

Does the Consumer Price Index Overstate Price Inflation?

Alan Greenspan recently suggested that the Consumer Price Index overstates price inflation. There are many reasons why this is likely and many more why no amount of revision can provide a perfect measure of the "cost of living." There can be little doubt that overgenerous cost-of-living adjustments greatly increase Federal outlays and curtail Federal receipts. Fiddling with the statistics could help the politicians deal with the deficit, but it is not a substitute for resolute action.

Federal Reserve Board Chairman Alan Greenspan recently stated that he thinks the Consumer Price Index (CPI) probably overstates price inflation by anywhere from 0.5 to 1.5 percentage points. In 1994, for example, the rate of price inflation may have been as low as 2.2 percent or even 1.2 percent rather than the 2.7 percent indicated by the CPI. Any upward bias in the CPI would have direct consequences for many people, not only because it is the most widely followed price index but also because so many public and private contracts are indexed to it. Cost-of-living increases in the wages and pensions of some private employees and most government employees are based on the CPI. In Federal and state tax codes, tax brackets, exemptions, and deductions are indexed to the CPI. The benefits paid to recipients of Social Security and other government income payments also are indexed to the CPI. If the CPI overstates price inflation, then these "cost of living" adjustments are providing more than compensation for the shrinking purchasing power of the dollar. They are providing a real albeit unintended increase in wages, pensions, and benefits, as well as reducing real income tax liabilities.

The net impact on the economy of upward bias in the CPI is difficult to judge, but the consequence for the Federal Government's budget is clear. Government outlays are higher, Government revenues are lower, and Federal budget deficits are larger than they otherwise would be. This link between the possible overstatement of price inflation and the budget deficit has prompted Greenspan and some members of Congress to propose that the Government review its procedures for provid-

ing cost-of-living adjustments in its accounts. Either the CPI should be revised to measure price changes more accurately, they say, or indexing should be based on another price index or on the CPI less an adjustment for its overstatement. According to Greenspan, revising its price calculations could save the Government \$150 billion over 5 years.

Many readers may find it difficult to accept the notion that the CPI overstates price inflation. Many people think that the official price figures *understate* the rate of price increase. Indeed, some allege that the Government rigs the figures. This accusation goes back many years, but no one has ever turned up any credible evidence to support it. Hundreds of Government economists, statisticians, and other number crunchers help collect and pro-

cess the data used to calculate the various price series. We believe that a conspiracy to "cook the books" would be difficult to organize and impossible to conceal.

It is much more likely that any discrepancy between the CPI and actual price inflation is attributable to the difficulty of constructing a single index to measure changes in the cost of living, if that is defined as the dollar outlays required to reach a given level of consumer satisfaction. A closer look at the methods and procedures used by the Labor Department to compute the CPI reveals a number of potential pitfalls that would be all but impossible to avoid completely.*

The Market Basket

First, for the purposes of calculating the CPI, the Labor Department periodically surveys households to find out how much of their budgets they spend on various items. The results of this survey are used to create a "basket" of goods and services, and changes in the price of this basket are reported as changes in the CPI. One problem is that the basket is relatively static (the current data reflect con-

* For a more detailed and technical discussion, see Mark A. Wynne and Fiona D. Sigalla, "The Consumer Price Index," Federal Reserve Bank of Dallas *Economic Review*, Second Quarter 1994.

Dunce Caps in the Cloakroom?

We have news for the Democratic Senators who voted against the Balanced Budget Amendment because it provided no assurance that the Social Security trust funds would not be "raided" to balance the budget. The news is this: The "trust fund" has already been "raided."

Because it is a measure of what the government takes in from and pays out to the rest of the economy, the deficit discussed by the OMB, the CBO, *The Washington Post*, and everyone else in the entire universe is **net of the current Social Security surplus**.

That we are now taking more from current workers than is needed to pay current benefits will be of no comfort to those faced with the task of paying benefits in the next century. The trust funds are purely bookkeeping entries that signify nothing except an implicit promise of future taxes. If they serve any purpose at all, it would be to prevent general revenues from being "raided" to pay Social Security benefits, *i.e.*, when the accounts run low, it reminds Congress to raise more Social Security taxes.

sumer spending patterns during 1982-84) and the monthly indexes do not reflect consumer responses to changes in relative prices. For example, if the price of beef increases relative to that of chicken, consumers will buy more chicken and less beef. The level of satisfaction they achieve, for a given outlay, will be more than it would be if they continued to consume beef and chicken in the same proportions, but the latter is what the CPI reports assume. Because it does not allow for changing spending patterns, the CPI tends to overstate the increase in the cost of achieving a given level of consumer gratification. It is not at all clear how large this "substitution bias," as economists refer to it, may be. A couple of studies suggest it is relatively small, perhaps less than 0.2 percentage points per year, but useful research on this question is scarce.

