

CHAPTER III

OTHER POTENTIAL SOURCES OF MEASUREMENT BIAS

Other potential sources of bias could be adding to or offsetting the bias found in the empirical studies. Three potentially important causes of bias that have not been subject to empirical tests are the introduction of new goods, the problems of adjusting for the quality of medical care (other than pharmaceutical drugs), and the possibility of bias in the measurement of prices for services such as banking and insurance. A fourth potential source of bias discussed here--the possibility that the overall cost-of-living index does not reflect the appropriate weights for medical care--is a definitional rather than an empirical question. It illustrates the potential difficulty in determining which expenditures should be counted in a cost-of-living index.

NEW GOODS

The introduction of new goods presents difficult problems in measuring prices. The "new goods" problem is an extreme version of the quality-adjustment problem discussed in Chapter II. Should electronic calculators introduced in the early 1970s be considered substitutes for mechanical adding machines or slide rules? Should videocassette recorders (VCRs) and movie rentals be considered substitutes for movie theater tickets? And should compact discs be considered substitutes for phonograph records or tapes? The consumer price index currently does not consider new goods to be substitutes for the goods they are partially or completely replacing.

Although no empirical studies have directly addressed the question of the overall degree of new-product bias in the CPI, theoretical estimates are possible. Their usefulness depends on the validity of various assumptions, but one can get a sense of the scope of the problem by using approximations regarding the pattern of price changes for new goods and the proportion of new goods in the total amount of goods consumed. Theoretically based estimates, however, are rough and subject to large errors. Initial, theoretically based estimates of the size of the substitution bias, for example, were larger than those found in subsequent empirical work.

With those caveats in mind, the theoretical exercise is as follows. To take an extreme example first, assume that the price of a new good falls by one-half in the first year and by one-half again in the second year, and that the quantity of the good consumed doubles in the second year to equal 1

percent of total consumption. Under those assumptions, the index formula used for the CPI overstates the increase in the cost of living (that is, increases faster than a superlative index) between the second and the third year by 1 percentage point. If the example is changed so that the share in consumption of the new good in the second year is 5 percent, then the overstatement is 4.5 percentage points.¹

Few goods experience such dramatic price declines, but the theoretical example is relevant to some goods. The price of VCRs, for example, fell from about \$1,500 in 1980, when the models that had programming capability first became popular, to about \$600 five years later and below \$300 a few years after that. The share of video equipment excluding televisions (that is, VCRs, camcorders, and film equipment) in total expenditures was about 0.2 percent in 1993 compared with virtually zero in 1980 (the year before such equipment was available for the home). Applying the theoretically estimated overstatement of the cost of living from the example in the previous paragraph to the situation for VCRs indicates that failing to track VCRs would cause the CPI to overstate the increase in the cost of living by about 0.02 percent a year over the past 10 years.

Although the published CPI missed the effect of the initial introduction of VCRs on the cost of living, it did reflect some of the subsequent price change. The advantage of rotating the sample each year is that it brings new products such as VCRs into the sample, though more slowly than the rate at which they were accepted by households, and therefore the CPI captures some of the price decline of the first 10 years.

Thousands of new products and services are introduced every year, and though few are as significant as VCRs and perhaps even fewer experience the pricing behavior and market penetration assumed in the theoretical example, the example still provides some basis for estimating bias. A number of the products introduced during the 1980s were similar to VCRs in their price history and acceptance by consumers. They include computers, camcorders, communication equipment, audio equipment, microwave ovens, some types of photography equipment, electronic toys, and digital watches. These goods account for about 1 percent of spending in the CPI. Numerous other new products and services did not capture market share as quickly as VCRs and did not experience such rapid declines in price but are still important for estimating the potential bias for new goods. Examples include convenience

1. See W.E. Diewert, "Index Numbers," in John Eatwell, Murry Milgate, and Peter Newman, eds., *The New Palgrave Dictionary of Economics* (London: MacMillan Press, 1987), p. 77.

foods, cable television, various small electrical appliances, and some sports equipment; this category is also small, with about a 2 percent share.

