Budgetary and Distributional Effects of Adopting the Chained CPI

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Congressional Research Service
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Abstract
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This report begins by describing general issues with measuring inflation before looking at concerns with the traditional CPI and the chained CPI. The report then examines the budgetary and distributional effects of adopting the chained CPI before offering some concluding observations.

Keywords
Consumer Price Index, CPI, Chained CPI, inflation, federal spending, federal revenue

Comments
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This report examines the budgetary and distributional effects of using what is referred to as the Chained Consumer Price Index (C-CPI-U or chained CPI) as the official measure of inflation for adjusting federal revenue and spending programs for inflation.1

Several other variations of the Consumer Price Index (CPI) are currently used to make automatic adjustments that affect both outlays and revenues. For example, the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) is the basis for adjusting Social Security benefits,2 while the Consumer Price Index for All Urban Consumers (CPI-U) is the basis for adjusting personal income tax parameters to keep up with inflation.3

Concerns by many over the ability of the Consumer Price Index (CPI) to accurately measure changes in the cost of living are long-standing. At issue then, as now, was a concern that the CPI does not accurately measure changes in the cost of living. In this respect, there is a broad consensus that the chained CPI is a more accurate measure of inflation than those currently in use. Further, if adopting the chained CPI is done for technical reasons, a case can be made that the chained CPI should be used in all cases in which the federal government attempts to mitigate the effects of inflation.

While there are concerns about the accuracy of the CPI and a general consensus that the chained CPI is a more accurate measure of inflation, there are no current legislative proposals to adopt the chained CPI outside of more comprehensive entitlement or budget reforms. This observation suggests that interest in adopting the chained CPI may have less to do with improving the technical accuracy of the measure of inflation and more to do with budgetary considerations.6

2 See CRS Report R42086, Using a Different Cost-of-Living Measure for Social Security Beneficiaries: Some Policy Considerations, by Christine Scott for additional information. This report is out of print but available upon request.
3 In addition, selected federal entitlement programs are also adjusted to mitigate the effects of inflation. For additional information see CRS Report R42000, Inflation-Indexing Elements in Federal Entitlement Programs, coordinated by Dawn Nuschler.
5 U.S. Congress, House Committee on Ways and Means, Subcommittee on Social Security, Testimony of Ed Lorenzen, Executive Director, The Moment of Truth Project, Senior Advisor, Committee for a Responsible Federal Budget, Hearing on The President’s and Other Bipartisan Entitlement Reform Proposals, 113th Cong., 1st sess., April 18, 2013.
6 See U.S. Congress, House Committee on Ways and Means, Subcommittee on Social Security, Statement of Nancy J. Altman, Co-Director, Social Security Works, Co-Chair, The Strengthening Social Security Coalition, Hearing on The President’s and Other Bipartisan Entitlement Reform Proposals, 113th Cong., 1st sess., April 18, 2013. U.S. Congress, House Committee on Ways and Means, Subcommittee on Social Security, Statement of Charles P. Blahous, Public Trustee for Social Security, Hearing on The President’s and Other Bipartisan Entitlement Reform Proposals, 113th...
particular, the chained CPI has and would be expected to continue to deliver lower estimates of inflation. This would, in turn, reduce the rate of increase in several mandatory spending programs.

The associated deficit reduction from adopting the chained CPI has been noted for some time. For example, the Advisory Commission to Study the Consumer Price Index (often referred to as the Boskin Commission) concluded that adopting the chained CPI would reduce the debt $691 billion between 1996 and 2006. This deficit reduction would be realized in the form of lower federal spending and increased federal tax revenue and was politically unpopular in 1996 at the release of the Boskin Commission Report. As one member of the Boskin Commission said,

> The suggestion that the bias had caused excessive growth in Social Security and other benefits evoked a sharp and damning political reaction, as the AARP (American Association of Retired Persons) sent its lobbyists scurrying through the corridors of Congress to throw cold water on those senators and representatives who had initially been sympathetic to reducing the budget deficit by adjusting the indexation formula by some fraction of the Commission’s bias estimate, the so-called "CPI minus X" approach to indexation.

A similar political reaction would likely be voiced today.

