northern America (22.1 per cent); and the Arab States (14.3 per cent). Collectively, these three regions host 59.3 per cent of the total of international migrants of working age and 60.6 per cent of migrant workers.

In Northern, Southern and Western Europe, migrants make up 18.4 per cent of the labour force (table 2.9). In Northern America, their share increases to 20.0 per cent. The highest share is observed in the Arab States at 41.4 per cent. The Arab States host a smaller proportion of international migrant workers (14.3 per cent) as compared to the other two regions. The higher presence of migrants in this region stems from a relatively small population size (1.7 per cent of all workers worldwide) and the substantially higher labour force participation of migrants as compared to non-migrants.

▶ Figure 2.13
Distribution of international migrant workers by broad subregion, 2019



[27] Based on the ILO groupings of countries and territories. See Annex A for a list of countries by geographic regions.

▶Table 2.9
International migrant workers by broad subregion, 2019

	Northern Africa	Sub-Saharan Africa	Latin America and the Caribbean	Northern America	Arab States	Eastern Asia	South-Eastern Asia and the Pacific	Southern Asia	Northern, Southern and Western Europe	Eastern Europe	Central and Western Asia	Total
Total workers (millions)	74.3	415.4	313.4	186.8	58.3	932.2	353.8	703.1	222.9	143.6	78.6	3482.4
Distribution of workers (%)	2.1	11.9	9.0	5.4	1.7	26.8	10.2	20.2	6.4	4.1	2.3	100
Migrant population aged 15+ (millions)	2.3	18.6	9.3	55.8	30.7	7.6	17.5	12.7	58.4	19.2	12.6	244.8
Distribution of migrant population aged 15+ (%)	0.9	7.6	3.8	22.8	12.6	3.1	7.2	5.2	23.9	7.8	5.2	100
Migrants as a proportion of population aged 15+ (%)	1.4	3.0	1.9	18.6	27.0	0.5	3.3	0.9	15.3	7.9	9.4	4.3
Migrant workers (millions)	1.2	12.6	5.9	37.4	24.1	4.8	12.1	7.1	40.9	13.4	9.4	169.0
Distribution of migrant workers (%)	0.7	7.4	3.5	22.1	14.3	2.8	7.2	4.2	24.2	8.0	5.6	100
Migrant workers as a proportion of all workers (%)	1.6	3.0	1.9	20.0	41.4	0.5	3.4	1.0	18.4	9.4	12.0	4.9

▶Table 2.10
International migrant workers, ratios by broad subregion, 2013, 2017 and 2019 (percentage)

	Northern Africa	Sub-Saharan Africa	Latin America and the Caribbean	Northern America	Arab States	Eastern Asia	South-Eastern Asia and the Pacific	Southern Asia	Northern, Southern and Western Europe	Eastern Europe	Central and Western Asia	Total
Distribution of migrant workers - 2019	0.7	7.4	3.5	22.1	14.3	2.8	7.2	4.2	24.2	8.0	5.6	100
Distribution of migrant workers - 2017	0.7	7.2	2.7	23.0	13.9	3.6	7.1	4.5	23.9	8.1	5.2	100
Distribution of migrant workers - 2013	0.5	5.3	2.9	24.7	11.7	3.6	7.8	5.8	23.8	9.2	4.7	100
Migrant workers as a proportion of all workers - 2019	1.6	3.0	1.9	20.0	41.4	0.5	3.4	1.0	18.4	9.4	12.0	4.9
Migrant workers as a proportion of all workers - 2017	1.6	2.9	1.4	20.6	40.8	0.6	3.3	1.0	17.7	9.1	11.1	4.7
Migrant workers as a proportion of all workers - 2013	1.1	2.2	1.5	20.2	35.6	0.6	3.5	1.3	16.4	9.2	10.0	4.4

The importance of the top three subregions in terms of the number of migrant workers hosted has remained stable over time (table 2.10). Within these three subregions, the Arab States hosted a higher share of migrant workers in 2019 (14.3 per cent) than in 2013 (11.7 per cent). The Arab States remains the subregion with the highest proportion of migrants in its labour force, which has increased from 35.6 per cent in 2013 to 41.4 per cent in 2019.

The share of migrant workers in Northern, Southern and Western Europe remained stable between 2013 and 2019. In the case of Northern America, the share of migrant workers decreased over time from 24.7 per cent in 2013 to 22.1 per cent in 2019.

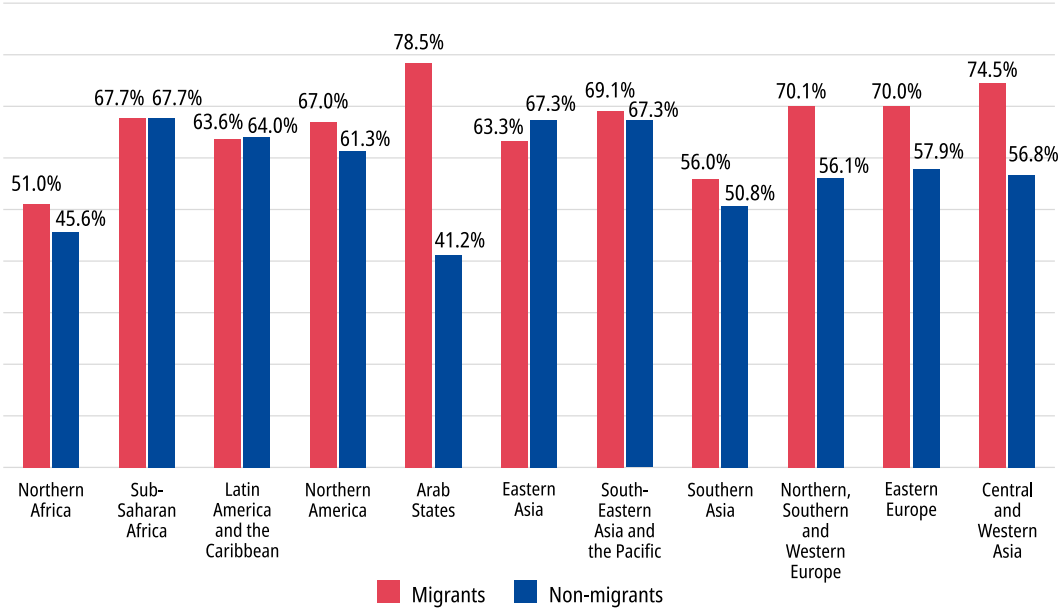
Other subregions where the share of migrant workers increased include sub-Saharan Africa, Central and Western Asia and Latin America and the Caribbean. Intra-regional movements within these regions, including refugee flows, are possible contributors to the increasing shares of migrant workers (ILO 2017c; IOM 2018; IOM et al. 2019).

The labour force participation of international migrants and non-migrants by broad subregions are given in figure 2.14. With the exception of Eastern Asia, in ten out of 11 subregions, the labour force participation rate of migrants is higher than or at par with non-migrants. The exceptionally high labour force participation rate of migrants (and low participation of non-migrants) in the Arab States (at 78.5 per cent) is noteworthy.

2.3.2 Gender composition

The distribution of men and women migrant workers by subregions are shown in figure 2.15. Totally, 60.8 per cent of men migrant workers and 60.3 per cent of women migrant workers are found in Northern America, Northern, Southern and Western Europe and in the Arab States. While within these three subregions, men migrant workers are evenly distributed, women migrant workers are heavily concentrated in Northern America (24.9 per cent) and Northern, Southern and Western Europe (29.4 per cent). Only 6.0 per cent of women migrant workers were in the Arab States in 2019, which can be explained by the relatively more limited job opportunities available for them in this region outside of the care economy (including domestic work).

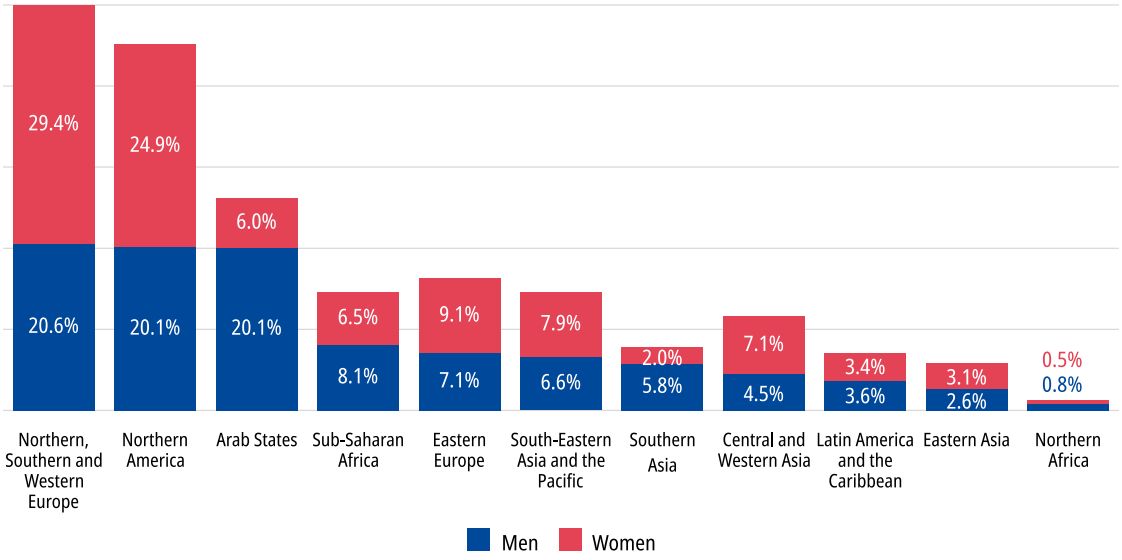
▶ Figure 2.14
Labour force participation rates of migrants and non-migrants by broad subregion, 2019



Migrant men constitute 19.8 per cent of the male labour force in Northern America, 17.0 per cent in Northern, Southern and Western Europe and 40.4 per cent in the Arab States (table 2.11). Their share in the labour force of Eastern Europe and Central and Western Asia is also significant at 9.3 per cent each. Women migrant workers, on the other hand, constitute 20.3 per cent of the female labour force in Northern America, 20.0 per cent in Northern, Southern and Western Europe and a staggering 46.8 per cent of the female labour force in the Arab States. The shares of migrant women in the labour force of Central and Western Asia (at 16.2 per cent) and Eastern Europe (at 9.5 per cent) are also significant.

In six out of 11 subregions, the labour force participation of migrant men is higher than non-migrant men (figure 2.16). The highest participation rate of migrant men is observed in the Arab States. In the case of women, in seven out of 11 regions the labour force participation is higher for migrants as compared to non-migrants. The highest participation rate among migrant women in 2019 was observed in Central and Western Asia at 78.7 per cent. In Northern, Southern and Western Europe that has the highest number of women migrants, the participation rate of migrant women was the second highest at 68.8 per cent. In the Arab States, the labour force participation of migrant women is considerably higher than non-migrant women but as compared to participation rates in some other regions it is lower at 47.0 per cent. The structure of the labour market and the regulatory environment may not be as conducive to women's labour market participation in this region as it is in other regions (Esim and Smith 2004; ILO 2017a).

