



# The Chained Consumer Price Index: What Is It and Would It Be Appropriate for Cost-of-Living Adjustments?

-name redacted-

Specialist in Income Security

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## Summary

The U.S. Bureau of Labor Statistics (BLS) publishes two important measures of inflation: the Consumer Price Index for all Urban Consumers (CPI-U) and the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W). (Hereinafter in this report, the CPI-W and CPI-U will be referred to collectively as the standard CPI.) The standard CPI might seem like just another economic indicator, but it is a powerful policy lever. Because the CPI-W is used to calculate annual cost-of-living adjustments (COLAs) to Social Security retirement benefits and the CPI-U is used to calculate annual inflation adjustments to personal income tax brackets, for example, changing the basis of the adjustments could substantially affect outlays and revenues.

Since August 2002, BLS has published a supplemental measure known as the Chained Consumer Price Index for all Urban Consumers (C-CPI-U). The aim of the C-CPI-U is to produce a measure of change in consumer prices that is free of substitution bias. One of the difficulties in estimating cost-of-living changes is that consumers often alter their buying patterns in response to changing relative prices. In other words, consumers tend to buy more of the goods and services whose prices are rising slower than average and fewer of the goods and services whose prices are rising faster than average. Substitution is believed to insulate consumers from the full effect of rising prices on maintaining their standard of living. Because the CPI-W and CPI-U do not entirely account for substitution, they overstate the impact of inflation on consumer well-being.

As a result of better reflecting consumer substitution, the C-CPI-U has typically increased to a lesser extent than either the CPI-U or CPI-W. This relationship has prompted calls for switching to the C-CPI-U when calculating automatic adjustments to inflation-indexed federal programs and individual tax provisions to slow growth in the budget deficit. The 2010 “Simpson-Bowles” report recommended government-wide replacement of the CPI-W and CPI-U with the chained CPI, for example. In April 2013, a modified version of the Chained CPI-U proposal was included in President Obama’s Fiscal Year 2014 Budget.

The CPI-W and CPI-U are final upon being issued, making them attractive for use in calculating cost-of-living adjustments. In comparison, the C-CPI-U is subject to two revisions after its first release. If the two indexes were replaced by the C-CPI-U, cost-of-living adjustments would either have to wait until the final number was available or rely on preliminary estimates that could change up to two years after the fact.

This report provides technical and logistical information on how the C-CPI-U is constructed and reported by the BLS. For information on programs indexed to the CPI, see CRS Report R42000, *Inflation-Indexing Elements in Federal Entitlement Programs*, coordinated by (name redacted). For information on how Social Security benefits could be affected by using the Chained CPI-U to compute annual COLAs, see CRS Report R42086, *Using a Different Cost-of-Living Measure for Social Security Beneficiaries: Some Policy Considerations*, by (name redacted).

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## Introduction

This report provides technical and logistical information on how the Chained Consumer Price Index for all Urban Consumers (C-CPI-U) is constructed and reported by the U.S. Bureau of Labor Statistics (BLS). It explains methodological and statistical differences between the standard Consumer Price Index (CPI) and the C-CPI-U. It then addresses a key impediment to moving to the C-CPI-U. The report closes with a discussion of the potential impact of such a switch on the federal budget deficit. For information on programs indexed to the CPI, see CRS Report R42000, *Inflation-Indexing Elements in Federal Entitlement Programs*, coordinated by (name redacted). For information on how Social Security benefits could be affected by using the C-CPI-U to compute annual cost-of-living adjustments (COLAs), see CRS Report R42086, *Using a Different Cost-of-Living Measure for Social Security Beneficiaries: Some Policy Considerations*, by (name redacted).

The CPI is probably the most important measure of inflation developed by the federal government because it is used to make automatic adjustments that affect both outlays and revenues. The Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) is the basis for adjusting Social Security retirement benefits<sup>1</sup> and the Consumer Price Index for All Urban Consumers (CPI-U) is the basis for adjusting personal income tax brackets<sup>2</sup> to keep up with inflation, for example. Changing the government's basis for indexing these among other federal programs and tax provisions from the CPI-W and CPI-U could have substantial effects on the budget deficit.<sup>3</sup> (Hereinafter in this report, the CPI-W and CPI-U will be referred to collectively as the standard CPI.)

Then-Chairman of the Federal Reserve Board Alan Greenspan suggested in testimony before the House Budget Committee in 2004 that Congress consider replacing the standard CPI with the C-CPI-U to make automatic COLAs to federal programs.<sup>4</sup> He pointed out that, at that time, if the C-CPI-U had been used instead of the CPI-U and CPI-W over the previous 10 years, the federal debt would have been about \$200 billion less.

