# CBO TESTIMONY

Statement of
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on the
Consumer Price Index

before the
Committee on Finance
United States Senate

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NOTICE

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Mr. Chairman and Members of the Committee, I am pleased to be with you this morning to comment on the consumer price index (CPI). The CPI is widely used as an indicator of inflation and changes in the cost of living. It is of considerable importance to the federal budget because it is used to index benefits in major entitlement programs as well as to adjust income tax brackets. Yet many experts argue that the CPI consistently overstates changes in prices and, therefore, provides an inaccurate measure of changes in the cost of living. That potential upward bias in cost-of-living adjustments has spurred the recent controversy about the CPI.

The Congressional Budget Office's (CBO's) review of available evidence indicates that the CPI does in fact overstate the increase in the cost of living for the overall population. The extent of that upward bias is not known with certainty. But the empirical evidence, which addresses many but not all of the possible sources of bias, indicates that the CPI probably overstates growth in the cost of living by between 0.2 and 0.8 percentage points a year. Other potential sources of bias that have not yet been verified empirically may offset to some extent or greatly add to the measured overstatement.[1]

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1. See Congressional Budget Office, *Is the Growth of the CPI a Biased Measure of Changes in the Cost of Living?* CBO Paper (October 1994).

Measuring changes in the cost of living has important effects on the federal budget and, as you are well aware, is particularly important for those portions of the federal budget over which this Committee has jurisdiction. The rate of increase of the CPI determines the size of the cost-of-living adjustment for Social Security and other federal transfer programs, and it is also used to adjust income tax brackets and personal exemptions. For example, if the CPI grew 0.5 percentage points slower than the CBO budget baseline assumes from 1996 through 2000, but all other aspects of the economic forecast were unchanged, by the year 2000 tax collections would be close to $10 billion higher and spending would be $13 billion lower than CBO currently projects (see Table 1).[2] If one includes the effects of the savings on debt service, the deficit in 2000 would be about $26 billion lower.

Although the CPI has a huge effect on the federal budget, everyone should be concerned about the accuracy of available measures of the cost of living even if the budget was not directly affected. Measuring changes in prices has important effects on people's perceptions of the performance of the U.S. economy, including

2. The Bureau of Labor Statistics currently publishes two versions of the consumer price index. One (the CPI-U) is based on the spending patterns of all urban consumers (about 80 percent of the population); the other (the CPI-W) is based on the spending patterns of only urban wage earners and clerical workers (32 percent of the population). The CPI-W is used as the cost-of-living adjustment for Social Security, whereas the CPI-U is used for the income tax.

TABLE 1. EFFECT ON THE DEFICIT IF CPI GROWTH IS 0.5 PERCENTAGE POINTS SLOWER THAN ASSUMED IN THE CBO BASELINE (In billions of dollars)

| | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|
| Change in Revenues[a] | -0.9 | -2.0 | -4.5 | -6.7 | -9.6 |
| Change in Outlays | | | | | |
| Social Security and Railroad Retirement | -1.3 | -3.1 | -5.1 | -7.1 | -9.3 |
| Supplemental Security Income | -0.1 | -0.2 | -0.4 | -0.6 | -1.0 |
| Civil Service Retirement | -0.1 | -0.3 | -0.5 | -0.8 | -1.0 |
| Military Retirement | b | -0.2 | -0.3 | -0.6 | -0.8 |
| Veterans' compensation and pensions | -0.1 | -0.2 | -0.3 | -0.3 | -0.5 |
| Earned income tax credit[a] | b | -0.3 | -0.5 | -0.9 | -1.2 |
| Other[c] | b | b | b | b | b |
| Offsets[d] | b | b | 0.1 | 0.2 | 0.4 |
| Change in Total Outlays | -1.5 | -4.3 | -7.0 | -10.1 | -13.3 |
| Debt Service | -0.1 | -0.4 | -1.0 | -2.0 | -3.3 |
| Change in Deficit | -2.5 | -6.7 | -12.5 | -18.8 | -26.2 |

SOURCE: Congressional Budget Office

a. Preliminary estimates by CBO. The Joint Committee on Taxation would estimate any actual legislation. Revenue increases are shown with a negative sign because they reduce the deficit.

b. Less than $50 million.

c. Federal Employee Compensation Act, foreign service retirement, Public Health Service retirement, and Coast Guard retirement.

d. Includes Medicare, Medicaid, and Food Stamp offsets to cuts in the Social Security cost-of-living adjustment.

growth of real output, productivity, wages, and the standard of living in general. If the change in the CPI overstates the actual growth in living costs, we will be misled into thinking that the growth of the U.S. standard of living is slower than is actually the case. Exaggeration in the CPI also means that the growth rates of real gross domestic product (GDP), productivity, and real wages will appear to be lower than they actually are. GDP and measures of productivity are affected because detailed CPI price series are used as price deflators for roughly 60 percent of the expenditures that make up the GDP. If the growth of those prices is overstated, the growth of real expenditures--that is, real GDP--will be understated. In turn, measures of productivity are affected because productivity is essentially real GDP divided by total hours worked.