▶ **Figure 2.15**
Distribution of international migrant workers by sex and broad subregion, 2019

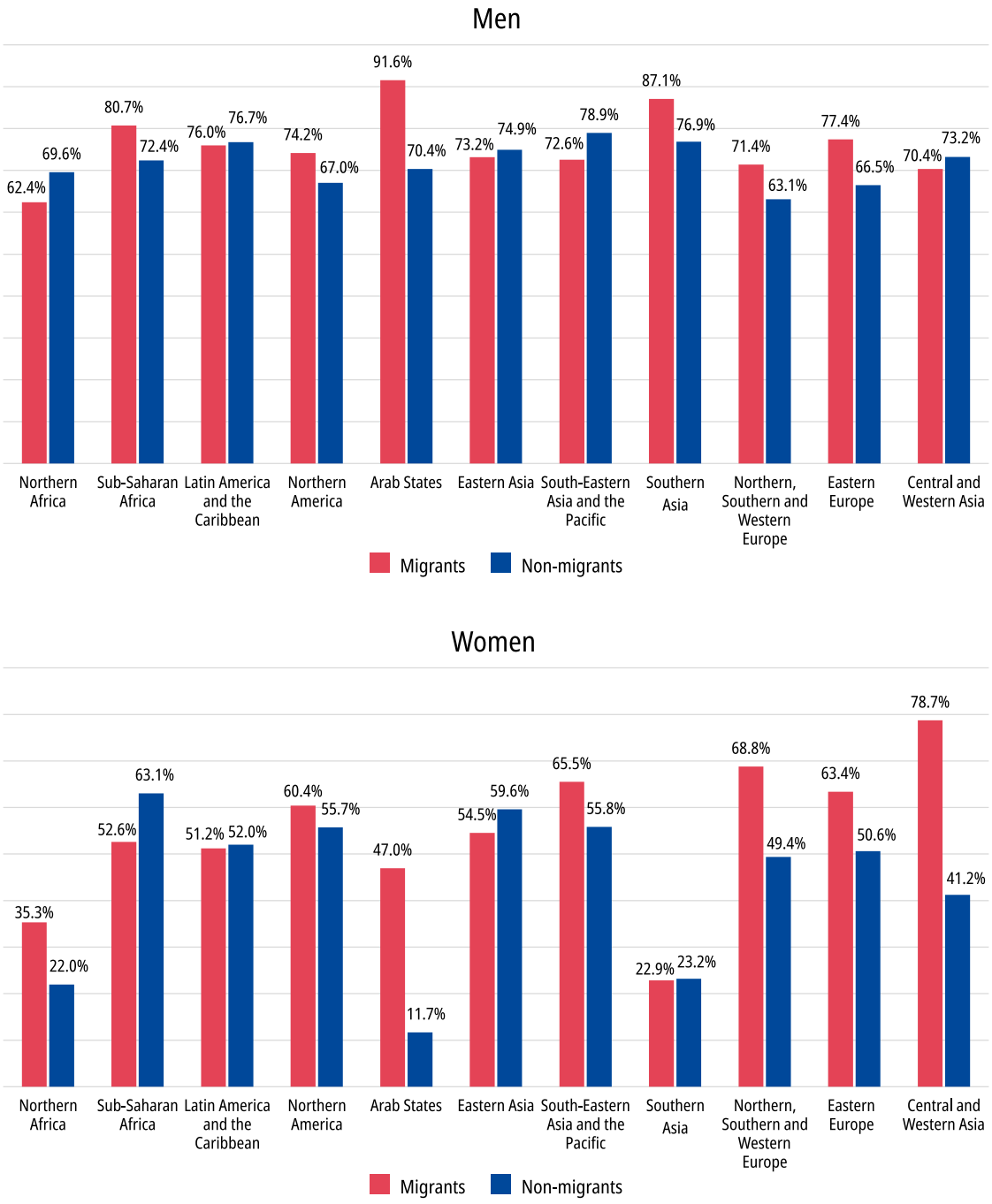


▶Table 2.11
International migrant workers by sex and broad subregion, 2019

Men	Northern Africa	Sub-Saharan Africa	Latin America and the Caribbean	Northern America	Arab States	Eastern Asia	South-Eastern Asia and the Pacific	Southern Asia	Northern, Southern and Western Europe	Eastern Europe	Central and Western Asia	Total
Total workers (millions)	56.3	220.3	182.6	100.5	49.3	524.1	204.7	547.1	119.9	75.9	47.8	2128.4
Distribution of workers (%)	2.6	10.4	8.6	4.7	2.3	24.6	9.6	25.7	5.6	3.6	2.2	100
Migrant population aged 15+ (millions)	1.3	9.9	4.7	26.9	21.7	3.6	9.0	6.6	28.5	9.1	6.3	127.6
Distribution of migrant population aged 15+ (%)	1.0	7.8	3.7	21.0	17.0	2.8	7.1	5.1	22.3	7.1	4.9	100
Migrants as a proportion of population aged 15+ (%)	1.6	3.3	2.0	18.2	34.2	0.5	3.5	0.9	15.3	8.1	9.6	4.5
Migrant workers (millions)	0.8	8.0	3.6	19.9	19.9	2.6	6.6	5.7	20.3	7.0	4.4	98.9
Distribution of migrant workers (%)	0.8	8.1	3.6	20.1	20.1	2.6	6.6	5.8	20.6	7.1	4.5	100
Migrant workers as a proportion of all workers (%)	1.5	3.6	1.9	19.8	40.4	0.5	3.2	1.0	17.0	9.3	9.3	4.6

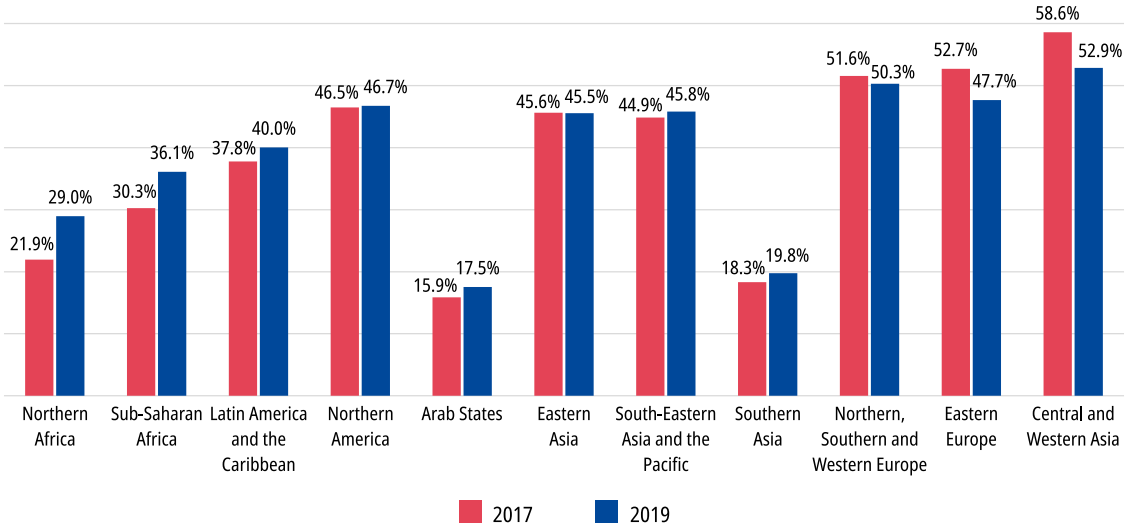
Women	Northern Africa	Sub-Saharan Africa	Latin America and the Caribbean	Northern America	Arab States	Eastern Asia	South-Eastern Asia and the Pacific	Southern Asia	Northern, Southern and Western Europe	Eastern Europe	Central and Western Asia	Total
Total workers (millions)	18.1	195.1	130.8	86.3	9.0	408.1	149.1	156.0	102.9	67.8	30.8	1354.0
Distribution of workers (%)	1.3	14.4	9.7	6.4	0.7	30.1	11.0	11.5	7.6	5.0	2.3	100
Migrant population aged 15+ (millions)	0.9	8.6	4.6	28.9	9.0	4.0	8.5	6.2	29.9	10.1	6.3	117.2
Distribution of migrant population aged 15+ (%)	0.8	7.4	4.0	24.7	7.7	3.4	7.2	5.3	25.5	8.6	5.4	100
Migrants as a proportion of population aged 15+ (%)	1.2	2.8	1.8	19.0	17.9	0.6	3.2	0.9	15.2	7.7	9.2	4.1
Migrant workers (millions)	0.3	4.5	2.4	17.5	4.2	2.2	5.6	1.4	20.6	6.4	5.0	70.1
Distribution of migrant workers (%)	0.5	6.5	3.4	24.9	6.0	3.1	7.9	2.0	29.4	9.1	7.1	100
Migrant workers as a proportion of all workers (%)	1.8	2.3	1.8	20.3	46.8	0.5	3.7	0.9	20.0	9.5	16.2	5.2

▶ **Figure 2.16**
Labour force participation rates of migrants and non-migrants by sex and broad subregion, 2019



The share of women among international migrant workers varies by region (figure 2.17). In 2019, in nine out of 11 regions, women were under-represented among migrant workers. However, in Northern, Southern and Western Europe (the region that hosts the largest number of women migrant workers) and Central and Western Asia, the share of women surpassed men. The regions with fewer women among migrant workers were Southern Asia, the Arab States, Latin America and the Caribbean, sub-Saharan Africa and Northern Africa. The sex composition of migrant workers by region in 2017 and 2019 was broadly similar.

▶ Figure 2.17
Share of women among international migrant workers by broad subregion, 2017 and 2019



PART II
ESTIMATE METHODOLOGY

▶ 3. Methodology

3.1 General approach

The third edition of the ILO *Global Estimates on International Migrant Workers* covers 189 countries and territories, representing about 99 per cent of the world population with reference year 2019, or more precisely, 1 July 2019. The second edition covered 188 countries and territories (ILO 2018b), while the first edition covered 176 countries and territories (ILO 2015). The ILO *Guidelines concerning statistics of international labour migration* (ILO 2018a, para. 14) define, for statistical purposes, international migrant workers as all persons of working age present in the country of measurement who are in one of the following two categories:

a. usual residents: international migrants who, during a specified reference period, were in the labour force of the country of their usual residence, either in employment or in unemployment;

b. not usual residents, or non-resident foreign workers: persons who, during a specified reference period, were not usual residents of the country but were present in the country and had labour attachment to the country, i.e., were either in employment supplying labour to resident producer units of that country or were seeking employment in that country.

The ILO global estimates of international migrant workers are limited to category (a) of the definition above and refer to workers employed or seeking employment. Unless necessary, the specification of category (a) is omitted in the rest of this section. An international migrant worker is thus identified on the basis of the two central elements of the definition, namely, international migrant status and labour force status, as shown in table 3.1.

In a given country, the international migrant workers (MW) may be regarded as the intersection of the labour force (W) and the international migrants (M), residing in that country. Data on the three elements of the margins of the table are available for virtually all countries and territories of the world in international datasets with uniform reference dates, but data on the upper left corner cell of

▶Table 3.1
International migrant workers, category a, in terms of the two central elements of the international definition (20th ICLS, 2018)

		International migrant status		
		1	0	Total
Labour force status	1	International migrant workers (MW)	-	Labour force (W)
	0	-	-	-
Total		International migrants (M)	-	Working age population (P)

Note: International migrant status = 1 means "international migrant" and International migrant status = 0 means "non-migrant". Similarly, Labour force status = 1 means "in the labour force"; Labour force status = 0 means "outside the labour force.

the table, the international migrant workers are available for a limited set of countries and varying reference dates:

P = Working age population, obtained from ILOSTAT and derived from the UNDESA Population by sex and age group, World Population Prospects, the 2019 revision. Data available for 189 countries and territories.

