

## **METHODOLOGY IN REBASING THE CONSUMER PRICE INDEX (CPI) FOR THE BOTTOM 30% INCOME HOUSEHOLDS FROM BASE YEAR 2000 TO BASE YEAR 2012 AND WITH SOME REVISIONS IN THE METHODOLOGY**

### **1. Identification of the Base Year**

The base period is the year at which the index number is set to 100. It is the reference point of the index number series. The CPI for the Bottom 30% Income Households is rebased to 2012 base year from the current 2000 base year.

The year 2012 was chosen as the next base year to be consistent with the current base year of the CPI for All Income Households. The CPI for All Income Households was rebased from 2006 to 2012 in accordance with the PSA Board Resolution No.1, Series of 2017-146, which approved the synchronized rebasing of the price indices to base year 2006 and every six (6) years thereafter.

### **2. Determination of the Market Basket**

Market basket is a term used to refer to a sample of goods and services commonly purchased and bought by an average Filipino household.

The 2012-based CPI for the Bottom 30% Income Households market basket is determined based on the following:

- 1) Determination of Provincial Market Basket (P)

$$P = A - B + C$$

A = Commodities in 2000-based CPI for the bottom 30% income households market basket by province

B = Commodities in the 2000-based CPI for the bottom 30% income households market basket which are no longer available in the market by province

C = New commodities in the 2012-based CPI for all income households based on the results of the 2013 Survey of Key Informants

- 2) Determination of Regional Market Basket (R)

The regional market basket is consist of commodities/specifications in the provincial market basket which are common/available in two or more provinces of the region.

- 3) The market basket for the 2012-based CPI for the Bottom 30% Income Households is the regional market basket instead of the provincial market basket due to the limitation in the sampling design of the 2012 Family Income and Expenditure Survey (FIES). The 2012 FIES, which covered around 52,000 sample households nationwide, considered region as its domain.

Similar to the 2012-based CPI for all income households, classification of commodities for the CPI for the Bottom 30% Income Households is based on 2010 Philippine Classification of Individual Consumption According to Purpose (PCOICOP), which was patterned after the 1999 COICOP issued by the United Nations Statistics Division (UNSD).

### **3. Determination of Weights**

The weights represent the importance of the commodity/commodity group relative to other commodities/commodity groups in the market basket.

The weights for the 2012-based CPI for the Bottom 30% Income Households are derived from the expenditure data of the 2012 FIES. The weight for each commodity level by region is the proportion of the regional expenditure for that commodity level to national expenditure. The total (all items) national expenditure weights is equal to 100.

### **4. Monitoring of Prices of Items in the Market Basket**

This involves establishing baseline information for prices of the items in the base year and monitoring the prices of the items on a regular basis. Collection of data for the CPI for the Bottom 30% Income Households is done by the provincial staff of the PSA. Except for Food, Beverage, Tobacco (FBT) which is monitored on a weekly basis in NCR, price collection is done twice a month. First collection phase is done during the first five days of the month while the second phase is on the 15<sup>th</sup> to 17<sup>th</sup> day of the month. Data are collected from the sample outlets (outlets or establishments where prices of commodities/services are collected or quoted) which were chosen using the following criteria:

- a. Popularity of an establishment along the line of goods to be priced

This means the sample outlet is publicly known in the locality for selling goods that are included in the CPI market basket and the outlet is patronized by a large segment of the population.

- b. Consistency and completeness of stock

*Consistency of stock* - the outlet has a constant, steady or regular stock of commodities listed in the CPI market basket.

*Completeness of stock* - the sample outlet has the highest number, if not all, of commodities that are included in the CPI market basket relative to the other outlets in the area.

- c. Permanency of outlet - the outlet is an established store or stall in the market area. It should not be an ambulant or transient vendor so as collection of prices in the same outlet in the succeeding survey rounds is possible.

- d. Geographical location - the outlet is accessible to the majority of consumers in the area.

