S. HRG. 104-881

SOCIAL SECURITY ADVISORY COUNCIL REPORT

HEARING

BEFORE THE

SUBCOMMITTEE ON SOCIAL SECURITY
AND FAMILY POLICY

OF THE

COMMITTEE ON FINANCE
UNITED STATES SENATE

ONE HUNDRED FOURTH CONGRESS

SECOND SESSION

MARCH 25, 1996

Printed for the use of the Committee on Finance

U.S. GOVERNMENT PRINTING OFFICE
45-870—CC WASHINGTON : 1998

For sale by the U.S. Government Printing Office
Superintendent of Documents, Congressional Sales Office, Washington, DC 20402
ISBN 0-16-056186-8

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MONDAY, MARCH 25, 1996

U.S. SENATE,
SUBCOMMITTEE ON
SOCIAL SECURITY AND FAMILY POLICY,
COMMITTEE ON FINANCE,
Washington, DC.

The hearing was convened, pursuant to notice, at 10:05 a.m., in room SD–215, Dirksen Senate Office Building, Hon. Alan K. Simpson (chairman of the subcommittee) presiding.

Also present: Senators Moynihan and Breaux.

OPENING STATEMENT OF HON. ALAN K. SIMPSON, A U.S. SENATOR FROM WYOMING, CHAIRMAN, SUBCOMMITTEE ON SOCIAL SECURITY AND FAMILY POLICY

Senator SIMPSON. I am very pleased to convene this hearing of the Subcommittee on Social Security and Family Policy. Today we will be hearing from voting members, as well as technical experts, of the Social Security Advisory Council. The Advisory Council, as most know, is scheduled to release its final recommendations next month.

Certainly, ordinarily, we might await that report, yet there has already been considerable public discussion and debate of the proposals the members have put forward. Because of this, we have asked various Advisory Council members whether they would be willing to discuss their findings in this preliminary way with us. I am very pleased they have been so very responsive and so very helpful in that.

Let me, first, thank my fine friends, Ranking Member John Breaux of the subcommittee, who is very loyal in the cause, and the Ranking Member of the full committee, a man who has been a mentor of mine for my entire time in the U.S. Senate, Senator Moynihan, for their diligent attention to this great concern of mine, and theirs.

I appreciate that, because in years past you could hold a hearing like this in a bowling alley at 3 a.m. and it would look like that, and sometimes it does here, actually. But, nevertheless, I know that many would prefer to wait to hold hearings until the Council's report is finally published.

But, given that the television news networks, the print media, and most everyone else seems to be voicing opinions about the Advisory Council's work, I thought it highly appropriate and impor-

tant that this subcommittee provide a forum for the Council to begin to tell its story in some detail.

So, I do thank my colleagues for their indulgence of the urgency which I have personally and persistently continued to attach to these matters. Of course, at year's end I will simply leave them to do all the heavy lifting and move on to the realm of academia. Yes. Well, that is another story.

The Social Security Council was appointed in 1994 by Health and Human Services Secretary Donna Shalala. It is charged to study and make recommendations to shore up the long-range financing of Social Security, to address issues regarding the adequacy and equity of the Social Security program, and to review the roles of both the public and the private sector in the retirement planning for our senior citizens.

The Advisory Council consists of 13 members, a bipartisan panel with highly respected members, representing business, labor, self-employed, and persons who are involved with public and private pension policy. Members of the Advisory Council have been working for 2 years to craft recommendations to ensure a stable future for the country's largest, and obviously I think the most popular, entitlement program.

I salute all the members of the Council. They have an extremely tough job to do. I know a bit of what their task may have been like, having served on the President's bipartisan Commission on Entitlement Reform, along with Senator Moynihan.

I feel as though I have been through something similar to your experience. We would hope that your findings would not be ignored, as were so many of the Commission's recommendations, of Senator Danforth and Senator Kerrey.

Social Security has been called the third rail of American politics. Past efforts to ensure the long-term stability of the system have brought howls and cries of protest, wolf-like, we would say in Wyoming.

Seniors' organizations—today's beneficiaries have a very generous Social Security system—descend on the Congress accusing members of reneging on the promises of Social Security. The cry is, breaking the promises made.

Too many of these organizations have been resistant to any changes at all in the system, even those necessary to keep it alive. Social Security has played an immense role in keeping today's seniors out of poverty; we all recognize that. In fact, senior citizens today have the lowest rate of poverty among the elderly in our history. Thus, we have an essential obligation to see that it does the same for future retirees.

Let me state so clearly again, because many citizens last time chose not to hear it, changes in the Social Security program must be prospective from this day forward whenever we do whatever we do. Prospective in nature.

All promises to current recipients and those who are nearing retirement age will be fully kept. I do not know how you can state that any more clearly. We all realize, any changes which affect benefit levels must be gradual so that individuals may plan around them. Some of you have indicated that clearly.

However, we must start the dialogue now, just start. Changes in the system are inevitable. Without change, by 2031—some say 2029, 2030; it does not matter if the train is going 98 miles an hour or 97—there will be no money left in the system to pay today's younger workers, even if we were to save every single penny of the non-existent trust fund.

In just 17 years, but the year 2013, the amount of dollars going out to pay for benefits will exceed the money coming into the system. In other words, the benefits will not be there unless we raise payroll taxes again, worsening the deal for workers who already stand to get far less than their money's worth out of the program. Those are key words, money's worth, and some will testify on that.