Substitution bias, if it exists, could be reduced by allowing the basket of goods and services to change from one period to the next, to reflect actual spending patterns. The resulting price index would measure what would have been spent on the current basket of items had it been purchased at the prices prevailing in the previous period. This is how the implicit price deflator for personal consumption expenditures, another government price index, is calculated. The difficulty here is that a change in this index may reflect factors other than changes in prices. For example, if the prices of beef and fish do not change but people buy more fish because they believe it is more nutritional, the index would report this as a price increase (assuming fish costs more than beef).

Because it is influenced by changes in the relative quantities, the implicit price deflator is less useful in isolating price movements than the CPI, but arguably it is a more accurate gauge of changes in the cost of attaining a given level of consumer satisfaction. The historical data for the two price series track each other closely, although the implicit price deflator usually shows a lower rate of price inflation than the CPI.

Quality Changes

Another source of potential upward bias in the CPI is the adjustment for change in the quality of goods and services. In theory, the CPI measures the cost of buying a basket of goods and services whose quality does not change. Thus, if the price of an item increases due to an increase in its quality, this should not affect the CPI. For example, if the price of a television increases by \$50 but a \$50 remote control is introduced as standard equipment, this increase should not change the price in-

dex. Similarly, if the price of the TV increases by only \$30, the quality-adjusted CPI should reflect a \$20 decrease in the price of the TV. In practice, it is not clear whether the Labor Department's quality adjustments are adequate. Many economists believe that its adjustments have systematically underestimated the improvement in the average quality of products over the years, thereby causing the CPI to overstate price inflation.

However, it appears that for some items the bias may run the other way, causing the CPI to underestimate price increases. In the case of automobiles, the Labor Department counts as a quality improvement nearly all of the product modifications made by manufacturers to comply with Government safety and antipollution regulations. According to a Labor Department survey covering 19 similarly equipped domestic passenger cars, the manufacturers' suggested retail price (MSRP) for 1995 models averaged \$543 more than 1994 models. Of this, \$54 was attributed to quality improvements that reflected changes made to satisfy antipollution mandates, and this amount was therefore excluded from the constant-quality price index for cars. It is quite likely that some consumers would not be willing to pay \$54 for these changes if they were optional; for these people, the changes constitute a price increase rather than an improvement in quality. Because a large portion of the quality adjustment made over the past 3 decades to the official price index for automobiles is attributable to such mandated modifications, it is quite possible that this adjustment may have overstated the quality improvement. If so, this would cause the new-car component of the CPI, and the CPI itself, to be downward biased, *i.e.*, to understate price inflation.

Accurate or not, quality adjustments can create a substantial gap between official price changes and the larger price changes observed by consumers at the point of purchase. Again, the price data for cars illustrates the distortion. The CPI-based component for new cars has increased only 50 percent since 1979, even though the actual price has doubled (at least) since then. Quality adjustments for Government mandates are by no means the only reason; cars really are better now. Not only do they have many previously unavailable features, such as fuel-injection systems, anti-lock brakes, automatic speed control, and so forth, but they require less frequent maintenance, have better fuel economy, and last longer. But no matter how useful or desirable these changes, their impact on sticker prices is real; it really does cost more to buy "a

car" nowadays, even if it is a better car.

New Products

The task of measuring the change in the price of a fixed basket of goods and services becomes even more difficult when consumers buy products that are not simply improved versions of existing products but entirely new items. How can statisticians measure the change in the price of a CD player when CD players did not exist 10 years ago? What about Walkmans, fax machines, video recorders, and all the other video/audio/information-processing equipment that have been introduced in recent years? If the basket of goods and services is not updated frequently, it will understate the fraction of consumer spending allocated to new goods. And if the prices of those new goods are falling, the price index based on the out-of-date basket will overstate price inflation. This apparently is what happened to the Producer Price Index in the 1980s, because until 1990 the index did not include computers, for which prices were falling at the extraordinary rate of 20 percent per year. It seems quite likely that the CPI has similarly underestimated the impact of price declines for the electronic gadgets and gear that account for a growing share of consumer spending.

