

Measuring Migration in a Census

Select Topics in International Censuses¹

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INTRODUCTION

The global significance of migration has increased markedly in the last few decades. Many migrants relocate within the boundaries of their own countries—often from rural to urban areas—while others cross one or more international boundary while migrating. Their motivations for migrating may include economic, educational, or familial reasons; or they may be forced to migrate due to natural disasters, war, or political conflicts such as in the case of refugees or internally displaced persons.

Migration issues have gained prominence in the international and domestic agendas of many countries. Quality data on internal and international migration—along with fertility and mortality—are fundamental to prepare accurate population estimates for planning purposes, to allocate resources, and to determine migration policies. Moreover, the 2030 Sustainable Development Agenda provides a new global development framework for the years between 2015 and 2030. The 17 Sustainable Development Goals and 169 targets with their 244 indicators demonstrate the scale and ambition of this new universal agenda. Of the 244 indicators, 30 make reference to migration; 24 require disaggregation by migration status; 5 concern migration directly; and 1 indicator provides context regarding the density and distribution of health workers. The international community agreed to address these data gaps by investing in more methodological work, more fully utilizing existing data, and addressing the urgent need to enhance capacities of national statistical offices (NSOs).

KEY CONCEPTS AND VARIABLES

Achieving international data comparability requires that NSOs work with the same concepts and definitions. In this section, we define and explain essential concepts for the measurement, analysis, and tabulation of internal and international migration.

Migrant Stocks and Flows

Both stocks and flows are important concepts in the analysis of migration. Typically, a stock of migrants is defined as the set of persons who have ever changed their *place of usual residence* (be it a country, province, county, etc.). That is to say, persons who have spent at least 1 year of their lives in a place other than the one in which they live at the time the data are gathered (United Nations Statistics Division, 1998) or, simply put, the total count of migrants present in a given country or political division at a particular point in time (Bilsborrow et al., 1997).

Migration flows (i.e., inflows and outflows), on the other hand, are also population counts, with the inflow being the number of migrants arriving in a given country or civil division (province, county, etc.) over the course of a specific period of time (usually a calendar year) and the outflow being the number of migrants departing from such areas over the same period (Bilsborrow et al., 1997).

Migrant stocks represent a static measure, while flows represent a dynamic measure of the migration process. For this reason, inflows and outflows are considerably more difficult to track than stocks. This is particularly true when trying to measure migration flows with a census.

¹ This technical note is one in a series of “Select Topics in International Censuses” exploring matters of interest to the international statistical community. The U.S. Census Bureau helps countries improve their national statistical systems by engaging in capacity building to enhance statistical competencies in sustainable ways.

For example, if an immigrant arrived and departed several times from the same country over a period of 10 years, how many moves are counted in the census for this individual—several or only one? Or, if *the place of previous residence* question is used, how do multiple moves within a 1- or 5-year period get accounted for if respondents are only asked about residence at two points in time? Finally, it would not be possible to count migrants in a census if they emigrated with their whole household.

Migration

Migration consists of all the relatively permanent changes of residence into, out of, or within a given political division or administrative area. Typically, internal migration involves the crossing of one or more administrative divisions—such as states, counties, or provinces, but it always occurs within the boundaries of a given country. Conversely, the crossing of an international boundary with the intention of changing residence is what defines international migration. Information on *place of birth*, *duration of residence*, *place of previous residence*, or *place of residence at a specified date in the past* can be used in conjunction with *place of usual residence* to determine the migration status of a respondent.

Internal Migration

The United Nations Statistics Division (2015) recommends that countries planning to produce internal migration statistics from census data ask *place of usual residence* in addition to *place where present at the time of census* if the latter is the only question they ask in their censuses. In most instances, the *usual residence* of respondents and their *place of residence* on census day will be the same. Furthermore, the concept of *place of usual residence* will most likely be synonymous with the concept of *de jure* residence,² while the *place where present at the time of census* would be the same as the *de facto* residence. In practice, *place where present at the time of census* is often not asked in census questionnaires and instead extracted from georeferenced address registries or via GPS technology.

