TECHNICAL NOTES
2022 ANNUAL POVERTY INDICATORS SURVEY

I. Introduction

a. Background

The Annual Poverty Indicators Survey (APIS) is a household-based survey to gather information on the different indicators related to poverty that can be used to monitor the poverty situation in the country. The APIS is undertaken during the years when the Family Income and Expenditure Survey (FIES) is not conducted. Moreover, APIS is a rider survey to the July Labor Force Survey (LFS) round.

The 2022 APIS is the fifteenth in a series of poverty indicators surveys conducted nationwide since 1998.

b. Objectives

The APIS is designed to provide estimates for non-income indicators related to poverty and serve as inputs in the Multi-dimensional Poverty Index (MPI) development.

Specifically, it gathers information on indicators that are correlated with poverty in order to determine the percent distribution of families in relation to the following indicators:

    a. owner-like possession of house and lot and type of materials for the roof, outer walls, and floor materials of the housing unit;
    b. type of toilet and handwashing facility, main source of water supply, and source of drinking water used by the family;
    c. ownership of household conveniences;
    d. children 6-11 years old enrolled in Grade 1 to Grade 6;
    e. children 12-17 years old enrolled in junior high school (Grade 7 to Grade 10);
    f. who availed loan/s and its sources;
    g. who received and availed selected social protection programs; and
    h. access to government services.

c. Scope and coverage

The 2022 APIS had a national sample of approximately 44,000 sample households deemed sufficient to provide reliable estimates at the national and regional levels. These sample housing units/households are selected from the 2013 Master Sample (MS) for household-based surveys of the PSA.

The reporting unit is the household, which means that the statistics emanating from this survey will refer to the characteristics of the population residing in private households. Persons who reside in the institutions are not within the scope of the survey.

II.   Data Collection

The data collection of the 2022 APIS ran for 20 days from 08 to 30 July 2022. In this round of the APIS, Computer-Assisted Personal Interviewing (CAPI) using Tablet devices was utilized during data collection. The statistical researchers visited the sample housing units and interviewed the eligible respondents. The eligible respondent is the household head or the spouse of the head. In the absence of the household head or his/her spouse, the respondent can be any responsible adult member who can provide reliable answers to questions asked by the survey interviewer about the household and its members.

III.   Methodology

The 2022 APIS, being a household-based survey, used the 2013 MS of which 4 replicates equivalent to a total of 42,768 Secondary Sampling Units (SSUs) or sample housing units were selected as samples. Using a two-stage cluster sampling design, Enumeration Areas (EAs)/barangays were selected at the initial sampling stage as the Primary Sampling Units (PSUs), while the housing units within the selected PSUs were selected as the SSUs. Generally, all households within the sample housing unit were also considered as sample households. However, for housing units with more than three (3) households, a maximum of three (3) sample households were randomly selected.

Sampling Frame

The 2013 MS sampling frame was constructed based on the results of the 2010 Census of Population and Housing. This was refreshed with the 2015 Census of Population results where the EA Reference File (EARF) was used as the PSU frame and the 2015 list of households for each of the PSUs was used as the SSU frame.

Sampling Domain

To provide national and regional level statistics with precise estimates, the 2013 MS has 117 major domains as follows: 81 provinces (including the newly created province of Davao Occidental); 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 2013 MS Design, each sampling domain (i.e., province/HUC) is divided into exhaustive and non-overlapping area segments known as PSUs with about 100 to 400 households. Thus, a PSU can be a barangay/EA or a portion of a large barangay, or two or more adjacent small barangays/EAs.

2x2x2 Implicit Stratification

- Using 2 X 2 X 2 (i.e., 8 groups) implicit stratification, for each domain, PSUs are listed and sorted according to the following scheme:
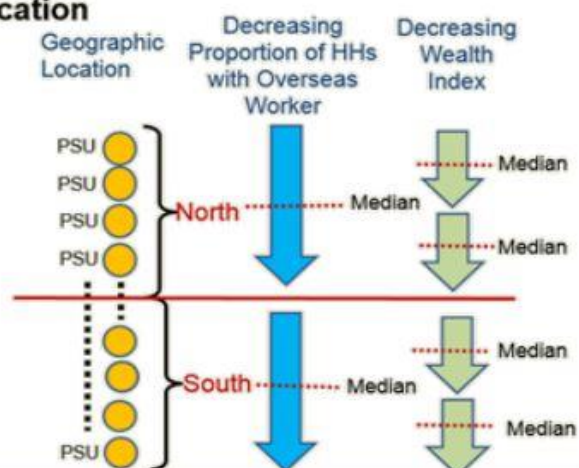
The PSUs are then ordered according to the following: (1) North-South/West-East Geographic location; (2) Decreasing Proportion of HHs with Overseas Workers; and (3) Decreasing Wealth Index.

