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Social Security and the Consumer Price Index for the Elderly
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Some argue that social security benefits should be adjusted using a price index that reflects the spending habits of the elderly rather than those of workers. This study suggests that if such an index were adopted today, over the next forty years benefit levels would increase and the social security trust fund could become insolvent up to five years sooner than projected.

Social security benefits, paid monthly to almost 30 million Americans, are automatically adjusted for inflation once a year. The goal of this cost-of-living adjustment is to prevent a decline in the purchasing power of retirees' benefits. Under the current system, the adjustment is tied to changes in the consumer price index (CPI), the benchmark measure of inflation produced by the Bureau of Labor Statistics (BLS).

In recent years, the indexing of social security benefits to the CPI has come under considerable scrutiny. Many policymakers and academics have argued that the CPI overstates price changes for individual goods and services,[1] while others have questioned the techniques used to combine these changes into an aggregate measure. In this edition of *Current Issues*, we examine another, less frequently discussed weakness of the indexing procedures—the linking of benefit changes to price movements that affect the working population rather than retirees.

Currently, adjustments to social security benefits are based on the CPI-W, a measure that captures price changes in the average set of goods purchased by urban wage earners and clerical workers. The purchasing patterns of the typical retiree differ significantly, however, from those of the typical worker: Medical care, for example, constitutes a much larger share of total expenditures for seniors.

Mindful of these differences, some have urged that social security benefits be adjusted using a price index that captures the spending habits of older Americans.[2] Since the early 1980s, the BLS has calculated such an index: the consumer price index for elderly consumers (CPI-E). This experimental index has never been used to adjust benefits, however, and while several congressional bills have been put forward on the subject, none has passed.[3]

Our analysis addresses a simple question: How would adoption of the CPI-E to index social security benefits affect the level of benefits paid and the resources of the social security trust fund, which finances the benefits that seniors receive? Our calculations suggest that introduction of the CPI-E would present policymakers with a serious trade-off: By choosing to maintain the purchasing power of

seniors over time, they would accelerate the projected insolvency of the social security trust fund, known officially as the Old-Age and Survivors Insurance (OASI) trust fund.

We find that between 1984 and 2001—the years for which data are available—annual inflation under the CPI-E was on average 0.38 percent higher than it was under the CPI-W, with medical care accounting for much of the difference.[4] Accordingly, we estimate that if the CPI-E had been adopted in 1984, the average benefit in 2001 would be 3.84 percent higher, or roughly $408 more per year per recipient. Our calculations also reveal that if the index were adopted today, the OASI trust fund could become insolvent five years sooner than the currently projected 2043, provided that inflation for the elderly continues to exceed inflation for workers at the average annual rate observed between 1984 and 2001.

Differences between the CPI-W and the CPI-E

If inflation rates under the CPI-W and CPI-E tended to coincide in any given year, then the economic implications of switching to the CPI-E would be minimal. However, as Chart 1 illustrates, important differences do exist.[5] Most significantly, for all years in our data except 1999, CPI-E inflation was higher than CPI-W inflation, with an average annual difference of 0.38 percent. It is worth noting that this difference was higher in the early period of our sample than in more recent years. Specifically, in the 1984-93 period, it was 0.50 percent, and in the 1994-2001 period, 0.22 percent.

The underlying reason for these differences can be found largely in the weights of the major goods categories that make up each index—weights that represent the share of total expenditures that each category constitutes (see table). Housing represents a much larger weight for the elderly, 45.9 percent, than the 37.6 percent for urban workers. Similarly, medical care makes up 10.24 percent of the CPI-E, compared with 5.06 percent of the CPI-W. Each of the other major categories has a smaller weight in the CPI-E—in fact, transportation, education, and food have substantially smaller weights for the elderly.

To identify the categories most responsible for the difference in inflation under the two indexes, we recalculate for each category what the difference would have been if that category had been excluded from both indexes. These counterfactual differentials help explain which categories increase and which diminish the CPI-E–CPI-W difference.