International Migration

International migration is the movement across national borders. It can be measured by tracking migration in/outflows and immigrant stocks. To accurately measure migration, each country should know how many migrants and from where they come (collectively referred to as

² “In certain circumstances, however, the term ‘*de jure*’ may carry with it a requirement that the person’s residence at that place has a basis in the legal system applicable to that specific place” (United Nations Statistics Division, 2015, p. 47).

“immigrants”), and also how many and to what countries people of a country are moving (collectively referred to as “emigrants”)—in addition to their characteristics. It is recommended that census data be used for the measurement of immigrant stocks only. The internationally recognized standards for the collection of international migration data will be explained in this section.

Usual Residence

The United Nations Statistics Division (2015) defines *usual residence* for census purposes as the place at which a person lives at the time of the census and has been there for “some time” or intends to stay there for “some time.”

To reduce ambiguity, it is recommended that countries apply a threshold of 12 months when considering *place of usual residence* according to one of the following two criteria:

- (a) The place at which the person has lived continuously for most of the last 12 months (that is, for at least 6 months and 1 day), not including temporary absences for holidays or work assignments, or intends to live for at least 6 months.
- (b) The place at which the person has lived continuously for at least the last 12 months, not including temporary absences for holidays or work assignments, or intends to live for at least 12 months.

Box 1 shows an example of how the U.S. Census Bureau instructed respondents to indirectly confirm their “current” *usual residence* in the 2010 Census questionnaire. Since 2000, the U.S. Decennial Census has had 10 or fewer questions, none of which can be used to measure migration.

Box 1.

U.S. 2010 Decennial Census Questionnaire Guidelines on Usual Residence Question

Use a blue or black pen.

Start here

The Census must count every person living in the United States on April 1, 2010.

Before you answer Question 1, count the people living in this house, apartment, or mobile home using our guidelines.

- Count all people, including babies, who live and sleep here most of the time.

Source: U.S. Census Bureau; U.S. 2010 Census.

Duration of Residence

Duration of residence is defined as the number of complete years that a person has lived in their locality of *usual residence* or in the civil division in which such locality is situated (United Nations, 2015).

It should be made clear that, when collecting information, the interest is in the length of residence in the civil division, not in a particular housing unit. Also, this question is usually asked along with place of previous residence. This way, cross-sectional estimates of internal and international migration flows can be generated.

Place of Previous Residence and Place of Residence at a Specified Date in the Past

The *place of previous [usual] residence* is the civil division or the foreign country in which the individual resided immediately prior to migrating into the civil division of present *usual residence*. In the case of *place of residence at a specified time in the past*, the reference date chosen should be that which is most useful for national purposes. In most cases, this has been deemed to be 1 or 5 years preceding the census (United Nations, 2015).

Box 4 shows an example of how *place of residence at a specified date in the past* (i.e., 1 year before enumeration) was asked in the 2018 American Community Survey (ACS). The Census Bureau launched the ACS in 2005. This survey replaced the decennial census long-form questionnaire in 2010.

Country of Birth

Similar to *place of birth* for the native-born population, *country of birth* refers to the country in which a foreign-born person was born. Like *place of birth*, it usually refers to the country where the mother of the individual resided at the time of the birth. However, in some countries, *country of birth* is defined as the country in which the birth actually took place (United Nations, 2015). For purposes of coding, it is recommended that countries use the United Nations' (2015) *Standard Country or Area Codes for Statistical Use*³ system.

³ United Nations, *Standard Country or Area Codes for Statistical Use*, <<http://unstats.un.org/unsd/methods/m49/m49.htm>>.

Year of Entry

Year or period of arrival in the country refers to the calendar year and month of arrival of a foreign-born person to the country of enumeration. It is recommended that for tabulation purposes, this information is shown in terms of year (or period) of arrival and not in terms of completed years (United Nations, 2015). The year and month of arrival can also be asked in terms of number of years and months since arrival. However, the use of this kind of question is more likely to yield inaccurate data than simply asking the year and month of arrival.

