

No. 438—PUBLIC COMMENT ON INFLATION MEASUREMENT

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**Consumer Price Index Has Been Reconfigured Since Early-1980s
So As to Understate Inflation versus Common Experience**

- **CPI no longer measures the cost of maintaining a constant standard of living.**
- **CPI no longer measures full inflation for out-of-pocket expenditure.**
- **With the misused cover of academic theory, politicians forced significant underreporting of official inflation, so as to cut annual cost-of-living adjustments to Social Security, etc.**
- **Use of the CPI to adjust retirement benefits, private income or to set investment goals impairs the ability of retirees, income earners and investors to stay ahead of inflation.**
- **Understated inflation used in estimating inflation-adjusted growth has created the illusion of recovery in reported GDP.**

PROBLEMS WITH INFLATION ESTIMATION

This public comment reviews and updates the nature of inflation understatement by the U.S. government's statistical agencies and the rationale and methodology used by ShadowStats.com in compiling the SGS Alternate Consumer Inflation measures. While much of the following text is new, the concepts all have been explored in earlier writings. Some of the material here has been repeated from our September 2008 [Response to BLS Article on CPI Misperceptions](#).

Real-World Experience and Public Perceptions versus Academic Theories and Political Gimmicks

In 30 years as a private, consulting economist, I have noted a growing gap between government reporting of inflation, as measured by the consumer price index (CPI), and the perceptions of inflation held by the general public. It has been my experience that the general public believes inflation is running well above official reporting, and that the public's perceptions tend to mirror the inflation experience that once was reflected in the government's CPI reporting.

The growing difference in perception versus reality primarily is due to changes made over decades as to how the CPI is calculated and defined by the government. Specifically, changes made to the definition of CPI methodologies in recent decades have reflected theoretical constructs offered by academia that have little relevance to the real-world use of the CPI by the general public. Importantly, these changes generally are not understood by the public.

What the Public Looks for in an Inflation Measure

Individual use of a CPI measure generally is tied to personal financial decisions or planning, in terms of wage or income growth/adjustment, contract or benefit price adjustments and/or in terms of targeting financial returns that will stay ahead of inflation.

Accordingly, I contend that individuals look to the government's CPI as a measure of the cost of living of maintaining a constant standard of living, as well as measuring that cost of living in terms of out-of-pocket expenses.

While the CPI at one time was the measure desired by the public, government efforts turned the CPI away from measuring the price changes in a fixed-weight basket of goods and services to a quasi-substitution-based basket of goods, which destroyed the concept of the CPI as a measure of the cost of living of maintaining a constant standard of living.

The use of hedonic quality modeling in adjusting the prices of goods and services has destroyed the concept of the CPI as a measure of out-of-pocket expenses.

The Way It Was

Measurement of consumer inflation traditionally reflected measuring the cost of maintaining a constant standard of living, as measured by a fixed-basket of goods. Maintaining a constant standard of living, however, is a concept not popular in current economic literature, and certainly not within the thinking or the lexicon of the Bureau of Labor Statistics (BLS), the government's statistical agency that estimates and reports on consumer inflation.

The changing costs of maintaining a constant standard of living were measured by pricing out a fixed-basket of goods and services—same components, same weighting—period after period. Whatever the percentage change was in the cost of that basket of goods, that is how much income would have to rise in

order for someone to maintain a fixed- or constant-standard of living over the given period. At least it was a reasonably consistent approximation of same.

Tracking changes in the cost of a fixed-basket of goods was the approach to estimating inflation, going back to at least the 1700s,ⁱ and prior to 1945, the fixed-basket CPI tracked by the U.S. government actually was known as the Cost of Living Index.ⁱⁱ

In the first half of the 20th century, though, the concept of a “constant level of satisfaction” evolved in academia, as a “true cost of living” concept. The general argument was that changing relative costs of goods would result in consumer substitution of less-expensive goods for more-expensive goods. Allowing for a substitution of goods within the formerly fixed-basket, the maximization of the “utility” of money held by consumers would allow attainment of “constant level of satisfaction” for the consumer. This type of inflation-measure is more appropriate for the GDP concept—where it is used today—measuring shifting weightings with actual consumption, rather than the fixed weightings needed to assess the costs of maintaining a constant standard of living.