One study suggests that "new goods bias" in the CPI may be as high as 0.5 percentage points per year. However, this figure is based on the debatable assumption that new goods bias affected only a small number of new consumer products and that these products experienced the same rate of price decline as computers. If the prices of these goods actually declined more slowly, new goods bias could be smaller; if new goods bias affects a broader range of goods and services than the study's authors assumed, the bias could be larger. There simply is not enough evidence to draw a firm conclusion.

The CPI may further exaggerate price inflation if the prices used to calculate it are higher than the prices paid by consumers. The Labor Department obtains its price data from a monthly survey of over 20,000 retail and service businesses. It updates this sample of establishments on a rotating basis, replacing 20 percent of the outlets each year. Some analysts question whether this adjustment is sufficient to keep up with the shift in consumer shopping patterns toward Wal-Mart, Sam's Club, Staples, and other high-volume, low-price stores. If the Labor Department tracks too many local hardware stores and not enough Home Depots, its price survey will overstate the prices paid by consumers. Here again, few economists have

attempted to measure how large this “outlet bias” may be, but one study suggests it may overstate the increase in food and gasoline prices by about 0.2 percentage points per year. This estimate may be in the high range, because it does not take into account the possibility that the quality of goods and services at discount stores may be lower. Self-service gas stations charge less for a tankful of gas but the quality of their “product” clearly is different from that provided by full-service stations where attendants pump the gas and (used to) clean your windshield and check your oil.

In addition, the CPI may not be adequately adjusted for discount pricing. The Labor Department attempts to measure the prices actually paid by consumers, but it is not at all clear that its price surveys fully account for the discounts, rebates, and other price deals that many buyers get. For some items, such as new cars, the surveys take account of the average markdown from the sticker price to the transaction price. However, no adjustment is made to account for the value of cents-off coupons issued by manufacturers and retailers. More broadly, sale markdowns, mail-in rebates, senior-citizen/student/membership discounts, early-bird specials, tie-ins such as frequent flier miles and credit-card points, and other complex pricing practices have become more and more prevalent over the years. These greatly complicate the task of measuring unit prices and there is little doubt that they cut the cost to con-

sumers. But it is an open question whether the Labor Department’s price surveyors and statisticians have figured out how to measure consistently how much they reduce effective prices.

What all these measurement errors net out to is anybody’s guess. Many analysts have suggested that Greenspan’s estimate that the CPI may overstate price inflation by 1.5 percentage points a year is excessive; they suggest the upward bias may be less than 1 percentage point. But so few studies have been done, no one can cite precise estimates of bias with confidence.

As this discussion may suggest, it is easier to talk about price inflation than it is to develop a satisfactory measure of it. Some of the measurement difficulties could be corrected relatively easily. The Labor Department could step up its ongoing efforts to make its survey of stores and other outlets accurately reflect shifts in consumer buying habits. The CPI basket of goods and services could be updated more often. But other problems, such as how to account for quality changes and product innovations that are often rapid and difficult to quantify, would be prohibitively costly to address. All the money in the world could not solve all the problems, because to some extent they are intrinsic to any effort to develop a single index to measure changes in the “cost of living.”

Some type of revision in the CPI appears likely, now that Chairman Greenspan has drawn attention to the costs to the Government of overestimating price

inflation. House Speaker Newt Gingrich has even threatened to abolish the Bureau of Labor Statistics if it does not change its procedures. In recent testimony before Congress, Greenspan proposed creating a panel of experts to figure out how to adjust the CPI. “The replacement of a mechanical procedure by the informed judgment of experts would best . . . insulate taxpayers and (federal) benefit recipients from the effects of changes in the cost of living,” he said.

Outlook

This comment suggests that Greenspan may be focusing on this issue, which is hardly a new one, largely as a means to an end. By framing the debate as a statistical problem, he is providing Congress with political cover to reduce the cost-of-living adjustments in entitlement programs and Federal employment and pension contracts. These adjustments have long been more generous than those available in the private sector. With reported price inflation (by any measure) as low as it has been in many years and Republicans promising to cut spending, there appears to be an opportunity for genuine reform. If, in the process, the CPI is changed to measure price inflation more accurately, so much the better.