Box 4.

Sample Indirect Question on Place of Residence at a Specified Date in the Past

a. Did this person live in this house or apartment 1 year ago?

- Person is under 1 year old → SKIP to question 16
- Yes, this house → SKIP to question 16
- No, outside the United States and Puerto Rico – Print name of foreign country, or U.S. Virgin Islands, Guam, etc., below; then SKIP to question 16
- No, different house in the United States or Puerto Rico

b. Where did this person live 1 year ago?

Address (Number and street name)

Name of city, town, or post office

Name of U.S. county or municipio in Puerto Rico

Name of U.S. state or Puerto Rico

ZIP Code

Source: U.S. Census Bureau, 2018 American Community Survey.

Finally, countries should decide if they want to collect information on either the *date of first arrival* or the *date of the most recent arrival* in the country, depending on their information needs. For example, a country with high levels of international return migration may want to inquire about the *most recent arrival* in the country. Box 5 shows a sample question where the most recent entry is preferred over the first arrival.

Box 5.
Sample Year or Period of Arrival Question

202	217	218	219	220
	Asylum status (for non-Jordanian persons)			
Serial number for person	Is (name of person) an asylum seeker?	Is (name of person) registered as a refugee in records of government of Jordan or UNHCR?	Country where a person came from	Date of arrival to Jordan (Month & Year)
	1. yes 2. no 3. don't know	1. registered and has a document 2. Apply an application 3. unregistered 3. Don't know		

Source: Jordan Department of Statistics, Population and Housing Census 2015.

Reasons for Migration

Some countries may want to include questions on *reasons for migration* in their census questionnaires. The reasons reported include economic, personal, family reunification, education, and humanitarian categories. However, the inclusion of such questions in censuses to study domestic migrant movement is not recommended because these questions tend to result in high proxy respondent bias. In addition, the small set of precoded reasons typically included with the question fails to capture the complexity of migrants' motivations for relocating.

This does not mean that there is no value in inquiring about *reasons for migration* in a census. This question can be useful to assess the size of the refugee population in countries where immigrant registration systems are weak and even to provide insight into the changing legal statuses of immigrants.

The International Recommendations on Refugee Statistics (Eurostat & United Nations, 2018) recommends including a question on *reason for migration*, as it differentiates the people who moved to a country for humanitarian reasons from those who migrated for economic or familial reasons. The United Nations Economic Commission for Europe (2017) also recommends that censuses ask a question about *reason for migration*, which should include a response category of "forced displacement" to help identify the size and characteristics of the refugee population.

Box 6 represents an example on how the *reasons for migration* question can be asked in a census. In this example, an "other" category was included for all other less common reasons for migrating.

Box 6.
Sample Indirect Question on Place of Residence at a Specified Date in the Past

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For non-Jordanians:
Main reason for coming to Jordan
for Jordanians:
Main reason for Jordanian being abroad
1. Insecurity & armed conflict in country of origin
2. work
3. study
4. accompanying
5. tourism
6. medication
7. other (spiffy)
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Source: Jordan Department of Statistics; Population and Housing Census 2015.

POPULATION CENSUSES AND ALTERNATIVE SOURCES OF DATA

Migration statistics are typically gathered from three main sources—border collection, registries, and field inquiries. Border collection includes the entry and exit statistics collected at all points of entry or departure in a country. Points of entry are not necessarily situated at the border, as they also include airports and seaports. Registries include population registers, employment registers, and other administrative records. Finally, field inquiry includes population censuses and sample surveys.

Given that border collection data only contain arrival and departure information, this method cannot be used to calculate the number or characteristics of migrants living in a country at a given point in time. However, border collection may represent the only feasible method of migration data collection in places where registers are not sufficiently developed or accurate to provide information on migrant flows and where field inquiries cannot be conducted frequently enough to produce significant estimates (United Nations, 1980).