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<sup>1</sup> The CPI-W is derived from the average spending of households on about 80,000 items in 87 urban areas for whom at least one-half of household income comes from wage earners in clerical, craft, and service among other occupations with at least one worker employed for 37 or more weeks in an eligible occupation. It covers about 32% of the U.S. population. The current CPI-W population dates to 1964, when it started including nonfamily (i.e., single-person and unrelated-individuals) households.

<sup>2</sup> The CPI-U is derived from the average expenditures of households beyond those in the CPI-W population. It includes salaried workers (e.g., professionals and managers), part-time and part-year workers, the self-employed, the unemployed, and households with no one in the labor force (e.g., retirees). The CPI-U covers about 87% of the U.S. population. Publication of the CPI-U began in 1978.

<sup>3</sup> In addition to adjusting income tax brackets, other provisions in the individual tax code that are adjusted by the CPI-U (U.S. city average, all items) include the standard deduction, personal exemption, and Earned Income Tax Credit among other credits. In addition to Social Security retirement benefits, federal programs adjusted by the CPI-W (U.S. city average, all items) include federal civilian, military, and railroad pensions; veterans' benefits; and Supplemental Security Income. Some other federal programs are adjusted for inflation based on components of the CPI. For more information see CRS Report R42000, *Inflation-Indexing Elements in Federal Entitlement Programs*, coordinated by (name redacted).

<sup>4</sup> Testimony of Alan Greenspan before the Committee on the Budget, U.S. House of Representatives, February 25, 2004, available at <http://www.federalreserve.gov/boarddocs/testimony/2004/20040225/default.htm>.

The National Commission on Fiscal Responsibility and Reform (“Simpson-Bowles”) report and the “Gang of Six” plan among others included replacing the standard CPI with the C-CPI-U for all government provisions subject to indexation.<sup>5</sup> This proposal was considered, as well, by some members of the “super committee” created by the Budget Control Act of 2011 (P.L. 112-25).<sup>6</sup> Many others have released similar proposals in recent years.<sup>7</sup>

An amendment offered by Representatives Cooper and LaTourette as a substitute to the House’s FY2013 budget resolution would have relied on the recommendations in the Simpson-Bowles report to establish the following year’s budget.<sup>8</sup> Although the bipartisan amendment failed on March 28, 2012, its being offered suggests that interest in changing to the C-CPI-U to curb the growth of the budget deficit remains among some Members of Congress.<sup>9</sup>

In April 2013, a modified version of the Chained CPI-U proposal was included in President Obama’s Fiscal Year 2014 Budget.<sup>10</sup>

One reason besides slowing the growth in the budget deficit for changing to the C-CPI-U is that the standard CPI has not been without criticism as a measure of change in the cost of living. A true cost-of-living index would measure the change in income required for consumers to maintain a constant level of “utility” (satisfaction). But there are a number of practical complications that make constructing such an index difficult.

With a given level of income that constrains their choices, consumers decide how to spend their money based on the satisfaction the various available goods and services yield. Consumers are assumed to spend their income in such a way as to get the most satisfaction possible within the limitations of their budget. Any indicator of the cost of living must be based on what consumers actually spend because utility cannot be directly measured.

One of the difficulties in estimating changes in the cost of living is that consumer spending patterns change continuously and for different reasons. Spending patterns change because of changing tastes and preferences (e.g., for meals in restaurants rather than meals prepared at home). Spending patterns also change due to changes in relative prices. As prices change over time, consumers will tend to buy more of those goods and services whose prices are rising slower than average and fewer of those goods and services whose prices are rising faster than average.

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<sup>5</sup> For the National Commission on Fiscal Responsibility and Reform report, see <http://www.fiscalcommission.gov/news/moment-truth-report-national-commission-fiscal-responsibility-and-reform>. For the “Gang of Six” proposal, see <http://www.warner.senate.gov/public/index.cfm/gang-of-six>.

<sup>6</sup> Jennifer Steinhauer and Robert Pear, “G.O.P. Is Optimistic but Democrats Are Glum on Deficit Panel,” *The New York Times*, November 15, 2011.

<sup>7</sup> See, for example, the “Domenici-Rivlin Debt Reduction Task Force” proposal <http://bipartisanpolicy.org/projects/debt-initiative/about>.

<sup>8</sup> The amendment numbered 3 is printed in H.Rept. 112-423 to accompany H.Res. 597, the concurrent budget resolution for FY2013.

<sup>9</sup> David Grant, “Why the Simpson-Bowles Budget Defeat Isn’t the End of the Line,” *The Christian Science Monitor*, March 29, 2012, posted at [CSMonitor.com](http://CSMonitor.com).

<sup>10</sup> The President’s Budget would apply the change only to non-means-tested benefit programs and to parameters of the tax code. See *Fiscal Year 2014 Budget of the U.S. Government*, page 46, <http://www.whitehouse.gov/sites/default/files/omb/budget/fy2014/assets/budget.pdf>.