Where the substitution-based approach was viewed as impractical for a consumer price index, the fixed-basket approach remained the preferred inflation measure.ⁱⁱⁱ The academic thinking in this area remains divided, even today.^{iv}

The constant-level-of-satisfaction approach was contrary to the concept of measuring the cost of maintaining a constant-standard-of-living. In the extreme current circumstance, where the average household cannot stay ahead of even the official CPI inflation rate, consider that shifting household preferences from more-expensive to less-expensive products is forced by limited income. Maintaining a constant-standard-of-living means being able to consume the same goods in the same quantity, without having to trade-off living quality versus price.

While the average consumer may not be able to maintain his or her current standard of living at the moment, it still is of significant value to know what is needed in income growth to offset the living-standard loss from actual inflation.

The Way the Politicians Wanted It

In the early-1990s, political Washington moved to change the nature of the CPI. The contention was that the CPI overstated inflation (it did not allow substitution of less-expensive hamburger for more-expensive steak). Both sides of the aisle and the financial media touted the benefits of a “more-accurate” CPI, one that would allow the substitution of goods and services.

The plan was to reduce cost of living adjustments for government payments to Social Security recipients, etc. The cuts in reported inflation were an effort to reduce the federal deficit without anyone in Congress having to do the politically impossible: to vote against Social Security. The changes afoot were publicized, albeit under the cover of academic theories. Few in the public paid any attention.

Sam Zuckerman of the *San Francisco Examiner*, noted “In the 1990s, for example, Republicans wanted to make changes in calculating inflation along the lines recommended by a special commission, including

more use of quality adjustments. By lowering the official inflation rate, such changes promised to reduce the annual cost-of-living adjustments for Social Security and other federal programs.

“[Katherine] Abraham, the Clinton bureau [of Labor Statistics] commissioner, remembers sitting in Republican House Speaker Newt Gingrich’s office:

“ ‘He said to me, *If you could see your way clear to doing these things, we might have more money for BLS programs.*’ ”^v

Federal Reserve Chairman Alan Greenspan and Michael Boskin, the chairman of the Council of Economic Advisors, were very clear as to how changing or “correcting” the CPI calculations would help to reduce the deficit. As described at the time by Robert Hershey of the *New York Times*, “Speaker Newt Gingrich, Republican of Georgia, suggested this week that fixing the [CPI] index, with its implications for lower spending [Social Security, etc.] and higher revenue [tax bracket adjustments], would provide maneuvering room for budget negotiators ...”^{vi}

“Alan Greenspan, chairman of the Federal Reserve, is among the other Government officials who have spoken optimistically about financial benefits of a more accurate [CPI] index ...”^{vii}

“[E]conomists believe one of the most important [CPI upside biases] is when consumers shift their buying patterns in response to changing prices, substituting one product for another. The [CPI] index is based on a fixed market basket of goods and services. But, for example, if the price on an item like steak gets too expensive, consumers may switch to hamburger.”^{viii}

The Boskin Commission Report, December 4, 1996, actually used steak and chicken for its substitution example. The examples used in arguing for changing the CPI clearly were tied to prices rising and resulting consumer demand shifting to a lower-quality product. Simply put, that was the destruction of the cost-of-maintaining-a-constant-standard-of-living issue and was the primary consideration of those seeking to change the CPI, although other issues would come into play. The drive here was as to get a lower inflation reading, irrespective of whether the data were “more-accurate.”