Registration is another source of data for migration. Registers can be useful sources to complement census data. However, one of the main disadvantages of using registers for migration data collection is that most registers have not been specifically designed to obtain information on migration, and those which have, are typically limited to collect the facts needed for specific administrative purposes. Moreover, migrants leaving the country may not have to inform the registry if they are leaving for less than a specified period of time, and they may not be required to inform officials of their return (United Nations, 1980).

Field inquiry—namely household surveys and population censuses—can be the most comprehensive and detailed source of data on migration. Field inquiry as a source for migration flow statistics can be used by itself or in combination with border collection or registers. This method of collecting data offers the opportunity of obtaining extensive detail that is not ordinarily available in registers and cannot be investigated at border crossings or points of entry. Migration flow statistics (whether internal or international) can be collected in any survey or census by asking respondents a simple question on the *place of residence* on one or more dates in the past (e.g., *place of residence 1 year ago*). However, one of the main limitations of field inquiry is that surveys or censuses do not permit an assessment of the flow of migration on a continuous basis. This is because immigration coverage is restricted to net residual immigrants in the population at the time of the inquiry and because information on emigration is collected by proxy response. Data on emigrants cannot be collected when a whole household emigrates, and responses about emigrants are typically collected from family members, which leads to inaccurate responses (United Nations, 1980).

In regards to international migration, population censuses may be the most comprehensive source of internationally comparable statistics. In part, this is due to censuses' essential characteristics of universality and periodicity. That is, censuses should cover every person present at a given point in time in a country and censuses should be taken at regular intervals so that information can be compared in a fixed sequence (United Nations Economic Commission for Europe, 2015). See Box 7 for an analysis of questions asked in the 2010 round of censuses. Population censuses are well suited for collecting data on immigrant stocks. Unlike migration flows, migrant stocks are static measures of migration that represent a count. And this is precisely what censuses are meant to do, obtaining data on a given population at a given moment in time. However, they also have a number of limitations. First, censuses generally happen only every 10 years. Second, short questionnaires or even longer questionnaires with few questions on migration cannot provide much detail. Third, some immigrants, such as irregular migrants, may conceal their migrant status to governmental agencies. Finally, errors in reporting may happen because census takers often receive minimal training in migration topics and because census questions are often responded to by a person other than the migrant.

Migration flow data obtained from field inquiry can also be used as a measure of internal migration. Box 8 shows net migration flows between California and other states. Data from the 1960 and 2000 U.S. population and housing censuses were used by analyzing the questions on *current* and *previous residence*, namely the question on *place of usual residence 5 years ago*.

MIGRATION TABULATION AND ANALYSIS

Asking questions on *usual* and *previous residence* along with *reasons for migrating* in a census can be very valuable for the study of migration. Table 1 presents an example of how data on *reasons for migration* can be cross-tabulated with key sociodemographic characteristics.

In addition, georeferencing current and previous residence also allows for estimating distance moved and type of move (i.e., intracounty/intercounty/from abroad), as shown in Table 1. In addition, with these data, it would be possible to produce subnational net migration tables, e.g., province-to-province or county-to-county migration flow tables.

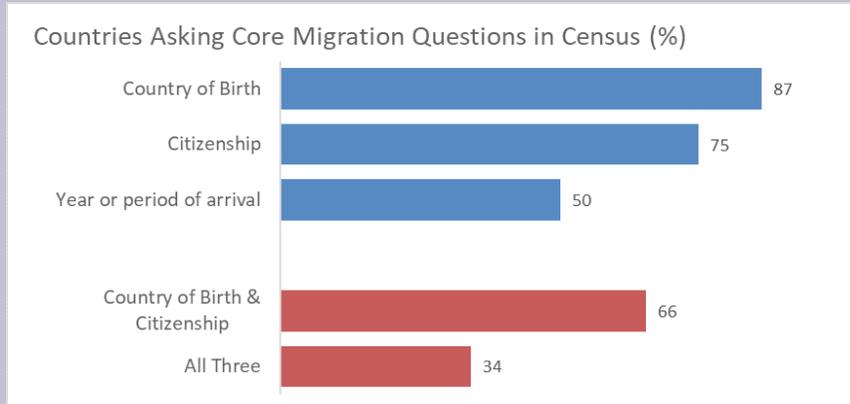
The inclusion of the question on *country of birth* (often as an option in the *place of birth* question) allows for in-depth analysis of census data in the area of economic and demographic development paths recognizing the foreign-born. Together with sex and age variables included in the census, population pyramids of the local and foreign-born populations can be created to display the demographic contribution of migration to the local population. At the same time, integrating census data from migrants' country of origin