Replicates

For the 2022 APIS, four replicates were used in all 117 sampling domains. A replicate is composed of an ordered list of PSUs. Most of the provinces, that is, 75 out of 81, have six PSUs per replicate while for most of the HUCs, eight PSUs form a replicate. Small domains such as Batanes, Guimaras, Siquijor, Camiguin, Apayao, and Dinagat Islands have three PSUs per replicate.

Sample Allocation Scheme

A total of four sample replicates were allotted for regional-level estimates. However, the total number of sample SSUs was allotted proportionately to the measure of size of the PSU. Thus, a PSU with only 100 HHs had a smaller number of sample HHs than PSUs with 400 HHs but, on average, there were 12 sample HHs allotted for each PSU in HUCs and an average of 16 sample HHs for every PSU in the province.

Domain	4 Sample Replicates (Regional Level Estimate)	
	Number of Sample PSUs	Number of Sample Housing Units/HHs
75 Province Domain (16 SSUs per PSU)	24	384
6 small provinces (Batanes, Guimaras, Siquijor, Camiguin, Apayao and Dinagat Islands) (16 SSUs per PSU)	12	192
31 HUCs (12 SSUs per PSU)	32	384
2 small HUCs (12 SSUs per PSU) San Juan City Lucena City	12 20	144 240
3 other urban areas (12 SSUs per PSU) Pateros City of Isabela Cotabato City	12 12 20	144 144 240
National	2,940	42,768

Base weight computation

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

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

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

$$w_{p\tau\alpha\beta} = \frac{A_p}{a_p} \times \frac{B_{p\tau\alpha}}{b_{p\tau\alpha}}$$

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

$$w_{p\tau\alpha\beta\gamma} = \frac{A_p}{a_p} \times \frac{B_{p\tau\alpha}}{b_{p\tau\alpha}} \times \frac{C_{p\tau\alpha\beta}}{c_{p\tau\alpha\beta}}$$

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

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 July 2022 LFS was July 2022.

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:

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

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

Age Group (in years)	Sex	
	Male	Female
0-4	C1	C2
5-9	C3	C4
10-14	C5	C6
15-19	C7	C8
20-24	C9	C10
25-29	C11	C12
30-34	C13	C14
35-39	C15	C16
40-44	C17	C18
45-49	C19	C20
50-54	C21	C22
55-59	C23	C24
60-64	C25	C26
65-69	C27	C28
70-74	C29	C30
75-79	C31	C32
80 and over	C33	C34

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

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):

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

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:

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

  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:

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

  where

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

  n - total number of regions in the country

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 after every interviewed household to ensure completeness and consistency of encoded entries. Further processing in the field office such as ID validation, completeness check, editing, and matching of sample households with the

original List from 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. Concepts and Definitions of Terms

- **RESPONDENT** - is the head of the family or his/her spouse or any responsible adult family member who can provide accurate answers to all or most of the questions in the survey.

- **FAMILY** - composed of persons bound by ties of kinship, who live together under the same roof and eat together or share the family food.

- **SCHOOL ATTENDANCE** – determines whether a family member aged 5 to 24 years is currently attending formal school. If not attending, then the reason for not attending school is obtained. The Department of Education (DepEd) announced the school opening for SY 2022-2023 to start on 22 August 2022. Thus, those persons whose school year started in August were considered currently attending school for SY 2022-2023, while for schools who will open later than August 2022 if they had an intention to enroll or pursue their studies during the interview, they were considered as currently attending school.

V. Dissemination of Results

The APIS press releases, final report, and statistical tables are publicly available at the PSA website www.psa.gov.ph. The Final Report will be released one year after the data collection.

VI. Citation

Philippine Statistics Authority (PSA). 2022 Annual Poverty Indicators Survey (APIS).

VII. Contact Information

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