This report begins by describing general issues with measuring inflation before looking at concerns with the traditional CPI and the chained CPI. The report then examines the budgetary and distributional effects of adopting the chained CPI before offering some concluding observations.

(...continued)


8 The Boskin Commision was appointed by the Senate Committee on Finance to study the role of the CPI in government benefit programs and to make any recommendations for needed changes in the CPI. The final report of the commission was U.S. Congress, Senate Committee on Finance, Toward A More Accurate Measure Of The Cost Of Living, committee print, prepared by Advisory Commission To Study The Consumer Price Index, 104th Cong., 2nd sess., December 4, 1996 (commonly referred to as the “Boskin Commission Report”).


Measuring Inflation: CPI vs. Chained CPI

Inflation occurs when the prices of goods and services increase over time. Inflation cannot be measured by an increase in the cost of a few products or services. Rather, inflation is a general increase in the overall price level of the goods and services in the economy.

There are several ways of measuring inflation; most involve measuring changes in the price of a representative basket of goods and services. As mentioned above, federal programs are currently adjusted for inflation using the CPI-U or CPI-W. The CPI-U measures changes in the prices paid by urban consumers for a fixed representative basket of goods and services and the CPI-W measures changes in prices paid by urban wage earners and clerical workers. In contrast, the Federal Reserve’s preferred measure of inflation is Personal Consumption Expenditures (PCE), which is produced by the Bureau of Economic Analysis (BEA). Other measures, such as the GDP deflator and the Producer Price Index (PPI), also can be used to measure other aspects of inflation. Each measure adds information and together may be useful in explaining the price dynamics in the economy.

As mentioned above, the CPI-U and CPI-W are currently used to adjust current federal programs and tax parameters for inflation. The CPI-U has a broader coverage of the U.S. population (the 87% in urban areas), while the CPI-W coverage is limited to urban workers (32% of the U.S. population). In spite of these different populations, little difference in measured inflation exists between the CPI-U and the CPI-W.

However, there has been a long-standing concern by many that the CPI-U and CPI-W may systematically overstate the rate of inflation. The chained CPI was designed to more accurately measure inflation and has been put forward in several budget or deficit reduction packages. Figure 1 shows the growth in prices since 2000 for both the CPI-U and the chained CPI. The measures grow farther apart as time progresses, as the cumulative effect of each yearly difference compounds. During this time period the average annual growth rate of the CPI was 0.27% greater than the rate of growth in the chained CPI, and the cumulative difference by 2012 was just over

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11 In particular the CPI market basket is comprised of more than 200 categories of goods and services. For more information on the CPI see http://www.bls.gov/cpi/.
12 The PCE provides a measure of the prices paid by people for domestic purchases of goods and services using data from the national income and product accounts (NIPA).
13 The PCE, GDP deflator, and the PPI are all broader measures of inflation in the economy. In particular, they each include prices paid by businesses in addition to consumer prices. The resulting measure of inflation is unlikely to accurately reflect the amount of inflation faced by consumers.
Looking forward, CBO projects the growth of the chained CPI to be on average 0.25 percentage points lower than the traditional CPI.\(^{17}\)

**Figure 1. Measuring Inflation Using the CPI-U and the Chained CPI**

2000-2012

![Graph showing the difference between CPI-U and Chained CPI from 2000 to 2012.](image)

**Source:** CRS Analysis of CPI-U and Chained CPI available at [http://www.bls.gov/cpi/#data.](http://www.bls.gov/cpi/#data)

**Notes:** Both series were normalized to equal 100 in 2000.

That the two measures of inflation are different does not, however, provide a basis for concluding that either of these measures accurately measures inflation. In particular, there are concerns about both of these measures as the official measure used to adjust for inflation.

**Concerns with the Traditional CPI**

As mentioned previously, there is a long-standing concern by many that the CPI systematically overstates inflation in the economy. The BLS has modified how the traditional CPI is calculated to address several of the concerns as research on the concerns has advanced. In spite of these changes, economists generally believe that the traditional CPI continues to overstate inflation for several reasons.

