Measuring Work and Labor Market Participation in a Census

Select Topics in International Censuses[1]

Released March 2022

INTRODUCTION

The most important way in which members of a society transform their human capital is through their engagement in productive activities. Data on economic characteristics from a census result in valuable and reliable insights on labor supply and labor underutilization, industrial activities, commercial growth and human resource management at the local level, and for small population groups.

Countries should consider collecting data on economic characteristics in censuses as a component of their national statistical system. Although periodic household surveys collect information on economic characteristics, data from these surveys is subject to sampling error. Moreover, census data on economic characteristics provide sample frames for most household surveys (including labor force surveys) and an opportunity to update national occupation and industrial classifications. Adding labor force participation questions in a census allows for the estimation of many indicators for Sustainable Development Goals: 3 Good Health and Well-Being; 5 Gender Equality; 8 Decent Work and Economic Growth; 9 Industry, Innovation and Infrastructure; and 10 Reduced Inequalities.

The United Nations (UN) recommends the inclusion of the following **core topics** in a census to measure economic characteristics: **labor force status, status in employment, industry, occupation, and participation in own-use production of goods**. Additional topics on place of work, institutional sector of employment, informality, working time, and income could also be considered by countries. This guide summarizes the United Nations (2017) and the International Labor Organization (ILO) (2019, 2020) recommendations on collecting information on economic characteristics in censuses.

KEY CONCEPTS FOR WORK STATISTICS

There are fundamental differences between the concepts of work and employment. However, employment is a subset of work. **Work** is defined as "any activity performed by people of any sex and age to produce goods or to provide services for use by others or for own use."[2] The international standards recognize five forms of work: own-use production work, employment work, unpaid trainee work, volunteer work, and other work activities. The population census does not aim to capture all forms of work. It focuses on measuring participation in employment work and if pertinent participation in own-use production work.

Reference Period

Most measures of work are tied to activities performed before, during, and after a short reference period of 1 week. A longer reference period of 6 or 12 months is not recommended because it is subject to recall bias and reporting errors; does not capture short term changes; increases the burden on respondents; does not allow the collection of information on economic characteristics within a defined point in time; and it may not be coherent with other labor force surveys collected in the country.

[2] United Nations Statistics Division, *Principles and Recommendations for Population and Housing Censuses*, Revision 3, United Nations Publications, New York, 2017.

Age Limit

Information on economic participation should be collected for people above a lower age limit according to the minimum age for employment, exceptions in national laws and regulations, and the age of completion of compulsory schooling. If collecting data on child labor, the lower age limit should be set at 5 years. A population between 5 and 17 years old is considered relevant for the collection of statistics on child labor by international standards. Countries should consider harmonization with national statistics programs on labor force. As a guideline, census tabulations should distinguish between people under and over age 15. An upper age limit is not recommended, although countries should consider the cost of collecting information on economic characteristics of older people (e.g., above age 75).

Priority Rule

There are three groups among the population 15 years and older (or the population legally allowed to work) that are defined according to the priority rule. These three groups are: employed, unemployed, and out of the labor force. The priority rule gives precedence to any employment over all other activities and to unemployment over being outside the labor force. For example, a homemaker who worked for pay or profit at least 1 hour in the last week while also seeking other job opportunities and available to start at a job should be classified as employed. A student, who is also a part-time unpaid trainee, seeking and available for employment should be classified as unemployed.

Labor Underutilization

Another way to classify the engagement in the labor market is through measures of underutilization of labor. Labor underutilization refers to an unmet need for employment among the population. There are three groups identified within labor underutilization: time-related underemployment, unemployment, and potential labor force. These measures serve as the basis to produce indicators for labor market monitoring for labor force collected after the census.

Box 1.

Glossary of Terms Related to Labor Force Status

A **job** is a set of tasks and duties performed by one person for a single economic unit. The main job is the one with the longest hours usually worked. If a person works the same hours in several jobs, then the main job is the one that generates the most income.

The **employed** are all people above minimum age, who in the reference week, were engaged in a productive activity in exchange for pay or profit. The employed are those who meet these two criteria:

- Worked at least 1 hour in their paid job or business activity (e.g., contributing family workers), or had a paid job or business but did not work due to flexible work arrangements or temporary absence (e.g., sick leave, vacations, family leave, slack work, etc.).

- Were working for remuneration in cash or in kind, whether received or not, payable to the person performing the work or to a household or family member.

Time related underemployment is when people are working for pay or profit less hours than they are willing and available to work.

The **unemployed** are all people above the minimum age who meet the following three conditions:

- Not employed in the reference week.