M = International Migrants, UNDESA International Migrant Stock by sex and age group, the 2019 revision. Data available for 232 countries and territories.

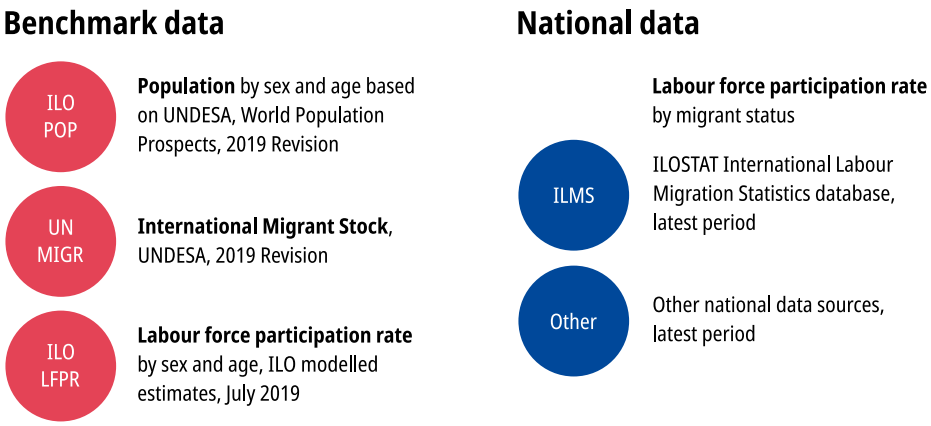
W = Labour force, ILOSTAT, Labour force by sex and age group, ILO modelled estimates, November 2020. Data available for 189 countries and territories.

MW = International migrant workers, ILOSTAT, Statistics on international labour migration. Labour force participation rate by sex, age group, and migrant status. Data available for 124 countries and territories with varying reference dates. The range of the reference years and the type of data sources are described in subsection 4.1 below.

The international datasets on P, M and W provide the benchmark data for the global estimation of international migrant workers, category (a). They are used for the harmonization of the national datasets on MW, which in turn are used for the imputation of values for countries and territories with missing data. The harmonization and the imputation steps are based on a key parameter, the cross-product ratio, that measures the degree of association of migrant status and labour force status of a population. The resulting full dataset on MW are then aggregated to the ILO broad geographical regions and income level of countries, for men and women, separately. The aggregate global values are subsequently disaggregated for each sex by age group (aged 15–24 years, 25–64 years, and 65 years and over) and category of economic activity (agriculture, industry and services).

The left panel of figure 3.1 shows the three sources used to derive the benchmark data on the 189 countries and territories covered by the ILO Global Estimation.[28] The right panel gives the list of the national sources used for providing the data on international migrant workers, category a, where they exist.

▶ **Figure 3.1**
Benchmark and national data



[28] This refers to the data collection related to this third edition of the *ILO Global Estimates on International Migrant Workers: Results and Methodology* to be published in 2021.

3.2 Benchmark data

As in the previous edition, the countries and territories are grouped in geographical regions according to the ILO field structure: each region includes the countries and territories covered by the ILO regional offices and the non-ILO member countries in the geographic region. The ILO grouping includes five ILO regions, together with 11 broad and 20 detailed subregional groupings.[29] The countries and territories are also grouped by level of income as defined by the World Bank's country classification.[30]

3.2.1 Benchmark population data

The benchmark population data were derived from the UNDESA population estimates and projections by sex and age group issued in the *World Population Prospects, The 2019 Revision* (UNDESA 2019a). The estimates are based on all available sources of data on population size and other demographic variables for 235 distinct countries or areas comprising the total population of the world. The construction of the benchmark population data for ILOSTAT and for ILO Global Estimation of international migrant workers involved a number of steps:

- matching the 189 ILO countries and territories to the corresponding countries or areas in the UNDESA dataset;
- extracting data on the working age population defined as all persons aged 15 years and over, separately for men and women; and
- harmonizing the extracted UNDESA data on the working age population with the corresponding labour force data in the ILO dataset. This involved checking that the size of the working age population of each country or territory is larger than the size of the labour force of the corresponding country.

3.2.2 Benchmark migrant data

The benchmark migrant data were derived from the UNDESA dataset on international migrant stock (UNDESA 2019b). The dataset presents estimates of international migrant by age, sex and origin. Estimates are presented for 1990, 1995, 2000, 2005, 2010, 2015 and 2019 and are available for 232 countries and areas of the world.

In estimating the international migrant stock, international migrants have been equated with the foreign-born population whenever this information was available, which was 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. A description of the dataset and the methodology used for estimating the migrant stock is available in a separate document (UNDESA 2019c).

The data on the total stock of international migrants include estimated numbers of refugees and asylum-seekers. Accordingly, no further adjustments were made on this issue in this third edition.

Similar to the benchmark population data, the construction of the benchmark migrant data for the ILO Global Estimation of international migrant workers involved a number of steps, in particular:

- Matching the 189 ILO countries and territories to the 232 countries or areas in the UNDESA dataset.[31]
- Extracting data on the working age international migrants (aged 15 years and over), separately for men and women.

[29] The ILO regional groupings are available in Annex A.

[30] The World Bank grouping of countries by income level of countries are available in Annex A. The World Bank updates its country income classification once a year; for the purpose of the ILO regional groupings, the latest World Bank income classification is used which means the income level of countries in the third edition of the *ILO global estimates of international migrant workers* may not correspond to the income level groupings used in the previous editions.

[31] In one case, the UNDESA dataset recorded zero values for a country or territory. As it was not clear how to interpret the values, estimates of international migrant workers for that country or territory were made by the ILO based on national statistics and inserted in the worksheet with adequate documentation.

- Harmonizing the extracted UNDESA data on the working age international migrants with the corresponding working age population data and labour force data in the ILO dataset. This involved checking that the number of international migrants of working age in each country did not exceed the corresponding benchmark data on the working age population or the labour force of that country, for men and women separately.

The working age international migrants in the 189 ILO countries and territories represent more than 93 per cent of the global number of total international migrant population. It should also be mentioned that unlike the previous edition of the *ILO Global Estimates on International Migrant Workers: Results and Methodology* (2018b), no further adjustments were made in this edition for the effect of the differences in the definitions of an international migrant based on country of birth or based on country of citizenship. It was thought reasonable to assume that countries with published UN migrant data based on a given definition are also reporting labour force data by migrant status to the ILO on the basis of the same definition. Out of the 124 countries and territories with national data points used in the ILO Global Estimation, the definitions of the two data sources match for 100 country and territories, representing a matching rate of 81 per cent.[32] Additionally, the assessment made in section 4 shows that the choice among the two definitions and their combinations has, in fact, little effect on the resulting global and regional estimates.

3.2.3 Benchmark labour force data

The benchmark labour force data were extracted from ILOSTAT, the ILO data portal on labour statistics.[33] They cover 189 countries with annual reference period from 1990 to 2020 and projections to 2030. The basic data are single-year labour force participation rates by sex and age groups, of which ten groups are defined by five-year age intervals and the last age group is defined as 65 years and over.

The database is a collection of actual observations and ILO estimated labour force participation rates with the objective of generating a complete cross-sectional time series database with no missing values, and comparable labour force participation rates across both countries and time. The series is part of the ILO modelled estimates and harmonized to account for differences in national data and scope of coverage, collection, tabulation methodologies as well as other country-specific factors. The methodology remains essentially the same as that of the *ILO Labour Force Estimates and Projections: 1990—2030* (ILO 2017b).

The preparation of the benchmark labour force data for the generation of this 3rd edition of the *ILO Global Estimates of International Migrant Workers* was facilitated by the fact that the data were obtained from the same organization. The data were directly extracted from the ILOSTAT dataset with no need for matching country names and relabelling. There was, however, a need to verify that the corresponding working age population data were consistent with the population data accompanying the benchmark migrant data.

A final point should be made regarding the underlying concept and definition of the benchmark labour force data. The ILO modelled estimates of labour force, employment and unemployment are based on the international standards adopted at 19th ICLS (ILO 2013). It is also reported that in practice there are large differences in terms of country practices regarding definitions of employment and unemployment. To the extent that the ILO was able to adjust for these differences and produce ILO modelled estimates conform to the 2013 international standards, the benchmark data on labour force used for generating the global estimates of international migrant workers are in line with the concept of labour force specified in

[32] For 12 other countries and territories, the UNDESA reported definition was based on place of birth while the ILOSTAT/ILMS definition was based on citizenship. On the other hand, for 11 countries and territories, the UNDESA reported definition was based on citizenship while the ILOSTAT/ILMS definition was based on place of birth. In the case of only one country, the UNDESA data were reported as imputed, with no indication of the definition.

[33] Further information on ILO Statistics on the working age population and labour force is available at: https://ilostat.ilo.org/topics/population-and-labour-force/. See also ILOSTAT 2018.

the definition of international migrant workers, category a, of the *ILO Guidelines Concerning Statistics of International Labour Migration* (2018a).

3.3 National data

The three sets of benchmark data (P, M, and W) described in the previous section provide the statistics on the row and column margins of the fundamental table 3.1. However, for estimating the number of international migrant workers (MW), information is needed on the cells of the body of the table. For these, national data were obtained from the International Labour Migration Statistics database of ILOSTAT, supplemented with data from other national sources where they could be found. These are described in the present section.

3.3.1 ILOSTAT International Labour Migration Statistics

A vast range of statistics on international labour migration is available as part of ILOSTAT. The ILOSTAT/ILMS[34] database unifies an earlier system of separate databases developed in different regions of the ILO. The present ILOSTAT/ILMS is based on information obtained annually from national statistical offices or other national agencies in response to an ILO questionnaire on international labour migration statistics. For some countries, data are obtained by processing of microdata by the ILO. The national data are made available in the form of some 51 datafiles referring to 51 different indicators including data on labour force by sex, age group and place of birth or citizenship. The datafiles also include tables on employment by sex, economic activity, occupation, with distinction by place of birth or citizenship.[35]

Among these datafiles, the choice of the data to be used for the *ILO Global estimates of international migrant workers* deserves careful consideration. The most obvious choice would be national data on the number of international migrant workers available in ILOSTAT/ILMS. This choice, however, faces several difficulties. As the reference year of the national data varies, extracting only the national data that are in line with the reference year, 2019, of the global estimation would substantially reduce the number of national data points and result in precious loss of information. Another major difficulty is that, even if the reference year matches, the ILOSTAT/ILMS data on international migrant workers may not match with the benchmark data on international migrant and labour force described earlier.

Taking these considerations into account, the choice of national data made for the ILO Global Estimation was a data point with two components:

- labour force participation rate of migrants, by sex (international migrant = foreign-born[36] or non-citizen); and
- labour force participation rate of non-migrants, by sex (non-migrant = native-born[37] or citizen)

The idea behind this choice was that using national data in the form of labour force participation rates rather than absolute values would help to maintain the required consistency with the benchmark data of table 3.1. Also, to use a two-fold data point would help maintain joint consistency with the benchmark data in both the column margin and the row margin of the table. Finally, the use of rates rather than absolute numbers helps to reduce the effects of differences in the reference year of the national data.

