

# Quality Assurance: Household Rostering in a Census

## *Select Topics in International Censuses*<sup>1</sup>

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### INTRODUCTION

The primary objective of a population census is to provide a reliable basis for an accurate count of the population of a country and its distribution at a point in time. For planning and policy purposes, the count and distribution of people at their usual residence is generally the best indication of where people will demand and consume services.<sup>2</sup>

People are usually identified in households and collective living quarters. Most individuals are identified in households within housing units. Therefore, accurately defining the members that belong to a household and including all of them in the household roster is vital for achieving a full and successful population count. Listing all household members and accurately recording their sex and age is a fundamental task for disaggregating other census variables, such as disability and education, and are used in skip patterns and consistency checks to enhance data quality in censuses.

This technical note describes international guidelines for household rosters and provides recommendations on how to improve the inclusion of young children and tenuously attached people to households. The goal is to assist subject matter experts in designing instruments that enhance the collection of data from people listed in complete household rosters.

<sup>1</sup> This technical note is part of a series on Select Topics in International Censuses (STIC) that explores 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.

<sup>2</sup> This technical note focuses on identifying household members in their usual place of residence for a population census.

### UNIT OF ENUMERATION

Before we define a household roster, it is important to understand the main units of enumeration in a census.

#### Person

In a population census, the primary unit of enumeration is the person. Generally, persons are identified in the places where they usually eat and sleep—whether in their households or collective living quarters.

#### Household

The household is a unit of enumeration for a housing census.<sup>3</sup> The housekeeping concept defines the household based on the arrangements made by persons, individually or in groups, for providing themselves with food and other essentials for living (Box 1).<sup>4</sup> Persons do not need to be related to make up a household.

For example, in 2010 one National Statistical Office (NSO) defined a private household for a census as where one or more persons are living together (sleeping most nights of the week) and sharing at least one of the main daily meals (Central Statistics Office, Republic of Trinidad and Tobago, 2010). In dwellings occupied by members that do not share a common budget for food provision, enumerators should probe to separate the various households following the housekeeping concept.

<sup>3</sup> For the housing census, the household is one of the three units of enumeration, the other two units are living quarters (housing units and collective living quarters) and buildings.

<sup>4</sup> Some countries use the “household dwelling” concept, which regards all people living in a housing unit as belonging to the same household. According to this concept, there is one household per occupied housing unit.

Household and family are different concepts that cannot be used interchangeably. A family within the household includes members related through blood, adoption, or marriage. It is recommended that the household be used as the unit of enumeration and that the family be a derived topic only.

### Collective Living Quarters

In addition to people identified in households within housing units, there are people living in institutions who are not members of a household. This group constitutes the “institutional population,” which is also counted in population censuses. Information on people living in group quarters, such as specialized hospitals, college dormitories, prisons, among others, is collected and entered in a living quarters questionnaire by a trained enumerator.<sup>5</sup> This method can also be used in nomadic and homeless populations.

### TIME OF ENUMERATION

An essential feature of a census is that people are enumerated at a well-defined point of time. For this purpose, a census moment is usually fixed at midnight at the beginning of the census day (e.g., midnight April 1, 2020).

Each person alive at the census moment is included in the census count, even if the actual enumeration takes place days or weeks after this census moment. Persons that were alive at the census moment, but who died before the actual enumeration should be included in the household or living quarters rosters. Infants born before the census moment are to be included in the household roster. Infants born after the census moment are not to be included in the household roster.

### PLACE OF ENUMERATION

The place of enumeration is either the place of usual residence (de jure) or the place where the person is found at the census reference moment (de facto).<sup>6</sup> One should ensure that each person has only one place of enumeration.

### Place of Usual Residence

Box 2 explains how to apply the recommended 12-month threshold to define a usual place of residence.

It is important to note that “living” might mean different things to different people. It is recommended to define the usual place of residence based on observable behavior. For example, sleeping, eating, keeping most of your belongings, showering, receiving mail, going to school, and the use of infrastructure, etc. Observable behaviors depict

<sup>5</sup> A household may be located [...] in a set of collective living quarters such as a boarding house, a hotel or a camp, or may comprise the administrative personnel in an institution (United Nations Statistics Division 2017).

<sup>6</sup> A de jure census is when people are counted at their usual place of residence. A de facto census is when people are counted where they are found at the time of the count.

Box 1.

### The Housekeeping Concept

According to the housekeeping concept, a household may be either:

- A one-person household includes a person who makes provision for his or her own food and other essentials for living without combining with any other person.
- A multiperson household includes a group of two or more persons living together who make common provision for food and other essentials for living. The persons in the group may pool their resources and may have a common budget; and they may be related or unrelated persons or constitute a combination of persons both related and unrelated.

Source: United Nations Statistics Division, Principles and Recommendations for Population and Housing Censuses, Revision 3, ST/ESA/STAT/SER.M/67/Rev. 3, New York, 2017.

Box 2.

