TECHNICAL NOTES
NOVEMBER 2023 LABOR FORCE SURVEY

I. Introduction

a. Background

The stability and growth of a country's economy hinges on its ability to produce goods and services for both domestic and international use. Labor represents an important factor of production, hence, the improvement of the quality of the labor force, and efforts to make it more productive and responsive to growth are necessary for the development of the economy. A clear knowledge and understanding of the size, composition, and other characteristics of the segment of the population is a big step in this direction. A continuing supply of the data on labor force is indispensable to national and local development planning.

The Labor Force Survey (LFS) is a vehicle to gather such data on the demographic and socio-economic characteristics of the population with nationwide coverage and is conducted on a quarterly and monthly mode by interviewing households. The Philippine Statistics Authority (PSA) implements the LFS.

b. Objectives

The LFS aims to provide a quantitative framework for the preparation of plans, and formulation of policies affecting the labor market.

Specifically, the survey is designed to provide statistics on levels and trends of employment, unemployment, and underemployment for the country and for each of the regions.

c. Scope and Coverage

With national level as domain, survey operations for November 2023 LFS ran for 18 days from 08 to 28 November 2023 and covered 11,233 eligible sample households.

Overseas Filipino Workers are not considered part of the labor force in the Philippines. Hence, in the LFS, data on the economic characteristics of household members who are overseas workers are not collected. In the LFS report, they are excluded in the estimation of the size of the working population, i.e., population aged 15 years and older, and in the estimation of the labor force.

d. Developments in the LFS

The LFS, as in any survey, adopts recent developments in statistical methodology/processes and in the education system. The revisions in the LFS are as follows:

Item	Developments
Population projections	The population projections based on the 2015 Census of Population (POPCEN 2015) has been adopted to generate the labor force statistics. For comparability, population projections based on the POPCEN 2015 was likewise used in the October 2019 labor force statistics.
Adoption of the Philippine Standard Industrial Classification (PSIC)	Starting April 2012 LFS, the codes for industry adopted the 2009 PSIC. Prior to this, codes for industry used the 1994 PSIC.
Adoption of the Philippine Standard Occupation Classification (PSOC)	The 2012 PSOC was adopted starting in April 2016. The 1992 PSOC had been used prior to these rounds.
Adoption of the Philippine Standard Classification of Education (PSCED)	In January 2019, the 2017 PSCED has been adopted. The categories for highest grade completed were also revised considering the K to 12 Program in the education system.
Data Collection	1. In the April 2017 round of the LFS, Computer Aided Personal Interviewing (CAPI) using Tablet was utilized in the enumeration. 2. Starting in April 2020, for the first time, a hybrid approach was used in data collection, a mixed mode of CAPI face-to-face interview, whenever possible, or a telephone interview.

Additional Questions	1. Question on vocational course was also introduced in the April 2012 LFS questionnaire.
	2. Starting April 2020 LFS round, Enhanced Community Quarantine (ECQ)/Lockdown /COVID-19 pandemic was included in the reasons for working more than 48 hours, less than 40 hours, and not looking for work.
	3. In the January 2021 LFS round, the following questions were included:
	  a. working arrangement;
	  b. days worked in the past week; and
	  c. temporary unemployment was included.

II. Concepts and Definitions

a. Reference Period

The reference period for this survey is the "past week" referring to the past seven (7) days preceding the date of visit of the enumerator or the interviewer.

b. Employment Status Concepts

1. Population 15 Years Old and Over

This refers to the number of population 15 years old and over excluding overseas workers. Overseas workers are excluded in the estimation of the size of the working population (population aged 15 years and over) since the data on their economic characteristics are not collected because they are not considered part of the labor force in the country.

2. In the Labor Force or Economically Active Population

This refers to persons 15 years old and over who are either employed or unemployed in accordance with the definitions described below.

3. Employed

Employed persons include all those who, during the reference period are 15 years old and over as of their last birthday, and are reported either:

a. At work, i.e., those who do any work even for one hour during the reference period for pay or profit, or work without pay on the farm or business enterprise operated by a member of the same household related by blood, marriage, or adoption; or

b. With a job but not at work, i.e., those who have a job or business but are not at work because of temporary illness or injury, vacation, or other reasons. Likewise, persons who expect to report for work or to start the operation of a farm or business enterprise within two weeks from the date of the enumerator's visit are considered employed.