The operation of government policy also can be misled if price measures are faulty. The uncertainty about the CPI can affect monetary policy, although the monetary authorities also consider other measures of price change as well as additional information on wages and use of capacity. The mismeasurement of price change could, however, affect other policies even more. Distortions in measures of the growth in real wages or output, or in the measure of the number of families in poverty (which is determined in part by the CPI measure), can affect both specific programs and fiscal policy in general.

The budgetary impact of overestimated changes in the cost of living also results in an unintended shift in the distribution of wealth. If the CPI had an upward bias, some federal programs would grow too fast because they overcompensate for the effect of price changes on living standards. Consequently, wealth would be transferred from younger workers and future generations to current recipients of indexed federal programs--an effect that legislators may not have intended.

## CAUSES OF OVERSTATEMENT IN THE CPI

The CPI is basically a fixed-weight index of prices. The weights are determined by surveys of how urban residents spend their money, and the current CPI uses as weights the average spending patterns of more than 10 years ago--specifically, the 1982-1984 period. Collecting the prices used in constructing the CPI is a large and complex endeavor. The Bureau of Labor Statistics (BLS) surveys about 25,000 outlets each month and collects prices for about 95,000 goods and services. The task is magnified by the need to bring new items and outlets into the survey regularly.

Three problem areas have been identified as contributing to an upward bias in the measures. First, the index does not fully capture changes in consumer

buying patterns that offset price increases. Second, a technical problem exists that relates to the rotation of store outlets. Third, adjustments for improvements in the quality of goods and services (including the introduction of new goods) appear to be inadequate.

## Substitution Bias

Consumer buying patterns change in part in response to changes in relative prices. Because the CPI is a fixed-weight index with the weights based on the 1982-1984 market basket, it does not reflect how consumers substitute relatively low-priced goods for high-priced goods. To use a common example, if the price of chicken rises relative to the price of beef, consumers will buy more beef and less chicken, thereby mitigating the adverse effect of the price increase in chicken on their standard of living. A strong consensus exists that the CPI overstates the change in the cost of living by about 0.2 percentage points because it does not take into account how consumers respond to changing prices. That source of overstatement in the cost of living by the CPI is referred to as substitution bias.

Sample Rotation Bias

In 1978, in an effort to keep the mix of items and outlets up to date, the Bureau of Labor Statistics instituted a procedure called sample rotation, in which 20 percent of the outlets used in the CPI surveys could be updated every year. Surveys of consumer shopping patterns are conducted, and the items selected for use in the CPI come from the outlets that consumers most commonly use. That process permits new products as well as new outlets to enter the survey.

Although the procedure of sample rotation improved the quality of the CPI on balance, the BLS discovered that its benefits may have been partially offset by an upward bias inherent in the procedure. Items that increased more rapidly in price in the months following the rotation of outlets in the CPI survey tended to be given too much weight in the index, thereby creating an upward bias in measured prices.

The prices of items most subject to bias from sample rotation are those that vary a great deal, such as food and clothing prices. However, as of last January, the BLS instituted a procedure that is expected to remove the bias for food prices. Moreover, procedures the BLS introduced a few years ago may have eliminated some of the bias from sample rotation for clothing. The remaining bias stemming

from sample rotation might still contribute 0.1 percentage point toward overstating the cost of living.

## Changes in Quality

The third major reason for the overstatement of changes in the cost of living reflects the difficulties in accounting for changes in quality--including, as an extreme aspect of the quality problem, the advent of entirely new goods or services. For example, if the price of a tire increases but the quality of the tire is improved, then the change in the cost of living cannot be measured as simply a change in price. If the price doubles but the tire lasts twice as long, and other important qualities of the tire (traction, ride, and the like) are also better, then the quality-adjusted price change may in fact be zero or even negative.

Accounting for changes in quality, however, is often extremely difficult. Estimating changes in quality is relatively easy for some goods and services, such as tires. But it is much more difficult to adjust for the change in the quality of banking services as a result of widespread use of automatic teller machines or the change in the quality of audio equipment. Furthermore, some goods and services may defy attempts to estimate changes in quality. How, for example, could one

adjust a physician's prices for changes in the ability of the physician to make the correct diagnosis?

In fact, measuring the prices of medical care presents some of the thorniest problems in price measurement. One major problem is identifying what product to measure. Should the index track the prices of various treatments, or should it track specific procedures? Tracking specific procedures--such as a course of antibiotics, a type of surgery, or a day in the hospital--could be extremely misleading. If an appendectomy required four days in the hospital 10 years ago but currently entails only one day, then an index that measures the cost of a hospital day could seriously misrepresent the changes in the true cost of treating appendicitis. Similarly, if surgery for a specific condition was replaced by a drug treatment that was cheaper and just as effective, the cost-of-living index would be inaccurate unless it reflected that switch from surgery to drug treatment.

The CPI does not account for many types of changes in the quality of medical care. Virtually every aspect of medical care has undergone rapid technological change. The treatment of cataracts, the quality of diagnostic equipment, dental services, surgical techniques, anesthetics, and so forth have changed radically in the last 20 years. But it would be extremely difficult to place a value on such changes in quality--for example, the welfare benefit of a new type of anesthetic.