Summary of Real-World Needs versus Theoretical Constructs of Academia

Maintaining Constant Standard of Living (Fixed-Basket Inflation) versus Substitution in CPI

- Since the 1700s consumer inflation has been estimated by measuring price changes in a fixed-weight basket of goods, effectively measuring the cost of living of maintaining a constant standard of living.

- Allowing substitution of lower-priced and lower-quality goods in the basket (i.e. more hamburger when steak prices rise) lowers the reported rate of inflation versus the fixed-basket measure.
- BLS introduced: Geometric weighting—a purely a mathematical gimmick that automatically reduces the weightings of goods rising in price, and vice versa—it has no demonstrated relationship to consumer substitution of goods based on price changes. It was explained as a surrogate for a substitution measure.
- BLS introduced: More frequent re-weightings of the CPI index from every ten years to every two years, which moved the CPI closer to a substitution-based index, but the change was not considered a change in methodology.
- BLS introduced: Ongoing re-weightings of sales outlets (discount/mass-merchandisers versus Main Street shops), also moving closer to a substitution-based index and creating other constant standard of living issues.

Out-of-Pocket Expenses versus Nebulous Quality (Hedonic) Adjustments

- Traditionally, what a consumer pays out-of-pocket for goods and services reflected adjustments for quality changes that could be directly quantified in a monetary sense.
 - Quality adjustments that can be measured directly in price are legitimate, such as measuring the price differential of an eight-ounce candy bar that is reduced in size to six-ounces but remains priced and packaged in the same sized box as the eight-ounce version.
- BLS expanded quality adjustments to include the concept of “hedonic” quality adjustments, altering the pricing of goods and services for nebulous quality changes that could not be priced directly and that often are not viewed or recognized by the consumer as a desired improvement.
- Where the effect here on the pricing of goods and services cannot be quantified directly from a pricing standpoint, the pricing impact is estimated by computer statistical modeling—hedonic adjustment modeling—that has little if any relevance to real-world experience.
- Where the quality of the product is deemed by the government to have improved (the usual circumstance), prices in the CPI calculations are adjusted lower to offset the higher quality.
- Usually, though, the purchasing consumer only has the option of paying out-of-pocket the full price for the product, again with little or no concept of the quality improvement being acquired and/or having no chance to opt out of paying for the improvements.
 - In an early example, the government mandated the use of a gasoline formulation that purportedly would improve auto emissions. That added ten cents per gallon to gasoline costs, but that cost was excluded from CPI calculations. The person filling his or her gas tank, however, felt the actual out-of-pocket expense.

- The government later abandoned excluding government-mandated “quality” improvements, such as gasoline additives, from inflation calculations, but the principles here are exactly the same for industry-generated “quality” improvements that are not optional to consumers.
 - Text books, for example are modeled, where one pricing factor in the hedonic quality model is whether or not there are color pictures in a book. Unless the student is an art student, the concern usually is not over colored pictures, but rather along the lines of “What is my out-of-pocket cost for textbooks this semester?”
 - New computer features usually are deemed quality improvements, with a downside price adjustments made in the CPI for the changes, even though a consumer may not want or use the features.
 - The consumer still has to buy those features and pay full cost out-of-pocket, irrespective of what government determines those products are generating in purported hedonic quality benefits that the consumer is not considering or using.
 - I contend that significant feature changes should be treated as a new product introduction, or otherwise ignored.
 - If the use of the hedonic process were legitimate here, it would be applied to all goods and services, but a CPI, so based, soon would come meaningless to the public (as already has happened with the CPI-U).
 - For example, there has been no pricing adjustment (upside in this case) to the costs of air travel for the destruction of travel convenience with the advent of the TSA, or from the downward spiral in U.S. air traveler comfort and convenience resulting from the effects of mergers and acquisitions, and from increasing flight delays due to economizing on aircraft maintenance.
 - Consumer concerns are for his or her out-of-pocket expenses. What am I paying for my textbooks this semester; what am I paying out-of-pocket to fly from New York to Chicago; or what am I paying out-of-pocket for a computer, even if I am looking just to use limited functions but have no choice but to buy unwanted features?
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**Net Reduction in CPI-U inflation from Changes in Methodology
As Reflected in the CPI-U-RS versus CPI-U Series (1980 to 2010)**