Curtailing cost-of-living adjustments would serve to reduce the budget deficit; however, it would not alter its fundamental structure, which will require much more direct action to cut spending. □

BUSINESS-CYCLE CONDITIONS

Despite a slight weakening among the leading series, the current expansion remains unlikely to end soon.

Among the 12 primary leading indicators of business-cycle changes, four series are at their highs for this cycle and are clearly expanding. These include: *new orders for consumer goods and materials* (this series and other dollar-denominated series are reported in constant dollars), which reached an all-time high in January, despite a weakening of auto sales then; *contracts and orders for plant and equipment*, for which the base data rebounded in January, after a sharp drop in December, pushing the series and its 4-month moving average to new highs; the moving average of the *average workweek in manufacturing*, which remained at its highest level since World War II, despite a slight decrease in the February base data; and the *ratio of manufacturing and trade sales to inventories*, which was appraised as probably expanding last month. The upgraded status of the sales-to-invento-

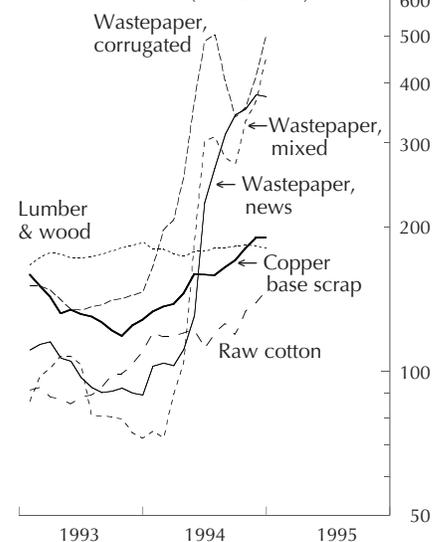
ries ratio was more than offset by deterioration of four other leading series.

The *index of new housing permits* decreased in January, and its moving average series is at its lowest level in 5 months. *Vendor performance* (the percentage of purchasing managers reporting slower deliveries from their suppliers) decreased during January and February and *initial claims for unemployment insurance* increased in January, which caused the moving average of this inverted series to deteriorate for the third consecutive month. These three series, which had been clearly expanding, now are appraised as probably expanding.

The *3-month change in sensitive materials prices* reached its high for the cycle last July, and the 6-month moving average of this very erratic series has now decreased for 4 consecutive months. The decrease is sufficient to raise doubt concern-

ing the continued expansion of the series. Nevertheless, the rate of change remains quite high and comparable to prior periods (such as 1950, 1974) when the general rate of price inflation surged. Some

Selected Components of Sensitive Materials Prices (1982=100)



analysts may have taken this as an indication that prices are poised to surge again in this cycle. However, as the accompanying chart suggests, nearly all of the increase in the sensitive materials price index during the past year has been a reflection of astonishing increases in its wastepaper components — the prices of other “sensitive materials” have been relatively stable. It seems unlikely that whatever is going on in the wastepaper markets will have much immediate impact on producer or consumer prices.

The *M1 money supply* decreased in January. The broader money measure *M2 money supply* had a slight uptick then, but both series remain appraised as clearly contracting. Consumer installment credit outstanding increased by \$3.7 billion dollars in January, after increasing \$6.6 billion in December. The January increase was led by a 16.7 percent increase in revolving credit card debt. Automobile and “other” debt fell slightly then. The moving average of this series changed little and the cyclical status of the *change in consumer installment debt* remains indeterminate. Common stock prices recently reached new all-time highs, but our constant-dollar *index of common stock prices* remains below the high reached in January 1994 and the cyclical status of that series also remains indeterminate.

The percentage of leading indicators expanding cyclically remains at 80, or 8 out of the 10 for which a trend is evident. Perhaps as a reflection of the slight deterioration of three of the leaders, our cyclical score (which is calculated with very different procedures) fell four points to 77 from last month’s score of 81.

Among the six primary roughly coincident indicators, series that move roughly in time with the business cycle, five are at their all-time highs, including *nonagricultural employment*, the *index of industrial production*, the *civilian employment to population ratio*, *manufacturing and trade sales*, and the quarterly series, *gross domestic product (GDP)*, which was revised upward this month to an annual rate of 4.6 percent during the last quarter of 1994. The sixth coincider, *personal income in manufacturing*, remains below its peaks of prior business-cycle expansions, but stands at its high for this cycle (ignoring the anomalous fluctuation at year-end 1992, that reflected an acceleration of income in anticipation of higher income tax rates). All six coincident series are clearly expanding.