4. Underemployed

Underemployed persons include all employed persons who express the desire to have additional hours of work in their present job, or an additional job, or to have a new job with longer working hours. Visibly underemployed persons are those who work for less than 40 hours during the reference period and want additional hours of work.

5. Unemployed

Starting in April 2005, the new unemployment definition was adopted per NSCB Resolution Number 15 dated 20 October 2004. As indicated in the said resolution:

Unemployed persons include all those who, during the reference period, are 15 years old and over as of their last birthday, and reported as persons:

a) Without work, i.e., had no job or business during the reference period;

b) Currently available for work, i.e., were available and willing to take up work in paid employment or self-employment during the reference period, and/or would be available and willing to take up work in paid employment or self-employment within two weeks after the interview date; and

c) Seeking work, i.e., had taken specific steps to look for a job or establish a business during the reference period, or

Not seeking work due to the following reasons: (1) fatigued or believed no work available, i.e., discouraged workers; (2) awaiting results of previous job application; (3) temporary illness or disability; (4) bad weather; and/or (5) waiting for rehire or job recall.

6. Persons Not in the Labor Force

Persons 15 years old and over who are neither employed nor unemployed according to the definitions mentioned. Those not in the labor force are persons who are not looking for work because of reasons such as housekeeping, schooling, and permanent disability. Examples are housewives, students, persons with disability, or retired persons.

III. Sampling Design and Estimation Methodology

The November 2023 LFS utilized the 2023 Geo-enabled Master Sample (GeoMS) design from which 1 replicate was drawn that includes 10,836 secondary sampling units (SSUs) or sample housing.

The 2023 Geo-enabled Master Sample (GeoMS) design for household-based surveys is a two-stage cluster sampling design with barangays or enumeration areas (EAs) or groups of nearby barangays or EAs as the primary sampling unit (PSU), and housing units serving as the secondary sampling unit (SSU) within the PSUs. In the first stage, PSUs are systematically selected from the Master Sample PSU frame of each sampling domain with equal probability. During the second stage of selection, housing units are drawn systematically for each sample PSU.

Generally, all households within the sample housing unit are also considered as sample households. However, for housing units with more than three households, a maximum of three sample households were randomly selected.

Sampling Frame

The 2023 Geo-enabled MS sampling frame is constructed based on the results of the 2020 Census of Population and Housing. The EA Reference File (EARF) of the 2020 Census of Population is used as the PSU frame while the 2020 list of households for each of the PSUs is used as the SSU frame.

Sampling Domain

To provide subnational or provincial level statistics with precise estimates, the 2023 Geo MS has 118 domains and a special area (BARMM63) as follows: 82 provinces (including Maguindanao del Norte and Maguindanao del Sur); 33 highly urbanized cities (HUCs) (including 16 cities in the National Capital Region); and 3 other areas (Pateros, Isabela City, and Cotabato City).

Primary Sampling Units

In the 2023 Geo-enabled Master Sample Design, each sampling domain (i.e., province/HUC) is divided into exhaustive and non-overlapping area segments known as Primary Sampling Units (PSUs) with about 100 to 300 households. A PSU can be any of the following:

> a) a single enumeration area (EA) barangay;
> b) two or more adjacent small EAs within the same barangay;
> c) two or more adjacent small barangays of the same city/municipality; or
> d) portion or an EA of a multi-EA barangay.

Out of the 42,046 barangays in the Philippines, 127,028 PSUs were formed. A significant number of these PSUs, or about 15 percent of the total were formed in Region IV-A. CAR has the fewest PSUs formed, making up about 2 percent of the total.

Replicates

From the ordered list of PSUs, all possible systematic samples of 6 PSUs are drawn to form a replicate for most of the province domain i.e., 76 out of 82 provinces while all possible systematic samples of 8 PSUs are drawn to form a replicate for most of the HUCs, that is, 31 of 33 HUCs.

Three (3) PSUs are drawn to form a replicate for small provinces/HUC domains such as Batanes, Guimaras, Siquijor, Camiguin, Apayao, and Dinagat Islands, and three (3) to five (5) PSUs per replicate are allocated for small HUCs such as San Juan City and Lucena City and for special areas such as Pateros, City of Isabela, and Cotabato City.