Box 7.

Migration Questions in 2010 Round of Censuses

Within the context of the call to disaggregate all relevant Sustainable Development Goal (SDG) indicators by migration status (SDG indicator 17.18.1), an analysis was conducted to assess the number of censuses that collected core questions on migration status in the 2010 Census round.

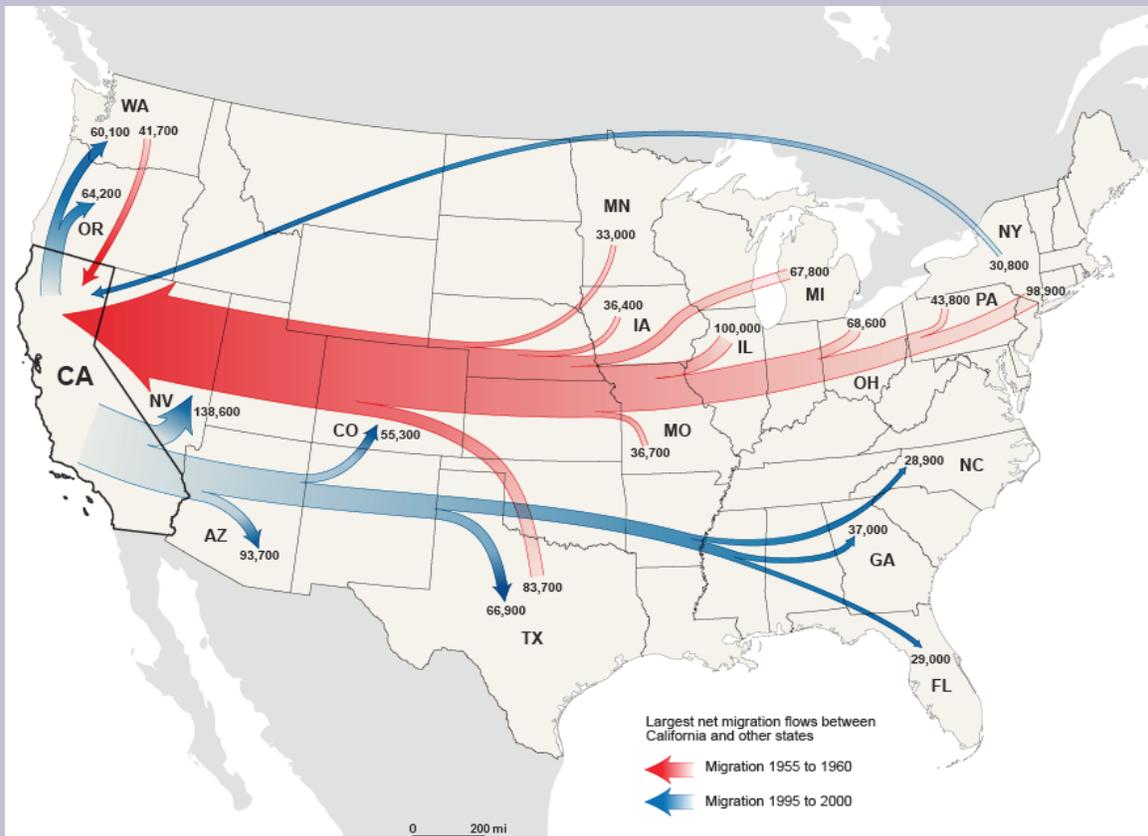
Of the 149 countries for which data are available in the United Nations Statistics Division database, more than 87 percent integrated a question in their census about *country of birth*; 75 percent asked for *citizenship*; and 50.3 percent asked for immigrants' *year or period of arrival*. When looking at the combination of core questions included in the questionnaire, 66 percent of all countries asked both questions on *country of birth* and *citizenship* and only 34 percent asked all three core questions in their latest census.