So-called substitution bias causes the standard CPI to overstate the effect of inflation on consumer well-being.<sup>11</sup>

The BLS, which produces the standard CPI, has strived to construct a better measure of changes in the cost of living. Toward that end, it asked the Committee on National Statistics of the National Research Council (NRC) to convene a panel of experts to look into the conceptual, measurement, and other statistical issues that arise when constructing cost-of-living indexes.<sup>12</sup> In its 2002 report, the panel endorsed continuing to use the CPI for tax indexation, which began in 1985 as required by the Economic Recovery Tax Act of 1981.<sup>13</sup> It suggested that poverty thresholds (which determine eligibility for government transfer programs such as Medicaid and food stamps) might be adjusted by a fixed percentage of median income or consumption of workers, and referenced a 1995 NRC report on measuring poverty that had suggested thresholds be adjusted by a fixed ratio of the median consumption of necessities (e.g., food and shelter). The panel expressed support for BLS's then in-development Chained Consumer Price Index for all Urban Consumers as a means of more accurately adjusting Social Security retirement benefits among other federal payments (e.g., military and civil service pensions; veterans' benefits) for real changes in the cost of living.<sup>14</sup> But, there are difficulties with switching to the C-CPI-U despite it more fully accounting for substitution bias and thereby more accurately reflecting changes in the cost of living.

## **Methodological Differences Between the Standard CPI and the C-CPI-U**

Because the standard CPI is a fixed-weight index, it does not entirely reflect ongoing changes in buying habits. As the overall level of prices changes, relative prices change as well. Consumers can to some degree change their spending patterns in response to these price changes by buying relatively more of those goods whose prices are rising more slowly.

If these changes in consumer spending patterns have no effect on overall consumer satisfaction, then a price index based on a fixed market basket of goods and services will overstate the increase in the cost of a given standard of living. Because the standard CPI does not fully account for consumers' ability to insulate themselves from inflation by changing their spending patterns, it overestimates how much they would need to raise total spending to maintain a constant standard of living. The C-CPI-U, in contrast, is constructed in such a way as to better account for substitution bias.

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<sup>11</sup> See, for example, *Toward a More Accurate Measure of the Cost of Living*, Final Report to the Senate Finance Committee from the Advisory Commission to Study the Consumer Price Index, December 4, 1996. The publication is commonly known as the Boskin Report after its chairman.

<sup>12</sup> National Research Council, *At What Price? Conceptualizing and Measuring Cost-of-Living and Price Indexes*, ed. Charles Schultze and Christopher Mackie (Washington DC: National Academy Press, 2002).

<sup>13</sup> The report was silent on the subject of which CPI to use (that is, whether to continue using the CPI-U or switch to the chained CPI-U that BLS was developing at that time).

<sup>14</sup> Annual COLAs were linked to changes in the CPI in the 1972 amendments to the Social Security Act. The only CPI available at that time was the CPI-W. The NRC did not recommend switching from the CPI-W to the CPI-U for indexing Social Security payments because the two indexes have changed at about the same rate over time. It also concluded that there was no rationale for switching from the CPI-W to the experimental index for the elderly (CPI-E) that Congress had requested the BLS to construct. The CPI-E is discussed in more detail at the end of this report.

## The CPI-U and CPI-W

The standard CPI is a fixed-weight (Laspeyres) price index, which measures the change in retail prices of an unchanging mix of goods and services purchased by consumers. To see how a fixed-weight index is calculated, consider the simple case of two time periods and two goods. In the first period, the value of the index is one. The index value in the second period is a function of the quantities in the first period and the prices in the two periods. It is a weighted sum. The first step is to calculate, for each good, the ratio of the price in the second period to the price in the first period. The ratios are then summed using expenditure shares in only the first period as weights. To see how a fixed-weight price index is calculated, see **Box 1**.

The standard CPI is, strictly speaking, a modified fixed-weight price index. That is, the market basket of goods and services is periodically changed to keep it up to date. Until a decade ago, however, those updates occurred only about once every 10 years. With the release of CPI data for January 2002, the market basket was updated to reflect spending patterns reported in the Consumer Expenditure (CE) Survey for the 1999-2000 period. Since then, BLS has updated the expenditure weights every two years.<sup>15</sup> For example, with the release of the January 2010 CPI, the weights were updated to reflect spending patterns in the 2007-2008 period. Despite this more frequent updating of the market basket, the standard CPI continues to be subject to the substitution bias that is inherent in a fixed-weight index.