### **5. Computation of the CPI for the Bottom 30% Income Households**

Below are the steps in the computation of CPI for the Bottom 30% Income Households using 2012 as the base year:

**Step 1: Compute the monthly average price for each commodity**

$$\text{Monthly Ave. Price of Commodity } i = \frac{P_{11} + P_{21} + P_3 + P_4 + P_5 + P_6 + P_{12} + P_{22}}{8}$$

Where:

- P<sub>11</sub> – price of outlet 1 during the first visit
- P<sub>21</sub> – price of outlet 2 during the first visit
- P<sub>3</sub> – price of outlet 3 during the first visit
- P<sub>4</sub> – price of outlet 4 during the first visit
- P<sub>5</sub> – price of outlet 5 during the first visit
- P<sub>6</sub> – price of outlet 6 during the first visit
- P<sub>12</sub> – price of outlet 1 during the second visit
- P<sub>22</sub> – price of outlet 2 during the second visit

**Step 2: Compute the price relative (PR) for each commodity**

$$\text{PR} = \frac{\text{Current Month Average Price}}{\text{Previous Month Average Price}} \times 100$$

**Step 3: Compute the index for each Sub-class (5-digit) level**

Step 3.1: Compute the geometric mean of price relatives for each sub-class (5-digit) level

$$\text{Geometric Mean of PR} = \left( \prod_{i=1}^n \text{PR}_i \right)^{1/n}$$

Where:

PR<sub>i</sub> = Price relative of commodity *i* under the sub-class (5-digit) level

n = total number of commodities under the sub-class (5-digit) level

Step 3.2: Compute the index for the sub-class (5-digit) level

$$I_{5\text{-digit},t} = (\text{Geometric Mean of PR}) \times (I_{5\text{-digit},t-1})$$

Where:

I<sub>5-digit,t</sub> = Index of each sub-class (5-digit) level at current month t

I<sub>5-digit,t-1</sub> = Index of each sub-class (5-digit) level at previous month t-1

**Step 4. Compute the index for each Class (4-digit) level**

$$I_{4\text{-digit}} = \frac{\sum_{i=1}^m (W_{(5\text{-digit})i}) (I_{(5\text{-digit})i})}{\sum_{i=1}^m (W_{(5\text{-digit})i})}$$

Where:

$I_{(4\text{-digit})}$  = index of each class (4-digit) level

$W_{(5\text{-digit})i}$  = weight of each sub-class (5-digit)

$I_{(5\text{-digit})i}$  = index of each sub-class (5-digit) level

$m$  = total number of sub-classes (5-digit) under each class (4-digit) level

**Step 5. Compute the index for each Group (3-digit) level**

$$I_{3\text{-digit}} = \frac{\sum_{i=1}^p (W_{(4\text{-digit})i}) (I_{(4\text{-digit})i})}{\sum_{i=1}^p (W_{(4\text{-digit})i})}$$

Where:

$I_{(3\text{-digit})}$  = index of each group (3-digit) level

$W_{(4\text{-digit})i}$  = weight of each class (4-digit)

$I_{(4\text{-digit})i}$  = index of each class (4-digit) level

$p$  = total number of classes (4-digit) under each group (3-digit) level

**Step 6. Compute the index for each Division (2-digit) level**

$$I_{2\text{-digit}} = \frac{\sum_{i=1}^q (W_{(3\text{-digit})i}) (I_{(3\text{-digit})i})}{\sum_{i=1}^q (W_{(3\text{-digit})i})}$$

Where:

$I_{(2\text{-digit})}$  = index of each division (2-digit) level

$W_{(3\text{-digit})i}$  = weight of each group (3-digit)

$I_{(3\text{-digit})i}$  = index of each group (3-digit) level

$q$  = total number of groups (3-digit) under each division (2-digit) level

**Step 7. Compute the index for All Items:**

$$I_{\text{all items}} = \frac{\sum_{i=1}^r (W_{(2\text{-digit})i}) (I_{(2\text{-digit})i})}{\sum_{i=1}^r (W_{(2\text{-digit})i})}$$

Where:

$I_{\text{all items}}$  = index for All Items

$W_{(2\text{-digit})i}$  = weight of each division (2-digit)

$I_{(2\text{-digit})i}$  = index of each division (2-digit) level

$r$  = total number of divisions (2-digit)