

Philippines - 2020 Census of Population and Housing

Philippine Statistics Authority (PSA)

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Overview

Identification

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Version

VERSION DESCRIPTION
Version 1.0: This is the first documentation of the 2020 Census of Population and Housing

PRODUCTION DATE
2022-10-10

Overview

ABSTRACT

Census of Population and Housing (CPH) refers to the complete process of collecting, compiling, evaluating, analyzing, publishing, and disseminating data about the population and housing units in the country. It entails primarily the listing and recording of the characteristics of each individual and each living quarter as of a specified time and within a specified territory. Other information gathered in the CPH are selected household and barangay characteristics.

The 2020 CPH is designed primarily to take an inventory of the total population and housing units in the Philippines. It also collects information about the demographic, social, economic, and cultural characteristics of the population and the structural characteristics and facilities of the housing units. The census of population is the source of data on the size, distribution, and composition of the population. The census of housing, on the other hand, provides information on the supply of housing units and other information on the structural characteristics and facilities that have bearing upon the maintenance of privacy and health and the development of normal family living conditions. These data, which are collected for different geographic units, that is, from the national down to the barangay level, are vital in making rational plans and programs towards national and local development.

Specifically, the 2020 CPH seeks to gather data on:

1. demographic characteristics, such as the size, composition (sex, age, and marital status), and geographic distribution of the population;
2. socio-economic characteristics of the population, such as birth registration, religious affiliation, citizenship, ethnicity, functional difficulty, residence of mother at the time of birth of member, residence five (5) years ago, literacy, highest grade/year completed, school attendance, place of school, overseas worker, usual activity/occupation, kind of business or industry, class of worker, place of work, and selected fertility indicators;
3. household-level characteristics, such as land ownership, presence of operator in crop farming, livestock and/or poultry raising, aquaculture, fishing, and other farm/activity, language/dialect generally spoken at home, residence five (5) years from now, presence of household conveniences/information and communication technology (ICT) devices/vehicles, and internet access and use;
4. housing characteristics, such as number of housing units in the country, their geographic location, structural characteristics, and selected facilities; and
5. barangay characteristics, including the presence of selected facilities and number of establishments by type and employment size, which will be used as bases for (i) urban-rural classification of barangays, (ii) presence and number of informal settlers, (iii) presence and number of households in relocation areas, and (iv) occurrence and number of households who moved in/out of the barangay due to various reasons such as natural and man-made disasters/calamities, relocation, peace and order problems, and others (demolition or commercialization), and specific area/s of origin/destination.

In addition, the 2020 CPH listing of households will serve as sampling frame for use in household-based surveys.

KIND OF DATA

Census/enumeration data [cen]

UNITS OF ANALYSIS

Household Questionnaire: Individuals (Household Members), Households, Housing Units

Institutional Questionnaire: Individuals (Institutional Population), Institutional Living Quarters

Barangay Questionnaire: Barangay

Scope

NOTES

1. Individuals: relationship to household head (household population)/residence status (institutional population), sex, age, birth registration, marital status, religious affiliation, citizenship, ethnicity, functional difficulty, residence of mother at the time of birth of the household member, residence 5 years ago, literacy, highest grade/year completed, school attendance, place of school, overseas worker, usual activity/occupation, kind of business or industry, class of worker, place of work, and fertility indicators

2. Households: usual manner of kitchen garbage disposal, kind of toilet facility, fuel for lighting, fuel for cooking, source of water supply for drinking, source of water supply for cooking, tenure status of the housing unit/lot, acquisition of the housing unit, source of financing of the housing unit, monthly rental of the housing unit, land ownership, presence of operator in crop farming, livestock and/or poultry raising, aquaculture, fishing, and other farm/activity, language/dialect generally spoken at home, residence 5 years from now, presence of household conveniences/information and communication technology (ICT) devices/vehicles, internet access, and internet use

3. Housing units: type of building, number of floors of the building, construction materials of roof, construction materials of the outer walls, finishing materials of the outer walls, finishing materials of the floor of the housing unit, construction materials of the floor of the housing unit, state of repair of the building, year building was built, and floor area of the housing unit

4. Institutional living quarters: type of institutional living quarter

5. Barangay: barangay facilities/characteristics, number of establishments by type and employment size, presence and number of informal settlers, presence of relocation area and number of households in the relocation area, occurrence and number of in-movers by barangay/s of origin, and occurrence and number of out-movers by barangay/s of origin

TOPICS

Topic	Vocabulary	URI
Demographic and social statistics	Philippine Statistics Authority	
Population and migration	Philippine Statistics Authority	
Human settlements and housing	Philippine Statistics Authority	

Coverage

GEOGRAPHIC COVERAGE

National Coverage

Regions

Provinces

Cities and Municipalities

Barangays

UNIVERSE

Census-taking in the Philippines follows a de-jure concept wherein a person is counted in the usual place of residence or the place where the person usually resides. Information on the count of the population and living quarters were collected with 12:01 a.m. of May 1, 2020 as the census reference time and date.