Year	Average CPI-U-RS	(1) CPI-U-RS Yr/Yr	(2) Average CPI-U	CPI-U-RS Yr/Yr	(1)-(2) Change in Annual Inflation*	Cumulative Annual Inflation Shortfall
1980	127.1		82.4			0
1981	139.2	9.5%	90.9	10.3%	-0.8%	-0.8%
1982	147.6	6.0%	96.5	6.2%	-0.1%	-0.9%
1983	153.9	4.3%	99.6	3.2%	1.1%	0.1%
1984	160.2	4.1%	103.9	4.3%	-0.2%	-0.1%
1985	165.7	3.4%	107.6	3.6%	-0.1%	-0.2%
1986	168.7	1.8%	109.6	1.9%	0.0%	-0.3%
1987	174.4	3.4%	113.6	3.6%	-0.3%	-0.5%
1988	180.8	3.7%	118.3	4.1%	-0.5%	-1.0%
1989	188.6	4.3%	124.0	4.8%	-0.5%	-1.5%
1990	198.0	5.0%	130.7	5.4%	-0.4%	-1.9%
1991	205.1	3.6%	136.2	4.2%	-0.6%	-2.5%
1992	210.3	2.5%	140.3	3.0%	-0.5%	-3.0%
1993	215.5	2.5%	144.5	3.0%	-0.5%	-3.5%
1994	220.1	2.1%	148.2	2.6%	-0.4%	-4.0%
1995	225.4	2.4%	152.4	2.8%	-0.4%	-4.4%
1996	231.4	2.7%	156.9	3.0%	-0.3%	-4.7%
1997	236.4	2.2%	160.5	2.3%	-0.1%	-4.8%
1998	239.7	1.4%	163.0	1.6%	-0.2%	-5.0%
1999	244.7	2.1%	166.6	2.2%	-0.1%	-5.1%
2000	252.9	3.4%	172.2	3.4%	0.0%	-5.1%
2001	260.0	2.8%	177.1	2.8%	0.0%	-5.2%
2002	264.2	1.6%	179.9	1.6%	0.0%	-5.1%
2003	270.1	2.2%	184.0	2.3%	0.0%	-5.2%
2004	277.4	2.7%	188.9	2.7%	0.0%	-5.1%
2005	286.7	3.4%	195.3	3.4%	0.0%	-5.2%
2006	296.1	3.3%	201.6	3.2%	0.1%	-5.1%
2007	304.5	2.8%	207.3	2.8%	0.0%	-5.1%
2008	316.2	3.8%	215.3	3.8%	0.0%	-5.1%
2009	315.0	-0.4%	214.5	-0.4%	0.0%	-5.1%
2010	320.2	1.7%	218.1	1.6%	0.0%	-5.1%
Aggregate Methodological CPI-U Reduction					-5.1%	

Sources: BLS, SGS * Totals may vary due to rounding

What The Changes Did to Inflation

The substitution-related alterations to inflation methodologies were made beginning in the mid-1990s. The introduction of major hedonic concepts began in the 1980s. The aggregate impact of the reporting changes since 1980 has been to reduce the reported level of annual CPI inflation by roughly seven percentage points, where 5.1 percentage points come from the BLS's published estimates of the effects of the individual methodological changes on inflation, shown in the preceding table and as discussed later. The balance comes from my estimates of the changes not formally estimated by the BLS. The effects are cumulative going forward in time.

