Article from:

The Actuary

April 1996 – Volume 30, No. 4

Has the CPI overstated inflation?

How the bias affects Social Security

by Howard Young

How would you answer the following questions?

If the Consumer Price Index (CPI) has overstated inflation:

- Is correcting it likely to reduce future wage rates?
  ☐ Yes
  ☐ No
- Is correcting it likely to reduce future interest rates?
  ☐ Yes
  ☐ No

It is expected that the Social Security Advisory Council's report will be affected by anticipated changes in the CPI to be made by the Bureau of Labor Statistics (BLS). This brings us to the next question:

- What impact would the CPI correction have on Old-Age, Survivors and Disability Insurance (OASDI) costs?

To try to answer these questions, first let's examine the background of the CPI.

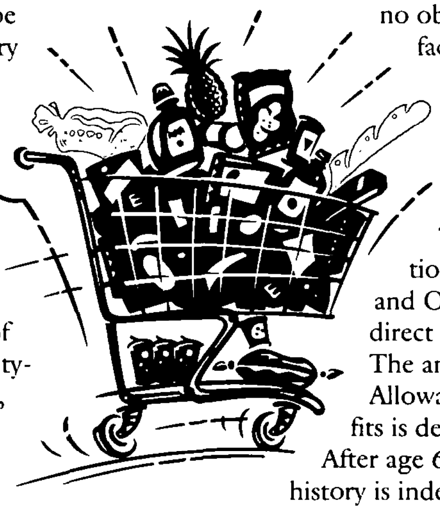
The bias

The CPI tries to measure changes in the cost of an essentially a) fixed "market basket" of goods and services as they are actually priced in b) typical retail outlets, with adjustment for c) quality changes. Each of these aspects of the measurement creates difficulties for those calculating CPI, in addition to their having to collect and combine a vast amount of data each month.

Consumers change their mix of purchases as prices change. They substitute cheaper items for those of comparable quality. Therefore, some argue that using a fixed market basket overstates the effect of items that have higher inflation. Critics note, however, that reasoning is circular when reported inflation is affected by changes due to inflation.

The attempt to collect prices at typical retail outlets creates other difficulties, especially when new outlets are included in the sample. For example, an outlet often is added because it has captured market share by offering discount prices, e.g., Walmart. By the time that outlet is added to the sample, usually in place of some competitor, it can be established well enough to narrow its discounts. That process is considered technically different from "true inflation," but is not measured separately.

Quality changes may be the most understandable part of the inflation overstatement issue. Clearly, replacing an item with a similar but more expensive one should not be considered inflationary if the new item has much better quality. The problem is that quality is hard to quantify, especially when services are involved. Also, often there is a mix of inflationary and quality-related price changes, as in new model cars with new standard features.



Determining the CPI

The BLS revises the CPI calculation method over time, principally by periodically updating the market basket mix. However, partly because of lack of funds, the BLS revises the mix only once a decade. Some claim that this leads to an ongoing tendency to overstate inflation. Another bias comes from the way in which the formula combines the wide variety of data to produce the index. Increased computer resources are expected to correct for that soon and to reduce the index by 0.15 to 0.5 points.

Estimates of the aggregate amount of overstatement from all sources after the correction of the formula bias range from 0.2 to as much as 2 percentage points annually. Most estimates, however, tend toward the lower end of this range.

Actuaries may think that determining inflation rates accurately is like improving mortality measurement: use more accurate data and more careful procedures. However, there is a very important difference. Mortality rates provide a measure of objective facts (deaths and exposed lives), whereas inflation is only a measurement with no observable objective facts. Thus, reported inflation depends on its definition and on the procedure used.

The effects of the bias

Turning to the relationship between the CPI and OASDI, two effects are direct and unambiguous. The annual Cost of Living Allowance (COLA) for benefits is determined by the CPI. After age 62, an individual's wage history is indexed by the CPI, rather than by the average wage index.

Other effects, such as nominal wages and interest rates, are indirect. Although "real" or "constant dollar" values (net of inflation) are conceptually important, actual experience can only be evaluated in nominal dollar terms.