Chart 2 presents our results. The bar corresponding to each category represents the counterfactual CPI-E–CPI-W differential that results from excluding only that category from each index. Note that by excluding any category that increases the CPI-E–CPI-W differential, we obtain a counterfactual difference that is smaller than the currently observed average of 0.22 percent. Likewise, the exclusion of any category that decreases the difference gives a counterfactual that is larger than the actual difference.

From the chart, we see that housing, apparel, medical care, recreation, and transportation have increased the CPI-E–CPI-W differential between 1994 and 2001. As expected, medical care is the largest single contributor to the difference, owing to the fact that seniors spend more on this category than do workers and that medical care has experienced much higher than average inflation over our sample period. The same is true for housing. Apparel, transportation, and recreation, however, are categories with below-average inflation, upon which seniors spend less in

Chart 1
CPI-W Inflation, CPI-E Inflation, and the Difference
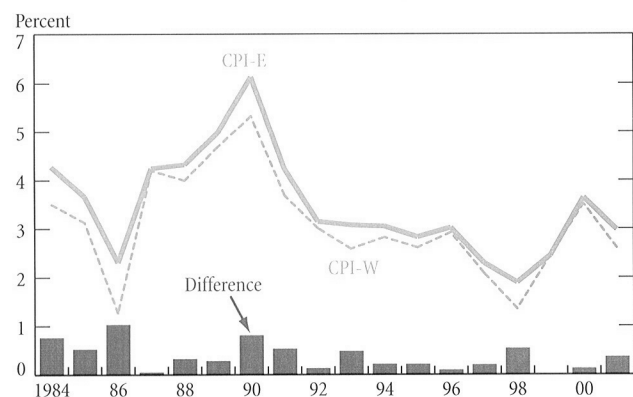
Sources: U.S. Department of Labor, Bureau of Labor Statistics; authors' calculations.

Note: CPI-W is the consumer price index for urban wage earners and clerical workers; CPI-E is the consumer price index for elderly consumers.

Relative Importance Weights of Major Expenditure Categories in the CPI-W and the CPI-E, 2001

Category	CPI-W	CPI-E
Food	17.91	14.32
Housing	37.64	45.94
Apparel	3.97	2.77
Transportation	18.89	13.81
Medical care	5.06	10.24
Recreation	5.34	4.36
Education	5.09	2.98
Other	6.09	5.59

Source: U.S. Department of Labor, Bureau of Labor Statistics.

Note: CPI-W is the consumer price index for urban wage earners and clerical workers; CPI-E is the consumer price index for elderly consumers.

Chart 2
Counterfactual Differentials for CPI-E–CPI-W Inflation
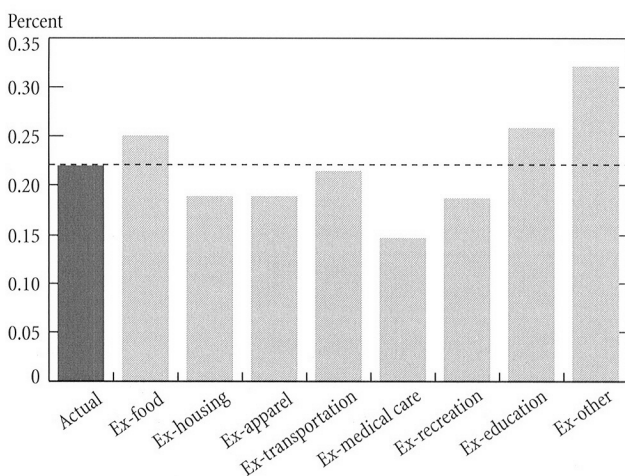
Sources: U.S. Department of Labor, Bureau of Labor Statistics; authors' calculations.

Notes: The value for each category represents the hypothetical CPI-E–CPI-W differential calculated by excluding that category. Figures are annual averages for 1994 to 2001, the only years for which we have disaggregated CPI-E data. CPI-W is the consumer price index for urban wage earners and clerical workers; CPI-E is the consumer price index for elderly consumers.

general than do workers. It follows, then, that these categories increased the CPI-E–CPI-W differential.

Conversely, the categories education, food, and other (made up largely of tobacco products) tended to reduce the difference between the indexes. Education did so primarily because the typical senior spends less than the typical worker on college tuition, which has experienced above-average inflation since 1994. The same holds true for "food away from home" and cigarettes, which are components of food and other, respectively: both are higher inflation goods upon which seniors spend less.