Accordingly, the national data points for the latest reference year were extracted from ILOSTAT/ILMS. There were 102 data points on labour force participation rates of migrants and non-migrants by sex, with international migrant

[34] See the website at: https://ilostat.ilo.org/resources/concepts-and-definitions/indicator-description-international-labour-migration-statistics/.

[35] For more information, see: https://ilostat.ilo.org/topics/labour-migration/.

[36] Born in a country other than the current country of residence.

[37] Born in the current country of residence.

defined on the basis of place of birth; and 85 data points with international migrant defined on the basis of citizenship. Of these, 63 countries had data points based on both place of birth and citizenship. Eighteen countries had data points based on citizenship but not on place of birth. Finally, 39 countries had data points based on place of birth but not on citizenship.

3.3.2 Data from other national sources

Efforts were made to obtain additional data points not available in ILOSTAT/ILMS on countries in ILO broad subregions which had too few information for the global estimation. Four data points were found from national websites and publications. In total, there were 124 data points used for this third edition of the ILO Global Estimation (102 data points from ILOSTAT/ILMS based on place of birth; 18 from ILOSTAT/ILMS based on citizenship; and four from other national sources based on citizenship). In two cases, data were available only for male international migrant workers. Thus, there were 65 countries (65=189–124) with no national data points that could be obtained for the ILO Global Estimation.

3.4 Country level estimation

The national data points described in the preceding sections were next used to derive country level estimates of international migrant workers (MW). The process involved three main steps: (a) derivation of harmonized estimates consistent with the benchmark data; (b) imputation for countries with missing data; and (c) smoothing of the country level estimates for measurement of trends with the previous edition of ILO global estimates. The three steps were all based on the key concept of "cross-product ratio", described below.

3.4.1 Cross-product ratio

Table 3.1 on the cross-tabulation of the working age population (P) by migrant status and labour status is reproduced in table 3.2 with re-named cells. In table 3.2, international migrant status = 1 refers to "international migrant of working age" and international migrant status = 0 refers to "working age non-migrant". Similarly, labour force status = 1 refers to "person in the labour force" and labour force status = 0 refers to "person outside the labour force". The total number of international migrants of working age is denoted by M, while the total number of persons in the labour force is indicated by W; therefore the total number of non-migrants of working age is P-M, and the total number of persons of working age outside the labour force is P-W.

The interior cells of the cross-tabulation are the number of international migrant workers (a); the number of non-migrants in the labour force (b); the number of international migrants of working age outside the labour force (c); and the number of non-migrants of working age outside the labour force (d). It is convenient to distinguish three situations: (1) countries and territories for which information on the interior cells are available; (2) countries and territories for which information on the interior cells are available for a different year than the reference year of the ILO global estimates; and (3) countries and territories for which no information on the interior cells are available for any recent year.

▶Table 3.2
Cross-tabulation of the working age population by migrant status and labour force status

		International migrant status		
		1	0	Total
Labour force status	1	a	b	W
	0	c	d	P-W
Total		M	P-M	P

In situation (1), the interior cells need only harmonization to match the benchmark data as the available national data may not be exactly consistent with the corresponding benchmark data. In situation (2), the interior cells need to be harmonized with respect to the reference year as well as to the benchmark data. In situation (3), the interior cells of the country with missing data need to be estimated using the available data on countries and territories of the region it belongs. The statistical treatment of all three situations is based on the use of the cross-product ratio.

In general, the cross-product ratio of the cross-tabulation of two dichotomous variables provides a measure of the association between the two variables. Thus, the cross-product ratio of table 3.2 provides a measure of association between migrant status and labour status of the working age population. The cross-product ratio is defined as,

$$\alpha = \frac{a \times d}{c \times b}$$

where a = MW; b = W – MW; c = M – MW; and d = P – W – M + MW.

If there is no association between international migrant status and labour force status, the cross-product ratio is 1 (α=1). It can be verified that in this case, the labour force participation rate of international migrants (MW/M), and the labour force participation rate of non-migrants (W-MW) / (P-M) are the same. In general, the cross-product ratio, α, differs from 1 reflecting different degrees of association between international migrant status and labour force status. In principle, the cross-product ratio, α, may take any value between $-\infty$ and $+\infty$, but in practice the values are generally positive and concentrated around 1.

The cross-product ratio may also be expressed in terms of the national data points defined earlier. It can be verified that:

$$\alpha = \frac{LFPR_{Mig}}{1 - LFPR_{Mig}} \times \frac{1 - LFPR_{Non-Mig}}{LFPR_{Non-Mig}}$$

where $LFPR_{Mig}$ refers to the labour force participation rate of international migrants and $LFPR_{Non\text{-}Mig}$ refers to the labour force participation rate of non-migrants,

$$LFPR_{Mig} = \frac{MW}{M}$$

$$LFPR_{Non-Mig} = \frac{W - MW}{P - M}$$

It may be noted that if the two labour force participation rates are equal, $LFPR_{Mig} = LFPR_{Non\text{-}Mig}$, then $\alpha = 1$, and vice versa if $\alpha = 1$, then $LFPR_{Mig} = LFPR_{Non\text{-}Mig}$. Also, it can be verified that if the labour force participation of international migrants is greater than the labour force participation rate of non-migrants, $LFPR_{Mig} > LFPR_{Non\text{-}Mig}$, then $\alpha > 1$. And, if the labour force participation of international migrants is smaller than the labour force participation rate of non-migrants, $LFPR_{Mig} < LFPR_{Non\text{-}Mig}$, then $\alpha < 1$.

The cross-product ratio is a natural parameter for analysing dichotomous variables. It can be interpreted as odds ratio and can be extended to multiple dichotomous variables and beyond to discrete multivariate data, in general, the framework of log-linear models (Bishop et al. 1975). In the present context, the national data points on the labour force participation rates of international migrants and non-migrants may be analysed, for example, to distinguish the "international migrant effect" from the "labour force effect" or their interaction. The analysis can be extended to examine the contributions of "gender effect", "region effect", "income-level effect" or their interactions on labour force participation of international migrants and non-migrants.

3.4.2 Harmonization of national data

For each national data point, the corresponding value of the cross-product ratio may be calculated for men and women, separately, and the results used to derive estimates of international migrant workers (MW) consistent with three benchmark data, P, M, and W. The procedure involves solving the quadratic equation,

$$\alpha(M - W)(W - x) = (P - W - M + x)x$$

where the unknown is the number of international migrant workers, x = MW. The solution may be expressed as,

$$MW = \frac{-P + (1-\alpha)(M+W)}{2(1-\alpha)} + \frac{\sqrt{[P-(1-\alpha)(M+W)]^2 + 4\alpha(1-\alpha)M \times W}}{2(1-\alpha)}$$

A numerical example illustrates the calculations. Consider a country with benchmark 2019 data: working age male population, P = 1'978 ('000); male international migrants, M = 192 ('000); and male labour force, W = 1'508 ('000). The national data point for 2019 on the male labour force participation rate of international migrants (foreign-born) is 84.5 per cent; and on the male labour force participation rate of non-migrants (native-born) is 71.3 per cent.

First, the cross-product ratio is calculated based on the national data points,

$$\alpha = \frac{0.845}{1-0.845} \times \frac{1-0.713}{0.713} = 2.01$$

The value is then used to estimate the number of male international migrant workers,

$$MW = \frac{-1978 + (1-2.01)(192+1508)}{2(1-2.01)} + \frac{\sqrt{[1978-(1-2.01)(192+1508)]^2 + 4 \times 2.01(1-2.01)192 \times 1508}}{2(1-2.01)}$$

The resulting estimate of the number of male international migrant workers, except for rounding errors, is

$$MW = 165\ ('000)$$

The estimate refers to the number of male international migrant workers in 2019. The number of male international migrant workers recorded in the ILOSTAT/ILMS dataset for this country in 2019 is 161 ('000). The difference may be attributed to the different scope of the underlying population. The national data are based on a labour force survey which covers the civilian non-institutional population living in residential dwellings, while the harmonized data refer to the total migrant population of the country including refugees and asylum seekers and other migrants living in non-residential units such as construction sites, plantations, camps, and informal settlements near borders. The difference may also be due to possible under-reporting of international migrant workers within the scope of the survey. This may particularly occur in the case of undocumented international migrants.

The estimation procedure based on the cross-product ratio ensures that there is always a unique non-zero estimate of MW. It also ensures that the estimated number of international migrant workers does not exceed the benchmark number of international migrants (MW≤M). Similarly, it ensures that the estimated number of international migrant workers does not exceed the benchmark total labour force (MW≤W).

The procedure was applied to all national data points that were available, both for the male and female populations, and also for the data points based on place of birth and those based on citizenship. It is instructive to note that the cross-product ratio was on average greater for data related to citizenship (α=1.72) than for data related to place of birth (α=1.23). Also, male cross-product ratios were, on average, greater than female cross-product ratios, irrespective of data based on citizenship or based on place of birth as shown in table 3.3.

It should be mentioned that the estimation procedure based on the cross-product ratio described here is equivalent to the use of iterative proportional fitting of cell values to given marginal totals. But in the case of two-by-two tables, there is a closed-form solution for the cell values, which makes it unnecessary to go to the process of iterative proportional fitting.

3.4.3 Imputation of missing data

Where national data points on the labour force participation rates of migrants and non-migrants are not available, the number of international migrant workers (MW) is imputed using the benchmark data of the country and the estimated cross-product ratio of the region in which the country belongs. The estimation of the regional cross-product ratios is based on the national data points available in each region, as described below.

First, the available national points in each region are used to obtain regional data points. The regional data points are the weighted average labour force participation rates of international migrants and non-migrants calculated from the harmonized national data points of the region,

$$LFPR_{region}(Mig) = \sum_{i \in region} \frac{M_i \times LFPR_i(Mig)}{M}$$

$$LFPR_{region}(Non - Mig) = \sum_{i \in region} \frac{(P_i - M_i) \times LFPR_i(Non - Mig)}{P - M}$$

where $LFPR_i(Mig)$ *and* $LFPR_i(Non\text{-}Mig)$ are the national labour force participation rates of international migrants and non-migrants of country *i* harmonized in the preceding step as described above. In the ILO template, these calculations are carried out implicitly together with the next step which involves the calculation of the regional cross-product ratio,

$$\alpha_{region} = \frac{LFPR_{region}(Mig)}{1 - LFPR_{region}(Mig)} \times \frac{1 - LFPR_{region}(Non - Mig)}{LFPR_{region}(Non - Mig)}$$

The results are shown for the 11 ILO subregions in table 3.3 by sex. It may be observed that in most cases, the regional cross-product ratios vary around 1 with a few exceptions. The most extreme case is the male cross-product ratio of the Arab States, $\alpha_{\text{Arab States}} = 5.3365$. It means that in this region, the odds that a male migrant is in the labour force is 5 times more than the odds that a male non-migrant is in the labour force. In general, the female cross-product ratios have a much tighter variation across regions than the male cross-product ratios. The imputation procedure assumes that the variations of the cross-product ratio are mostly captured by the regional variations, and there are little variations left within regions. To the extent that this assumption is valid, the imputation procedure may be expected to provide accurate estimates of the number of international migrant workers at the country level.

