Pacific Crest Financial Advisors, LLC

U.S. Bureau of Labor Statistics

Frequently Asked Questions about the Chained Consumer Price Index for All Urban Consumers (C-CPI-U)

1. What is the C-CPI-U and when did the Bureau of Labor Statistics (BLS) begin Publishing it?

BLS began publishing the Chained Consumer Price Index for All Urban Consumers effective with the release of July 2002 CPI data. Designated the C-CPI-U, the index supplements the existing indexes already produced by the BLS: the CPI for All Urban Consumers (CPI-U) and the CPI for Urban Wage Earners and Clerical Workers (CPI-W).

The C-CPI-U employs a formula that reflects the effect of substitution that consumers make across item categories in response to changes in relative prices.

C-CPI-U data can be found on the BLS web site at http://data.bls.gov/cgi-bin/surveymost?su.

2. What is substitution and substitution bias? And does the C-CPI-U eliminate it?

Traditionally, the CPI was considered an upper bound on a cost-of-living index in that the CPI did not reflect the changes in consumption patterns that consumers make in response to changes in relative prices.

Since January 1999, a geometric mean formula has been used to calculate most basic indexes within the CPI; this formula allows for a modest amount of substitution within item categories as relative price changes.

The geometric mean formula, though, does not account for consumer substitution taking place between CPI item categories. For example, pork and beef are two separate CPI item categories. If the price of pork increases while the price of beef does not, consumers might shift away from pork to beef. The C-CPI-U is

designed to account for this type of consumer substitution between CPI item categories. In this example, the C-CPI-U would rise, but not by as much as an index that was based on fixed purchase patterns.

With the geometric mean formula in place to account for consumer substitution within item categories, and the C-CPI-U designed to account for consumer substitution between item categories, any remaining substitution bias would be quite small.

3. When did you decide to use a cost-of-living (COL) index as a framework for the CPI, and why is the CPI still not a COL?

The C-CPI-U does not represent a fundamental change in the underlying objective of the CPI. BLS has long used the concept of a cost-of-living (COL) index as a framework for dealing with practical questions that arise in the construction of the CPI.

While the C-CPI-U accounts for consumer substitution, the CPI still differs from a complete, or "unconditional," cost-of-living measure. While the CPI measures changes over time in the cost of consumer goods and services, an unconditional cost-of-living index would go further, and take into account changes in non-market factors, such as the environment, crime, and education. The CPI is said to be "conditional" on those factors.

4. How is the C-CPI-U constructed and how is it different from the CPI-U and CPI-W?

Both the CPI-U and C-CPI-U are indexes designed to measure price changes faced by urban consumers, while the CPI-W is designed to measure price changes faced by urban wage earners and clerical workers. Population coverage is the only difference between the CPI-U and CPI-W. The C-CPI-U is further distinguished from the CPI-U and CPI-W based upon the expenditure weights and formula used to produce aggregate measures of price change.

As background, all three of the CPI indexes are built in two stages. In the first stage, prices for each of the 8,018 item-area combinations (211 item categories X 38 geographic areas) are averaged together to form 8,018 basic indexes. This stage is often referred to as "lower-level aggregation" as it involves averaging the prices within item-area groups. For example, price changes for apples within Chicago are averaged together to produce the Chicago-apples index. In 1999, the BLS introduced a geometric mean formula for averaging prices within most of these item-area combinations, in order to approximate the effect of consumer response to changes in relative prices within these item categories. The geometric mean estimator is used in the C-CPI -U in the same item categories in which it is used in the CPI-U and CPI-W.

In the second stage, sometimes referred to as "higher-level aggregation", these 8,018 elementary indexes are averaged together to yield various aggregate indexes and ultimately the All-Items, U.S. City Average index of price change. It is at this second stage where the C-CPI-U is different from the CPI-U and CPI-W. The use of a superlative formula for upper-level aggregation, used in the final C-CPI-U, is designed to address consumer substitution across item categories. In contrast, the CPI-U and CPI-W use a formula that assumes consumers do not substitute across item categories.