The following individuals were enumerated:

1. Filipino national permanently residing in the Philippines;
2. Filipino national who, as of 1 May 2020, is temporarily at Philippine Sea or on vacation or business/pleasure trip somewhere in the Philippines and is expected to be back within six (6) months from the date of departure;
3. Filipino national who, as of 1 May 2020, is temporarily on vacation, business/pleasure trip or studying/training abroad and is expected to be back within a year from the date of departure;
4. Filipino overseas worker, including those on-board an oceangoing vessel, who is away as of 1 May 2020 but is expected to be back within five (5) years from the date of his/her last departure;
5. Philippine government official, military or civilian, including a Philippine diplomatic personnel and his/her family, assigned abroad; and
6. Civilian citizen of foreign country who has his/her usual residence in the Philippines, or a foreign visitor who has stayed or is expected to stay for at least a year from the date of his/her arrival in the country.

Producers and Sponsors

PRIMARY INVESTIGATOR(S)

Name	Affiliation
Philippine Statistics Authority (PSA)	National Economic and Development Authority (NEDA)

FUNDING

Name	Abbreviation	Role
Government of the Philippines	GOP	

OTHER ACKNOWLEDGEMENTS

Name	Affiliation	Role
Technical Committee of Population and Housing	National Statistical Coordination Board (NSCB)	

Metadata Production

METADATA PRODUCED BY

Name	Abbreviation	Affiliation	Role
National Censuses Service - Population and Housing Census Division	NCS - PHCD	Philippine Statistics Authority	Documenter

DATE OF METADATA PRODUCTION

2023-04-14

DDI DOCUMENT VERSION

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DDI DOCUMENT ID

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Sampling

Sampling Procedure

In the 2020 CPH, there are basically two types of questionnaires used for the enumeration of household members. These are CPH Form 2 (Common Household Questionnaire) and CPH Form 3 (Sample Household Questionnaire). The CPH Form 3 contains more questions than CPH Form 2.

The 2020 CPH was carried out through a combination of complete enumeration and sampling. For this census, systematic cluster sampling was adopted. This sampling method is designed in such a way that efficient and accurate estimates will be obtained at the city/municipality level.

The sampling rate or the proportion of households to be selected as samples depends on the size of the city/municipality where the Enumeration Area (EA) is located. For the cities/municipalities with an estimated number of households 500 and below, 100 percent sampling rate was used. While for those cities/municipalities with an estimated number of households 501 and above, a sampling rate of 20 percent was implemented.

In this sampling scheme, each city/municipality was treated as a domain. For cities/municipalities with 100 percent sampling rate, all households in all the EAs within this city/municipality were selected as samples. For those with a 20 percent sampling rate, systematic cluster sampling was adopted. That is, sample selection of one in five clusters with the first cluster selected at random. Thus in effect, the EAs belonging to the city/municipality with 20 percent sampling rate are divided into clusters of size 5. Random start is pre-determined for each EA.

If the sampling rate applied to a city/municipality is 100 percent, it means that all households in that municipality were administered with CPH Form 3. If it is 20 percent, it means that 20 percent of all households used CPH Form 3 while 80 percent used CPH Form 2.

The random start used by EA is a number from 1 to 5 which was used to select the cluster where the first sample households in an EA, and subsequently the other sample households, were included.

Clusters are formed by grouping together households that have been assigned consecutive serial numbers as they were listed in the Listing Booklet. For a 20 percent sampling rate, clusters were formed by grouping together five households.

Weighting

The sample weight attached to a corresponding household or person in a survey is an estimate of the total number of units in the target population. The use of weights in sample survey compensates for the representation of responding sample units relative to the target population being inferred or generalized.