- Actively seeking a paid job or to start a business activity in the previous 4 weeks or month. It includes any productive activity for pay or profit within the national territory or abroad. Activities include arranging for financial resources, applying for permits and licenses, seeking assistance of friends, relatives, and other intermediaries, and placing resumes on sites online.

- Available to start working in the reference week or up to 2 weeks after.

Labor force includes all employed and unemployed people. It is the supply of labor to produce goods and services in exchange for pay or profit in the reference period.

Potential labor force include people not in employment or unemployment who express interest in work for pay or profit but for whom existing conditions limit their active job search or their availability. These people are out of the labor force but still have an identified unmet need for employment.

Extended labor force is the sum of the labor force and the potential labor force.

Source: Information compiled from the International Labour Organization Department of Statistics, 2020, and the United Nations, 2017.

Out of the Labor Force

People outside the labor force may be classified by their main activity or situation into categories with priority in the following order: students and trainees, homemakers, retirees, and people not working for other reasons (including those engaged in own-use production of goods, people with disabilities, children not attending school, and those receiving support, etc.).

MEASURING LABOR FORCE STATUS

A person's status in the labor force can be classified by their **degree of labor market attachment, main activity,** or **situation**. The first approach to measure labor force in a census starts with the "work for pay or profit" question, the second approach starts with the "main activity" question. A third approach includes **own-use agriculture work**, which is covered in the technical note titled, "Measuring Participation in Own-Use Production of Goods in a Census."

Starting With Work for Pay or Profit

The first question in this approach is on the type of work performed last week followed by a sequence of questions on remunerated employment, job-seeking activities in the last 4 weeks, and availability to start a job in the next 2 weeks. This sequence follows the priority rule (Box 2).

The questions in Box 2 allow for the identification of those employed and unemployed who are included in the labor force. Unavailable job seekers and available potential job seekers, although considered out of the labor force, are people willing to engage in labor market activities and are classified in the potential labor force. Figure 1 describes the classification of labor force status and its components drawing on the degree of attachment to the labor market and the activities performed before, during, and after the reference week in relation to the Census Day. The darker the color, the higher level of labor market attachment of the group.

Box 2.

Model Questions to Identify Labor Force Status

A1. Last week, from (day) to (day), did (…) do any of the following…?

1. Work for someone else for pay (as employee, laborer, apprentice)
2. Work in (…) own/family farming or fishing
3. Work in any other kind of business activity
4. None of the above

A2. Are the farming or animal products that (…) (are/is) working on intended…?

1. Only for sale
2. Mainly for sale
3. Mainly for family consumption
4. Only for family consumption

A3. Last week, did (…)…?

1. Do any (other) activity to generate an income, even for 1 hour (e.g., casual work, odd jobs, make things to sell, provide services for pay, etc.)
2. Have a paid job or business activity, but (were/was) temporarily absent
3. Help without pay in a family business
4. Did not do any income generating activity, not even for one hour

A4. In the last 4 weeks, did (…) look for a paid job or try to start a business?

1. YES
2. NO

A5. If a job or business opportunity became available, could (…) start working within the next 2 weeks?

1. YES
2. NO

A6. Which of the following best describes what (…) (are/is) mainly doing at present?

1. Taking care of the home/family
2. Studying
3. Doing an unpaid apprenticeship, internship
4. Farming or fishing to produce food for the family
5. Doing unpaid voluntary, community, charity work
6. Retired, pensioner
7. Long term illness, injury, disability
8. Other (specify: _____)

Source: Reproduced from *ILO Model Questions on Economic Characteristics for Population Censuses,* International Labour Organization Department of Statistics, 2020.

Figure 1.
Differences Between "In the Labor Force," "Out of the Labor Force," and "Potential Labor Force"

Census Day

Working Age Population (Age 15 and Older)							
Labor force status			Before the reference week			Reference week	After the reference week	
			t-3[1]	t-2[1]	t-1[1]	t[1]	t+1[1]	t+2[1]
In the labor force	Employed (includes time-related underemployment)					Working for pay or profit at least 1 hour, or temporarily absent		
	Unemployed					Not working for pay or profit	Available to start working	
			Looking for employment					
Out of the labor force	Potential labor force	Unavailable job seekers				Not working for pay or profit	Not available to start working	
			Looking for employment					
		Available potential job seekers				Not working for pay or profit	Available to start working	
			Not looking for employment					
	Willing non-job seekers					Not working for pay or profit	Not available to start working and want employment	
			Not looking for employment					
	Others					Not working for pay or profit	Not available to start working and do not want employment	
			Not looking for employment					

[1] The "Reference week" is the week before the Census Day, defined as time t. The weeks before the Census Day are: t, t-1, t-2, and t-3 that together constitute a month before the Census Day. Weeks t+1 and t+2 are the 2 weeks after the Census Day.