To provide a rough estimate of the high end of the range of new-product bias in nonmedical goods and services, one could assume that as many as half of the products that make up the 1 percent of expenditures have prices and market shares that behave like those of VCRs. This assumption would imply, by the reasoning above, that the maximum bias for VCR-like new products would be on the order of 0.1 percentage point a year. One could also assume that half of the goods in the second category are new goods, which would imply that the theoretical example given above overstates the bias of those products because their prices do not fall as rapidly as those of VCRs once the good has been introduced. At most, the new-product bias of the goods in this category would be about 0.1 percentage point a year. Therefore, a high-end estimate of bias resulting from the introduction of new items would be on the order of 0.2 percentage points a year, if there is no sample rotation. Given sample rotation, the estimate would probably overstate the bias, but it is difficult to quantify how much the rotation procedure would lower the bias.

MEDICAL CARE

Fundamental problems are associated with measuring quality-adjusted prices in medical care. One major problem is the question of what to measure. Should the index track the costs of curing illness or the prices of treatments, such as a course of antibiotics, surgery, or an office visit to a physician? Consumers' welfare is related to cures, not treatments per se, but the current CPI tries to measure the price of treatments. If a drug took the place of surgery for a specific condition, greatly reducing the price of a cure, the CPI would not reflect the reduction in the price of that cure.

Another major problem is the question of how to treat new goods. If children today get fewer cavities than in the 1950s because of fluoride additives to the water and the development of durable substances to coat teeth, how can those improvements be reflected in the quality-adjusted price of dental care? Similarly, how can treatments such as the use of lasers that prevent the loss of sight be brought into the price index when no comparable treatment or cure was previously available? How does one value additional years of sight?

Few empirical estimates have addressed these problems, and this paper does not quantify any potential bias stemming from changes in the quality of

medical care. The studies of the pharmaceuticals reviewed in Chapter II provide some insight into the scope of the problem, but little other empirical work has been done. Therefore, this section simply discusses three areas of medical care to illustrate the complexity and size of the problem of quality adjustments for that care.

CT Scanners

A study of the prices of computerized tomographic X-ray machines (CT scanners) highlights the difficulties with measuring price when technology is changing rapidly, as it has in many areas of medicine.² The average price of a CT scanner increased by about 160 percent between 1973, when they were introduced, and 1982. If instead one uses a price index that adjusts for changes in quality using four characteristics (resolution, scan time, image reconstruction time, and ability to examine just the head or the entire body), the price falls by 72 percent over that period. Furthermore, a third measure that attempts to model the benefit to the consumer of the different improvements indicates that the price has fallen by 99.9 percent.

The wide variety of results for CT scanners indicates the problems with developing indexes for medical care prices. Improvements in quality create a potential for a large upward bias in the CPI relative to a true cost-of-living index.

Physicians' Services

The improvements in diagnostic techniques such as CT scanners and in treatments should also be reflected in prices for physicians' services. From the development of nonlaboratory tests for strep infection to better surgical procedures, technical change has greatly augmented the benefits to the consumer of a physician's services. The Bureau of Labor Statistics, however, is able to distinguish only a few characteristics that reflect the quality of an office visit. For example, if a standard physical performed in the office being sampled is upgraded to include a new test, the BLS can adjust the price series for that change. But changes in quality that are less easily identified and potentially much more important, such as the ability to make the correct diagnosis quickly, cannot be easily incorporated into the price series. For those reasons, the CPI may fail to account for improvements in quality.

2. M. Trajtenberg, *Economic Analysis of Product Innovation: The Case of CT Scanners* (Cambridge, Mass.: Harvard University Press, 1990).

Many patients, however, complain that the quality of medical care has fallen because physicians spend less time with them than before, or more patients are prevented from seeing the same physician regularly. Quality can suffer not only because of patients' unease and discomfort with the more assembly-line nature of health care but also because the quality of diagnosis and subsequent care can be adversely affected when the physician does not know the patient well.

In the absence of studies of these questions, however, it is impossible to determine whether the CPI for physicians' services is biased upward or downward.

Dental and Eye Care

Technological change and improvements in quality have been rapid in dental and eye care as well. Dental care has improved with the development of coatings for children's teeth, improved equipment and techniques, better anesthetics, new materials for fillings and caps, and better X-ray equipment. Eye care technology has also changed rapidly. Improvements in cataract surgery have made the procedure more effective, better able to cure a wider variety of conditions, and easier for patients. Laser surgery can now delay or prevent loss of sight in formerly untreatable cases; contact lenses have become easier to fit and wear for extended periods. Service has also improved: consumers can now have their eyes examined and eyeglasses made at the same location, and the eyeglasses can be made in one hour.