Sample Allocation Scheme

The total number of sample Secondary Sampling Units (SSUs) is allotted proportionately to the measure of the size of the PSU. Thus, a PSU with lesser number of housing units/households would have lesser number of sampled SSUs than those PSUs with larger number of housing units/households. On average, a total of 12 sample Housing Units are allotted for each sample PSU in Highly Urbanized City domain while 16 sample housing units/households are allotted for every PSU in province domain.

Base weight computation

The base weight is computed as the inverse of selection probability.

$$w_{p\alpha\beta} = \frac{A_p}{\alpha_p} \, x \, \frac{B_{p\alpha}}{b_{p\alpha}}$$

where:
- A_p - total number of PSUs in domain p
- α_p - total number of sample PSUs in domain p
- $B_{p\alpha}$ - total number of housing units in PSU α in domain p
- $b_{p\alpha}$ - total number of sample housing units in PSU α in domain p

For housing units with at most 3 households, the base weight is computed as

$$w_{p\alpha\beta} = \frac{A_p}{\alpha_p} \, x \, \frac{B_{p\alpha}}{b_{p\alpha}}$$

For housing units with more than 3 households, the base weight is computed as

$$w_{p\alpha\beta y} = \frac{A_p}{\alpha_p} \, x \, \frac{B_{p\alpha}}{b_{p\alpha}} \, x \, \frac{C_{p\alpha\beta}}{c_{p\alpha\beta}}$$

where:
- $C_{p\alpha y\beta}$ - total number of households in the sample housing unit
- $c_{p\alpha y\beta}$ - the number of sample households in the sample housing unit=3

Base Weight Adjustment

The base weight is adjusted for unit non-response and further calibrated to conform to the known or projected population count. The projected population count used for November 2023 LFS was November 2023.

For unit non-response adjustment (within domain p), the adjustment is computed as:

$$A_{p1} = \frac{\text{weighted}^* \text{ total number of eligible sample households}}{\text{weighted}^* \text{ total number of responding households}}$$

Where weighted * refers to the base weight.
Applying this to the base weight, we have:

$$w'_{p\alpha\beta_{adj}} = w_{p\alpha\beta} \, x \, A_{p1}$$

Further calibration is made to conform with known population count by age-sex as follows:

Age Group (in years)	Sex	
	Male	Female
0 – 14	C1	C2
15 – 24	C3	C4
25 – 34	C5	C6
35 – 44	C7	C8
45 – 54	C9	C10
55 – 64	C11	C12
65 and over	C13	C14

$$A_{p2c} = \frac{X_{pc}}{\hat{X}_{pc,adj}}$$

where:

X_{pc} - is the projected total population for age-sex class c

$\hat{X}_{pc,adj}$ - is the weighted estimate of the population for age-sex class c using the non-response adjusted weight

Hence the final weight (calibrated weight is):

$$w'_{p\alpha,fin} = \underbrace{w'_{p\alpha,adj}}_{\substack{\text{non-} \\ \text{response} \\ \text{adjusted} \\ \text{weight}}} x \underbrace{A_{p2c}}_{\substack{\text{population} \\ \text{adjustment} \\ \text{factor}}}$$

Estimation of Totals

- For domain total

  The estimate for the population total for a domain (province/HUC) is derived using:

  $$\hat{Y}_p = \sum_{\alpha=1}^{a_p} \sum_{\beta=1}^{b\alpha} w'_{p\alpha,fin} \, y_{p\alpha\beta}$$

- For the regional total (if domain is below regional)

  The estimate for the population total for the region is derived as the sum of the estimated totals of its provinces/HUCs which is given as:

  $$\hat{Y}_r = \sum_{p=1}^{m_r} (\hat{Y}_p) = \underbrace{\hat{Y}_1 + \hat{Y}_2 + ... + \hat{Y}_{m_r}}_{\text{Weighted Province/HUC Totals}}$$

where

$\hat{Y}_p$ - estimated total for province/HUC p

m_r - total number of provinces/HUCs in the region

- For the national total

    The estimate for the population total at the national level is derived as the sum of the estimated regional totals which is given as:

    $$\hat{Y} = \sum_{r=1}^{n}\left(\hat{Y}_r\right) = \underbrace{\hat{Y}_1 + \hat{Y}_2 + ... + \hat{Y}_n}_{\text{Weighted Region Totals}}$$

    where

    $\hat{Y}_r$ - estimated total for region r

    n - total number of regions in the country

Estimation of Proportions/Ratios

The estimation of a population proportion or ratio of the formula R = Y/X where Y and X are population totals for variables y and x, respectively, is derived using the formula $\hat{R} = \frac{\hat{Y}}{\hat{X}}$.