▶Table 3.3
Regional raw estimates of cross-product ratio (α) by sex, 2019

k	ILO broad subregion	National data points	α	
			Men	Women
	Total	124	1.3200	1.0338
1	Northern Africa	2	0.6202	1.172
2	Sub-Saharan Africa	31	2.0336	0.9753
3	Latin America and the Caribbean	22	1.2333	1.1552
4	Northern America	2	1.5160	0.8782
5	Arab States	5	5.3365	1.9183
6	Eastern Asia	1	1.5717	0.9833
7	South-Eastern Asia and the Pacific	14	1.0210	1.1906
8	Southern Asia	5	0.8151	0.7201
9	Northern, Southern and Western Europe	29	1.5070	1.1483
10	Eastern Europe	7	2.4817	1.016
11	Central and Western Asia	6	0.8248	0.9508

A numerical example illustrates the calculations. Consider a country with missing data points on labour force participation rates of migrants and non-migrants. We want to estimate the number of international women migrant workers of the country. The benchmark data for this country are: female working age population, P = 1'794 ('000); international women migrants, M = 55 ('000); and female labour force, W = 726 ('000). The country is in Eastern Europe and the female cross-product ratio for this region is $\alpha_{\text{Eastern Europe}} = 1.0160$, calculated on the basis of the harmonized national data points in the region.

Using the equation relating the number international migrant workers (MW) to the benchmark data and the cross-product ratio, we calculate,

$$MW = \frac{-1794 + (1 - 1.0160)(55 + 726)}{2(1 - 1.0160)} + \frac{\sqrt{[1794 - (1 - 1.0160)(55 + 726)]^2 + 4 \times 1.0160(1 - 1.0160)55 \times 726}}{2(1 - 1.0160)}$$

We, thus, obtain the imputed number of international women migrant workers, except for rounding errors,

$$MW = 23\ ('000)$$

As mentioned earlier, there were in total 65 countries and territories with missing data points for which imputation was necessary. These were five in Northern Africa, 16 in sub-Saharan Africa, nine in Latin America and the Caribbean, seven in Arab States, seven in Eastern Asia, eight in South-Eastern Asia and the Pacific, four in Southern Asia, three in Eastern Europe and five in Central and Western Asia. There was no country with missing data in Northern America and only one in Northern, Southern and Western Europe.

3.4.4 Smoothing to past data

The final step in the estimation of international migrant workers at country level was the smoothing of the underlying regional cross-product ratios with past data. Smoothing was necessary to attenuate the impact of the differences in the methodology and underlying data between the second and third editions of the ILO global estimates. The cross-product ratio methodology was used for the female population in the second edition – using the 2013 values of subregional cross-product ratios, but not for the male population. More importantly, in the second edition, some benchmark data were adjusted for refugees and asylum seekers, and for the assumed differences in type of data based on place of birth or citizenship. In this third edition, no adjustments were made on the benchmark data for reasons explained earlier. These changes would have produced considerable impact on the resulting estimates if left unattended.

The smoothing procedure involved the calculation of revised cross-product ratios using the corresponding cross-product ratios in the previous 2018 edition of the ILO global estimates as indicated below. The objective of the smoothing procedure was to decrease the variability of the estimates and improve the measurement of trend between 2017 and 2019.

For this purpose, smoothed cross-product ratios, called α_{plus}, were calculated as the arithmetic average of the 2017 and 2019 values,

$$\alpha_{plus} = \frac{\alpha_{2017} + \alpha_{2019}}{2}$$

where α_{2017} was obtained from the publication of the second edition (ILO 2018c; p. 35, table 4.4) and α_{2019} was the re-calculated regional cross-product ratio of table 3.3 using the full dataset (i.e., the national data points as well as the imputed values of the countries with missing data).

The average cross-product ratios were calculated for each region and for men and women separately. The results are shown in table 3.4.

▶Table 3.4
Smoothed estimates of regional cross-product ratio (α_{plus}) by sex, 2019

k	ILO broad subregion	α_{2017}		α_{2019}		α_{plus}	
		Men	Women	Men	Women	Men	Women
	Total	1.0163	1.8772	1.3191	1.1875	1.1677	1.5323
1	Northern Africa	0.9475	1.7772	0.6017	1.3452	0.7746	1.5612
2	Sub-Saharan Africa	2.0649	0.4833	1.6779	0.8857	1.8714	0.6845
3	Latin America and the Caribbean	0.7583	0.8453	1.2325	1.1009	0.9954	0.9731
4	Northern America	1.3077	1.5297	1.516	0.8782	1.4119	1.2039
5	Arab States	2.3692	5.3468	5.8365	3.3404	4.1028	4.3436
6	Eastern Asia	1.0109	1.1753	1.2185	0.8079	1.1147	0.9916
7	South-Eastern Asia and the Pacific	0.6189	1.5271	1.1352	1.3701	0.877	1.4486
8	Southern Asia	3.099	0.8165	0.8795	0.8475	1.9893	0.832
9	Northern, Southern and Western Europe	1.3383	3.25	1.5069	1.1481	1.4226	2.199
10	Eastern Europe	0.9177	2.3389	2.4477	1.0099	1.6827	1.6744
11	Central and Western Asia	0.6268	9.0321	1.0935	0.9603	0.8602	4.9962

It should be noted that the values α_{2019} in table 3.4 are slightly different than the corresponding values in table 3.3. This is due to the fact α_{2019} in table 3.3 was estimated based on the available national data points, while the values of α_{2019} in table 3.4 are estimated based on the full dataset including imputed values for countries missing data. It should also be noted that the effect of smoothing in table 3.4 is most noticeable for women in Central and Western Asia, where the cross-product ratio changed by more than four units, from α_{2019} = 0.9603 to α_{plus} = 4.9962. This is due to the extremely large value calculated in the earlier 2018 edition of the ILO Global Estimation (8.7113, at the detailed subregional level, translated to 9.0321 at the broad subregional level) (ILO 2018c, p. 35, table 4.4).

Based on the smoothed cross-product ratios in table 3.4, the number of international migrant workers (MW) of each country or territory was re-estimated using the value of α_{plus} of its region. The procedure was applied to all countries, those with national data points as well as those with missing data. This was necessary in order to have a unified approach in attenuating the effect of the different methodologies in 2017 and 2019.

Referring to the two numerical illustrations presented earlier, it may be noted that for the country with available data points, the initial estimate of male international migrant workers (MW) for 2019, 176 (‘000) increased to 178 (‘000) after smoothing. For the country with missing data points, the initial estimate of international women migrant workers (MW) for 2019, 23 (‘000) decreased to 21 (‘000) after smoothing.

In general, the average number of male international migrant workers based on the available national data points (124 countries) was 611 (‘000). The corresponding average estimate for the same 124 countries based on the smoothed male cross-product ratio was 598 (‘000). For the international women migrant workers, the average number based on the available national data points was 401 (‘000) and the corresponding average estimate based on the smoothed female cross-product ratio was 471 (‘000). This calculation indicates that the effect of smoothing was mainly on the female estimates.

3.5 Aggregation

Based on the results of the previous section, the global estimates of international migrant workers were obtained by simple aggregation of the country-level estimates by sex and geographical region and by sex and income level of countries. The use of the cross-product ratio for harmonization, imputation and smoothing of the underlying country-level data implies that the estimates at any level of aggregation maintain the fundamental consistencies between the cell values and the margins of the regional and global two-by-two tables.

3.6 Disaggregation

Among the range of topics in the ILOSTAT/ILMS database, the national data on age and economic activity were selected to construct breakdowns of the global estimate of international migrant workers by sex and age group and by sex and category of economic activity. The methodology for the ILO Global Estimation was based on a bottom-up approach where the estimates were obtained by aggregating country-level data to regional and global totals. By contrast, for age groups and categories of economic activity, the estimates were obtained by disaggregating the global estimate by the variables of interest. This top-down approach was adopted because of the somewhat more limited data on these variables, and, more importantly, because of the expected decrease of precision, the finer the base population. The methodology is described below in turn for age group and then for category of economic activity.

3.6.1 By sex and age group

Three broad age groups were defined for disaggregation: the youth (15–24 years), the prime-age adults (25–64 years) and the older workers (65 years and over).

In total, there were 104 national data points on age distribution for men and 92 for women in ILOSTAT/ILMS. The estimate of the number of international migrant workers in a given age group by sex and region was obtained in three steps. First, based on the national data for the latest available year, the age distribution of the international migrant workers was calculated by sex for each of the 11 broad subregions.

Then, for each sex and each of the 11 subregions the distribution found in the preceding step was applied to the corresponding total number of international migrant workers for all countries in that region. Finally, aggregation of the results by geographical region, by income level of countries, or any other required criterion was performed.

3.6.2 By sex and economic activity

The ILOSTAT/ILMS data on category of economic activity refers to the employed population, while the ILO global estimates of international migrant workers refer to the labour force, with distinction between employed and unemployed. The disaggregation of the global estimates by category of economic activity, therefore, involves certain assumptions. In particular, it is assumed that the distribution of the unemployed by category of economic activity with past work experience is broadly the same as that of the employed. Regarding the unemployed with no past work experience, the issue is simply ignored assuming that it has negligible effect. Under these assumptions, the global estimates of the international migrant workers were disaggregated by sex and category of economic activity, using a similar top-down approach as in the disaggregation by sex and age group.[38]

The three categories of economic activity are the agriculture, the industry and the services sectors, defined according to the *International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4* (UNDESA 2008).[39]

[38] The assumption that all international migrant workers, employed or unemployed, have the same sector distribution as the employed is likely to have little effect on the main results given that the relative size of the unemployed in total labour force is small at the global level, and that the results are presented in percentage form and for highly aggregated categories of economic activity.

[39] Further details are available in Annex C and at https://ilostat.ilo.org/resources/concepts-and-definitions/classification-economic-activities/.

There were 110 national data points on distribution by category of economic activity for men and 109 for women in ILOSTAT/ILMS. The estimate of the number of international migrant workers in a given category of economic activity by sex and region was calculated in a three-step procedure as in the case of age groups. First, based on the national data for the latest available year, the distribution of international migrant workers by category of economic activity was calculated for sex and each of the 11 broad subregions.

Then, for each sex and each of the subregions, the distribution found in the preceding step was applied to the corresponding total number of international migrant workers for all countries in that subregion. Finally, aggregation of the results by geographical region, by income level of countries, or any other required criterion is performed.

4. Data quality

The quality of the ILO global estimates is assessed in terms of the completeness or coverage of the underlying national data, the internal and external consistencies of the estimates, the robustness of the results with respect to the underlying assumptions of the methodology. These are discussed, in turn, below.

4.1 Coverage

Data on working age population (P), migrants of working age (M), and total labour force (W) were available for all 189 countries and territories as part of the benchmark data. Therefore, in this context, completeness refers to the coverage of countries and territories in terms of the national data on international migrant workers (MW) in the form of labour force participation rates of migrants and non-migrants. Table 4.1 indicates that in total there were 124 countries and territories with national data on international migrant workers (almost double the number, 67, covered in the 2nd edition of the *ILO Global Estimates*). This achievement is the result of the efforts made over the past years to expand the ILOSTAT/ILMS database. The 124 countries and territories used for the 3rd edition now represents 47 per cent of the global working age population, 48 per cent of the global labour force and 78 per cent of the total international migrants. The improved coverage of national data points on international migrant works is no doubt contributing to the quality of the resulting global and regional estimates.