Maintaining the Purchasing Power of Seniors
The differences between the CPI-W and the CPI-E clearly have implications for social security recipients. We contend that adoption of the CPI-E would increase benefits in times of above-average inflation for seniors. But by how much would they actually increase?

This question is apt to be of interest to policymakers as well as to current and future social security recipients, because the answer will suggest just how significant the benefits of CPI-E adoption will be relative to the costs. That is to say, although in theory it is worthwhile to ensure that the real value of benefits remains constant over time, in practice it is also important to confirm that declines in the real value of benefits are, or could be, substantial before a

new index is employed. Differences each year of a few cents per beneficiary, for example, likely would not justify the costs to the BLS and the Social Security Administration (SSA) of calculating the CPI-E and readjusting benefits.[6]

We argue that increases in benefits resulting from CPI-E indexation would in fact be significant. This assertion is based on our calculation of what average OASI benefits would be today if the index had been adopted in 1984, our first year of data. We find that overall, benefits in 2001 would have been 3.84 percent higher. This percentage corresponds to an average monthly benefit of $912, as opposed to the current $878, which sums to $408 annually per beneficiary.[7] Thus, assuming that the CPI-E reasonably represents the spending patterns of the elderly, seniors have experienced a nontrivial drop in their spending power since 1984.

The Effect of CPI-E Indexation on the Social Security Trust Fund
The OASI trust fund, operated by the Social Security Administration, is projected to become insolvent in 2043 because of the prospective aging of the U.S. population.[8] It is therefore important to consider the effect that adoption of CPI-E indexation might have on the fund's future resources.

If inflation continues to be higher for the elderly than for workers, introduction of the CPI-E now would no doubt speed up insolvency. Accordingly, the question we address is, When would the OASI trust fund become insolvent if indexation were to begin today? To answer this question, we consider three possible scenarios for the fund, each with a different assumption about future differences in inflation for the CPI-E and the CPI-W.

The Social Security Administration arrives at its current estimate of fund insolvency by assuming, among other things, that future inflation will be 3 percent each year. We take this to be the SSA's best estimate of future inflation under CPI-W indexation, or equivalently, its best estimate of inflation under CPI-E indexation assuming no future difference in the CPI-E and the CPI-W. Our analysis compares this 3 percent scenario with two others. We consider when insolvency would occur assuming future inflation rates of 3.38 percent and 3.22 percent per year—figures projected by the SSA that correspond to inflation rates for the elderly that are 0.38 and 0.22 percent higher, respectively, than the current 3 percent rate under the CPI-W.[9]

For consistency with the SSA's forecasts, we report these projections by incorporating several of the agency's terms: the income rate, the cost rate, and the trust fund ratio. The income rate is defined as the fund's payroll tax receipts expressed as a percentage of the taxable payroll. It is essentially

the average payroll tax rate faced by contributors to the fund. For example, the income rate of the OASI trust fund in 2001 was 10.88, indicating that the average earner paid 10.88 percent of his or her salary in taxes to the fund. The cost rate consists of trust fund outlays expressed as a percentage of the taxable payroll. As long as the income rate exceeds the cost rate, tax receipts will exceed outlays and the fund will accumulate assets. However, when the cost rate exceeds the income rate, the fund's asset holdings will be diminished whenever the interest income from the assets does not cover the gap between spending and tax receipts.

Chart 3 presents the income rate and the projected cost rates under our three scenarios of future inflation rates. The implicit assumption behind these scenarios is that CPI-E indexation will affect projected OASI outlays but not projected tax receipts. Therefore, the projected income rate according to our scenarios coincides with the rate projected by the Social Security Administration.[10] What differs under the three scenarios is the projected cost rate.

Worth noting from Chart 3 is that according to the current 3 percent projection of inflation, the fund would start running a deficit in 2018. Under each of the other two scenarios, the fund would begin to operate at a deficit in 2017. Not evident from the chart, however, is the more important question of when the trust fund will become insolvent.