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<sup>15</sup> The U.S. Census Bureau conducts the CE Survey for BLS. “Collection and processing the annual data consumes the greater part of a year, meaning that expenditure data introduced into the CPI at the beginning of year *t* can pertain to year *t-2* at the latest.... Recognized international best practice calls only for revising expenditure weights at least every five years, and more frequently if there is high inflation or evidence of rapid changes in consumption patterns.” John S. Greenlees and Elliot Williams, *Reconsideration of Weighting and Updating Procedures in the US CPI*, U.S. Bureau of Labor Statistics, Working Paper 431, Washington, DC, October 2009, p. 5.

**Box I. Calculating a Fixed-Weight “Laspeyres” Price Index (Index<sup>L</sup>)**

To illustrate, consider the formula:  $\text{Index}_{[1,t]}^L = \sum_i s_i^1 \left( \frac{p_i^t}{p_i^1} \right)$

where i refers to the good, t refers to the time period, p refers to the price, and s<sub>i</sub> refers to the expenditure share for each good in the first period. Consider also the following hypothetical values for prices and quantities:

Period	Beer			Wine			Total Cost
	Quantity	Price	Cost	Quantity	Price	Cost	
1	10	\$4	\$40	6	\$10	\$60	\$100
2	12	\$2	\$24	4	\$19	\$76	\$100

The index for period 1 is 1.000, and the index value for period 2 is:

$$\text{Index}_{\frac{1}{2}}^L = \left[ 0.4 \times \left( \frac{2}{4} \right) \right] + \left[ 0.6 \times \left( \frac{19}{10} \right) \right]$$

$$\text{Index}_{\frac{1}{2}}^L = 1.340$$

Using expenditure weights from the first period (in the case of beer, the expenditure weight is 40 ÷ 100 = 0.40, and for wine it is 60 ÷ 100 = 0.60), yields an index value in the second period of 1.340 which indicates a 34.0% increase in the price of this market basket. As the measure of price change does not take into account that the consumer bought more beer and less wine because of the change in relative prices, the index does not reflect substitution.

The standard CPI is issued in its final form and is not revised. This makes it attractive for calculating COLAs. But, even a small discrepancy between estimated and actual changes in the cost of living each year will be cumulative over time.

## The C-CPI-U

In an effort to better estimate the effect of consumer substitution on the CPI, BLS introduced a supplemental measure known as the *Chained Consumer Price Index for all Urban Consumers* (C-CPI-U). It does not replace either the CPI-W or CPI-U, and has not to date affected any indexing provisions of federal programs.

The aim of the C-CPI-U is to produce a measure of change in consumer prices that is free of upper-level substitution bias. Upper-level substitution refers to consumers changing their spending between broad categories in the market basket (e.g., buying more chicken and less fish due an increase in the price of fish compared with chicken from one month to the next).<sup>16</sup>

The final release of the C-CPI-U is calculated using a Törnqvist index formula that relies on consumer expenditure data for the current and prior months as a means of accounting for any

<sup>16</sup> In 1999, BLS began applying a geometric mean formula when creating basic indexes within which goods are relatively close substitutes to account for lower-level substitution in the standard CPI. Lower-level substitution refers to consumers changing their spending within narrow categories in the market basket (e.g., buying more Muenster than Swiss cheese due to a relative increase in the price of Swiss). BLS estimated that the actual decrease in CPI growth due to use of the geometric mean to calculate most lower level indexes may be 0.28 percentage points per year. (See John S. Greenlees and Robert B. McClelland, “Addressing Misconceptions About the Consumer Price Index,” *Monthly Labor Review*, August 2008.) BLS uses the geometric mean to create most basic indexes, but there are some exceptions. The lower level category of hospital services is one. BLS judged that consumers are unlikely to substitute between the services performed at hospitals in response to relative price changes.



substitution across categories made by consumers in response to changes in relative prices. In other words, “the final version of the C-CPI-U is based on actual consumer behavior, rather than assumptions about consumer substitution.”<sup>17</sup> BLS estimated that the decrease in cost-of-living growth due to accounting for upper-level substitution may be 0.3 percentage points. To see how a Törnqvist price index is calculated, see **Box 2**.

**Box 2. Calculating a “Törnqvist” Price Index (Index<sup>T</sup>)**

The Törnqvist index formula looks like this: 
$$\text{Index}_{[1;t]}^T = \prod_i \left( \frac{p_i^t}{p_i^1} \right)^{\left( \frac{s_i^1 + s_i^t}{2} \right)}$$

In this case, for each good (i), the price in the second period (in which case p<sup>t</sup> is simply p<sup>2</sup>) is divided by the price in the first period (p<sup>1</sup>) and the exponent applied to that ratio is the average of the expenditure weights of that good in the two periods. In this formula, the π symbol indicates that each of the weighted price ratios for the goods in the market basket are multiplied together. Continuing with the same hypothetical numbers from the previous example and using the Törnqvist formula gives:

$$\text{Index}_2^T = \left( \frac{2}{4} \right)^{\left( \frac{.40 + .24}{2} \right)} \times \left( \frac{19}{10} \right)^{\left( \frac{.60 + .76}{2} \right)}$$

$$\text{Index}_2^T \approx 1.239$$

The index value for the second period of 1.239 indicates a 23.9% increase in price, which is less than the 34.0% price increase of the fixed-weight market basket.