Again, none of these developments are accounted for in the medical care component of the CPI, and quantitative estimates of the importance of such omissions are unavailable.

NONMEDICAL SERVICES

Other areas in which the CPI may overstate price increases but for which no empirical work is available are in services such as banking and transportation. Banking services have improved with the advent of automated teller machines (ATMs), faster loan processing, telephone transfer of funds, and the like. The possible overstatement of price increases for transportation services results primarily from a failure to fully track discounts for airfares and from methodological problems with calculating the cost of auto insurance premiums.

Although most of those problems are difficult to address, the problem of auto insurance may be easier to correct. The BLS currently uses the entire premium paid for auto insurance to calculate the price increase, and that may create an upward bias. If the value of claims increases--perhaps because greater congestion results in more collisions or because repair costs or thefts increase--insurance companies would tend to raise premiums for ostensibly the same coverage. However, insofar as the expected value of the benefits that would flow from the policy is higher (since the likelihood of collision or theft has increased), the quality of the policy would increase in line with the higher premiums. The CPI should therefore not reflect a price increase that stems from that source.³

The BLS may change the treatment of auto insurance to follow that used for medical insurance. Under that method, the BLS would allocate only the pure insurance part of the premium (essentially the administrative costs of handling the insurance) to the category of auto insurance. The bulk of consumers' expenditures on auto insurance premiums would be allocated to those goods and services that the insurance companies pay for when claims are made--for example, auto body repair, medical costs, legal fees, rental cars, and lost wages. This procedure would reduce the possibility that the steady increase in auto insurance premiums is causing an upward bias in the CPI.

SPECIAL PROBLEMS IN SELECTING A WEIGHT FOR MEDICAL CARE

Measurement of the cost of living is affected by the choice of the expenditure shares, or weights, in the CPI, and the appropriate weighting for medical care is not obvious. The current weight for the personal consumption of medical care is about 7 percent, a figure that reflects households' out-of-pocket costs for medical care. But the CPI could also reflect total consumption of medical care, including that paid for by government (through taxes) and the part of medical insurers' payments to providers that is financed by employer-paid insurance premiums. The weight would then be 15 percent. If the broader definition is more appropriate for a cost-of-living index--and there are reasons to believe it is--then the current weighting would bias the growth of the CPI downward, assuming that medical care prices were otherwise measured correctly.

3. Paul A. Armknecht and Daniel H. Ginsburg, "Improvements in Measuring Price Changes in Consumer Services: Past, Present, and Future," in Zvi Griliches, ed., *Output Measurement in the Service Sectors*, vol. 56 of *Studies in Income and Wealth* (Chicago: University of Chicago Press, 1992), p. 136.

The 7 percent weight that the CPI now uses includes all medical care that is paid for directly by households and the employee's cost of medical insurance premiums. Including medical insurance premiums introduces some distortion, since households' decisions about how much medical insurance to buy is affected by their employment and the existence of government health programs, but the 7 percent weighting essentially captures the share of total consumption that consumers directly allocate to medical care.

The larger, 15 percent weighting has some merit, however, in that increases in health care prices will ultimately affect households adversely in more ways than just higher out-of-pocket costs. The effects could be higher costs in the form of higher taxes, slower growth of nonhealth compensation (that is, wages), or lower benefits (curtailment of Medicare coverage, increased deductibles, and so on). In this sense, consumption of medical care should be broadly defined to include the employers' share of medical insurance premiums and government outlays for health care.

The interaction between federal programs and private medical costs further complicates the weighting decision. Out-of-pocket medical insurance premiums have been growing faster in the CPI than they would have in the absence of cost controls on Medicare and Medicaid. When the federal government fails to reimburse health care providers for the full cost of the service, the providers try to recoup the difference by increasing the costs to their private-sector patients. One study indicates that Medicare reimbursement in the early 1990s paid for about 90 percent of the costs of covered services, compared with full reimbursement during the mid-1980s.⁴ In essence, the price index for out-of-pocket costs of medical care increased faster than the price index for Medicare during that period because of cost shifting. A more inclusive definition of medical care consumption--that is, the larger weighting--would avoid such distortions.

4. Congressional Budget Office, *Responses to Uncompensated Care and Public-Program Controls: Do Hospitals 'Cost Shift'?* CBO Paper (May 1993).