To answer this question, we introduce another key term used by the Social Security Administration: the trust fund ratio. The ratio expresses the OASI trust fund's level of asset holdings at the end of the previous year as a percentage of the current year's outlays. For example, a trust fund ratio of 247 in 2001 indicates that asset holdings at the end of 2000 were 2.47 times expenditures in 2001. This means that without additional income and at 2001 expenditure levels, the trust fund would remain solvent for another 2.47 years. A trust fund ratio of zero indicates that the fund would not be able to make any expenditures without additional income— the point at which we consider insolvency to occur.

The projected trust fund ratios under our three future inflation rate scenarios are depicted in Chart 4. The chart shows that the current projection for fund insolvency is 2043, which is equivalent to the scenario of adopting the CPI-E and experiencing no future difference in CPI-E and CPI-W inflation. Under the other two scenarios, however, this date will come sooner. When inflation for seniors is 0.22 percent higher each year, we estimate that the fund will become insolvent in 2041—two years earlier than currently projected. When it is 0.38 percent higher per year, we estimate that insolvency will occur in 2038—five years earlier.

Because the difference between inflation for seniors and for workers was lower in the later part of our sample period, it seems reasonable to consider the 0.38 percent difference for the entire period as an upper bound on the future difference between the two indexes. Thus, our estimate of CPI-E indexation accelerating OASI insolvency by five years can likewise be thought of as an upper bound. Similarly, because seniors experienced higher inflation in all but one of the past

Chart 3
OASI Trust Fund Cost Rates and Income Rate with CPI-W and CPI-E Indexation of Benefits
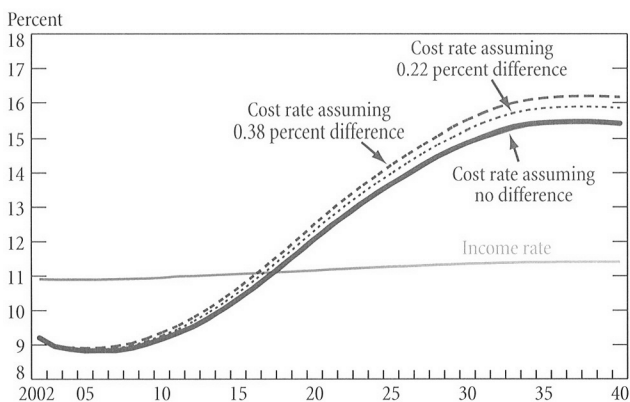
Sources: Social Security Administration; authors' calculations.

Note: OASI is Old-Age and Survivors Insurance; CPI-W is the consumer price index for urban wage earners and clerical workers; CPI-E is the consumer price index for elderly consumers.

Chart 4
OASI Trust Fund Ratio with CPI-W and CPI-E Indexation of Benefits
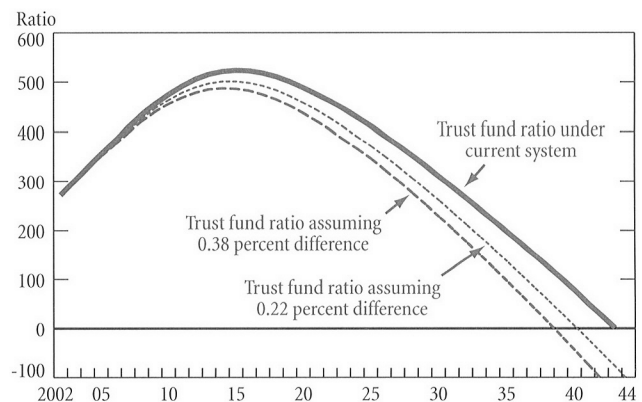
Sources: Social Security Administration; authors' calculations.

Note: OASI is Old-Age and Survivors Insurance; CPI-W is the consumer price index for urban wage earners and clerical workers; CPI-E is the consumer price index for elderly consumers.

eighteen years, our assumption of zero higher inflation for them in the future can reasonably be thought of as a lower bound. Therefore, our estimate of insolvency two years sooner—derived from the later years of our sample data—offers our best approximation for the future, given recent trends.