One long-standing concern is that the traditional CPI does not adequately take into account changes in consumers’ spending patterns in response to changes in the relative prices of goods and services, or substitution bias. In other words, if the prices of both apples and oranges rise, consumer spending will generally shift toward the good whose price rises by the smaller percentage. The traditional CPI updates the “market basket” only periodically, so the market

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\(^{16}\) The Bureau of Labor Statistics (BLS) has found that the average difference between the two measures is between 0.2% and 0.4% per year. See [http://www.bls.gov/cpi/cpisupqa.htm#Question_4](http://www.bls.gov/cpi/cpisupqa.htm#Question_4) for additional detail.

basket used in the traditional CPI is based upon spending patterns that are between two and four years old.

The ability of consumers to offset a portion of a price increase by purchasing the same good from a lower-cost outlet—referred to as outlet substitution bias—can also result in the traditional CPI overstating inflation.\(^\text{18}\)

A third concern with the traditional CPI is that it is calculated using only a small portion of items in the economy. This concern, referred to as small sample bias, is grounded in the fact that it is impractical to collect price information for every good and service in the economy. That is, the price of a specific category in the CPI market basket is often determined by the prices of a small portion of the goods within a market.\(^\text{19}\)

**Benefits and Drawbacks with the Chained CPI**

While subject to its own concerns, the chained CPI was designed to address, at least in part, certain concerns with the traditional CPI. In particular the yearly updating of consumer spending patterns is designed to significantly reduce the potential overstatement of inflation in the traditional CPI attributed to substitution bias and outlet substitution bias. In addition, the technical method of calculating the price for each CPI market basket category nearly eliminates the effect of small sample bias.\(^\text{20}\)

The principle drawback to using the chained CPI is that it requires information on consumer spending patterns each month and this information is subject to revision for two years. This information is collected by the BLS each month in the Consumer Expenditure Survey. The information, however, is not available for some time after it is collected. As a result, estimates of the chained CPI are not finalized for more than a year after the end of the period.\(^\text{21}\)

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\(^\text{18}\) The size of this outlet substitution bias should be quantitatively smaller than the substitution bias discussed above as some goods, such as automobiles and housing, are not generally available from lower-cost outlets, such as internet sellers and supercenters.

\(^\text{19}\) For example, the price of the CPI market basket category for apples is calculated using a reference set of apple types and quantities and not the prices of all types and quantities of apples. For a more technical description of small sample bias see U.S. Congress, House Committee on Ways and Means, Subcommittee on Social Security, *Using the Chained CPI to Index Social Security, Other Federal Programs, and the Tax Code for Inflation*, Testimony of Jeffrey Kling, Associate Director for Economic Analysis, Congressional Budget Office, 113\(^\text{th}\) Cong., April 18, 2013.

\(^\text{20}\) Ibid.

\(^\text{21}\) Initial estimates are released each month, followed a year later by interim estimates, and another year later by final estimates.
Budgetary Effects of Adopting the Chained CPI for Inflation Adjustments

As mentioned earlier, the reason to index spending for inflation is to shield citizens from a decrease in purchasing power, or real income, as a result of inflation. Similarly, the rationale for indexing spending programs for inflation also applies to the tax code. Without indexation, the purchasing power of federal spending programs (such as Social Security) would decrease over time, and taxpayers would pay an increasing share of their income in taxes as inflation places them into higher marginal tax brackets (a phenomenon known as bracket creep).

Shielding citizens from the effects of inflation, however, results in higher government spending and lower revenue collection (than would otherwise be the case). As a result, using an inflation measure that overstates inflation increases the budget deficit.

Using the chained CPI to adjust for inflation is projected to reduce the budget deficit compared to using the traditional CPI. Figure 2 shows that adopting the chained CPI as the inflation measure for all mandatory spending and tax parameters would reduce the deficit by $3.4 billion in 2014, rising to $69.3 billion in 2023.

What is “Bracket Creep?”
Bracket creep can be defined as “the phenomenon by which people are pushed into higher income tax brackets or have reduced value from credits or deductions due to inflation instead of any increase in real income.”