Estimation of Sampling Error

Sampling error is usually measured in terms of the standard error for a particular statistic (total, mean, percentage, etc.), which is the square root of the variance.

If the samples are selected using simple random sampling, it would have been possible to use straightforward formulas for calculating sampling errors. However, the LFS is the result of a multi-stage design, hence it is necessary to use more complex formulas.

Sampling errors are computed using statistical programs. These statistical programs use the Taylor linearization method to estimate variances for survey estimates of means, proportions, or ratios.

a. Sampling Error for Totals

$$SE\left(\hat{Y}_p\right) = \sqrt{\hat{V}\left(\hat{Y}_p\right)}$$

$$\hat{V}\left(\hat{Y}_p\right) = (1 - \frac{a_p}{A_p})a_p s^2 + \frac{a_p}{A_p}\sum_{\alpha=1}^{a_p}(1 - \frac{b_{p\alpha}}{B_{p\alpha}})b_{p\alpha}s_\alpha{}^2$$

where:

$$s^2 = \frac{\sum_{\alpha=1}^{a_p}(y_{p\alpha} - \frac{\widehat{y_p}}{a_p})^2}{a_p - 1} \qquad s_\alpha{}^2 = \frac{\sum_{\beta=1}^{b_{p\alpha}}(y_{p\alpha\beta} - \frac{y_{p\alpha}}{b\alpha})^2}{b_\alpha - 1}$$

$y_{p\alpha} = \sum_{\beta=1}^{b_{p\alpha}} w'_{p\alpha,fin}\, y_{p\alpha\beta}$ is the weighted total for psu α.

b. Sampling Error for Proportions or Ratios

The Taylor series linearization method is used to estimate the variance of a proportion or a ratio.

Its formula is given as follows:

$$SE(\hat{R}_p) \approx \frac{1}{\hat{X}_p^{\,2}}\left[\hat{V}(\hat{Y}_p) + \hat{R}_p^{\,2}\hat{V}(\hat{X}_p) - 2\hat{R}_p c(\hat{Y}_p, \hat{X}_p)\right]$$

Where:

$$\hat{R} = \frac{\hat{Y}}{\hat{X}}$$

$$c(\hat{Y}, \hat{X}) = \frac{a_p}{a_{p-1}}\sum_{\alpha=1}^{a_P}\left(y_\alpha - \frac{\hat{Y}}{a_p}\right)\left(x_\alpha - \frac{\hat{X}}{a_p}\right)$$

$$a_p = number\ of\ sample\ PSUs\ in\ domain\ p$$

In the LFS, the 118 province/HUC domains are also treated as natural stratification while the PSUs are treated as clusters.

Data Checking, Coding and Filtering Prior to Estimation of Proportions

Enumeration is a highly complex operation, and it may happen that reported/encoded entries during data collection have some omissions, and implausible/inconsistent entries. Editing is a process meant to correct these errors.

During the interview, embedded editing was activated, and errors/inconsistent entries were detected by the program. Editing was also done using Computer Aided Field Editing (CAFE) program after every interviewed household to ensure completeness and consistency of encoded entries. For monitoring of the status of data collection, LFS raw data from the tablet is uploaded to the PSA Central Office server as soon as the interview of a household/EA was completed.

Review and verification of the PSOC and PSIC codes and invalid values for LFS data items were done in the provincial office using the LFS Information System (LFS IS). Further processing in the regional office such as ID validation, and completeness check, edit and matching of LFS sample households with the original List from Master Sample (MS) Form 6 were done to ensure that the number of households listed was fully covered.

Preliminary and final tabulations of data were done at the PSA Central Office.

IV. Dissemination of Results

The November 2023 LFS preliminary results press release, and the statistical tables are publicly available at the PSA website www.psa.gov.ph. The final estimates of the November 2023 LFS will be released through the Statistical tables, six months after the data collection.

VI. Contact Information

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