### Applying the 12-Month Threshold to Define Usual Place of Residence

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:

- The place at which the person has lived continuously for most of the last 12 months (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.
- 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.

Source: United Nations Statistics Division, Principles and Recommendations for Population and Housing Censuses, Revision 3, ST/ESA/STAT/SER.M/67/Rev. 3, New York, 2017.

a clearer definition of the actions that define household membership and enhance a uniform understanding of who does and does not belong to a household unit.

### Who to Interview

Census enumerators must obtain data from a knowledgeable respondent, who is a household member and at least 15 years old (United Nations, 2017). This respondent is

usually the best source of accurate and complete information about their household and housing unit.

However, it is not always possible to collect information about each individual at their usual residence, for example, when an entire household is away from its usual place of residence at the time of the census. If the housing unit is vacant, census enumerators might obtain information by proxy from a neighbor, building manager, or some other knowledgeable source. If the housing unit is occupied, information on number of household members by sex can also be collected.

The information on people staying in collective living quarters should be provided by the administrator of the facility or institution.

### Household Roster

A household roster is a list that includes the names of all the persons who have usually eaten and slept in a housing unit or intend to eat and sleep for a period of time (Box 2), even if they were working and eating and sleeping intermittently during the work week at other locations, regardless of their nationality and government authorization to reside in the country (United Nations, 2017).

Box 3.

### Groups Included or Excluded From the Household as Their Place of Usual Residence Within the Country

Included:

- All family members and relatives eating and sleeping in the household. Including young children and newborns still in the hospital.
- Housemates, roommates, foster children, roomers, boarders, and live-in employees eating and sleeping in the household.
- Persons who are temporarily away on a business trip, on vacation, or in a general hospital.
- Persons who work away from home during the week and who return to the family home on weekends should consider the family home as their usual place of residence.
- Persons of minor age in primary and secondary education who are away from home during the school term.
- Persons who regularly live in more than one residence within the country during the year. For these persons, the place of usual residence is where he or she spends the majority of the week or year before the census date.
- Homeless or roofless persons, nomads, vagrants, and persons with no concept of usual residence. For this group, the place of enumeration is considered to be their place of usual residence.
- A child who alternates between two households within the country (for instance after their parents have divorced) should consider the household where they spend most of the year before the census as their place of usual residence. When an equal amount of time is spent in both households, the place of usual residence should be as for the household where the child is staying at the census reference time.
- Persons who were members of the household at census date, but have since died at the time of enumeration.

Excluded:

- Students in tertiary education who are away from home while at college or university should consider their term-time address as their place of usual residence regardless of whether this is an institution (such as a boarding school) or a private residence.
- All inmates (e.g., patients in hospitals or hospices, old persons in nursing homes or convalescent homes, prisoners, and those in juvenile detention centers) who at the time of the census have spent, or are likely to spend, 6 months or more in an institution should be included in the institution's group quarter roster.

Source: United Nations Statistics Division, Principles and Recommendations for Population and Housing Censuses, Revision 3, ST/ESA/STAT/SER.M/67/Rev. 3, New York, 2017.

Box 3 lists recommendations on the inclusion and exclusion criteria for household members following the usual resident population criterion within a given country.

Subject matter experts and census questionnaire designers should be aware that their definition of household and household members may not be operationalized correctly by enumerators and respondents. Respondents also may have culturally biased intuitions about who should be considered a household member and their intuitions may not correspond to the census definition. One approach for reducing such “errors” in rostering is to present rules for respondents and enumerators to follow in creating roster lists.

Figure 1 details printed materials used in the 2020 Census nonresponse follow-up field operation. This information sheet provided information to the respondent and the enumerator on who not to include and include in the household roster.

In the United States, according to the 2020 Census residence criteria, live-in employees, such as caregivers or domestic workers, were counted at the residence where they lived and slept most of the time. If they could not determine a place where they lived most of the time, they were counted where they were staying on Census Day (U.S. Census Bureau, n.d.).

## IDENTIFYING THE REFERENCE PERSON IN A HOUSEHOLD

To list household members, the enumerator should first identify the household reference person and then identify the other members according to their relationship to the reference person. The reference person is used only to determine relationships between household members. Every household must have a reference person. The traditional method to designate the reference person or head of household is to identify the person with primary authority and responsibility for household affairs and its chief economic support. The concept of head of household is no longer valid for family households when spouses consider themselves to be equal in household authority and responsibility and may share the economic support of the household. In these cases, the members of the household designate one among them as a reference member with no implication of headship. Note that the respondent may be different from the reference person used in the roster.