CHAPTER IV

MEASURING THE COST OF LIVING

FOR SUBGROUPS OF THE POPULATION

One aspect of the potential mismeasurement of the cost of living is the appropriateness of the measure for certain subgroups of the population. In general, the relevance of a cost-of-living index for a specific subgroup is related to the degree it reflects the spending patterns of that group. The regularly published consumer price indexes--the index for all urban consumers (CPI-U) and the one for urban wage earners and clerical workers (CPI-W)--reflect the spending patterns of 80 percent and 32 percent of the population, respectively. Therefore, they are not necessarily accurate indicators of changes in the cost of living for groups other than those they were designed to represent.

The problems associated with measuring the cost of living for subgroups of the population can be illustrated by examining an experimental index for the elderly that is published at various intervals by the Bureau of Labor Statistics.¹ The subgroup for this index consists of those households for which the reference person in the consumer expenditure survey is at least 62 years of age. Note that this subgroup is not the same as the Social Security population, since many people who are 62 and over are not beneficiaries of the Social Security system, and many people younger than 62, such as surviving spouses and dependent children, receive Social Security payments.

The index is considered to be experimental for a number of reasons. First, the relatively small sample size implies that the sampling error will be larger than that for the regularly published CPIs. Second, the index is based not on specific surveys of the outlets and items that the elderly use but on the point-of-purchase survey for the all-urban population. Finally, the index does not reflect the special prices available to senior citizens, which may distort the growth rate of prices for the elderly.

The experimental index for the elderly increased more rapidly during the 1980s and early 1990s than either the CPI-U or the CPI-W. Between December 1982 and December 1993, the experimental index rose at an average annual rate of 4.0 percent, compared with 3.7 percent for the official CPI-U and the 3.5 percent for the CPI-W.

1. Nathan Amble and Ken Stewart, "Experimental Price Index for Elderly Consumers," *Monthly Labor Review* (May 1994), pp. 11-16.

The most important factor in the rapid growth of the price index for the elderly was the larger weight for medical care.² Despite their coverage under Medicare, the elderly had proportionately higher out-of-pocket medical expenses during the 1982-1984 base period because they were less likely to have employer-provided medical care than were the CPI-U and CPI-W populations. In addition, the elderly spent proportionately more on those components of medical care, such as physicians' visits, for which prices rose the most rapidly.

The importance of the weighting of medical care raises additional questions about the usefulness of the experimental index as a measure of the cost of living for the elderly. Given the sample's small size and the fact that it is not representative of the consumption patterns of the elderly, using the experimental index as a cost-of-living index for that group would be problematic. In addition, the likelihood that increases in medical care prices have been overstated, perhaps by a great deal, further undermines the usefulness of the experimental index. From the studies of prescription drugs and the potential problems that measuring prices present for other aspects of medical care discussed above, medical care prices have probably grown less rapidly relative to all other prices than the current data indicate.

Two other issues are related to the development of cost-of-living indexes for specific demographic subgroups. First, spending patterns within particular subgroups might vary greatly during the base period, and that would undermine the validity of a subgroup index.³ Second, some subgroups may be better able or more willing to change their spending patterns in response to changes in relative prices than others, so the substitution bias of the fixed-weighted index would not be the same for all subgroups. One study noted that "subgroup indexes defined on a priori grounds (or for policy reasons alone) may perform less well as representative cost-of-living measures than the aggregate price index."⁴

Although this discussion has focused on potential mismeasurement of the cost of living for the elderly, the general issue of mismeasurement applies to

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2. The experimental index for the elderly has larger weights than either the CPI-U or CPI-W for housing and medical care, and smaller weights for food, transportation, apparel, entertainment, and other goods and services (such as education, tobacco products, and personal care).
 3. R.P. Hagemann, "The Variability of Inflation Rates Across Household Types," *Journal of Money, Credit, and Banking*, vol. 14 (1982), pp. 494-510.
 4. Mary F. Kokoski, *Consumer Price Indices by Demographic Group*, Working Paper No. 167, Bureau of Labor Statistics (April 1987), p. 10.

other subgroups as well. Because empirical work is extremely limited in this area, no conclusions can be drawn about how much the increase in the cost-of-living for subgroups may differ from the growth of the CPI. Clearly, this is another area that requires further study.

