

INTRODUCTION

The National Statistics Bureau (NSB) will issue a new Consumer Price Index (CPI) beginning in May 2013. CPI data for January through April will be released in May 2013. The new CPI will have weights based on consumer spending in 2012, and will reflect new methods consistent with international best practices.¹

WHAT IS THE CONSUMER PRICE INDEX?

The CPI is a measure of the average change over time in the prices of consumer items—goods and services that people buy for day-to-day living. The CPI is a complex construct that combines economic theory with sampling and other statistical techniques and uses data collected each month to produce a timely measure of average price change for the consumption sector of the Bhutanese economy.

The CPI provides an estimate of the price change between any two periods. The percent change between the CPIs for two periods indicates the degree to which prices changed between them. The CPI follows the prices of a sample of items in various categories of consumer spending—such as food, clothing, shelter, and medical service—that people buy for day-to-day living.

WHY IS THE CONSUMER PRICE INDEX IMPORTANT?

The CPI provides timely information on price changes and affects all Bhutanese because of the many ways in which it is used. Major uses of CPI data include:

- *As an economic indicator*—As the most widely used measure of inflation, the CPI is a major indicator of the effectiveness of economic policy. The Royal Monetary Authority, Ministry of Finance, and various government ministries use the movement of the CPI to help formulate fiscal and monetary policies and monitor their effect on the Bhutanese economy. Business executives, labor leaders, and other private citizens also use the index as a guide in making economic decisions.
- *As a means of adjusting income payments*—Many collective bargaining agreements use the CPI to determine wage increases. In addition, private firms and individuals use the CPI to index various payments to remove the effects of inflation.
- *As a deflator of other economic series*—Other statistical programs use the CPI or its components to adjust for price changes and produce inflation-free versions of their data series. For example, the Ministry of Economic Development uses the CPI to deflate select components of the gross domestic product (GDP).

¹ See the International Labour Office (ILO), IMF, OECD, Eurostat, United Nations, World Bank, 2004, *Consumer Price Index Manual: Theory and Practice*, (Geneva: ILO).
<http://www.ilo.org/public/english/bureau/stat/guides/cpi/index.htm>.

WHY UPDATE THE CONSUMER PRICE INDEX?

Routine and regular updating of the CPI is necessary to ensure that the data accurately reflect current purchasing patterns of Bhutanese consumers. The monthly movement in the CPI derives from weighted averages of the price changes of the items in its sample. An item's price change is the ratio of its price at the current time to its price in a previous time. A sample item's weight in this average is the share of total consumer spending that it represents.

Over time, the items included in the sample and the weights assigned to each item become out of date and no longer reflect what Bhutanese buy for day-to-day living. Some items become obsolete and are no longer available for purchase, while at the same time new items are introduced and made available for purchase that are not included in the CPI sample. Updating the CPI allows for the sample of items and their weights to reflect current expenditures made by Bhutanese.

The NSB updates the CPI every five (5) years using data collected during the Bhutan Living Standards Survey (BLSS). The most recent BLSS was conducted in 2012.

As is common and expected when the CPI weights are updated, changes are also made to the concepts and methods used to produce the data. It is the goal of the NSB that the CPI reflects current international recommendations and best practices. As a result, several methodological changes have been made to the index, which are described below.

METHODOLOGICAL CHANGES

With the introduction of the revised CPI, the NSB will enhance its CPIs with the following:

Index Calculation Methods: The CPI provides an estimate of the price change between any two periods. The algebraic formula used to estimate this price change is called an index number formula.

In the past, the NSB used the standard Laspeyres index number formula to calculate the CPI. For each item in the sample its price collected in the current period was compared to its price in a fixed base period; this produced the long-term price ratio for each item. This method requires very tight control over price specifications (detailed descriptions of each item priced) and requires the imputation, or estimation, of base period prices to adjust for changes in quality and estimates for any missing prices. The long-term price-ratio method does not provide much flexibility if there is a discontinuity of products or frequent replacement of items that exit in the market. Multiplying each item's long-term price ratio by the base-period expenditure weight assigned to it (the amount of base-period consumer spending it represented) yielded an estimate of what that amount of consumer spending would cost in the current period. The CPI was the ratio of the total (over all the items) estimated cost of base period spending in the current-period divided by the total base period spending.