In the 2020 CPH, 10 population data items and 12 household/housing data items were added in the CPH Questionnaire to gather additional information to the household/population on a sample basis (CPH Form 3 - Sample Household Questionnaire). The target sampling rate is set at 20% per Enumeration Area or 5 sample households for every 25 households. To operationalize this sampling scheme, an EA is divided into clusters of size 5 sequential households using the household serial number (HSN). A random start (any number from 1 to 5) was also set to determine the first sampled cluster and the succeeding sample clusters using fixed sampling interval of 5. For example, if the random start is 1, then the 1st cluster is selected with 5 consecutive HSNs (001, 002, 003, 004, 005), the succeeding sampled clusters is determined following the constant skip or sampling interval of 5, making the 6th, 11th 16th, 21st, and so on as the sample clusters for EA with a random start = 1. As such, an EA with 300 households will have $300/5 = 60$ clusters. Selecting 20% sample will result to 12 sample clusters equivalent to $12 \times 5 = 60$ sample households which is also 20% of 300 households. The succeeding sample clusters considering the random start 1 will be sample cluster 6 with HSNs $(6 \times 5) - 4 = 026, 027, 028, 029, 030$, then sample cluster 11 will have sample HSNs $(11 \times 5) - 4 = 051, 052, 053, 054, 055$, and so on. This scheme will ensure close to 20% sampling rate, considering that not all EAs will have total number of households divisible by 5.

The sample weighting procedure here is applied in the final 2020 CPH data from Batanes. In this process, the basic weight are calibrated to conform with the city/municipal level tenure status (for HH weights) and age-sex structure of the population (for Person Weights). The city/municipal level for tenure status and age-sex structure are used as the control totals in generating weighted estimates from the 22 sample variables (10 household/housing data items and 12 population data

items) in CPH Form 3 in Batanes.

Data File Preparation

Import the CSV files containing the final 2020 CPH data from the province of Batanes

1. Household Weight

Household weight is computed at the city/municipal level although sampling is applied at the EA level. Compute the household weight as the inverse of probability of inclusion.

Suppose the municipality 020901 in the province of Batanes has $N=2823$ households of which $n=575$ households were asked using CPH Form 3 during the conduct of 2020 CPH. The probability of inclusion of 575 sample households is $575/2823$, then the household weight is $1/(575/2823)$ or the inverse of probability of inclusion or equal to $2823/575=4.909565$

where N_{ij} = total number of households in the i th city/municipality

n_i = total number of sample households in the i th city/municipality

$HHweight_i$ = household weight for all households in the i th city/municipality

Special Household Serial Number (HSN)

Special HSNs (7777, 8888, 9999, 8889, 5555, and 6000) has to be determined for exclusion in the weighting process

Determination of Population N and sample size n

The total number of households per city/municipality can be determined by frequency tabulation of unique muncode since each row or unit in the datafile is at the household level. The frequency for each unique city/municipality is the total number of household (N).

Similarly, the total number of sample households per city/municipality can be determined also through frequency tabulation with a condition that the household used CPH Form 3/CPH Form 7 as indicated in the variable form type (FTYPE). The frequency of the unique muncode satisfying the condition for each row is the number of sample households (n)

Calculation of Household Weight

Compute the household weight as the inverse of probability of inclusion at the city/municipality level. This can be done by determining the probability of inclusion for each city/municipality and then taking the inverse of this probability.

Household Weight Calibration to conform with Population Tenure Status Distribution

Since the variable H1 or tenure status will be used to run cross tabulation with sample HH variables then the HH weights must be calibrated to ensure that the resulting tables will conform to that of the population distribution in terms of tenure status.

As such, cell adjustment factors for each of the tenure status categories per city/municipal level are determined. With 6 municipalities and 8 tenure status categories, there will be $6 \times 8 = 48$ adjustment factor cells that will be used to calibrate the initial HH weights.

Check the calibrated weights for consistency and if it conforms with the population tenure status distribution. Here, N_p refers to the population distribution while N_f is the results of frequency tabulation using the calibrate weights.

Exporting Output of Data with Attached Calibrated Weight to CSV File

After attaching the calibrated HH weights to the data file, it can now be exported to CSV file for use in other platforms such as excel, stata, and CSPro for further processing.

1. Person Weight

Similarly, person weight (PWeight) is computed at the city/municipal level. This is calculated as the total number of persons (NP) in the household population divided by the total number of persons in the sample (nP).

where NP_i = total number of persons in the i th city/municipality

n_{pi} = total number of persons in the sample in the i th city/municipality

$Pweight_i$ = person weight for all persons in the household population in the i th city/municipality

The person weight is further adjusted or calibrated using cell adjustment factors that are computed in each cell combination of 5-year age group and sex variable. For example, if calibration will be done at 14 categories of 5-year age group (i.e., 0-4, 5-9, 10-14, ..., 60-64, and 65 and over) by sex (male, female), and by city/municipality (6 in Batanes), then there will be $14 \times 2 \times 6 = 168$ cell adjustment factors.