Note: The sizes of the boxes do not represent actual proportions.

Source: International Labour Organization Department of Statistics, 2020 and the United Nations, 2017.

Starting With Main Activity

Another common approach to collecting information on labor force status is starting with a question on main activity (Box 3). In addition to the question on main activity during the last week, the census should include questions on employment, job seeking activities, and availability to start a job. These questions are also needed to capture the labor force status of the population of all people who do not self-identify as employed. For example, consider a person that self-identified as a homemaker as the main activity but also worked 1 hour for pay last week. If follow-up questions on employment, job seeking activities, and availability for starting a job are not asked, then

this person would have been misclassified as out of the labor force, while the correct classification is employed and participating in the labor force.

In summary, to capture the labor force status of the population, at a minimum, the census needs to include: questions to identify the employed, one question on job search, and one question on availability for employment to identify those employed, unemployed, in the potential labor force, and out of the labor force, as shown in Figure 1. A question on "main reason for not seeking employment" or on "main activity" is important to classify people out of the labor force.

Box 3.

Model Questions on Main Activity

B1. Which of the following best describes what (…) (are/is) mainly doing at present?

1. Working for someone else for pay
2. Working in own farming, raising animals, or fishing
3. Working in any other kind of business activity
4. Taking care of the home/family
5. Studying
6. Doing an unpaid apprenticeship, internship
7. Doing unpaid voluntary, community, charity work
8. Looking for work
9. Retired or pensioner
10. With long-term illness, injury, disability
11. Other (specify:_____)

Followed by A2, A3, A4 and A5 from the "work or pay for profit start" approach.

Source: Reproduced from *ILO Model Questions on Economic Characteristics for Population Censuses* International Labour Organization Department of Statistics, 2020.

Once the labor force status has been established, countries should also add questions on the characteristics of the main job such as occupation, industry, and status in employment.

OCCUPATION

Occupation covers information on the type of work done and the main tasks and duties performed by a person in his or her main job. Occupation is independent of industry, status of employment, or sector classifications.

Open-ended questions that collect occupation information as free text on the title of the occupation and on the description of main tasks or duties are recommended (Box 4).

For the purposes of international comparisons, countries could prepare tabulations according to the International Standard Classification of Occupations (ISCO-08). As shown in Box 5, this classification system provides detailed coding at the lowest levels of classification and supports better quality data useful for policy. If data are

collected using digital technology, it can be designed such that the text being typed to describe an occupation triggers a dropdown list of suggested occupations along with their codes. It is important to train census takers on the proper use of the dropdown list.

Box 4.

Model Questions on Occupation

What kind of work (do/does) (…) do in (his/her) main job/business?

Occupation title: _____

Main tasks and duties: _____

Source: Reproduced from *ILO Model Questions on Economic Characteristics for Population Censuses,* International Labour Organization Department of Statistics, 2020.

INDUSTRY

Industry (or branch of economic activity) refers to the kind of production or activity of the establishment in which the main job was performed. It describes what the establishment does—not what the person does when working for the establishment.

For each job to be coded at the lowest level possible (as shown in Box 6), the census should include one question asking about the main activity of the establishment (e.g., publishing house) and a second question on the main products and services produced by the establishment (e.g., elementary textbooks). Countries with a large formal sector and a good business register should consider collecting the name of the establishment or employer. These names could then be linked to business registers to obtain the industry code given to them to improve coding of industry information.

Countries might collect information on industry according to the International Standard Industrial Classification of All Economic Activities. The 4th revision is the latest available and consists of 21 sections from A. Agriculture, forestry, and fishing to U. Activities of extraterritorial organizations and bodies. This classification includes 4-digit levels (United Nations Statistics Division, 2008). To reiterate, if data are captured using digital technology, text could be automatically coded in the field.

STATUS IN EMPLOYMENT

Status in employment refers to the type of contract of employment with other people or organizations that the employed person has in his or her main job. The two criteria to define groups in the International Classification of Status in Employment (ICSE-18) are the type of economic risk (ICSE-18-R) and the type of authority over establishments and other workers that the person has in the job (ICSE-18-A) (ILO, 2018). ILO recommends a single question to capture employment status (Box 7).

Box 5.