A few studies have focused on certain problems in the health area. Studies of prescription drugs indicate that current price measures grossly overstate the increase in quality-adjusted prices, primarily because of inadequate adjustments for quality but also because generic drugs are given too little weight. The amount of research in other areas of medical care is too sparse, however, to assess the extent of potential mismeasurement.

New goods and services present some of the same problems, which are compounded by the need to identify the new goods as soon as they become a significant part of consumer purchases. The introduction of videocassette recorders (VCRs) is a good example of the problems posed by new goods. VCRs were brought into the CPI survey slowly, with a weighting that understated their importance in consumer purchases. Consequently, the initial decline in the price of VCRs was not fully reflected in the CPI. The introduction of VCRs, and other successful new products, increased the welfare of consumers (as evidenced by rapid acceptance of VCRs by consumers even at their initial high prices).

In theory, a price index should reflect the increase in welfare that accompanies the introduction of a successful product. Unfortunately, the procedures for doing so are difficult, and the procedures do not always result in conclusive estimates of the increase in welfare.

The Bureau of Labor Statistics makes adjustments for quality change for numerous components of the CPI, and indeed in some instances it may overadjust for quality change, thereby understating the price increase for that item. However, although more research is needed to determine the extent of bias, on balance the CPI is believed to understate improvements in quality. Because of the paucity of studies in this area, the range of estimates of bias that stems from the problems of quality adjustment is large. Some analysts believe that the bias may be small, on the order of 0.2 percentage points, whereas others feel that it may be as much as 1 percentage point.

## WHAT CAN BE DONE?

There is no obvious, simple way to measure accurately changes in the cost of living. Over the years, the Bureau of Labor Statistics has sought to make the CPI a better measure of price change--in fact, much of the best research on the CPI has been produced by the BLS--but many difficulties remain.

The problem the government faces is that the CPI has been used to index benefits and income tax brackets as though it was a true cost-of-living measure. Consequently, the upward bias in the CPI has had the unintended consequence of increasing the deficit. In dealing with that problem, however, policymakers need

to proceed cautiously in advocating changes to the CPI. The credibility of the CPI as well as the process of revising the CPI should be maintained. A major reason for the CPI's wide acceptance is its credibility. A reliable index is needed so that individuals, firms, and the government will be willing to enter into long-term contracts that are implicitly or explicitly indexed for price change.

There are three, not necessarily exclusive, options that this Committee could pursue in response to the CPI problem: 1) maintain the status quo, awaiting scheduled changes in the CPI and supporting the efforts of the Bureau of Labor Statistics to improve the CPI as a measure of inflation; 2) determine, with the assistance of a panel of experts, an adjustment factor that could be applied to the CPI in the short run to bring it closer to a true cost-of-living index; and 3) establish a commission to examine thoroughly the indexes used to adjust government programs for increases in the cost of living and recommend how best to measure the cost of living.

The downside of the first option--maintaining the status quo--is that deficits will continue to grow as a result of flaws in the cost-of-living adjustments. The bureau is continually trying to improve the CPI. In 1998, the Bureau of Labor Statistics will conduct a major revision of the index, in which the base period will be changed to 1993-1995; other modifications may be introduced at that time. Moreover, the BLS is conducting research on other issues, which may bring

improvements in the long term. But those scheduled changes would still potentially leave a substantial upward bias in the CPI.

The second option, which would call for legislative action on the part of this Committee, recognizes that some consensus exists on the apparent magnitude of bias in the CPI, particularly concerning the lower bound. For example, a number of studies over the years have found that bias from commodity substitution alone is on the order of 0.2 percentage points a year. Although the bias may lessen as the BLS improves its calculation of the CPI, the evidence suggests that subtracting 0.2 percentage points from the CPI-U as it is currently calculated is warranted.

Other potential biases have not been researched sufficiently to provide the basis for a consensus. However, a panel of experts could weigh the available evidence and advise the Congress on the approximate degree to which the CPI may overstate increases in the cost of living. That undertaking would not entail changing the calculation of the CPI itself. If an adjustment factor could be agreed on, the statutory formulas for indexing could be changed to reflect that adjustment.

The third option--establishing a commission to undertake a broad review of indexation--recognizes that the appropriateness of the indexes now used may require a comprehensive review. For example, the CPI-W is used to index Social Security payments, but there is no reason to believe that the spending patterns of

urban wage and clerical workers are representative of the spending of Social Security recipients. In addition, it may be more appropriate to include government services in the mix of goods and services that are priced, or to use a different weight for medical care than that used by the CPI.

## CONCLUSION

The CPI has considerable effects on the federal budget--both on spending and revenues. Further, people's perceptions of the economy and the soundness of economic policies depend on the quality and appropriate use of the CPI. The current debate about the degree to which the CPI can be used as a cost-of-living index should yield positive results. Although many of the questions raised about the index cannot be easily answered, the effort to improve the CPI will set the basis for more informed policy in the future.