Among the lagging series, the *average duration of unemployment* (inverted) decreased slightly during February, but its moving average hit a new high for the cycle. *Commercial and industrial loans*

also reached a new high for the cycle and *manufacturing and trade inventories* reached an all-time high. These three series are appraised as clearly expanding as is the *composite of short-term interest rates*, which increased in February. The *ratio of consumer installment debt to personal income* was revised downward for January and decreased again in February, raising doubt that the series is continuing to expand cyclically. The *change in labor cost per unit of output in manufacturing* decreased in January, but remains above its low reached last August. Its cyclical status remains indeterminate. For the lagging series, 100 percent (5 out of 5) of those with cyclical trends are expanding cyclically.

The overwhelming preponderance of + signs for the coincident series in the table reflects the ongoing strength of the

economic expansion. Few analysts expect that the torrid pace of the latter part of 1994 can be sustained for long, but as yet there is little to suggest that the widely expected slowing of growth will deteriorate into the next recession.

The leading indicators relating to production, sales, and employment all remain at or close to their highs. As has been the situation for many months, weakness among the leading indicators remains confined to the finance-related series (the monetary aggregates, stock prices and consumer debt, and, to a lesser extent, housing permits). The increases in the lagging series thus far have mainly served to confirm the business-cycle expansion and they do not as yet seem to reflect the sort of bottlenecks that can choke off growth. The business-cycle expansion is likely to continue. □

Statistical Indicators of Business-Cycle Changes

Change in Base Data				Primary Leading Indicators	Cyclical Status		
Nov.	Dec.	Jan.	Feb.		Jan.	Feb.	Mar.
–	–	–	–	M1 money supply	–	–	–
–	–	+	–	M2 money supply	–	–	–
+	+	+	–	Change in sensitive materials prices	+	+	?+?
+	+	+	–	New orders for consumer goods	+	+	+
+	+	+	–	Contracts and orders for plant and equipment	+	+	+
–	+	–	–	Index of new housing permits	+	+	?+?
+	+	–	–	Ratio of manufacturing and trade sales to inventories	+	?+?	+
+	+	–	–	Vendor performance	+	+	?+?
–	–	+	+	Index of common stock prices (constant purchasing power)	?	?	?
nc	+	nc	–	Average workweek in manufacturing	+	+	+
+	+	–	–	Initial claims for unemployment insurance (inverted)	+	+	?+?
–	–	–	–	Change in consumer installment debt	?+?	?	?
				Percentage expanding cyclically	82	80	80
				Primary Roughly Coincident Indicators			
+	+	+	+	Nonagricultural employment	+	+	+
+	+	+	+	Index of industrial production	+	+	+
–	+	+	–	Personal income in manufacturing	+	+	+
+	+	–	–	Manufacturing and trade sales	+	+	+
+	+	+	+	Civilian employment to population ratio	+	+	+
+	+	–	–	Gross domestic product (quarterly)	+	+	+
				Percentage expanding cyclically	100	100	100
				Primary Lagging Indicators			
+	+	+	–	Average duration of unemployment (inverted)	?	+	+
+	+	–	–	Manufacturing and trade inventories	+	+	+
+	+	+	–	Commercial and industrial loans	+	+	+
+	–	–	–	Ratio of consumer installment debt to personal income	+	+	?+?
–	+	–	–	Change in labor cost per unit of output, manufacturing	?–?	?	?
+	+	–	+	Composite of short-term interest rates	+	+	+
nc No change. † Revised.				Percentage expanding cyclically	80	100	100

Under “Change in Base Data,” plus and minus signs indicate increases and decreases from the previous month or quarter and blank spaces indicate data not yet available. Under “Cyclical Status,” plus and minus signs indicate expansions or contractions of each series as currently appraised; question marks indicate doubtful status when shown with another sign and indeterminate status when standing alone.

PRICE OF GOLD

	1993	1994	— 1995 —	
	Mar. 18	Mar. 17	Mar. 9	Mar. 16
Final fixing in London	\$330.25	\$383.40	\$380.90	\$383.70

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