Actuaries are used to the building–block method of developing wage and interest rate assumptions. Therefore, they might conclude that CPI revisions would flow through to nominal values and respond "yes" to the questions posed at the beginning of this article.

(continued on page 6)

Editorial (continued from page 2)

plan and its costs. They were expert in national savings, taxes, annual budgets, and the government debt. They were interested and skilled in theories to maintain adequacy by redistribution for lower-earning workers from middle- and higher-earning workers. And they were knowledgeable about how to use Social Security to solve other governmental problems, such as the deficit. They were less interested or skilled than actuaries in developing plan specifications to provide the best benefits and values at a given contribution ratio.

Recently, in a *New York Times* column by Peter Passell, the economists were criticized as not being very scientific because of their models' failure in predicting the behavioral consequences of government actions. This criticism is related to the demise of the Keynesion theories and to the rise of market theories. To my knowledge, actuarial science has been applauded for the accuracy in its models, especially where the assumptions are well-selected.

The important projections and values in Social Security still come from colleagues in the Office of the Actuary. Their work is done on models and with methods that we could all agree upon. Actuaries and others on the technical panels made suggestions that stochastic projections be added to the traditional analysis. Both technical panel reports are available on the Internet at http://www.ss.gov. The final report will be available there too.

These Assumptions and Methods Panel recommendations are likely to be included in the 1994-95 council's report:

- Research and analytical capabilities in the Social Security Administration should be enhanced, both internally and with outside consultants.
- Private researchers should be granted more access to Social Security data.
- A technical panel of experts should be convened at least every five years to review the assumptions and methodology used to evaluate the financial status of the system.

Of paramount concern to actuaries is the standard that the 1994-95 council used to judge the actuarial condition of the OASDI program. The past standard was to look at a 75-year projection. This time, another requirement was added: the fund flows must be stable at the end of the 75 years. This means that the rates needed to balance the system, starting in 1996, would be 2.4% of payroll, not 2.1% over 75 years as in the 1995 Trustee's report. This increase is related to the year-by-year effect of the dependency ratio that causes the next year added to the forecast not to be as favorable as the year dropped. The dependency ratio is worsening gradually because of improving life expectancy and the low birth rates.

Many alternatives to correct the projected actuarial deficit in the present OASDI program are possible. Drastic measures are not necessary, but prompt action will make the solution easier. For example, adjustments in the growth of benefits can be made gradually over 75 years without decreasing the real dollar benefit for new retirees or present retirees. The country can continue to provide a defined benefit system along its historic lines if it chooses.

Editor's Note: *We welcome Marc Twinney as a new associate editor of* The Actuary. *He takes the place of Mary Hardiman Adams, who served as an associate editor from 1989 through 1995. She filled a special role on the editorial board, keeping readers informed of pension issues while working at Buck Consultants. After her retirement in 1992, she remained an active volunteer for the SOA, the Conference of Consulting Actuaries (past president), the American Academy of Actuaries, and the Actuarial Standards Board. We owe Mary our thanks for her long service and her often provocative editorials.*

Marc Twinney was director of pensions at Ford Motor Company until his retirement in 1995. He is on the Pension Research Council of the Wharton School and is associate editor of its 1996 publication, Positioning Pensions for the 21st Century. *He also has served on the Board of Directors of the Academy and has been active in Washington industry groups since the early days of ERISA.*

CPI (continued from page 4)

However, many economists point out that the real value trends would also be affected. This is because real values cannot be objectively determined. In fact, historical real values are simply nominal values adjusted by reported inflation. If inflation has been overstated in the past, then the real values have been correspondingly understated. Therefore, if it is assumed that future inflation will be decreased solely due to CPI revision, real values might be correspondingly increased without affecting the nominal value projections.

Wage levels expected and offered, as reflected in the supply and demand for labor, are influenced by productivity estimates. The latter reflect the Gross Domestic Product (GDP) deflator, another inflation measure that also is believed to be overstated. Therefore, if employers, employees, and unions have considered overstated inflation and understated real values in arriving at nominal wages, then revising reporting procedures should adjust both components and have little effect on future nominal values.

