ESTIMATION METHODOLOGY FOR THE GENERATION OF POVERTY STATISTICS FOR THE BASIC SECTORS

For the estimation of poverty incidence, data from the Family Income and Expenditure Survey (FIES) were utilized for classifying households as poor or non-poor, while data from the Labor Force Survey (LFS) were used to classify household members into sectors. Both FIES and LFS follow the ISH (Integrated Survey of Households) sampling scheme, so that sample households for FIES are the same sample households for LFS. This makes estimation of poverty incidence straightforward, merging the FIES and LFS databases and calculating the poverty estimates from the resulting database. Data from the CPH were used to estimate the total population for some of the sectors, whenever applicable.

A. Design of the Integrated Survey of Households

In the Integrated Survey of Households (ISH), the principal domains consist of each province and each city and municipality with population of at least 150,000. The selection of the sample households in each domain is a three-stage procedure. In stage 1, sample barangays (stratified as urban / rural) are selected systematically with probability proportional to size. These barangays are physically delineated into enumeration areas (EAs) using information from the latest population census. Some barangays are not subdivided into enumeration areas; they are treated as enumeration areas in themselves. The second stage selects the enumeration areas with probability proportional to size. The third stage selects the households that will comprise the sample. Again selection is done systematically.

The weight of a sample household is calculated as follows:

$$W_{hij} = \frac{N_h}{b_h \, x \, N_{hi}} \, x \, \frac{N_{hi}}{N_{hij}} \, x \, \frac{N_{hij}}{n_{hij}} = \frac{N_h}{b_h \, x \, n_{hij}}$$

Here,

b_h = number of sample barangays/EAs selected in stratum h

N_{hi} = number of households in the ith sample barangay in stratum h

N_h = total number of households in stratum h

N_{hij} = number of households in the jth sample EA in the ith sample barangay in

stratum h

n_{hij} = number of sample households selected in the jth sample EA in the ith sample barangay in stratum h.

Within a stratum, sample households are self-weighting. The basic weight W_{hij} is

$$A_{hij} = \frac{n_{hij}}{n'_{hij}}$$

adjusted to account for non-interview households using the adjustment factor where n'_{hij} is the number of households with completed interviews in the jth sample EA in the ith sample barangay in stratum h. For each domain d, an adjustment factor A_d is applied to account for changes in population counts from the last census year to the survey year. This adjustment is calculated as follows:

$$A_d = \frac{X_d}{X'_d} = \frac{\text{projected number of families for geographic domain d}}{\text{weighted estimate of the total number of families for the geographic domain d}}$$

The final weight for each sample household in domain *d* is calculated as follows:

$$W'_{dhij} = W_{hij}\ x\ A_{hij}\ x\ A_d$$

B. Assumptions of the estimation procedure

In the estimation of poverty incidence for the basic sectors, the following assumptions are made:

- Poverty is a characteristic of the household. Thus, if a household has been classified poor, then all members of the household will be counted as poor. In other words, a household cannot have poor and non-poor members; either all members are poor or all members are non-poor.

- Population counts of the basic sectors in each domain are available from the population census. For example, the women population, the magnitude of

the youth, and the total number of children must be known from the population census.

We also assume that poverty incidence is conceptually defined as

$$\text{Poverty Incidence} = \frac{\text{Number of poor people}}{\text{Population count}}$$

For example, the poverty incidence for the women sector in domain d is

$$\text{Poverty Incidence} = \frac{\text{Number of poor women in domain d}}{\text{Total number of women in the domain d}}$$

Similarly, the poverty incidence for the youth sector in domain d is

$$\text{Poverty Incidence} = \frac{\text{Number of poor persons in the 15 to 30 age group in domain d}}{\text{Total number of persons 15 to 30 years old in domain d}}$$

A similar formula applies for the children sector and senior citizens sector.

C. Estimation of poverty incidence

Estimated total population of the sector is based on the estimated totals provided for in the FIES and LFS. Estimating both for the numerator and denominator, a ratio-type estimator was used:

$$\text{Poverty Incidence} = \frac{\sum_{hijk} W'_{hij} \text{ x } I_{hijk} \text{ x } X_{hijk}}{\sum_{hijk} W'_{dhij} \text{ x } X_{hijk}}$$

where, for example,

X_{hijk} = number of farmers in the kth household in the jth EA in the ith sample barangay in stratum h.

In cases when the estimation of poverty incidence for the basic sectors coincide with the year that the Census of Population was conducted (e.g., population of women,

youth, children, and senior citizens are available from the 2000 Census), estimation of poverty incidence for these sectors, then, reduces to an estimation of totals. This is straightforward. We illustrate the estimation of poverty incidence for the women sector.

Let

$$I_{hijk} = \begin{cases} 1 & \text{if the } k\text{th household in the } j\text{th EA in the } i\text{th sample barangay in stratum } h \text{ is poor} \\ 0 & \text{if the } k\text{th household in the } j\text{th EA in the } i\text{th sample barangay in stratum } h \text{ is not poor} \end{cases}$$

and

X_{hijk} = number of women in the kth household in the jth EA in the ith sample barangay in stratum h.

The number of poor women in domain d is estimated by

$$X_d = \sum_{hijk} W'_{dhij} \text{ x } I_{hijk} \text{ x } X_{hijk}$$

and poverty incidence for the women sector in domain d is estimated by

$$\text{Poverty Incidence} = \frac{X_d}{\text{Total number of women in domain d}}$$

Note that the denominator in the above estimation formula is a constant obtained from the Census of Population and Housing. The above estimation procedure will not work for three basic sectors, namely, the migrant and formal sector workers, farmers, and fishermen, because population counts for these sectors are not available from the Census.

Estimates for the regional and national poverty incidence are obtained by aggregating estimates of totals for the numerator and replacing the denominator with the appropriate regional/national population count.

Although the population count for urban areas is available from the Census, the ratio estimation procedure was adopted for the urban poverty incidence to ensure consistency with the official poverty estimates. Admittedly, the ratio estimation procedure might be biased, but this bias vanishes when the sample size is sufficiently large, something that is true for national and regional estimates.