To offset the effects of inflation, the Treasury adjusts several parameters of the income tax each year using the CPI-U. This automatic adjustment was enacted as part of the Economic Recovery Tax Act of 1981 (P.L. 97-34) to ensure that the effects of inflation do not erode the real value of exemptions, the standard deduction, and the tax brackets.

Also shown in Figure 2 is a decomposition of the total budgetary effects of adopting the chained CPI. In 2014, reduced Social Security payments and increased revenue comprise nearly 80% of the total budgetary savings (45.7% and 34.3% respectively). By 2023 Social Security and revenue comprise nearly 74% of the budgetary savings, with revenue becoming the largest individual contributor (35.8% and 38% respectively). This estimated revenue increase from adopting the chained CPI should not be used to estimate the amount of additional revenue raised in the Tax Reform Act of 2014 from generally adopting the chained CPI because of the degree of change that would occur to the tax code if the act were enacted.

**Distributional Effects of Adopting the Chained CPI for Inflation Adjustments**

In addition to budgetary effects, adopting the chained CPI may have effects on the distribution of income. This change would occur if adopting the chained CPI changes the distributional burden of the tax code and the benefits of federal spending.

According to a 2011 Joint Committee on Taxation (JCT) report, adopting the chained CPI would reduce the progressivity of the tax code. This outcome is shown in Table 1 through the decreasing percentage change in taxes from switching to the chained CPI as income increases. Note that the
2011 JCT analysis is not applicable to the Tax Reform Act of 2014 because of the degree of change that would occur if the act were enacted. At the upper end of the income distribution, the American Enterprise Institute (AEI) concluded that “the highest income brackets would be left essentially untouched.” As expected, the effect of adopting the chained CPI grows with time.

Table 1. Percentage Change in Federal Taxes from Switching to Chained CPI-U, by Income Group

<table>
<thead>
<tr>
<th>Adjusted Gross Income (AGI)</th>
<th>2013</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $10,000</td>
<td>0.10%</td>
<td>1.80%</td>
</tr>
<tr>
<td>$10,000 to $20,000</td>
<td>0.50%</td>
<td>14.50%</td>
</tr>
<tr>
<td>$20,000 to $30,000</td>
<td>0.20%</td>
<td>3.50%</td>
</tr>
<tr>
<td>$30,000 to $40,000</td>
<td>0.10%</td>
<td>1.40%</td>
</tr>
<tr>
<td>$40,000 to $50,000</td>
<td>0.10%</td>
<td>0.80%</td>
</tr>
<tr>
<td>$50,000 to $75,000</td>
<td>less than 0.05%</td>
<td>0.60%</td>
</tr>
<tr>
<td>$75,000 to $100,000</td>
<td>less than 0.05%</td>
<td>0.30%</td>
</tr>
<tr>
<td>$100,000 to $200,000</td>
<td>less than 0.05%</td>
<td>0.10%</td>
</tr>
<tr>
<td>$200,000 to $500,000</td>
<td>less than 0.05%</td>
<td>0.20%</td>
</tr>
<tr>
<td>$500,000 to $1,000,000</td>
<td>less than 0.05%</td>
<td>0.30%</td>
</tr>
<tr>
<td>over $1,000,000</td>
<td>less than 0.05%</td>
<td>0.10%</td>
</tr>
<tr>
<td>Total</td>
<td>less than 0.05%</td>
<td>0.30%</td>
</tr>
</tbody>
</table>

**Source:** Joint Committee on Taxation, *Revenue Estimate and Distributional Analysis*, June 29, 2011.

**Note:** The percentage change in federal taxes is calculated relative to current law using the CPI-U to index tax parameters.

Although adopting the chained CPI would alter the distribution of federal taxes paid, higher-income taxpayers would face a larger dollar-value increase than lower-income taxpayers. In particular, an estimate prepared by the Urban-Brookings Tax Policy Center found that 10 years after switching to the chained CPI, taxpayers in the bottom quintile would face an increased average tax burden of $55, while taxpayers in the top quintile would face an average increase in their tax burden of $364, and those in the top 0.1% would have an average increase in their tax burden of $1,476. In spite of the smaller percentage change in taxes from adopting the chained CPI, the higher baseline tax burden faced by high-income taxpayers (in absolute dollar terms) results in this effect.