It should be, however, stated that the availability of the national data were somewhat unevenly distributed over the ILO geographical regions. As shown in table 4.1, Northern America and Northern, Southern, Western Europe have a complete, or almost complete coverage, but Southern Asia and, in particular, Eastern Asia have a relatively low coverage with respect to national data on international migrant workers.

Table 4.1
Coverage of national data by ILO broad subregions

k	ILO broad subregion	Total countries or areas	Countries or areas with national data points	Coverage			
				P (%)	W (%)	M (%)	MW (%)
	Total	189	124	47	48	78	78
1	Northern Africa	7	2	57	58	52	51
2	Sub-Saharan Africa	47	31	67	66	58	58
3	Latin America and the Caribbean	31	22	91	92	82	83
4	Northern America	2	2	100	100	100	100
5	Arab States	12	5	57	55	51	49
6	Eastern Asia	8	1	3	3	14	15
7	South-Eastern Asia and the Pacific	22	14	84	85	81	81
8	Southern Asia	9	5	16	18	36	38
9	Northern, Southern and Western Europe	30	29	100	100	100	100
10	Eastern Europe	10	7	80	82	69	71
11	Central and Western Asia	11	6	61	56	59	56

Table 4.2 shows the coverage of national data by income level of countries. It is instructive to note that the coverage rate increases with the income level of countries except for the countries with low income, which have coverage rates higher than countries with lower- and upper-middle-income. The coverage of national data by sex is not reported here, but the distributions are essentially the same as those reported in tables 4.1 and 4.2. All countries and territories with data on international migrant workers had data for men and women, separately, except two (one in Latin America and the Caribbean and the other in Eastern Europe). In terms of income-level of countries, the two extra countries with missing data on women were a country with low income and a country with high income.

Figure 4.1 shows the distribution of the 124 national data points by type of source. It can be observed that the bulk of the national data points were based on labour force surveys (97), followed with household income and expenditure surveys (18). The remaining few were based on other household-based surveys (five) or population censuses (four). Each type of data source has strengths and weaknesses. While population censuses cover the entire population including people living in non-residential dwellings, they are generally conducted every ten years, and, therefore, not fully suitable for the ILO Global Estimation which is carried out on a more frequent basis, every two to four years. In addition, the measurement of labour force status in population censuses has certain limitations, generally based on a single or very limited number of questions. Labour force surveys and other household-based surveys are often conducted on a more frequent basis, and where international migrant status and labour force status are jointly measured, they provide a more suitable source of current data on international migrant workers. A drawback, however, is the limited scope of the population covered which, generally, excludes the population living in non-residential dwellings such as construction sites, informal settlements and refugee camps where international migrants may be disproportionally concentrated.

▶ Figure 4.1
National data points by type of source

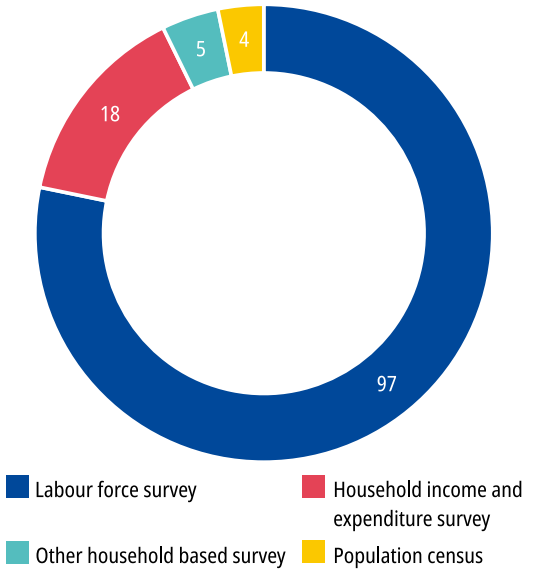
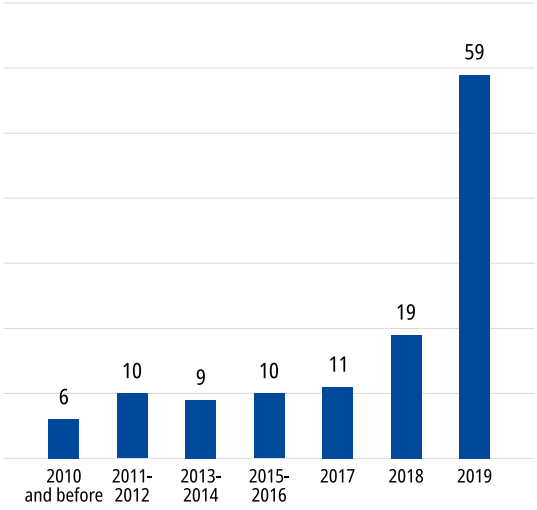


Figure 4.2 shows the distribution of countries with national data points by the latest reference year available. The reference year of national data points for 59 countries coincided with the reference year of the ILO global estimates, 2019.

▶Table 4.2
Coverage of national data by income level of countries

h	Income level of countries	Total countries or areas	Countries or areas with national data points	Coverage			
				P (%)	W (%)	M (%)	MW (%)
	Total	189	124	47	48	78	78
1	Low-income	29	19	68	66	60	59
2	Lower-middle-income	49	25	31	34	29	34
3	Upper-middle-income	50	36	75	75	43	41
4	High-income	61	44	87	86	84	83

▶ Figure 4.2
Number of countries with national data points by last reference year



4.2 Consistency

As part of the assessment of data quality, several internal and external consistencies are examined below. There are a number of inherent relationships among the key variables of the global estimation which were built into the cross-product methodology.

Table 4.3 shows the counts of the edit failures in the present edition of the ILO Global Estimation and compares them with those in the preceding edition. It can be observed that there are no edit failures in the present edition. The edit failures in the preceding edition were mostly cases where the number of international migrant workers exceeded the number of international migrants. These were, of course, corrected as part of the editing process before release of the results.

In the present edition, the results of the global estimation were checked for consistency with external sources. The Organization of Economic Cooperation and Development (OECD) compiles on a regular basis from member countries, data on the labour force participation rates of foreign-born and native-born populations of the country, defined for the population aged 15–74 years.[40]

▶ Table 4.3
Internal consistency: Number of edit failures, 2017 versus 2019

	Edit	Edit rule	Number of edit failures	
			2017	2019
1	Number of migrant workers must not exceed working age migrants	MW<=M	23	0
2	Number of migrant workers must not exceed number of workers	MW<=W	2	0
3	Number of workers must not exceed working age population	W<=P	0	0
4	Number of working age migrants must not exceed working age population	M<=P	2	0

The latest available data at the time of the preparation of the ILO Global Estimation were for 2019 and were related to 33 OECD countries. All data were obtained from household-based surveys, the Current Population Survey (CPS) for the United States[41] and labour force surveys from other countries. Table 4.4 compares the average cross-product ratio of international migrant and labour force status of OECD countries with the corresponding set of countries based on the ILO Global Estimation. There is almost perfect agreement between the two sets of data on men, but a considerable difference in the case of women. The ILO results tend to show a larger association of migrant status and labour force status for the female population than the OECD results indicate.

[40] See the OECD International Migration Database and labour market outcomes of immigrants available at: https://www.oecd.org/els/mig/keystat.htm.

[41] See their website at: https://www.census.gov/programs-surveys/cps.html.

▶Table 4.4
External consistency: Cross-product ratio, ILO versus OECD

j		Number of countries	Average cross-product ratio (α)		Difference
			ILO	OECD	
	Total	33	1.59	1.03	0.56
1	Men	33	1.37	1.35	0.02
2	Women	33	2.16	0.91	1.25

Sources: OECD, Dataset: NUP rates by place of birth and sex, 2019, Data extracted on 03 April 2021 07:35 UTC (GMT) from OECD STAT.

4.3 Robustness

A new section has been added to this present edition of the ILO Global Estimation to assess the robustness of the results with respect to its main underlying assumptions. An estimate is robust if a small change in its assumption does not entail a large change in the estimate.

4.3.1 Type of national data

First, we examine the robustness of the ILO Global Estimation with respect to the choice of the data on international migrant workers, based on place of birth or on country of citizenship, or different combinations of the two. Table 4.5 shows the various global and regional estimates that would be obtained under four different types of national data: 1) Place of birth; 2) Citizenship; 3) If Place of birth is missing then Citizenship; and 4) If Citizenship is missing then Place of birth. It can be observed that the difference between the maximum and minimum estimates is 4 million migrant workers. In terms of regions, there is close agreement at the million level everywhere, except for sub-Saharan Africa, North America, Arab States and Eastern Europe.

The corresponding information organized by income level of countries, not presented here, show similar results. The largest difference between the maximum and minimum estimates is 2 million for high-income countries, but the high-income countries have, by far, the highest concentration of international migrant workers.

In relative terms, the maximum/minimum difference in high-income countries represents about 2 per cent of the estimates. For upper-middle-income countries, the relative difference is about 3 per cent, and about 1 per cent for lower-middle and low-income countries. One subsidiary outcome of these results is that the global estimate of international migrant workers based on citizenship alone is larger than the estimate based on place of birth alone. One explanation may be the fact there are a smaller number of national data points based on citizenship (85) and therefore more imputed data in the corresponding global estimates, possibly leading to less accurate estimates.

▶Table 4.5
Estimates of international migrant workers according to underlying types of the national data by ILO broad subregions, 2019

k	ILO broad subregions	Migrant Workers (millions)				
		Place of birth	Citizenship	If Place of birth missing then Citizenship	If Citizenship missing then Place of birth	Difference between maximum and minimum
	Number of countries or territories with national data points	102	85	124	123	
	Total persons	167	171	169	170	4
1	Northern Africa	1	1	1	1	0
2	Sub-Saharan Africa	12	13	13	13	1
3	Latin America and the Caribbean	6	6	6	6	0
4	Northern America	37	38	37	38	1
5	Arab States	23	24	24	24	1
6	Eastern Asia	5	5	5	5	0
7	South-Eastern Asia and the Pacific	12	12	12	12	0
8	Southern Asia	7	7	7	7	0
9	Northern, Southern, Western Europe	41	41	41	41	0
10	Eastern Europe	13	14	13	14	1
11	Central and Western Asia	9	9	9	9	0