Limitations of Our Study

Our analysis has several limitations that warrant addressing. For one, it is unclear just how accurate our measurements of inflation for seniors are, since the BLS acknowledges that the sample of older Americans associated with the CPI-E is small.[11] Thus, the weights used to calculate the index are potentially inaccurate, suggesting that our observed average difference in inflation of 0.38 percent is inaccurate as well. Even so, it is unlikely that our fundamental observation—that seniors have experienced higher than average inflation—is inaccurate, since much of the higher inflation for seniors is attributable to medical care, an observation that we know to be reasonable. Correcting for the small sample might affect the magnitude of the difference somewhat, but in all likelihood it would not affect the sign of the difference.[12]

A second limitation is the scope of the CPI-E sample. The sample now consists of persons sixty-two and older, whereas OASI benefits are paid to many spouses and other, younger relatives of former beneficiaries, as well as to the retirees. There is no reason to believe that the relatives of former beneficiaries, particularly the younger ones, have expenditure patterns that match those of people sixty-two and older. Furthermore, not everyone sixty-two and older actually receives OASI benefits, although these individuals could be included in the CPI-E sample.[13]

Third, even if the CPI-E accurately measures the cost of living for OASI beneficiaries, our specific estimate of trust fund insolvency might still be high. This is because the Social Security Administration already predicts a higher rate of inflation for future benefit adjustments, 3.0 percent per year, than the roughly 2.5 percent experienced in the past two decades. Thus, if current inflation trends continue, future benefits forecasted by the Social Security Administration would be too high. This scenario implies that the point of insolvency would be later than currently predicted, both for the SSA's estimate using the CPI-W as well as for ours using the CPI-E.

Finally, our estimate does not incorporate the effect that expected higher benefits might have on retirement decisions. If the CPI-E was adopted, more people might retire at sixty-two instead of sixty-five. Such early retirements presumably would increase the burden on the OASI trust fund, which could bring about insolvency even sooner. Indeed, it is unclear just how prevalent this phenomenon would be, and, more significantly, how much it would burden the fund. A detailed examination of this subject would certainly be worthwhile.

Owner's Equivalent Rent and Indexing

Ideally, any index chosen to adjust cash benefits for inflation should reasonably represent the out-of-pocket cost of living of recipients. That is to say, as this cost varies over time, the changes should be reflected in the index to ensure that the purchasing power of benefits remains constant.

In this regard, a complication arises when benefits are adjusted according to any index that includes owner's equivalent rent, because an increase in this housing component does not really reflect an increase in the out-of-pocket cost of living of beneficiaries. Rises in owner's equivalent rent are caused by increases in the amount that owned units would rent for if they were rented rather than owned. This amount, which is estimated by the Bureau of Labor Statistics, can be interpreted as the implied rental price that a homeowner pays for his or her house. However, as opposed to other goods and services, when owner's equivalent rent rises, owners receive immediate compensation for this rise in what

might be called "owner's equivalent rental income." Therefore, further compensation is not needed to maintain the purchasing power of benefits. Because owner's equivalent rent constitutes a major part of the consumer price index for urban wage earners and clerical workers (CPI-W) and the consumer price index for elderly consumers (CPI-E), basing social security benefits on either index can erroneously compensate beneficiaries, at least partially.

This complication suggests that even if the CPI-E is more accurate than the CPI-W in capturing the inflation experience of the elderly, it is far from an ideal measure by the owner's equivalent rent standard. Thus, if one could justify switching to the CPI-E by arguing that it captures the cost of living of social security beneficiaries more effectively, by the same logic one could also consider using yet a third index—one that treats housing expenditures in a different way.

Conclusion

It is widely acknowledged that the social security system is likely to run into serious funding problems—up to and including insolvency—sometime in the middle years of this century. This analysis considers the implications to the system and to retirees of basing cost-of-living adjustments to benefits on a consumer price index for elderly consumers, rather than on the current index for workers.

We find that inflation as measured by the index for the elderly has been consistently higher than inflation as measured by the index for wage earners, with a 0.38 percent average annual difference since 1984. Much of the difference can be attributed to medical care, which constitutes a much larger share of total expenditures for the typical senior.