CHAPTER V

IMPLICATIONS OF MEASUREMENT BIAS

Measurement biases in the consumer price index for all urban consumers may have significant effects on perceptions of growth and welfare and on the federal budget. Real measures of economic output, wages, and the like are calculated by dividing nominal measures, such as the value of televisions sold or the hourly wage, by an appropriate price index. If the growth in the price index is biased upward, the real measures will be biased downward. In addition, by affecting the indexation of some outlays and personal income tax revenues, any overstatement in the CPI affects the federal budget and may result in a redistribution of wealth that was not intended by policymakers.

EFFECT ON MEASURES OF GROWTH IN GDP, PRODUCTIVITY, WAGES, AND POVERTY

Because some of the detailed price series that the CPI comprises are used to create measures of real spending on personal consumption in the national income and product accounts (NIPAs), the accuracy of the measurement of real growth in consumption, and, consequently, in gross domestic product (GDP) will be affected by measurement bias in the components of the CPI. Similarly, since most measures of productivity growth use the GDP data, measures of productivity will also be affected.

Real GDP Growth

The effects of one of the biases of the CPI, the commodity substitution bias, would not carry through fully to the measurement of real GDP. The calculation of GDP uses relatively detailed CPI components, so some of the shifts in the consumption mix that are not captured in the fixed-weighted CPI may already be incorporated into the calculation of real consumption.

How does overstating the cost of living affect measures of real growth in GDP and consumption? Assuming an overstatement in the CPI of, say, 0.5 percentage points per year, real GDP growth would be biased downward by about 0.2 percentage points. That is, a measure of real GDP that more properly accounted for price changes would have grown by 0.2 percentage points more per year on average. Similarly, real growth in consumption in the NIPAs would be understated by 0.3 percentage points per year. The overall

increase in real per capita GDP between 1979 and 1993 is currently reported to be 18 percent. If the CPI had been overstating price change by 0.5 percentage points a year for that time, then a better estimate of the growth in per capita GDP for that period would be about 21 percent.¹

Productivity Growth

Since GDP data are used to calculate productivity, a CPI bias of 0.5 percentage points per year would have a similar effect on the measurement of productivity growth. Labor productivity would have grown by about 1.3 percent annually between 1979 and 1993 rather than the reported 1.1 percent.

As currently measured, productivity grew more during the 1950s and 1960s than in subsequent years, and economists have been hard pressed to explain the slowdown. If it could be shown that the CPI had a greater upward bias in recent decades than in the early postwar years, the productivity slowdown might be partially explained as a problem with measuring prices. For example, if the pace of changes in quality or the introduction of new goods has accelerated or if the increased share of consumption allocated to services combined with rapid change in the provision of services has caused a larger upward bias in recent decades, then measured growth in productivity would be biased downward more in that period than in the 1950s and 1960s. In addition, as discussed above, the procedures introduced for the CPI in 1978 may have resulted in a greater upward bias in later years. There is no direct evidence, however, that a change in bias has occurred, and in fact some tentative evidence indicates that the bias was greater in the early postwar years. A study of price bias for selected consumer durable goods for the 1947-1983 period indicated a greater upward bias in the 1947-1960 period than in the 1973-1980 period.²

Real Wage Growth

Since the CPI is used as a deflator for measures of real growth in wages, such measures are biased downward by an upward bias in the CPI. Using the

1. Other price indexes that are used to calculate real investment, government spending, and so on may also have biases that affect the measure of real GDP growth, but this paper focuses only on the CPI. See, for example, Mark A. Wynne and Fiona Sigalla, *A Survey of Measurement Biases in Price Indexes*, Research Paper No. 9340 (Dallas: Federal Reserve Bank of Dallas, October 1993).

2. Robert J. Gordon, *The Measurement of Durable Goods Prices* (Chicago: University of Chicago Press, 1990), p. 23.

employment cost index for private-industry workers as the measure of nominal wages, real wages have grown less than 1 percent over the entire 1980-1993 period.³ If the measurement bias was 0.5 percentage points per year in the CPI, however, a better estimate of real growth in wages for that period would be 7 percent. The corresponding figures for real growth in compensation (wages plus benefits) would be 7.6 percent and 14.6 percent.