Source: Juran & Snow, 2018.

Box 8.

Net Migration Flows Between California and Other States: 1955-1960 and 1995-2000



Source: U.S. Census Bureau, 2013.

and destinations allows for an estimation of the impact of outmigration on a national population. Furthermore, generational status can be determined from *country of birth* data. Such data is essential in the study of assimilation and integration of the foreign-born. Information about the *country of residence* at 1 year or 5 years prior to the census provides a reference date to international migration during a specific point in the past. Questions on time or period of

arrival (*year of entry*) for foreign-born people in the country of destination allow for calculating the duration of stay and classifying migrant populations by time of arrival. In addition, special considerations need to be taken to ensure that all migrant populations are fully counted in censuses, while their confidentiality is protected.

Table 1.
Reason for Move by Selected Characteristics (Collapsed Categories): 2012 to 2013

Selected characteristics	Total (in thousands)	Percent			
		Family-related	Job-related	Housing-related	Other
Movers (1 year and over)	35,918	30.3	19.4	48.0	2.3
Sex					
Male	17,638	29.6	20.4	47.6	2.3
Female	18,280	30.9	18.5	48.3	2.4
Age					
1 to 17 years	9,194	31.0	17.0	50.5	1.5
18 to 24 years	6,498	32.0	18.7	45.6	3.7
25 to 29 years	4,915	31.0	23.6	42.5	2.8
30 to 44 years	8,288	27.6	22.7	48.3	1.4
45 to 64 years	5,443	29.6	17.8	50.4	2.3
65 years and over	1,581	32.5	12.0	50.0	5.4
Race and Hispanic Origin					
White alone	26,219	31.0	19.7	46.8	2.5
Black or African American alone	5,940	30.6	15.1	52.7	1.6
Asian alone	2,041	21.2	28.3	47.8	2.6
All remaining single races and all race combinations ¹	1,719	28.9	19.4	49.9	1.9
White alone, not Hispanic or Latino	19,862	30.8	20.2	46.0	2.9
Hispanic or Latino ²	7,230	31.7	17.6	49.3	1.5
Educational Attainment (25 years and over)					
Not a high school graduate	2,579	29.2	14.7	54.2	1.9
High school graduate	5,776	32.0	16.3	49.2	2.4
Some college or associate's degree	5,639	32.7	17.2	47.8	2.3
Bachelor's degree	4,188	25.8	28.3	43.2	2.7
Professional or graduate degree	2,045	20.2	35.2	42.8	1.9
Marital Status (15 years and over)					
Married	9,993	26.1	24.0	48.5	1.5
Widowed	733	32.1	10.2	51.8	5.9
Divorced	3,352	36.1	16.5	44.5	3.0
Separated	997	46.5	13.2	38.8	1.4
Never married	12,965	30.3	18.8	47.6	3.3
Labor Force Status (16 years and over)³					
Employed (civilian)	16,951	29.5	22.3	46.2	2.0
Unemployed	2,291	33.3	17.0	46.5	3.2
Not in labor force	8,091	30.8	15.1	50.1	4.0
Type of Move/Distance Moved⁴					
Intracounty	23,150	29.9	10.5	57.6	2.0
Intercounty	11,731	31.0	34.8	31.2	2.9
Less than 50 miles	4,720	33.4	22.7	41.5	2.5
50 to 199 miles	2,458	29.6	34.3	32.1	3.9
200 to 499 miles	1,661	25.2	48.0	23.0	3.7
500 miles or more	2,892	31.7	47.5	18.4	2.4
From abroad	1,036	30.3	43.3	22.4	4.0

¹ Includes American Indian and Alaska Native alone, Native Hawaiian and Other Pacific Islander alone, and Two or More Races.