The Törnqvist index requires expenditure data that become available after a long lag time. As a result, the final C-CPI-U cannot be published concurrently with the standard CPI. But, BLS is able to publish an initial estimate of the C-CPI-U that coincides with the release of the standard CPI each month by using a geometric mean formula (discussed immediately below). Every February, the initial C-CPI-U estimates for all of the months in the previous calendar year are revised again using a geometric mean formula. The revision is referred to as the “interim” release. The following February, the final C-CPI-U estimates based on the Törnqvist formula are released for all of those same months.<sup>18</sup>

The initial and interim releases of the C-CPI-U are based on the same expenditure weights used for the CPI-U but a geometric mean formula is used in aggregating the basic indexes to create the upper-level indexes in the initial and interim releases.<sup>19</sup> In contrast with the Laspeyres index, in which the “fixed-weight” methodology keeps the quantity of good purchased in the first period

<sup>17</sup> David S. Johnson, Stephen B. Reed, and Kenneth J. Stewart, “Price Measurement in the United States: A Decade After the Boskin Report,” *Monthly Labor Review*, May 2006, p. 12.

<sup>18</sup> The Census Bureau collects expenditure information from paper diaries and interviews of households, which are based on a three-month recall, and then uploads and codes the information before transmitting it to BLS. The Census Bureau could not start inputting and processing the expenditure reports for the last three months of 2009 until after they were received in March 2010, for example. BLS’s CPI Division subsequently receives all the expenditure data from a given year in September of the following year (e.g., in September 2010 in the case of 2009). Only then is the CPI Division able to edit the expenditure data and calculate final C-CPI-U values for all months in a given year. BLS issues the final C-CPI-U releases the following February (e.g., in February 2011 in the case of 2009 data received from the Census Bureau in September 2010). This process was outlined by BLS in phone conversations with CRS in September 2011.

<sup>19</sup> As previously noted, BLS has since 1999 used the geometric mean in developing the basic indexes of the standard CPI. BLS does not use the geometric mean in the aggregation to all-items CPI.

and applies that amount in subsequent periods, the geometric mean index formula assumes a particular consumer *response* to the change in relative prices. That means while in a Laspeyres index, if the price of a good rises, the quantity consumed will remain constant, but in a geometric mean index the quantity consumed implicitly falls. Some research has suggested that the geometric mean based price index may overstate substitution bias if consumers are assumed to respond to changes in relative prices more than they actually do.<sup>20</sup> To see how a geometric mean index is calculated, see **Box 3**.

The initial and interim releases of the C-CPI-U are further adjusted based on historical differences between geometric mean and Törnqvist indexes. This is done so that the initial and interim releases are closer to the final index number. BLS is continuing to study methods to further narrow the gap between preliminary and final index numbers.<sup>21</sup> It also is trying to shorten the lengthy lag between release of preliminary and final index numbers.<sup>22</sup>

### **Box 3. Calculating a Geometric Mean Index (Index<sup>G</sup>)**

The formula for a geometric mean price index looks like this: 
$$\text{Index}_{[1;t]}^G = \prod_i \left( \frac{p_i^t}{p_i^1} \right)^{s_i^1}$$

Using the same prices and quantities as in the previous example with this formula gives:

$$\text{Index}_2^G = \left( \frac{2}{4} \right)^4 \times \left( \frac{19}{10} \right)^6$$

$$\text{Index}_2^G = 1.114$$

The geometric mean approach to calculating the price index for period 2 yields an increase of 11.4% between the two periods, which is less than either of the other two measures.

Although the C-CPI-U may be superior to the standard CPI in some respects, final data are far from timely. For example, in the case of the release of C-CPI-U data for the month of January 2009, the initial release occurred in February 2009, the interim release occurred in February 2010, and final release in February 2011. Final data for all of the months in calendar 2009 also were not released until February 2011. Thus, the wait for the final release of any January C-CPI-U is 25 months. But, because all of the months in a given calendar year are revised at the same time, the wait for the final release of any December C-CPI-U is 14 months. (See **Table 1** for how many months after the reference month, the month for which the data are reported, the various releases are published.)

<sup>20</sup> See Matthew D. Shapiro and David W. Wilcox, “Alternative Strategies for Aggregating Prices in the CPI,” Federal Reserve Bank of St. Louis *Review*, May/June 1997.