In the CPI-U and CPI-W, expenditures from a previous (or lagged) two-year period are used to calculate aggregate indexes. These weights remain fixed for 24 months before being replaced with updated expenditures. For example, the CPI-U for the years 2004 and 2005 uses expenditure weights drawn from the 2001-2002 Consumer Expenditure Surveys. The final C-CPI-U, on the other hand, utilizes contemporaneous monthly expenditure estimates for each of the 8,018 elementary indexes. For example, the final C-CPI-U for May 2003 is based on monthly expenditures for April and May 2003. As such, expenditure data required for the calculation of the C-CPI-U are available only with a time lag. Thus, the C-CPI-U is issued first in preliminary form, and is subject to two subsequent revisions. For example, "final" values of the C CPI-U have

been issued for data through 2003. "Interim" values are available for the 12 months of 2004, and "initial" values are available for 2005 data. In February 2006, with release of the January 2006 index, revised interim indexes for the 12 months of 2005 will be published, and the index values for 2004 will be revised and become final. In each subsequent year, indexes for the months in the year two years prior will be issued in final form and those values for one year prior will be revised and issued as interim.

In its final form, the C-CPI-U is a monthly chained price index with the expenditure weights varying each month. The CPI-U and CPI-W, on the other hand, are biennial chained price indexes where their expenditure weights are updated every two years. Within the two-year span, these indexes are fixed-weight series, where the changes in these indexes reflect only changes in prices, and not expenditure shares, which are held constant.

More detailed information on how the C-CPI-U is constructed can be found in "Introducing the Chained Consumer Price Index" (PDF).

5. **Where is the C-CPI-U currently being used? Wouldn't the C-CPI-U be a more appropriate index to tie Social Security or other adjustments to?**

The C-CPI-U, which in final form is said to be a "superlative" index, is designed to be a closer approximation to a cost-of-living index than other CPI measures.

That said, BLS publishes thousands of indexes each month; these indexes can vary by which items, geographic areas, and populations are covered. As different users have different needs, BLS cannot say which index is necessarily better than another. As such, BLS takes no position on what the Congress or the Administration should use to make adjustments to Social Security or any other federal program.

The C-CPI-U to our knowledge currently is not used in any federal legislation as an adjustment mechanism.

6. **Is it possible for the C-CPI-U to increase faster than the CPI-U?**

At lower levels, and for short periods of time, it is possible for the C-CPI-U to increase faster than the CPI-U. That said, the evidence suggests that the C-CPI-U over time will trend slightly lower than the CPI-U.

7. **Is the difference between the CPI-U and the C-CPI-U expected to be fairly stable over time?**

Earlier evidence suggested that the difference between the CPI-U and the C-CPI-U would be around 0.2 percent a year. For the period December 1999 to December 2000, however, the difference was 0.8 percentage point. There were a number of reasons for the larger difference, including the relative age of the weights in the CPI-U, and the increased variation in price movements across CPI item categories, causing the divergence between the CPI-U and C-CPI-U to grow. In each of the last four years (including 2004, for which the C-CPI-U values are not final), the difference in December-to-December changes was 0.3 or 0.4 percentage point.

8. **The C-CPI-U is subject to revision. How small are these revisions expected to be?**

The C-CPI-U is issued first in preliminary form, and subject to two subsequent revisions. These revisions have been relatively small, and are expected to be small in the future. Revisions to 12-month changes in the All Items index, for example, generally have been 0.2 index points or less.

9. **For a given month, will the initial release of the C-CPI-U always be lower than the interim or final release?**

No. The initial release uses an "adjustment factor" to estimate the initial indexes. This adjustment is designed to prevent the initial indexes from being systematically higher or lower than the interim and final indexes.

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