² Hispanics or Latinos may be of any race.

³ Members of the Armed Forces are excluded due to small sample size.

⁴ Distance moved is only calculated for intercounty moves.

Source: U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement, 2013.

CONCLUSION

The 2020 Census round (2015–2024) provides a great opportunity to increase significantly the availability of high-quality, timely, and reliable data disaggregated by migratory status and other characteristics relevant in national and international contexts. Given the current flow of migration including asylum seekers, economic migrants, migrants seeking to reunify with their families, or people migrating without documentation, among others, the United Nations advocates for the inclusion of a question on *reasons for migration* (UNECE, 2017; UNFPA, 2017; UNHCR, 2015).

More needs to be done to encourage the tabulation and dissemination of international migration data from population and housing censuses around the world in order to enhance the exchange of statistical information between countries and to inform evidence-based public policies. This note summarizes the recommendations from the international community on measuring migration in a census.

REFERENCES

- Bilborrow, R. E., Graeme Hugo, Amarjit S. Oberai, and Hania Zlotnik, *International Migration Statistics: Guidelines for Improving Data Collection Systems*, International Labour Office, Geneva, 1997.
- Eurostat and United Nations, *International Recommendations on Refugee Statistics*, <<http://ec.europa.eu/eurostat/web/expert-group-on-refugee-statistics/documents-presentations/global-consultation>>, accessed October 10, 2018.
- Jensen, E., *A Review of Methods for Estimating Emigration*, U.S. Census Bureau, Washington, DC, 2015.
- Juran, S. and Rachel Snow, *The Potential of Population and Housing Censuses for International Migrant Analysis*, Statistical Journal of the IAOS, vol. 32, no. 2, pp. 203–213, 2018.
- United Nations, *Recommendation on Statistics of International Migration*, Statistical Papers, Series M, No. 28, United Nations Publications, New York, 1980.
- United Nations, *Resolution adopted by the General Assembly on 19 September 2016*, New York, 2016, <www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/71/1>, accessed October 10, 2018.
- United Nations Department of Economic and Social Affairs, *International Migration Report 2015: Highlights*, United Nations Publications, New York, 2016.
- United Nations Development Programme, *Human Development Report 2009*, New York, 2009.
- United Nations Economic Commission for Europe, *Conference of European Statisticians Working Paper by Expert Group of Refugee and Internally Displaced Persons Statistics (EGRIS), Work Session on Migration Statistics* Geneva, 2017, <<http://ec.europa.eu/eurostat/documents/7723677/8307029/International-Recommendations-on-Refugee-Statistics.pdf/4c2fdd5c-abd1-4960-a89b-09f06fec9d64>>, accessed October 10, 2018.
- United Nations Economic Commission for Europe, *Conference of European Statisticians Recommendations for the 2020 Censuses of Population and Housing*, United Nations Publications, New York and Geneva, 2015.
- United Nations High Commissioner for Refugees, *International Recommendations on Refugee Statistics*, United Nations Publications, New York, 2015.
- United Nations Population Fund (UNFPA), *UNFPA Strategy for the 2020 Round of Population & Housing Censuses (2015–2024)*, New York, 2017.
- United Nations Statistics Division, *Principles and Recommendations for Population and Housing Censuses*, Revision 3, United Nations Publications, New York, 2015.
- United Nations Statistics Division, *Recommendations on Statistics of International Migration*, Revision 1, United Nations Publications, New York, 1998.
- U.S. Census Bureau, *Reasons for Moving: 2012–2013, Population Characteristics*, U.S. Department of Commerce, Washington, DC, 2014.
- U.S. Census Bureau, *Net Migration Between California and Other States: 1955–1960 and 1995–2000, Census 2000 and 1960, 2013*, <www.census.gov/dataviz/visualizations/051/>, accessed October 10, 2018.