<sup>21</sup> For additional methodological information on the standard CPI and C-CPI-U see the chapter on the CPI in the BLS *Handbook of Methods*, updated June 2007 (<http://www.bls.gov/opub/hom/pdf/homch17.pdf>); and for the C-CPI-U in particular see Robert Cage, John Greenlees, and Patrick Jackman, *Introducing the Chained Consumer Price Index*, paper presented at the Seventh Meeting of the International Working Group on Price Indexes, Paris, FR, May 2003, and Frequently Asked Questions on the Chained Consumer Price Index for All Urban Consumers, <http://www.bls.gov/cpi/episupqa.htm>.

<sup>22</sup> Rather than receiving expenditure data from the Census Bureau in September for the entire preceding calendar year, BLS’s CPI Division plans to get data on a rolling quarterly basis. This will permit revision of three months of index values every quarter. BLS expects to be able to shorten the lag times between initial and final C-CPI-U releases, shown in **Table 1**, by several months once a new computer system is completed—perhaps in summer 2014—according to phone conversations between BLS and CRS conducted in September 2011.

**Table I. Number of Months After Reference Month That Data Are Released**

Reference Month	CPI-U/W	C-CPI-U		
		Initial Release	Interim Release	Final Release
January	1	1	13	25
February	1	1	12	24
March	1	1	11	23
April	1	1	10	22
May	1	1	9	21
June	1	1	8	20
July	1	1	7	19
August	1	1	6	18
September	1	1	5	17
October	1	1	4	16
November	1	1	3	15
December	1	1	2	14

Source: U.S. Bureau of Labor Statistics, CPI news releases.

## Statistical Differences Between the CPI and C-CPI-U

Data for the C-CPI-U are available beginning with December 1999. As shown in **Table 2**, which uses final data through the end of 2011 and interim data through the end of 2012, most of the time the increase in the final C-CPI-U has been smaller than the increase in the standard CPI.

**Table 2. The C-CPI-U, the CPI-U, and the CPI-W**

12-Month Period Ending in December of:	Percentage Change				
	C-CPI-U			CPI-U	CPI-W
	Initial	Interim	Final		
2000	n.a.	n.a.	2.6	3.4	3.4
2001	n.a.	n.a.	1.3	1.6	1.3
2002	n.a.	2.3	2.0	2.4	2.4
2003	1.6	1.5	1.7	1.9	1.6
2004	3.0	3.1	3.2	3.3	3.4
2005	3.0	3.2	2.9	3.4	3.5
2006	2.7	2.4	2.3	2.5	2.4
2007	3.4	3.6	3.7	4.1	4.3
2008	-0.4	-0.6	0.2	0.1	-0.5
2009	2.7	3.8	2.5	2.7	3.4

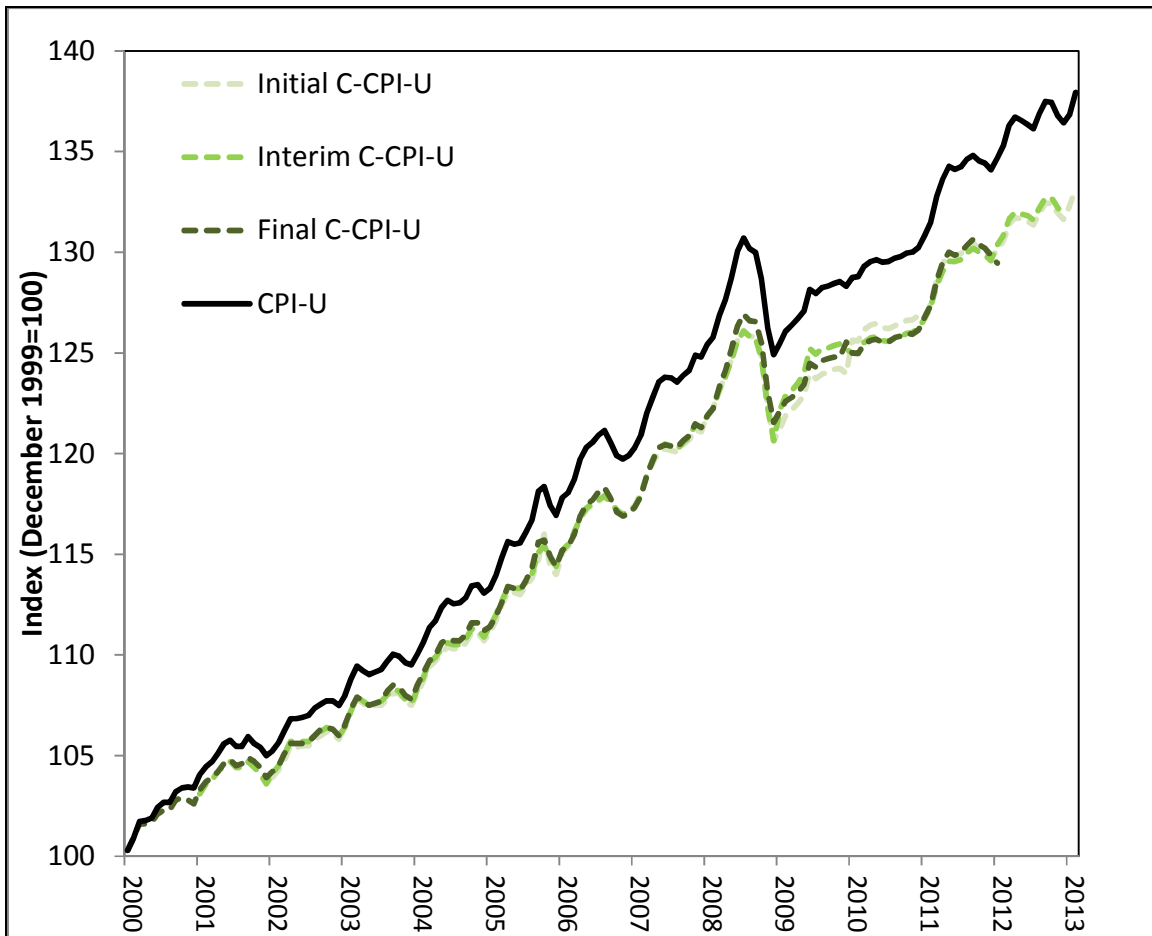
12-Month Period Ending in December of:	Percentage Change				
	C-CPI-U			CPI-U	CPI-W
	Initial	Interim	Final		
2010	1.4	1.4	1.3	1.5	1.7
2011	2.8	2.7	2.9	3.0	3.2
2012	1.6	1.6	N.A.	1.7	1.7