Poverty

The official definition of the poverty line may also be slightly distorted by a bias in the CPI, though the distortion is probably not significant. The increase in the poverty threshold is based on the increase in the overall CPI. The poverty line for a family of four in 1993 was \$14,763--99 percent above the 1979 level because the CPI increased by 99 percent between 1979 and 1993. If the CPI overstated the change in consumer prices by 0.5 percentage points a year during that period, then the poverty line would have increased by slightly less--about 92 percent--and the level in 1993 (assuming no change in the 1979 figure) would have been \$14,236, not \$14,763.⁴

EFFECT ON FEDERAL OUTLAYS AND REVENUES

Federal outlays and revenues are affected by the reported growth rates of the CPI. The table below shows how an overstatement of 0.1 percentage point in the CPI would affect the federal deficit through 1999. Even a bias of 0.1 percentage point, if it continued for five years, would push up the federal deficit by \$4 billion in the fifth year through its effect on indexed programs and tax brackets. A larger bias would affect the deficit proportionately. A bias of 0.5 percentage points, for example, would imply a \$20 billion effect on the deficit by 1999.

3. The CPI measure that uses a consistent definition of home ownership throughout this period (the CPI-U-X1) was used for these calculations.

4. There are many other reasons to argue that the measurement of the poverty threshold is too high or too low, but this paper is concerned only with the effect of a bias in the CPI.

(By fiscal year, in billions of dollars)

	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>
Personal Taxes	0.2	0.5	0.8	1.3	1.9
Increase in Outlays	<u>0.3</u>	<u>0.7</u>	<u>1.2</u>	<u>1.7</u>	<u>2.3</u>
Increase in the Deficit	0.5	1.2	2.0	3.0	4.2

Social Security accounts for three-quarters of the effect on indexed federal outlays shown in the table. Three other programs together account for about 20 percent of the impact--Supplemental Security Income, Military Retirement, and Civil Service Retirement. The remaining programs included in this estimate are Railroad Retirement, veterans' compensation and pensions, the Federal Employees' Compensation Act, and the retirement programs of the Foreign Service, Public Health Service, and Coast Guard. Programs whose outlays are partially related to subcategories of the CPI--such as food stamps, child nutrition, and Medicaid--are not included in the estimate because a correction for any mismeasurement of the aggregate CPI would not necessarily affect them.

The budgetary effect of any overestimate of changes in the cost of living highlights the possibility of a shift in the distribution of wealth. If the CPI has an upward bias, some federal programs would overcompensate for the effect of price changes on living standards, and wealth would be transferred from younger and future generations to current recipients of indexed federal programs--an effect that legislators may not have intended.

EFFECT ON MONETARY POLICY

A consistent overstatement of changes in the cost of living in the current CPI is unlikely to have much effect on monetary policy. The main reason is that monetary policy is primarily concerned with incremental changes in inflation rather than achieving a particular target for inflation. Therefore, a bias, if it is fairly constant, would not affect policy to any significant degree. Monetary policy may be affected slightly by mismeasurement, however, because an unknown bias creates some uncertainty about inflation. In addition, a bias may affect fiscal policy, which in turn affects monetary policy.

Although monetary policymakers often cite the growth in the CPI as a reason for tightening or loosening monetary policy, they are well aware of the measurement problems. For example, in testimony before the House Committee on Banking, Finance and Urban Affairs on February 14, 1994, the

Chairman of the Federal Reserve Board cited studies that indicated that the CPI probably overstates the increase in the cost of living by at least 0.5 percentage points a year. He also noted that some researchers felt the overstatement was as high as 1.5 percentage points.

Monetary policy's broader view is another reason why it is unlikely to be affected by any bias in the CPI. Policymakers' goals for inflation usually refer to price changes for the entire economy, not just consumer prices, so the CPI is not the only price measure used in formulating policy.

The indexation of federal programs to the CPI may, however, indirectly affect monetary policy slightly by reducing the constituency for curtailing inflation. If recipients of benefit programs are overcompensated because the CPI is biased, it may be more difficult to adopt policies to contain inflation because not only are a large number of people partially insulated from the adverse affects of inflation but some may actually benefit from it.

CHAPTER VI

ISSUES RELATED TO REVISING THE CPI

The Bureau of Labor Statistics plans to introduce some revisions to the consumer price index in January 1995, as well as conduct the customary 10-year revision in 1998. In addition, the BLS may publish an experimental version of the CPI in 1995 that will correct for the sample rotation bias. Given the pending major revisions to the CPI and the development of a new index, some of the issues addressed in this paper are likely to receive a wider hearing in the near future.