With the support of academic expertise affirming the correctness of the new methodologies, the effects of the reduction in the pace of reported inflation and in the related spiking of reported inflation-adjusted economic growth, have been discussed openly at different times. Consider examples from the 1999 *Economic Report of the President Report (Report)*.^{ix}

“A final reason for the slowing of reported price indexes has been methodological changes to both the CPI and the indexes used in the national income accounts. In general, these changes have reduced the measured rate of inflation. For the CPI, methodological changes made from 1995 through 1998 reduced the rate of inflation by about 0.44 percentage point. Changes to be introduced in 1999 and 2000 will reduce it by an additional 0.24 percentage point.” Again, these are cumulative changes going forward.

The *Report* continued, describing the benefits of reduced inflation rate reporting in adding to reported GDP growth, “The BEA [Bureau of Economic Analysis] has also recently switched [1997] from using the CPI to using the producer price index (PPI) to deflate physicians' services and the services of government and for-profit hospitals. ... Because the PPI measures of these prices have been increasing less than the comparable CPIs, the changes reduce the rate of increase of the chain-weighted price index for GDP and raise real [inflation-adjusted] GDP growth. These changes, in addition to those passed through from the CPI, will have cumulated to raise the annual growth rate of real GDP by 0.29 percentage point by 2000.”

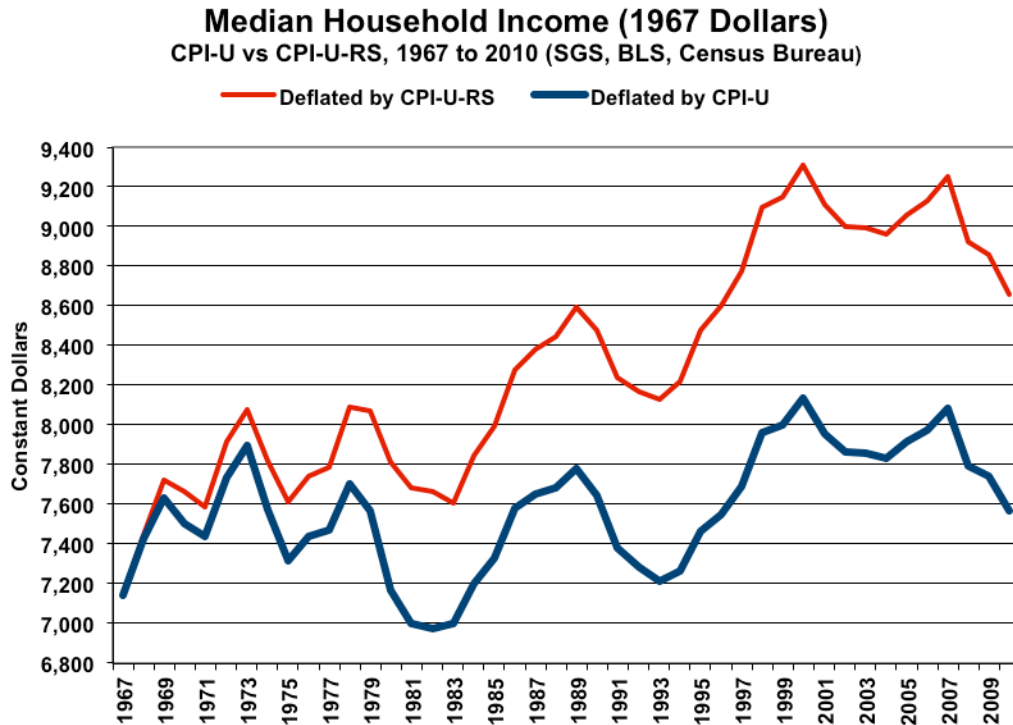
That cumulated GDP growth rate boost for those several years really should have been 0.54 percentage point, accounting for new hedonic adjustments.^x

Keep in mind that the CPI changes of 0.68% were an aggregate for those years and need to be carried forward—added back in—on a cumulative basis if one wanted to remove the effects of the methodological from future data. Against the aggregated 0.68% reduction in the reported inflation, the BLS's related CPI-U-RS series shows an aggregated reduction in the reported inflation of 0.7%, as discussed in the next two sections.