These adjustment factors will be multiplied to the initially calculated person weight accordingly.

where $PWeight_j$ = Person weight in the the i th city/municipality

$Final_PWeight_j$ = Calibrated person weight to conform with age-sex population structure at the i th city/municipality

Total Household Population (N_p) and sample population (n_p)

The total number of household population per city/municipality can be determined by frequency tabulation of unique muncode since each row or unit in the data frame is at the person level. The frequency for each unique muncode is the total number of persons (NP) in the household population (excluding institutional population).

Information on the total number of sample household population is necessary to compute for the person weight. This can be done by extracting data frame for households that were interviewed using CPH Form 3/CPH Form 7

Age-Sex Calibration

Calibrate the person weight based on the computed cell adjustment ratios (adj). The cell adjustment ratios can be determined as the ratio between the actual Population and Weighted Population by cell (i.e., cell combination of age-group and sex, for example, cell1=0-4 male, cell2=0-4 female, etc.). Compute the Final Person Weight by multiplying the adjustment factor to the initial person weight.

Generate Population Frequency

Generate Sample Frequency

Compute for the Cell Adjustment Factor

The cell adjustment factor (adj) will be used to adjust or calibrate the initial person weight ($PWeight$) such that the results of any weighted tabulations involving sex and age will conform to that of the population age-sex structure.

Final Calibrated Person Weight

Export Data File with Attached Calibrated Person Weight to CSV

Calibrated Person Weight Checking

Questionnaires

Overview

CPH Form 1 - Listing Booklet:

This form is a booklet used to list the buildings, housing units, households, and the Institutional Living Quarters (ILQs) within an EA. This form also records other important information such as the name of household heads and name and type of institutions and their addresses, population totals, and counts of males and females.

CPH Form 2 - Common Household Questionnaire:

This is the basic census questionnaire, which was used to interview and record information about the common or nonsample households. This questionnaire gathered information on the following demographic and socio-economic characteristics of the population: relationship to household head, sex, date of birth, age, birth registration, marital status, religious affiliation, citizenship, ethnicity, functional difficulty, residence of mother at the time of birth of the household member, residence five (5) years ago, literacy, highest grade/year completed, and overseas worker. It also contains questions on the type of building, number of floors of the building, construction materials of the roof, outer walls, and floor of the housing unit, finishing materials of the floor of the housing unit, state of repair of the building, year the building was built, floor area of the housing unit, and tenure status of the housing unit/lot, land ownership, presence of operator in crop farming, livestock and/or poultry raising, agriculture, fishing, and other farm/activity, language/dialect generally spoken at home, residence five (5) years from now.

CPH Form 3 - Sample Household Questionnaire:

This is the basic census questionnaire, which was used to interview and record information about the sample households. This questionnaire contains ALL questions asked in CPH Form 2 PLUS additional population questions: school attendance, place of school, usual activity/occupation, kind of business or industry, class of worker, place of work, and some items on fertility indicators. Moreover, there are additional questions on household characteristics: acquisition of the housing unit, source of financing of the housing unit, monthly rental of the housing unit, usual manner of kitchen garbage disposal, kind of toilet facility, fuel for lighting, fuel for cooking, source of water supply for cooking, presence of household conveniences/information and communication technology, internet access, and internet use.

CPH Form 4 - Institutional Population Questionnaire:

This questionnaire was used to record information about persons who were considered part of the institutional population. It contains questions on residence status, sex, age, date of birth, birth registration, marital status, religious affiliation, citizenship, ethnicity, functional difficulty, and highest grade/year completed.

CPH Form 5 - Barangay Schedule:

This form was used to record the characteristics of each barangay, kinds of establishments and service facilities in the area or within some specified distance from the area, and travel information from town/city proper to the barangay.

Data Collection

Data Collection Dates

Start	End	Cycle
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Time Periods

Start	End	Cycle
2020-05-01	2020-05-01	N/A

Data Collection Mode

Pencil and Paper Interview, Computer-Assisted Web Based Interviewing, Computer-Assisted Personal Interviewing, and Paper-Assisted Telephone Interviewing

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CPH Form 5 - Barangay Schedule:

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Data Processing

Data Editing

Due to transferring of main data processing system from Java to Census and Suirvey Processing System (CSPPro), a lot of duplicates has been discorvered.

Personnel of PHCD were assigned to manually tag the duplicates in the data files to be deleted using a system made using the CSPPro also.

When the data files were clean of duplicates, the process of big edit were next. Recoding, supplying of missing entries, and imputations were done to make sure that all entries were valid and consistent within the data file.

Data Appraisal

Estimates of Sampling Error

Not Computed