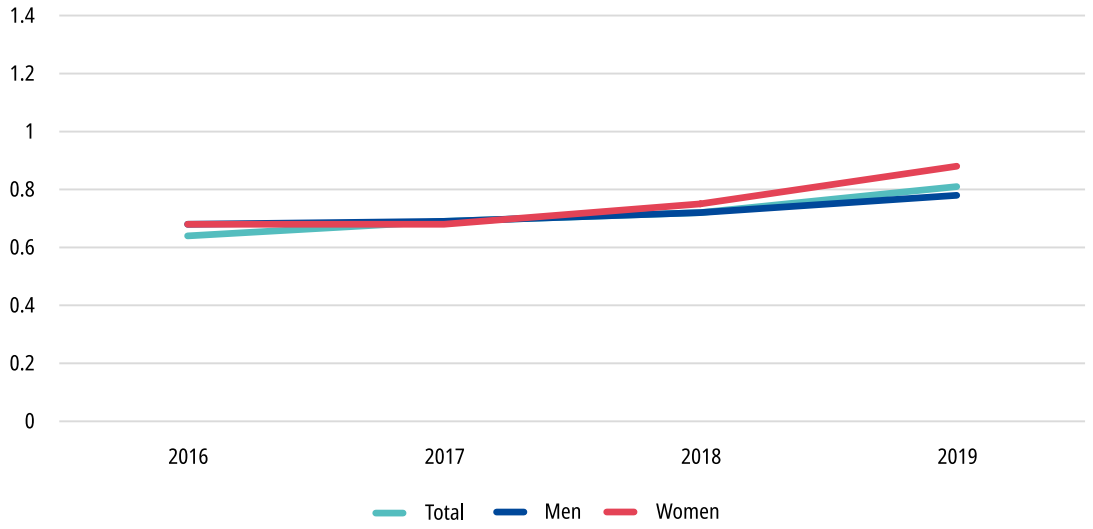
4.3.2 Reference year of the national data points

A second underlying assumption of the ILO Global Estimation is that the national cross product ratios, measuring the degree of association of international migrant status and labour force status in a given country or area, do not change significantly over time. Thus, for countries where national data for the reference year 2019 were not available, data for the latest year were used. The assumption was used in a limited number of cases as may be noted from figure 4.2 above. The assumption may be tested by examining the change over time of the cross-product ratio, calculated on the basis of the same type of data source, for different countries with time series near the reference year 2019. An illustration with sex-disaggregated data is shown in figure 4.3 for a country covering the four-year period, 2016–2019.

It can be observed that the curves show some slight variation over time, but the changes are relatively small, particularly, for men. A one-year variation from 2018–2019 is about –0.03 for men and 0.13 for women. A two-year variation from mid-2017 to mid-2019 is about –0.01 for men and 0.21 for women; with a three-year variation from 2016–2019 being 0.10 for men and 0.20 for women.

Similar calculations made over the entire set of time series data available in ILOSTAT/ILMS (101 time series of different lengths with a total of 524 data points) show that on average the male cross-product ratio has increased by about 0.02 per year and the female ratio by about 0.006 per year. In general, the variation of the cross-product ratio of national data over time is much smaller than the variation of regional cross-product ratio over the same time period. This can be verified by comparing the data in figure 4.3 with the change over time of the regional cross-product ratios $\alpha(2017)$ and $\alpha(2019)$ in table 3.4.

▶ **Figure 4.3**
National cross-product ratio over time, 2016–2019: A numerical illustration



4.3.3 Representativeness of the national data points

A third underlying assumption of the ILO Global Estimation is the implicit hypothesis that the available national data points within each region are representative of the migration and labour force situation in that region, for men and women separately. This assumption means that the countries with missing data are missing at random. Missing at random, in statistical theory, occurs where missingness can be fully accounted for by variables where there is complete information. In the present context, the variables with complete information are sex and geographical region of the population. One way to verify the validity of this assumption is to check whether the share of the international migrants in the national data is close to the share of the international migrants in the benchmark data for each sex and geographical region separately. Similarly, to check whether the share of the labour force in the national data is close to the share of the total labour force in the benchmark data, also for each sex and geographical region separately.

Table 4.6 shows the results by sex and ILO broad subregion. At the global level, the share of international migrants of working age in the national data differs from the benchmark data by about 3 percentage points for both men and women. The share of the labour force in the population of working age (i.e., the labour force participation) in the national data differs from the benchmark data by about 2 percentage points for men and about 4 percentage points for women.

▶Table 4.6
How representative are the national data with respect to international migration and labour force? (by sex and ILO broad subregion, 2019)

k	ILO broad subregions	Share of international migrant in working age population, M/P (%)			Share of labour force in working age population, = W/P (%)		
		National data	Benchmark data	Difference	National data	Benchmark data	Difference
	Total	7	4	3	62	61	1
1	Northern Africa	1	1	0	47	46	1
2	Sub-Saharan Africa	3	3	0	66	68	–2
3	Latin America and the Caribbean	2	2	0	65	64	1
4	Northern America	19	19	0	62	62	0
5	Arab States	26	29	–3	50	51	–2
6	Eastern Asia	3	1	2	63	67	–4
7	South-Eastern Asia and the Pacific	4	3	0	69	67	2
8	Southern Asia	2	1	1	56	51	5
9	Northern, Southern, Western Europe	16	16	0	58	58	0
10	Eastern Europe	7	8	–1	60	59	1
11	Central and Western Asia	9	9	0	54	58	–5
	Men	8	5	3	73	74	–2
1	Northern Africa	1	2	0	70	69	1
2	Sub-Saharan Africa	3	3	–1	71	73	–2
3	Latin America and the Caribbean	2	2	0	77	77	0
4	Northern America	19	19	0	68	68	0
5	Arab States	32	36	–3	76	78	–2
6	Eastern Asia	3	1	2	73	75	–2
7	South-Eastern Asia and the Pacific	4	3	0	80	79	1
8	Southern Asia	2	1	1	78	77	1
9	Northern, Southern, Western Europe	16	16	0	64	64	0
10	Eastern Europe	7	8	–1	68	67	1
11	Central and Western Asia	10	10	0	71	73	–2
	Women	7	4	3	52	47	4
1	Northern Africa	1	1	0	24	22	2
2	Sub-Saharan Africa	3	3	0	61	63	–1
3	Latin America and the Caribbean	2	2	0	53	52	1
4	Northern America	19	19	0	57	57	0
5	Arab States	18	20	–2	17	18	–1
6	Eastern Asia	2	1	2	53	60	–7
7	South-Eastern Asia and the Pacific	3	3	0	59	56	3
8	Southern Asia	2	1	1	34	23	11
9	Northern, Southern, Western Europe	16	16	0	52	52	0
10	Eastern Europe	7	8	–1	53	52	2
11	Central and Western Asia	9	9	0	37	45	–7

At the regional level, the maximum difference between the share of international migrants of working age in the national data and the benchmark data is also about 3 percentage points for both men and women. However, the maximum difference between the labour force participation rate in the national data and the benchmark data is about 2 percentage points for men and about 11 percentage points for women. This large percentage point difference is in Southern Asia and means that the five countries in Southern Asia which formed the national dataset for this region were not well representing the other four countries of the region, in terms of the female labour participation rate.

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▶ ANNEXES

▶ **Annex A** presents the grouping of the 189 countries and areas[42] covered by the estimates by main region, broad subregion and income levels.

▶ **Annex B** lists the 124 countries or areas for which national data on international migrant workers were available and used in the production of the ILO Global estimates, with details on data source, the latest reference year and the base of the data.

▶ **Annex C** presents the broad categories and sections of the International Standard Industrial Classification of All Economic Activities Rev. 4.

Annex A. Geographical regions and income groups

▶Table A1
ILO Geographical groupings of countries and territories

Region	Broad subregion	Number of countries and territories
Africa	Northern Africa	7
	Sub-Saharan Africa	47
Americas	Latin America and the Caribbean	31
	Northern America	2
Arab States	Arab States	12
Asia and the Pacific	Eastern Asia	8
	South-Eastern Asia and the Pacific	22
	Southern Asia	9
Europe and Central Asia	Northern, Southern and Western Europe	30
	Eastern Europe	10
	Central and Western Asia	11
Total		189

▶Table A2
List of countries and territories by ILO broad subregion

Northern Africa	Sub-Saharan Africa	Latin America and the Caribbean	Northern America	Arab States
Algeria	Angola	Argentina	Canada	Bahrain
Egypt	Benin	Bahamas	United States	Iraq
Libya	Botswana	Barbados		Jordan
Morocco	Burkina Faso	Belize		Kuwait

[42] The designations employed in ILO publications, which are in conformity with United Nations practice, and the presentation of material therein do not imply the expression of any opinion whatsoever on the part of the International Labour Office concerning the legal status of any country, area or territory or of its authorities, or concerning the delimitation of its frontiers.

Northern Africa	Sub-Saharan Africa	Latin America and the Caribbean	Northern America	Arab States
Sudan	Burundi	Bolivia (Plurinational State of)		Lebanon
Tunisia	Cameroon	Brazil		Occupied Palestinian Territory
Western Sahara	Cabo Verde	Chile		Oman
	Central African Republic	Colombia		Qatar
	Chad	Costa Rica		Saudi Arabia
	Comoros	Cuba		Syrian Arab Republic
	Congo	Dominican Republic		United Arab Emirates
	Congo, Democratic Republic of the	Ecuador		Yemen
	Côte d'Ivoire	El Salvador		
	Djibouti	Guatemala		
	Equatorial Guinea	Guyana		
	Eritrea	Haiti		
	Eswatini	Honduras		
	Ethiopia	Jamaica		
	Gabon	Mexico		
	Gambia	Nicaragua		
	Ghana	Panama		
	Guinea	Paraguay		
	Guinea-Bissau	Peru		
	Kenya	Puerto Rico		
	Lesotho	Saint Lucia		
	Liberia	Saint Vincent and the Grenadines		
	Madagascar	Suriname		
	Malawi	Trinidad and Tobago		
	Mali	United States Virgin Islands		
	Mauritania	Uruguay		
	Mauritius	Venezuela, Bolivarian Republic of		
	Mozambique			
	Namibia			
	Niger			
	Nigeria			
	Rwanda			
	Sao Tome and Principe			
	Senegal			
	Sierra Leone			
	Somalia			
	South Africa			
	South Sudan			

Northern Africa	Sub-Saharan Africa	Latin America and the Caribbean	Northern America	Arab States
	Tanzania, United Republic of			
	Togo			
	Uganda			
	Zambia			
	Zimbabwe			

Eastern Asia	South-Eastern Asia and the Pacific	Southern Asia	Northern, Southern and Western Europe	Eastern Europe	Central and Western Asia
China	Australia	Afghanistan	Albania	Belarus	Armenia
Hong Kong, China	Brunei Darussalam	Bangladesh	Austria	Bulgaria	Azerbaijan
Japan	Cambodia	Bhutan	Belgium	Czechia	Cyprus
Korea, Democratic People's Republic of	Fiji	India	Bosnia and Herzegovina	Hungary	Georgia
Korea, Republic of	French Polynesia	Iran, Islamic Republic of	Channel Islands	Moldova, Republic of	Israel
Macau, China	Guam	Maldives	Croatia	Poland	Kazakhstan
Mongolia	Indonesia	Nepal	Denmark	Romania	Kyrgyzstan
Taiwan, China	Lao People's Democratic Republic	Pakistan	Estonia	Russian Federation	Tajikistan
	Malaysia	Sri Lanka	Finland	Slovakia	Turkey
	Myanmar		France	Ukraine	Turkmenistan
	New Caledonia		Germany		Uzbekistan
	New Zealand		Greece		
	Papua New Guinea		Iceland		
	Philippines		Ireland		
	Samoa		Italy		
	Singapore		Latvia		
	Solomon Islands		Lithuania		
	Thailand		Luxembourg		
	Timor-Leste		Malta		
	Tonga		Montenegro		
	Vanuatu		Netherlands		
	Viet Nam		North Macedonia		
			Norway		
			Portugal		
			Serbia		
			Slovenia		
			Spain		
			Sweden		
			Switzerland		
			United Kingdom		