Regardless of what decisions are made about revising the CPI or developing a separate cost-of-living index, the credibility of both the process and the final product should be maintained. The CPI is widely used, and a major reason for its acceptance is its quality. A reliable index is needed so that individuals, firms, and the government will be willing to enter into long-term contracts that are indexed for price change. Such contracts enable people to insure against unexpected changes in prices. By reducing that uncertainty, the index allows the economy to function more efficiently and the country to maintain a higher standard of living. Therefore, policymakers should proceed cautiously in mandating changes to the CPI or changes in the formulas used to calculate the index.

PLANS FOR REVISIONS TO THE CPI AND DEVELOPMENT OF AN EXPERIMENTAL INDEX

The BLS will introduce some revisions to the CPI in January 1995 that are likely to reduce bias. One of the revisions addresses the effect of sample rotation on the measurement of food prices. Since most of the sample rotation bias occurs in the months immediately after the rotation, the BLS will delay the use of the food price data from the new sample. This will reduce the sample rotation bias.

The BLS will also revise its procedures for pharmaceutical drugs in January. A greater effort will be made to consider generic drugs as substitutes for patented drugs where appropriate. That could have a major effect on the measurement of changes in drug prices.

The BLS's current plans call for a major revision to the CPI, the regularly scheduled 10-year revision, in 1998. At that time the market basket

will shift to a 1993-1995 base period, and the consumer expenditure surveys for those years will be used to determine the expenditure weights for the 207 major categories of goods and services. The commodity substitution bias will be somewhat smaller after the introduction of the updated market basket, but some substitution bias will probably persist.

The BLS is also considering publishing an experimental CPI, starting sometime in 1995, that would correct for the bias caused by rotating the outlets and items in the sample. Although the January 1995 revisions will address the rotation bias for food, the experimental index would cover other items as well. The experimental index would probably be calculated for a short historical period and then be published monthly along with the existing index.

SHOULD THERE BE SEPARATE INDEXES FOR MEASURING THE COST OF LIVING AND INFLATION?

Changes in the CPI are used as an indicator of changes in both inflation and the cost of living. Although these terms are commonly viewed as synonymous, there are important distinctions. Inflation--persistent growth in the general level of prices--is a more inclusive term. It takes into account the change in a wide variety of prices, not just those for consumer goods. In addition, it does not refer to transitory price changes, changes in relative prices, or a one-time increase in the level of prices.

In contrast, the measurement of changes in the cost of living focuses on how price changes affect consumers' welfare. That index therefore reflects only the prices of consumption goods; it excludes the prices of investment goods, intermediate goods, and goods bought by governments. In order to reflect the changes in welfare, the measure should take into account the way households alter the mix of goods they consume when their preferences change or when they respond to changes in relative prices. Measures of inflation, however, usually measure the change in the price of a fixed basket of goods and services; they do not reflect changes in the mix of expenditures. Finally, a cost-of-living index must include transitory or one-time changes in prices because such changes affect consumers' welfare.

The BLS could, however, develop separate indexes for inflation and changes in the cost of living. The inflation measure would be a fixed-weighted index that would cover more than just consumption items. At a minimum, the index should include the prices that governments pay for goods and services and, perhaps, the prices of some intermediate goods such as

capital equipment. Well-defined transitory price changes or one-time changes to the price level, such as changes in excise taxes, would be eliminated from this measure. The BLS could create an approximation of such a measure with existing data in the national income and product accounts, although the reliance of the NIPAs on the CPI for deflators for consumption goods and services would still be a problem. Also, it may be necessary to examine whether the NIPA deflators for other categories of final demand are properly adjusted for changes in quality.

The separate cost-of-living measure could be a modified version of the current CPI, although the apparently unresolvable questions regarding the treatment of medical care in a cost-of-living index would remain. The cost-of-living measure could try to capture some of the commodity substitution effect by using a moving market basket--perhaps a moving three-year average of weights as determined in the consumer expenditure survey--instead of relying on major revisions every 10 years. More extensive adjustments for changes in quality could be tested and embodied in the index if the results were reliable and generally acceptable.

Having two indexes may, however, cause confusion and reduce the credibility of both. That would be a severe shortcoming, since the credibility of the current process for determining the CPI is a valuable asset.