Accordingly, we estimate that if inflation for the elderly continued to be higher than inflation for workers, and if reindexing of benefits were to start today, the effect over the next forty years would be to increase social security expenses and move the trust fund as much as five years closer to insolvency than currently projected. The actual outcome would depend on how persistent higher inflation for seniors is in the future. The trade-off facing policymakers, therefore, is between prolonging the solvency of the social security trust fund and maintaining the purchasing power of seniors over time.

Notes

1. See Lebow and Rudd (2003) for a recent study.

2. See, for example, Boskin et al. (1996).

3. See National Commission on Social Security (1981) and U.S. House (various years). For one perspective on CPI-E legislation, visit <http://bernie.house.gov/seniors/cpi-e.asp>.

4. The inflation rates we refer to throughout the analysis are the percentage changes in third-quarter price index levels from one year to the next. This definition reflects the same methodology used to compute the yearly cost-of-living adjustment to social security benefits.

5. We thank Ken Stewart and Steve Reed of the Bureau of Labor Statistics for providing the historical CPI-E data and the CPI-E expenditure weights.

6. Note that if the CPI-E was adopted, the BLS would face higher costs associated with calculating this index, because the sample of seniors would have to be enlarged considerably from the relatively small sample upon which the CPI-E is currently computed. See Amble and Stewart (1994) for more information.

7. Since 1984, cumulative inflation for the CPI-E was 7 percent higher than it was for the CPI-W. However, most current OASI recipients began to get benefits at some point after 1984. In addition, average benefits vary substantially across age groups of recipients. Our calculation of 3.84 percent makes use of the current age distribution of beneficiaries, the average level of benefits for each age group, and the assumption that all current retirees began receiving benefits at age sixty-two.

8. See Social Security Administration (2002) for the actuarial details behind the projection. Groshen and Klitgaard (2002) review the effect of an aging population on the public finances underlying retirement benefit systems in the United States and in other countries.

9. We thank Jason Shultz and Seung An of the Social Security Administration for providing the SSA's projections under these scenarios, which coincide with the projections that we derive from our data sample.

10. Throughout, we compare our results with the SSA's projections using the agency's set of "intermediate assumptions" for demographic and economic developments. The assumptions are explained in greater detail in Social Security Administration (2002).

11. See Amble and Stewart (1994).

12. Our analysis ignores measurement errors in the CPI-W and CPI-E along the lines explained in Lebow and Rudd (2003). Even if one believes that the various CPIs overestimate inflation, our article is still useful as an analysis of the sensitivity of OASI trust fund financing to changes in the rate of benefit increases when the cost-of-living adjustment is altered.

13. See Amble and Stewart (1994).

References

Amble, Nathan, and Kenneth Stewart. 1994. "Experimental Price Index for Elderly Consumers." Bureau of Labor Statistics *Monthly Labor Review* 117, no. 5 (May): 11-6.

Boskin, Michael, Ellen Dulberger, Robert Gordon, Zvi Grilliches, and Dale Jorgenson. 1996. "Toward a More Accurate Measure of the Cost of Living." Final report to the Senate Finance Committee, December 4.

Groshen, Erica L., and Thomas Klitgaard. 2002. "Live Long and Prosper: Challenges Ahead for an Aging Population." Federal Reserve Bank of New York *Current Issues in Economics and Finance* 8, no. 2 (February).

Lebow, David E., and Jeremy B. Rudd. 2003. "Measurement Error in the Consumer Price Index: Where Do We Stand?" *Journal of Economic Literature* 41, no. 1 (March): 159-201.

National Commission on Social Security. 1981. "Social Security in America's Future." Final report, March.

Social Security Administration. 2002. *2002 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds*. Washington, D.C.

U.S. House. 1987. *A Bill to Provide for a Study Relating to a Consumer Price Index for the Elderly*. Bill introduced to the U.S. House of Representatives. 100th Cong., H.R. 2561. May 28.

———. 1999. *Consumer Price Index for Elderly Consumers Act*. Bill introduced to the U.S. House of Representatives. 106th Cong., H.R. 1422. April 14.

———. 2001. *Consumer Price Index for Elderly Consumers*. Bill introduced to the U.S. House of Representatives. 107th Cong., H.R. 2035. May 25.