Example of the International Standard Classification of Occupations (ISCO-08)

The International Standard Classification of Occupations (ISCO-08) includes 10 major groups of occupations. Within each group it contains 4-digit levels as described below:

1. Managers
2. Professionals
3. Technicians and Associate Professionals
4. Clerical Support Workers
5. Services and Sale Workers
6. Skilled Agricultural, Forestry, and Fishery Workers
7. Craft and Related Trades Workers
   - 7.1 Building and Related Trades Workers
     - 7.1.1 Building Frame and Related Trades Workers
     - 7.1.2 Building Finishers and Related Trades Workers
     - 7.1.3 Painters, Building Structure Cleaners, and Related Trades Workers
       - 7.1.3.1 Painters and Related Workers
       - 7.1.3.2 Spray Painters and Varnishers
8. Plant and Machine Operators and Assemblers
9. Elementary Occupations
10. Armed Forces Occupations

Source: Reproduced from *ILO Model Questions on Economic Characteristics for Population Censuses,* International Labour Organization Department of Statistics, 2020.

Box 6.

Model Questions on Industry

What is the main activity of the place where (...) work(s)?

Main activity: _____

Main goods or services: _____

Source: Reproduced from *ILO Model Questions on Economic Characteristics for Population Censuses,* International Labour Organization Department of Statistics, 2020.

New data collection guidelines for ICSE-18 recognize that several questions are needed to identify dependent contractors and other detailed groups (ILO, 2019). Classification of these groups should not be included in the census. These additional questions should be included only in labor force and similar household surveys.

ADDITIONAL TOPICS ON ECONOMIC CHARACTERISTICS

Working Time

The number of people who worked at least 1 hour during the previous week provides an incomplete picture of the volume of remunerated work in the economy. It is recommended to collect information on the total hours worked on the main job (ILO, 2019). There are two concepts of working time: hours actually worked and hours usually worked. Hours usually worked is preferable for use in censuses because it provides a more stable measure of the typical time people spent working on their main job. It is not affected by absences and other factors that might impact the number of hours actually worked in the reference period (Box 8).

Place of Work

Including questions on type of workplace and its geographic location provides information on the increasing diversity of locations where productive activities take place, as well as commuting patterns (Box 9).

Institutional Sector of Employment

This classification relates to the legal organization and principal functions, behaviors, and objectives of the enterprise where a person is employed. It excludes the informal sector. Definitions provided in the System of National Accounts (United Nations Statistical Commission 39th Session, 2008) distinguish between four institutional sectors: corporations, general government, nonprofit institutions serving households, and households (Box 10).

Box 7.

Model Questions on Employment

(Do/Does) (…) work as…?

1. Employee
2. Paid apprentice or intern
3. Employer (with hired employees)
4. Own-account worker (without hired employees)
5. Helper (without pay) in a family business

Source: Reproduced from *ILO Model Questions on Economic Characteristics for Population Censuses,* International Labour Organization Department of Statistics, 2020.

Box 8.

Model Question on Working Time

How many hours do you usually work per week in your main job? _____

Source: Reproduced from *Principles and Recommendations for Population and Housing Censuses, Revision 3,* United Nations, 2017.

Box 9.

Model Questions on Place of Work

Type of place of work refers to the physical characteristics of the place where an employed person usually performs his or her main job.

(Do/Does) (…) typically work…?

1. From home
2. At a fixed location outside the home
3. Without a fixed location

Geographic location of the place of work refers to the precise location in which an employed person usually performs his/her main job. Information should relate to the smallest civil division.

In which [administrative unit] is (…) place of work located?

1. This [administrative unit]: _____
2. Another [administrative unit]: _____
3. Another country: _____

Source: Information compiled from International Labour Organization Department of Statistics, 2019 and 2020.

COMMON DATA COLLECTION ERRORS

Training of Census Takers

Cultural perceptions about gender roles, or common notions that women are engaged in homemaking activities can result in underreporting of women's participation in employment and job search activities. To reduce underreporting, census takers need to be explicitly trained to ask about possible jobs, including part-time, casual, temporary and informal jobs, or job search activities of every woman and man above the lower age limit in the household.

Skip Patterns, Missing Data, and Quality Checks

As noted above, the ILO suggests sequencing questions on productive activity of people using one of three approaches: work for pay or profit start, main activity start, or own-account agriculture start. In applying and adapting any of these sequences, it is important to conduct qualitative and operational tests to validate the skip patterns before including the questions in the census. In developing coding for these questions in a computer-assisted personal interviewing (CAPI) application, countries must include code to handle missing "don't know" answers and introduce quality checks.