With the updated CPI, the NSB has introduced the use of the Modified Laspeyres formula to calculate the CPI. The price collected in the current period is divided by its price collected in the previous period. This short-term ratio is multiplied by the item's estimated cost of base period spending in the previous period (not the base-period) to obtain the current-period estimate of the cost of base period spending assigned to the item. As before, the CPI is the sum of the current period estimated cost of base period spending divided by the spending in the fixed base period.

The Modified Laspeyres allows the CPI to better represent the dynamic consumer sector of the Bhutanese economy. It facilitates the introduction of new consumer items without having to impute base period prices (trying to figure out what a new item would have cost in the increasingly distant base period). As soon as two successive prices for a replacement item are available, it can be used in place of the item that is no longer available. If a price is temporarily missing, the short-term price change of similar items can be used (as opposed to its long-term price change) in the index formula. Another advantage of short-term price ratios is that they make it much easier to account for quality changes between an older item and one that replaces it. Finally, the short-term formulation facilitates data validation, as it is the short-term change in price that identifies extreme price movement.

At the lower or elementary level of index calculation, a new formula has also been adopted. Elementary indexes are the basic building blocks of the CPI. Each elementary index has a weight. The elementary index formulas depend on a "relative of change" that indicates the change in prices on average between two periods. To reflect international standards and best practices, all elementary indexes in the new CPI will be calculated using the geometric average or Jevons formula. The Jevons formula is the unweighted geometric average of the items' price ratios in two periods (an item's price ratio is its price in the current month divided by its price in the previous period):

Weights: The CPI is a weighted average of the price changes for the goods and services included in the sample. The weights reflect the relative importance or contribution to total consumption expenditures of all Bhutanese households. The weight attached to each good or service determines the impact that its price change will have on the overall index. The new CPI is now more representative of the entire country, not just the city area.

The weights reflect the spending patterns of households during some previous period. Much depends on how appropriate and timely the weights are. The more current the weights, the more reflective they are of current consumer spending patterns. It is, therefore, important to update the weights used in the CPI periodically or as and when the living standard surveys are held. The international standards recommend rebasing CPI every 5 years.

In order to update the market baskets and weights, Bhutan Living Standards Survey (BLSS) are required. As part of Asian Development Bank's (ADB) project to study poverty conditions in Bhutan, Bhutan was provided grants to conduct the BLSS 2012. Taking advantage of the survey, the National Statistics Bureau (NSB) collaborated for inclusion of the detailed expenditure on households for the purpose of re-basing. The questionnaire not only encompassed the detailed expenditure but it was broken down into expenditure on import and domestic goods for the first time in the survey. The main objective is to calculate domestic and imported inflation separately.

Data Dissemination: The previous CPI was compiled and released on a quarterly basis, whereas the new CPI will be produced on monthly basis starting with the May 2013 index. A monthly CPI will provide more timely data to inform data users and decision makers about price movements in the country.

Other Notable Changes:

1. Improved, expanded samples of outlets reflecting those normally visited by households. This is done to improve the coverage of the index by including newer outlets that are important. Outlets in geographic areas not previously covered are also added.
2. In order to improve the CPI by reflecting current patterns in consumer purchase, new products and items reflecting updated spending patterns and new products are included in the re-based CPI. From the previous of 363 items, the re-based CPI will have 439 items an increase of 76 items.
3. Greater comparability across the region in terms of classifications, structure, methods, and procedures used in the CPIs.
4. Use of mobile application tool to collect data and send directly to the database at the headquarters. Such measures are taken for timely publication and up to date information. The mobile application tool was designed with sponsorship of the World Bank and input from the International Monetary Fund. It has several features like: noting the place from where the data were collected and sent; when the data were sent; reason for change in price; and the ability to include new outlets and commodities.
5. The re-based CPI will have separate indices for import commodities as well as domestic commodities. Such index generation has become important due to the fact that Bhutan is an import driven country. Such indexes are also initiated to help the central bank in their monetary policy formulation.

FOR MORE DETAILED INFORMATION ON THE CPI

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