### Recognizing Females as Reference Persons

Even in the many countries where the traditional concept of head of household is still relevant, the procedures followed in applying the concept may distort the true picture regarding female heads of households. The most common assumption that can distort the facts is that no woman can be the head of any household that also contains an adult male. This sex-based stereotype reflects

circumstances that may have been valid in the past but are not currently reasonable, as the household and economic roles of women continue to change. It is therefore important that clear instructions be provided as to who is treated as the reference person of the household to avoid the complications of enumerator or respondent preconceptions and the resulting bias. Box 4 explains

Figure 1.  
**Nonresponse Follow-Up Instructions**

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WHO TO COUNT ON APRIL 1<sup>st</sup>

We need to count people where they live and sleep most of the time.

<b>Do NOT include:</b>	<b>Do include:</b>
<ul style="list-style-type: none"> <li>• College students who live away from this address most of the year.</li> <li>• Armed Forces personnel who live away.</li> <li>• People in a nursing home, mental hospital, etc. on April 1, 2020.</li> <li>• People in jail, prison, detention facility, etc. on April 1, 2020.</li> </ul>	<ul style="list-style-type: none"> <li>• Babies and children living here, including foster children.</li> <li>• Roommates.</li> <li>• Boarders.</li> <li>• People staying here on April 1, 2020 who have no permanent place to live.</li> </ul>

Source: 2020 Census materials for the nonresponse follow-up field operation.

### Box 4.

#### Selection Criteria for the Reference Person in the Household

Guidance on the selection of the reference person, which will yield some explicit kin relationships:

- Either the husband or the wife of a married couple living in the household (preferably from the middle generation in a multigenerational household).
- Either partner of a consensual union couple living in the household where there is no married couple present (where applicable).
- The parent, where one parent lives with their sons or daughters of any age.
- Where none of the above conditions apply, any adult member of the household may be selected.

Source: United Nations Statistics Division, Principles and Recommendations for Population and Housing Censuses, Revision 3, ST/ESA/STAT/SER.M/67/Rev. 3, New York, 2017.

international guidelines for the selection of the reference person in the household.

## GROUPS THAT ARE DIFFICULT TO ENUMERATE<sup>7</sup>

There can be challenges in applying the concept of “usual residence” if a person has more than one residence, such as people who spend periods in schools, university campuses, specialized medical facilities, nursing homes, or military camps. There may also be those who do not have a usual residence at all, such as nomadic peoples or homeless people. In general, people who move frequently and cannot identify their place of usual residence should be enumerated at the place where they are found at the time of the census. Paragraph 2.53, or the Principles and Recommendations for Population and Housing Censuses Revision 3 (United Nations, 2017), provides guidelines on the inclusion and exclusion criteria for household members in a country.

### Very Young Household Members

Young children aged 0 to 9 are often left off household rosters. This recurrent problem leads to an under-enumeration of the count of young children in censuses regardless of questionnaire design, and cultural and socioeconomic characteristics of countries (O’Hare, 2017).

Researchers showed that high rates of undercount were found among children who were grandchildren, other relatives (such as a niece, nephew, or cousin), and nonrelatives of the householder (such as step or adopted children) (Jensen et al., 2018; Pascale, 2022) as well as young children living in areas with high concentrations of minority families in linguistically isolated households or in group quarters (Griffin and Konicki, 2017; O’Hare et al., 2019).

After listing all household members, it is recommended to include a recovery question that reminds the respondent of the possible presence of babies or infants in the household who have not been included in the household roster.

### Service populations

Service populations are relevant where a significant proportion of the population providing or using services in an area are not usual residents of that area. Types of service populations include daytime, workplace, and visitor populations. A service population is considered when a usual resident population count does not represent the demand for, or provision of, services in a country or part of a

<sup>7</sup> For more information, refer to “Counting the Hard-to-Count in a Census” (U.S. Census Bureau, 2019).<sup>7</sup>

country. For example, foreign service populations consisting of foreign residents who cross the border regularly to provide or consume services (United Nations, 2017).

## HOUSEHOLD ROSTERS IN ELECTRONIC QUESTIONNAIRES<sup>8</sup>

Electronic questionnaires are developed using data entry programs with built-in logic controls. A complete list of household members and their sex and age is the basis for skip patterns and consistency checks in the data entry application. Not all possible consistency checks are conducted during computer-assisted data collection. After data collection is concluded, census raw data should be edited and imputed.

### Quality Checks During Field Enumeration

One possible way to increase the quality of data capture in the field is to task supervisors to do random checks of household rosters. It is recommended that supervisors check randomly selected households in each enumeration area for the total number of household members, as well as the age and sex of each person listed in the household roster.

## CONCLUSION

Defining clear criteria, questions, manuals, materials, and applications that facilitate the work of enumerators to identify and include all household members is one of the most important elements to ensure a complete and accurate count. It is recommended that enumerators and supervisors receive training on applying the criteria to define whether a person should be included in the household roster. An accurate roster is essential for high-quality data on all other parameters.

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<sup>8</sup> For more information, refer to “New Technologies in Census Data Collection Part 2: Developing an Electronic Questionnaire” and “New Technologies in Census Data Collection Part 4: Developing Specifications for an Electronic Questionnaire” (U.S. Census Bureau, 2016 and 2021).

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