Although the same logic may apply

(continued on page 14)

Research Corner (continued from page 12)

The Committee on Retirement Systems Research selected Kathleen Elder and Laxman Hedge of Frostburg State University as researchers for the Pension Plan Mortality Study. As of mid-March, 18 contributors had submitted data for approximately 75 plans. Additional data is expected.

Ph.D. grants

The Society of Actuaries and Casualty Actuarial Society sponsored the 6th annual Ph.D. Grants Competition. The purpose of the grants is to encourage graduate students to complete research on topics related to actuarial science and to pursue an academic career in North America. Application materials are being evaluated, and recipients will be notified by June 14, 1996.

Experience studies analysis

The Research Department is pleased to announce that Brother Donald Kelly, Ph.D., is working in the SOA office on a contract project assignment from February 1 through June 28, 1996. Brother Kelly is on sabbatical from his position as assistant professor of mathematics at Marist College in Poughkeepsie, New York. He will be working with Jack Luff, SOA experience studies actuary, to identify and analyze technical issues involved in conducting studies of experience data. His recommendations may also identify alternate methods for conducting the studies.

Modeling

An ad hoc group has been formed to investigate and stimulate research on modeling. The members are Allan Brender, Shane Chalke, Curtis Huntington, Roger Smith, and Irwin Vanderhoof. The group wants to first collect a list of modeling issues or questions that actuaries would like to have investigated. Input regarding modeling issues or questions to be investigated should be directed to the Research Department.

Actuarial Principles

The SOA Committee on Actuarial Principles is working with the CAS in an effort to develop a joint statement of general principles.

Keep in touch with research

Remember to check Actuaries Online, the SOA's electronic bulletin board, for requests for proposals, research reports, project status reports, and other research information or contact the Research Department at the Society's office.

Pension Research Council Conference in May

Several actuaries will be participating in panels at the "Living with Defined Contribution Plans" conference sponsored by the Pension Research Council, the U.S. Department of Labor's Pension and Welfare Benefits Administration, and the University of Pennsylvania's Center for Research on Aging. The conference is May 2-3, 1996, at The Wharton School, University of Pennsylvania. For more information, call Kirk Hitesman, 215/898-7620 or e-mail hitesmak@wharton.upenn.edu
Two 1996 titles now available from the University of Pennsylvania Press (1-800-445-9880) are *Securing Employer-based Pensions: An International Perspective* and *Positioning Pensions for the 21st Century.*

CPI (continued from page 6)

to interest rates, investors may seek some independently established real rate of return. If past nominal returns were influenced by that goal, plus some expectation based on reported inflation rates and risk factors, lower reported inflation may induce lower nominal interest rates.

In any event, for OASDI, the most significant projections are the annual cost rates (expenditures/taxable payroll). Those are inversely related to the assumed real wage increases. If, as economists suggest, reducing reported inflation will not change nominal wage rates, then real wage increases will be higher, and future cost rates will be lower than previously assumed in the Budget estimates and OASDI Trustees' Reports. The Advisory Council has used that approach in developing estimates for comparing various proposals.

A final comment

The distinction between improving the CPI versus basing the COLA on some arbitrary formula adjustment to the CPI (e.g., CPI-x) is important. The latter could only coincidentally produce the correct adjustment to preserve purchasing power. Also, an improved, and presumably lower, CPI would yield more realistic, and presumably higher, real wage data and a better measure of the affordability of Social Security.

Howard Young is adjunct professor at the University of Michigan, Ann Arbor, and was chair of the Advisory Council's Assumptions and Methods Panel. He can be reached by e-mail at hyoung@umich.edu

IN MEMORIAM

Neil Thomas P.W. Malley
ASA 1974, FIA 1971, FIAA 1971

Jack L. Rowland
ASA 1953, MAAA 1966

Robert C. Steiner
FSA 1968, MAAA 1968, FCA 1975