▶Table A3
Grouping of countries and territories by income level

Income group	High-income	Upper-middle-income	Lower-middle-income	Low-income
Number of countries or territories	61	50	49	29
List of countries or territories	Australia	Albania	Algeria	Afghanistan
	Austria	Argentina	Angola	Burkina Faso
	Bahamas	Armenia	Bangladesh	Burundi
	Bahrain	Azerbaijan	Benin	Central African Republic
	Barbados	Belarus	Bhutan	Chad
	Belgium	Belize	Bolivia, Plurinational State of	Congo, Democratic Republic of the
	Brunei Darussalam	Bosnia and Herzegovina	Cambodia	Eritrea
	Canada	Botswana	Cameroon	Ethiopia
	Channel Islands	Brazil	Cabo Verde	Gambia
	Chile	Bulgaria	Comoros	Guinea
	Croatia	China	Congo	Guinea-Bissau
	Cyprus	Colombia	Côte d'Ivoire	Haiti
	Czechia	Costa Rica	Djibouti	Korea, Democratic People's Republic of
	Denmark	Cuba	Egypt	Liberia
	Estonia	Dominican Republic	El Salvador	Madagascar
	Finland	Ecuador	Eswatini	Malawi
	France	Equatorial Guinea	Ghana	Mali
	French Polynesia	Fiji	Honduras	Mozambique
	Germany	Gabon	India	Niger
	Greece	Georgia	Kenya	Rwanda
	Guam	Guatemala	Kyrgyzstan	Sierra Leone
	Hong Kong, China	Guyana	Lao People's Democratic Republic	Somalia
	Hungary	Indonesia	Lesotho	South Sudan
	Iceland	Iran, Islamic Republic of	Mauritania	Sudan
	Ireland	Iraq	Moldova, Republic of	Syrian Arab Republic
	Israel	Jamaica	Mongolia	Tajikistan
		Jordan	Morocco	Togo
		Kazakhstan	Myanmar	Uganda
		Lebanon	Nepal	Yemen
		Libya	Nicaragua	
		Malaysia	Nigeria	
		Maldives	Occupied Palestinian Territory	
		Mexico	Pakistan	
		Montenegro	Papua New Guinea	
		Namibia	Philippines	

Income group	High-income	Upper-middle-income	Lower-middle-income	Low-income
		North Macedonia	Sao Tome and Principe	
		Paraguay	Senegal	
		Peru	Solomon Islands	
		Russian Federation	Sri Lanka	
		Saint Lucia	Tanzania, United Republic of	
		Saint Vincent and the Grenadines	Timor-Leste	
		Samoa	Tunisia	
		Serbia	Ukraine	
		South Africa	Uzbekistan	
		Suriname	Vanuatu	
		Thailand	Viet Nam	
		Tonga	Western Sahara	
		Turkey	Zambia	
		Turkmenistan	Zimbabwe	
		Venezuela, Bolivarian Republic of		

Annex B. List of countries and territories and data sources on international migrant workers

	Country or territory[43]	Type of source[44]	Reference year	Base of data
1	Afghanistan	HIES	2014	Place of birth
2	Albania	LFS	2019	Citizenship
3	Angola	HIES	2009	Place of birth
4	Argentina	LFS	2019	Place of birth
5	Armenia	LFS	2018	Place of birth
6	Australia	LFS	2019	Place of birth
7	Austria	LFS	2019	Place of birth
8	Bangladesh	LFS	2017	Place of birth
9	Barbados	HIES	2016	Place of birth
10	Belgium	LFS	2019	Place of birth
11	Belize	LFS	2018	Place of birth
12	Benin	HIES	2011	Place of birth
13	Bolivia, Plurinational State of	LFS	2018	Citizenship
14	Bosnia and Herzegovina	LFS	2019	Place of birth
15	Botswana	HS	2019	Citizenship
16	Brazil	HS	2015	Place of birth
17	Brunei Darussalam	LFS	2019	Place of birth
18	Bulgaria	LFS	2019	Place of birth
19	Burkina Faso	LFS	2018	Place of birth
20	Burundi	HIES	2014	Place of birth
21	Cambodia	LFS	2012	Place of birth
22	Canada	LFS	2018	Place of birth
23	Cabo Verde	LFS	2015	Place of birth
24	Chad	HIES	2018	Place of birth
25	Chile	LFS	2019	Citizenship
26	Colombia	LFS	2018	Place of birth
27	Comoros	LFS	2014	Place of birth
28	Congo, Democratic Republic of	LFS	2012	Citizenship
29	Costa Rica	LFS	2019	Place of birth
30	Côte d'Ivoire	LFS	2017	Place of birth
31	Croatia	LFS	2019	Place of birth
32	Cyprus	LFS	2019	Place of birth
33	Czechia	LFS	2019	Place of birth
34	Denmark	LFS	2019	Place of birth
35	Dominican Republic	LFS	2019	Place of birth
36	Ecuador	LFS	2019	Place of birth
37	Egypt	LFS	2011	Place of birth
38	Estonia	LFS	2019	Place of birth
39	Eswatini	LFS	2016	Place of birth

[43] Data obtained from the ILOSTAT/ILMS database with the exception of Republic of Korea, Nigeria, Qatar and Saudi Arabia.

[44] HIES: Household Income and Expenditure Survey; LFS: Labour Force Survey; HS: Other household survey; PC: Population Census.

	Country or territory	Type of source	Reference year	Base of data
40	Fiji	LFS	2016	Place of birth
41	Finland	LFS	2019	Place of birth
42	France	LFS	2019	Place of birth
43	Gambia	LFS	2018	Place of birth
44	Georgia	LFS	2018	Citizenship
45	Germany	LFS	2019	Place of birth
46	Ghana	HIES	2017	Place of birth
47	Greece	LFS	2019	Place of birth
48	Guatemala	LFS	2004	Place of birth
49	Guinea	PC	2014	Place of birth
50	Guyana	LFS	2018	Place of birth
51	Haiti	HIES	2012	Place of birth
52	Honduras	HS	2019	Place of birth
53	Hungary	LFS	2019	Place of birth
54	Iceland	LFS	2019	Place of birth
55	Indonesia	LFS	2019	Place of birth
56	Iran, Islamic Republic of	LFS	2018	Place of birth
57	Iraq	HIES	2012	Place of birth
58	Ireland	LFS	2019	Place of birth
59	Israel	LFS	2017	Place of birth
60	Italy	LFS	2019	Place of birth
61	Jordan	LFS	2019	Citizenship
62	Korea, Republic of	HS	2019	Citizenship
63	Lao People's Democratic Republic	LFS	2017	Place of birth
64	Latvia	LFS	2019	Place of birth
65	Lebanon	LFS	2019	Citizenship
66	Liberia	HIES	2016	Place of birth
67	Lithuania	LFS	2019	Place of birth
68	Luxembourg	LFS	2019	Place of birth
69	Madagascar	LFS	2012	Citizenship
70	Malawi	HIES	2017	Place of birth
71	Malaysia	LFS	2019	Citizenship
72	Maldives	HIES	2016	Place of birth
73	Mali	LFS	2018	Citizenship
74	Malta	LFS	2019	Place of birth
75	Mauritania	LFS	2017	Citizenship
76	Mauritius	PC	2011	Citizenship
77	Mexico	LFS	2019	Place of birth
78	Montenegro	LFS	2019	Place of birth
79	Namibia	LFS	2018	Place of birth
80	Nepal	LFS	2008	Place of birth
81	Netherlands	LFS	2019	Place of birth
82	Niger	HIES	2014	Place of birth
83	Nigeria	HIES	2018	Citizenship

	Country or territory	Type of source	Reference year	Base of data
84	North Macedonia	LFS	2019	Place of birth
85	Norway	LFS	2019	Place of birth
86	Panama	LFS	2018	Place of birth
87	Papua New Guinea	HIES	2010	Place of birth
88	Paraguay	HS	2007	Place of birth
89	Peru	PC	2017	Place of birth
90	Poland	LFS	2019	Place of birth
91	Portugal	LFS	2019	Place of birth
92	Qatar	LFS	2018	Citizenship
93	Romania	LFS	2019	Place of birth
94	Russian Federation	LFS	2019	Citizenship
95	Rwanda	LFS	2017	Place of birth
96	Saint Lucia	LFS	2019	Place of birth
97	Saudi Arabia	LFS	2018	Citizenship
98	Senegal	LFS	2015	Citizenship
99	Serbia	LFS	2019	Place of birth
100	Sierra Leone	LFS	2014	Place of birth
101	Slovakia	LFS	2019	Place of birth
102	Slovenia	LFS	2019	Place of birth
103	Solomon Islands	HIES	2013	Place of birth
104	Spain	LFS	2019	Place of birth
105	Sudan	LFS	2011	Citizenship
106	Suriname	HIES	2016	Place of birth
107	Sweden	LFS	2019	Place of birth
108	Switzerland	LFS	2019	Place of birth
109	Tajikistan	HIES	2009	Place of birth
110	Tanzania, United Republic of	LFS	2014	Citizenship
111	Thailand	LFS	2018	Place of birth
112	Timor-Leste	LFS	2013	Place of birth
113	Togo	LFS	2017	Place of birth
114	Tonga	LFS	2018	Place of birth
115	Trinidad and Tobago	LFS	2016	Place of birth
116	Turkey	LFS	2019	Place of birth
117	Uganda	LFS	2012	Place of birth
118	United Kingdom	LFS	2019	Place of birth
119	United States	LFS	2019	Place of birth
120	Uruguay	LFS	2019	Place of birth
121	Vanuatu	PC	2009	Place of birth
122	Viet Nam	LFS	2019	Place of birth
123	Zambia	LFS	2017	Place of birth
124	Zimbabwe	LFS	2019	Place of birth

Annex C. International Standard Industrial Classification of All Economic Activities Rev. 4

Broad category	Sections
Agriculture	A. Agriculture; forestry and fishing
Industry	B. Mining and quarrying
	C. Manufacturing
	D. Electricity; gas, steam and air conditioning supply
	E. Water supply; sewerage, waste management and remediation activities
	F. Construction
Services	G. Wholesale and retail trade; repair of motor vehicles and motorcycles
	H. Transportation and storage
	I. Accommodation and food service activities
	J. Information and communication
	K. Financial and insurance activities
	L. Real estate activities
	M. Professional, scientific and technical activities
	N. Administrative and support service activities
	O. Public administration and defence; compulsory social security
	P. Education
	Q. Human health and social work activities
	R. Arts, entertainment and recreation
	S. Other service activities
	T. Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use
	U. Activities of extraterritorial organizations and bodies

This third edition of the *ILO Global Estimates on International Migrant Workers: Results and Methodology* presents the most recent estimates on the stock of international migrant workers, disaggregated by age, sex, country-income group and region, and the estimation methodology. The reference year is 2019. The report predates the onset of the COVID-19 crisis, which has affected the magnitude and characteristics of international labour migration. The estimates offer a benchmark against which the COVID-19 driven changes can be analysed in the future.

The periodic publication of this report provides information on recent trends on labour migration and therefore contributes to achieving the Sustainable Development Goals, as well as supporting policymaking at the country, regional and global levels.

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