25 Urban-Brookings Tax Policy Center Microsimulation Model (version 0412-8), Table T13-0143. These values are adjusted for family size.
Budgetary and Distributional Effects of Adopting the Chained CPI

Measures of Inflation for Sub-Groups of the Population

No summary inflation measure (CPI-W or CPI-U for example) will exactly account for the experience of each member or sub-group of the full population. Differences in spending patterns and other factors result in variation across and within sub-groups (such as the poor or elderly).

In one such example, concern that the CPI-W understates the impact of inflation on the elderly population led the BLS to develop an experimental Consumer Price Index for the Elderly (CPI-E). The CPI-E uses the same price data as the CPI-W and CPI-U, but reflects the spending patterns of the elderly. Since 2006, inflation measured by the CPI-E has averaged 2.3% per year versus 2.4% for the CPI-W. This reversal of a longer-term trend is the result of the gap between medical care inflation and overall inflation narrowing since 2005.26

As the effect on Social Security benefits is driven by longevity and not income, adopting the chained CPI for the Social Security COLAs is projected to have minimal effect on the distribution of income.27 According to the Social Security Administration (SSA), the top and bottom quintiles of household income would see a 4% decrease in their benefits in 2070 from adopting the chained CPI, while the middle three quintiles would see a 3% reduction in benefits. Similarly, ordering beneficiaries by benefits received, the SSA projects the bottom three quintiles would face a 4% reduction versus a 3% reduction for the top two quintiles.

The effect of adopting the chained CPI would be cumulative, resulting in larger benefit reductions as length of receipt increases.28 Older beneficiaries, women, whites, those with higher levels of education, those with higher income, widow(er)s, and retired disabled individuals would face the largest effects, as they receive benefits for longer, on average, than the overall population. To mitigate the cumulative burden of adopting the chained CPI on long-term recipients, the CBO and others have reported options that would allow a one-time “bump up” in benefit levels after a recipient has received a benefit for a pre-determined number of years. While this would work to counteract the loss of income from adopting the chained CPI, it undermines the argument that the chained CPI is a better measure of inflation, and it would reduce the budgetary effects of adopting the chained CPI.

Unlike the effect on the tax code and other spending programs, the effect on Social Security and pensions does not grow indefinitely. For these expenditures, the effect is cumulative and accumulates over an individual’s lifetime. Once the effect is fully in place for all living individuals the budgetary effect is negligible.

Concluding Observations

On technical merit, there is a consensus among economists that the chained CPI is a more accurate measure of inflation than the CPI-U and CPI-W currently being used to adjust certain parameters in the tax code and to adjust Social Security and other programs to offset the effects of

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inflation. However, the absence of stand-alone proposals to adopt technical correction suggests that technical merit is not the main driver of interest in adopting the chained CPI.

If not technical merit, what is driving interest in adopting the chained CPI? Recent interest in adopting the chained CPI appears primarily driven by budgetary considerations, as these proposals are within broader efforts to reform entitlements or reduce budget deficits. According to CBO, adopting the chained CPI would result in an increase in tax revenue and a decrease in spending of nearly $340 billion over the next 10 years. As the effect is cumulative, deficit reduction from adopting the chained CPI would increase outside the budget window.

To the extent that adoption of the chained CPI is driven by budgetary considerations, then who should bear the cost of deficit reductions raises a number of questions of fairness or equity. Would it be fair for the elderly to bear a reduction in the growth of entitlement spending? How much of the cost of deficit reduction should be borne by those with lower abilities to absorb the costs? How much of the cost of deficit reduction should be passed forward to future generations?

Separately, if sub-groups of the population face different inflation rates, should separate indices be used to adjust for inflation? If the focus is on Social Security, it should be kept in mind that not all Social Security recipients are elderly, and that the Consumer Price Index for the Elderly (CPI-E) may not be the most appropriate measure of inflation on which to base adjustments to Social Security benefits. In addition, the use of separate indices for sub-groups of the population would increase the complexity of the tax code, as the brackets and values of some deductions and credits would differ for each sub-group. Finally, the use of separate indices for sub-groups of the population, at best, complicates efforts at entitlement or budget reform.

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