**Source:** U.S. Bureau of Labor Statistics, not seasonally adjusted CPI data.

**Note:** n.a. = not available.

The short history of the C-CPI-U makes it difficult to say with confidence how large differences between the final and preliminary indexes are likely to be. In two different years, the change between interim and final releases was 0.3 percentage point, a significant revision. The initial estimate for 2006 indicated a larger increase in the cost of living than either the CPI-U or CPI-W, but the final estimate was revised downward by 0.4 percentage point, which produced an increase in the C-CPI-U that was smaller than the increase in the standard CPI. The interim release for 2009 indicated a larger increase in the cost of living than either the CPI-U or CPI-W, but the final estimate was revised downward by 1.3 percentage points, which produced an increase in the C-CPI-U that was smaller than the increase in the standard CPI. As shown in **Figure 1**, most other revisions to the C-CPI-U have been small.

Figure I. The CPI-U and the C-CPI-U



**Source:** CRS figure created from data provided by U.S. Bureau of Labor Statistics, Consumer Price Index Detailed Report Tables, “Table 24. Historical Consumer Price Index for All Urban Consumers (CPI-U): U. S. city average, all items” and “Table 24C. Historical Chained Consumer Price Index for All Urban Consumers (C-CPI-U): U.S. city average, all items,” Washington, DC, various years, [http://www.bls.gov/cpi/cpi\\_dr.htm](http://www.bls.gov/cpi/cpi_dr.htm).

## Policy Considerations

The CPI is important, not only as an economic indicator, but also because it has significant implications for the budget through the indexing of some tax provisions and federal programs. If the CPI overstates the effect of inflation on consumers, then Social Security benefits are rising more rapidly than necessary to preserve the living standards of beneficiaries, more people are eligible for some federal programs, and income tax brackets are rising more than necessary to avoid “bracket creep.”<sup>23</sup>

<sup>23</sup> With progressive tax rates, as incomes rise with inflation, more income is subject to higher tax rates. If the CPI-U overstates inflation, then the tax brackets are rising more than they need to in order to avoid increasing taxes on incomes that are simply keeping up with rising prices.

If the C-CPI-U is a better measure of changes in the cost of living, and the goal of indexing is strictly to reflect changes in the cost of living, then the C-CPI-U might be considered as a measure on which to base those adjustments. As previously discussed, however, a major complication of switching to the C-CPI-U is that final data are not available for up to two years after the reference period.

Because the average CPI-W for the third quarter of 2012 exceeded the average CPI-W for the third quarter of 2011 by 1.7%, the Social Security cost of living adjustment (COLA) for 2013 was 1.7%.<sup>24</sup> The final C-CPI-U data for the third quarter of 2012 will not be available until February 2014, however. Such a lag might make the final C-CPI-U number a poor candidate as an index for automatic adjustments.

Preliminary C-CPI-U estimates might be an attractive alternative to using the final C-CPI-U. If there is a tendency for the final index to rise more than the initial or interim indexes, it might make the preliminary indexes unpopular with those who would be affected. More specifically, basing future COLAs on any version of the C-CPI-U could generate opposition from some Social Security beneficiaries, taxpayers, and those whose eligibility for federal programs is based on poverty thresholds because the index has tended to rise less than either the CPI-U or the CPI-W as they are now calculated.