Measuring the Methodological Impacts Going Back and Forward in Time

The BLS has created a CPI-U-RS (RS stands for research series) that is designed to restate inflation history as if all the current substitution and hedonic adjustment methodologies always have been in place. Limited effects of the artificially lowered historical inflation can be seen with the following graph.

The narrow red line shows median household income, deflated by the CPI-U-RS, as having been much stronger than the series shown by the thicker blue line, which was deflated by the higher inflation in the traditional CPI-U. The CPI-U versus the CPI-U-RS is detailed in the table.



While the difference between current methodologies, going in back in time, may appear small, that is because the recent years of the CPI-U since 2000 already include the bulk of the changes, so largely they are identical in terms of year-to-year change between the CPI-U and CPI-U-RS. In the earlier years, the changes average less than half of a percent, but those changes reflect the incremental decline in annual inflation triggered by the various methodological changes.

Reverse engineering the CPI-U-RS to as to reconstruct the CPI-U, as if the various changes had not been made, requires carrying forward the effects of the changes on a cumulative basis. The cumulative effect is seen in the last column of the table.

SGS-Alternate Consumer Inflation Measures

What we have done in creating the SGS-Alternate Consumer Inflation Measures is to reverse engineer the CPI-U-RS series, adding in estimates of the inflation effects of factors not otherwise estimated by the BLS, such as more-frequent (two-years versus ten-years) reweighting of the CPI series.

The two SGS series are based on the methodologies in place as of 1980 and separately as of 1990. The estimated lost inflation is added back in, over time, as described in the methodology (1980-based) published each month in the *Commentary* that covers the CPI reporting:

The SGS-Alternate Consumer Inflation Measure adjusts on an additive basis for the cumulative impact on the annual inflation rate of various methodological changes made by the BLS (the series is not recalculated). Over the decades, the BLS has altered the meaning of the CPI from being a measure of the cost of living needed to maintain a constant standard of living, to something that neither reflects the constant-standard-of-living concept nor measures adequately most of what consumers view as out-of-pocket expenditures. Roughly five percentage points of the additive SGS adjustment reflect the BLS's formal estimate of the annual impact of methodological changes; roughly two percentage points reflect changes by the BLS, where SGS has estimated the impact not otherwise published by the BLS.

Artificially-Low Inflation Estimates Have Created the Illusion of Recovery

Separately, to varying degrees, artificially depressed inflation rates have created misleading indications of economic growth in various economic series, including the GDP, industrial production and real retail sales as otherwise deflated by the CPI-U. This is discussed in some detail in [Hyperinflation 2012](#), with assumptions discussed in Chapter 5, beginning on page 38.

ⁱ Fixler, Dennis, Bureau of Labor Statistics, “The Consumer Price Index: underlying concepts and caveats,” *Monthly Labor Review*, December 1993.

ⁱⁱ Schmidt, Mary Lynn, Bureau of Labor Statistics, “Comparing market basket changes and the CPI,” 1995.

ⁱⁱⁱ Ulmer, Melville T., “On the Theory of Cost of Living Index Numbers,” *Journal of the American Statistical Association*, Vol. 41, No. 236 (December 1946), pp. 530-542.

^{iv} National Research Council, *At What Price? Conceptualizing and Measuring Cost-of-Living and Price Indexes*, (2002).

^v Zuckerman, Sam, “Government’s economic data misleading, he says,” *San Francisco Chronicle*, May 25, 2008.

^{vi} Hershey, Robert D., Jr., “Panel Sees a Corrected Price Index as Deficit-Cutter,” *New York Times*, September 15, 1995.

^{vii} *Ibid.*

^{viii} *Ibid.*

^{ix} “Inflation: Flat or Falling,” *Economic Report of the President 1999*, pp. 87-95.

^x “Comparing growth in GDP and labour productivity: measurement issues,” OECD, December 2007.