Coding of Occupation and Industry

Attention must be given to coding of occupation and industry during census design and preparation to increase data reliability. It is recommended that countries develop national versions of classifications that reflect the national context and are aligned with international standards. Training activities are fundamental for collecting data on industry and occupation and assigning codes. Census takers should be trained to record the full text responses rather than assign codes during data collection activities, unless digitally programmed. If using CAPI technologies for census enumeration, census takers should be trained to collect all needed information to properly use the

Box 10.

Model Questions on Sector of Employment

This question is conditional on and follows the question on status in employment. If the answer to the question on status in employment is employee, or paid apprentice or intern, then the census taker offers the following options:

1. In government, public company

2. In private business, farm

3. In a non-profit organization

4. In a household (as domestic worker)

5. In a foreign embassy, international organization

Source: Reproduced from *ILO Model Questions on Economic Characteristics for Population Censuses,* International Labour Organization Department of Statistics, 2020.

dropdown menu and reduce misclassification of occupation or industry codes. It is also important to hire and train a special team of data coders to assign codes during data processing.

Comparing Census Data on Economic Characteristics Over Time

The ILO model census questions presented in this document support the new classification of work, employment, labor force, and labor underutilization. They also support the classification of population by labor force status according to previous standards on current activity. Caution should be taken when comparing labor statistics generated from consecutive censuses. Changes in question formulation and design, data collection methods, and interviewer training may result in variations in work and employment indicators.

TABULATIONS AND DISSEMINATION

It is recommended that all countries produce and disseminate some essential tabulations using census data on economic characteristics.

In addition to the essential tabulations listed in Box 11, countries might generate cross-tabulations by selected sociodemographic characteristics such as native/foreign born status, disability status, education level, etc. Such cross-tabulations are also important to shed light on differences in labor market participation, employment access, and outcomes among different groups of the population. Thematic reports may also be prepared to communicate key findings.

CONCLUSION

The inclusion of questions on economic characteristics in a census and the application of new concepts reviewed in this STIC allow for the estimation of reliable and useful summary measures about the state of the labor supply at the local level and for small groups. Furthermore, this information might serve as a baseline to monitor labor policies aimed at increasing employment opportunities. This technical note focuses on labor force classifications, employment, and its related characteristics. However, these questions alone provide an incomplete picture. Assessing the value of all productive activities in a country requires information on other types of work that are not considered employment. The technical note, "Measuring Participation in Own-Use Production of Goods in a Census" provides recommendations on census questions to collect information on own-use production of goods and describes their importance for highlighting the work of women and other populations.

Box 11.

Essential Tabulations of the Population by Core Economic Characteristics

- Population by labor force status, age group, sex, and place of residence

- Employed by status in employment, age group, sex, and place of residence

- Employed by occupation, age group, sex, and place of residence

- Employed by industry, age group, sex, and place of residence

- Unemployed by education level, age group, sex, and place of residence

- People outside the labor force by main activity, age group, sex, and place of residence

- People outside the labor force by degree of labor market attachment, age group, sex, and place of residence

Source: Reproduced from *Quick Guide on Measuring Economic Characteristics in the Population Census,* International Labour Organization Department of Statistics, 2019.

REFERENCES

International Labour Office, *International Standard Classification of Occupations: Structure, Group Definitions and Correspondence Tables*, Volume 1, Geneva, 2012, <www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_172572.pdf>.

International Labour Office, *Data Collection Guidelines for ICSE-18*, ICLS/20/2018/Room document 4, Geneva, 2018, <www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms_636039.pdf>.

International Labour Organization, *Quick Guide on Measuring Economic Characteristics in the Population Census*, Geneva, 2019, <www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_724969.pdf>.

International Labour Organization Department of Statistics, *ILO Model Questions on Economic Characteristics for Population Censuses (Version 1)*, Geneva, 2020, <www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_725023.pdf>.

United Nations Statistical Commission 39th Session, "Chapter 6: The Production Account," *Updated System ofNational Accounts (SNA)*, New York, 2008, <https://unstats.un.org/unsd/statcom/doc08/SNA-Chapter6.pdf>.

United Nations Statistics Division, *International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 4*, Statistical Papers, Series M, No. 4, Rev. 4, New York, 2008, <https://unstats.un.org/unsd/classifications/Econ/Download/In%20Text/ISIC_Rev_4_publication_English.pdf>.

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, <https://unstats.un.org/unsd/publication/seriesM/Series_M67Rev3en.pdf>.