The elderly and their advocates were among those who expressed opposition to changing the current basis for indexation when this was reportedly considered by some members of the super committee.<sup>25</sup> If the prices Social Security beneficiaries and federal and military pensioners face increase at an above-average rate, switching to the C-CPI-U might not enable this population to maintain its standard of living. The elderly spend more than the population at large on health care, and prices for these services have generally increased at an above-average rate.<sup>26</sup> An experimental fixed-weight index for those aged 62 and older (CPI-E) computed by BLS has increased 0.27 percentage points faster than the CPI-W from the CPI-E's inception in December 1982 to December 2010. However, it is difficult to gauge whether the cost of living among the elderly actually increases more quickly than among younger persons due to rising health care prices because BLS may underestimate the rate of improvement in the quality of these services. If this is the case then all versions of the CPI—but especially the CPI-E—overstate increases in the cost of living.<sup>27</sup>

The U.S. Congressional Budget Office (CBO) estimated the effects on the budget if policymakers substitute the C-CPI-U for the standard CPI as outlined in the President's Budget for FY2014.<sup>28</sup> The estimates assume that, in the future, the C-CPI-U will increase 0.25% more slowly each year between 2014 and 2023 than the CPI that is now used for indexation. Using projections of the C-

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<sup>24</sup> No Social Security COLA was payable in January 2010 because the average CPI-W for the third quarter of 2009 did not increase from the average CPI-W for the third quarter of 2008, and again in 2011 because the average CPI-W for the third quarter of 2010 remained below the average CPI-W for the third quarter of 2008. When the average CPI-W for the third quarter of 2011 exceeded that for 2008 by 3.6%, establishing a new benchmark, a COLA was payable in 2012. For details see CRS Report 94-803, *Social Security: Cost-of-Living Adjustments*, by (name redacted).

<sup>25</sup> Merrill Goozner, "Senior Backlash Builds on Social Security Cuts," *The Fiscal Times*, November 14, 2011.

<sup>26</sup> For more information, see CRS Report RS20060, *A Separate Consumer Price Index for the Elderly?*.

<sup>27</sup> U.S. Congressional Budget Office, *Using a Different Measure of Inflation for Indexing Federal Programs and the Tax Code*, Economic and Budget Issue Brief, Washington, DC, February 24, 2010.

<sup>28</sup> Congressional Budget Office, *Proposal in the President's Budget Request for Fiscal Year 2014 to Use the Chained CPI*, Washington, DC, May 17, 2013, <http://www.cbo.gov/publication/44231>.

CPI-U, CBO projected that a switch from the CPI-U to the C-CPI-U may yield a cumulative increase in revenues between FY2014 and FY2023 of \$99.5 billion in the case of indexation of various provisions of the tax code (excluding refundable tax credits as they are considered direct spending and which would decrease the debt by an additional \$15.3 billion).<sup>29</sup> In the case of Social Security COLAs, CBO projected that a switch from the CPI-W to the C-CPI-U may result in a cumulative decline in outlays of \$89.2 billion between FY2014 and FY2023, including the benefit enhancement for certain beneficiaries.<sup>30</sup>

In the case of COLAs for federal and military pensions, switching the index would result in a cumulative decline in outlays of \$13.9 billion between FY2014 and FY2024. Switching the indexation of Veteran's Compensation would result in a \$7.9 billion decrease in outlays over the same period. Switching the indexation of the remaining COLA programs, would result in a \$1.2 billion decrease in outlays. In total, CBO projected that the proposal would decrease the federal deficit by \$232.7 billion (where \$142.9 billion would be considered "on-budget").<sup>31</sup>

## **Author Contact Information**

(name redacted)  
Specialist in Income Security  
[redacted]@crs.loc.gov, 7-....

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Former CRS Analyst Brian Cashell originally wrote this report.

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<sup>29</sup> They include the amounts of the personal and dependent exemptions as well as the standard deductions; the levels of incomes that separate individual income tax brackets from one another; the amount of the annual gift tax exemption; and the income thresholds and phaseouts for the earned income tax credit and the child tax credit among other credits.

<sup>30</sup> See the President's Factsheet on the C-CPI proposal and the protections for retirees at least 75-years old and for Social Security Disability Insurance beneficiaries who have collected benefits for at least 10 years. The factsheet may be accessed at <http://www.whitehouse.gov/omb/budget/factsheet/chained-cpi-protections>.

<sup>31</sup> SNAP and SSI offsets would increase outlays by \$3.0 billion. Medicare and other federal direct spending would decrease outlays by \$8.8 billion.

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