Today's tax dollars, the 15.3 payroll tax that employees and employers pay for Social Security and Medicare are used to pay for today's benefits. They are not deemed saved, and never were, in some great, giant lock box somewhere in the sky for tomorrow's retirement.

This is an intergenerational transfer of bucks. The dollars going into the system today are greater than the benefits being paid and the inflow into the Social Security will remain higher than outgo until 2013, 18 years from now. That will be an interesting time. That will be when the first voters this year who are now 18 are then 36. It would be well for them to be paying attention to what will happen when their age doubles.

Again, those funds are not set aside to pay for future benefits. The T-bills, those reserves by, are used to pay for other government programs today. In 2013, we will have to start redeeming some of these bills and bonds to pay benefits. Where is that money going to come from? From general tax revenues, that is where.

Without changes in the system we will have to either raise taxes or reduce benefits to cover the shortfall. The yawning chasm is not far down the trail. Before the old "hoss and rider" go over the precipice, we all have to come to the recognition that the sooner we address this problem the less painful the solution.

All of us, young and old, need to work together to make sure that Social Security can keep the promises made to today's and tomorrow's workers. That is why the Advisory Council represents various segments of our society, each with their own concerns for the future of the Social Security system.

It is a bipartisan panel, just as this is a bipartisan issue. This is not about evil Republicans trying to rob seniors of their Social Security benefits. This is not about spendthrift Democrats trying to preserve a system that will bankrupt today's young workers if it stays as it is. This is a bipartisan issue in which all of us have a vital stake and a vital interest.

Clearly, the American public is looking to us for leadership on this issue. Confidence levels in the future of Social Security are at all-time lows among some age groups. Only 3 out of 10 persons age 18 and above express confidence that Social Security will be there when they retire. Among workers age 18–54, only 1 in 5 have confidence in the promise of Social Security.

With these kind of attitudes, it is obvious that the American public expects us to "fix" the system. It is so important that all of us

pay careful attention to the recommendations that come out of the Advisory Council report as to just how to do so properly.

And, as my senior colleague, Senator Daniel Patrick Moynihan, noted 2 weeks ago, for the first time a group closely associated with the Social Security Administration, or at least part of that group, is recommending that a part of the system be "privatized."

We have to watch that word. Some see it as a privatization which is part of the payroll tax going into a private personal investment plan, others are thinking about it meaning that we are privatizing part of the "trust fund." They are very different and interesting points.

So, for the first time, a group closely aligned with the Social Security Administration is divided in its recommendations on how fundamentally to change the system. I personally do not view that division as being a cause for alarm. The problems of Social Security have far-reaching implications.

The recommendations and ideas we shall hear about today will do much to open and advance the dialogue about systematic change. But, first, we need to understand how we got to this point in the Social Security program.

Our first group of witnesses will offer that perspective for us. We will then be able to move into the second, the solution phase; where do we go from here? With that said, I offer my colleagues the opportunity to make any remarks they might wish.

To the senior member of the Finance Committee, our friend from New York, Senator Moynihan.

OPENING STATEMENT OF HON. DANIEL PATRICK MOYNIHAN, A U.S. SENATOR FROM NEW YORK

Senator MOYNIHAN. Mr. Chairman, once again, our gratitude to you for keeping on top and ahead of this issue. It is very much in evidence here. This is not a bowling alley at 3 a.m. You have a hugely attentive audience, and a very important set of panels.

I think, just for the purpose of reinforcing what you have to say, I am going to take the liberty of disagreeing with it just somewhat. This image of Social Security as the third rail of politics, I think, derives from the cost that is incurred when you suggest that we might take benefits away from persons who are now receiving them.

I do not, however, think it is very dangerous to suggest taking away benefits from persons who do not think they are ever going to get them. That seems to me the profound shift in our situation. As the Chairman observed so accurately, of non-retired adults 18–54, only one in five expects to get Social Security benefits.

Well, if you do not expect to get them and they are taken away, you will not feel any great loss. That, I think, is what is happening now in the era in which we have seen the end of big government. The great institutions of social insurance that were put in place in the 1930s were put in place in an abnormal time. We all can agree with that.

They were highly academic. They were modeled on European precedent, and they came about in the context of a very charismatic President, a brilliantly adaptive Secretary of Labor, and a member of the Supreme Court who told Frances Perkins how to get

what she wanted when she observed that everything the New Deal was passing kept being declared unconstitutional.

A friendly Supreme Court justice at a reception suggested that she use the taxing power. And, whilst everyone supposes that my revered predecessor, Senator Wagner, is the man who brought this legislation into existence, no, it is not. It was Chairman Doughton in the Committee on Ways and Means, and Chairman Harrison over here in the Finance Committee.

We are about to be out of money, in the sense that the revenue stream will be less than the outlay stream by the year 2013. Before that in Medicare, but certainly now. Many things have been discussed. We are going to hear from an advisory panel, for the first time ever, notions of privatizing.

In the meantime, I would just like to return, and hope sometime that our panelists will discuss, this question of the profound mistake we made in 1972 when we indexed benefits for changes in the cost of living and used the Consumer Price Index as a proxy for the cost of living. It threw the long-run actuarial balance completely out of kilter. I think I missed that metaphor. But we have been paying out much more than we undertook to do in the statute.

As the Chairman knows, last September a commission on the cost-of-living index appointed by Senator Packwood and I, reported that, in their judgment, the Consumer Price Index overstates the cost of living by a range of 0.7 to 2.0 percentage points.

They said that the higher end of the range is more likely, if anything, tended toward than the lower end, but they would settle for a temporary proposal of using the CPI minus one full percentage point, which is about a third of the current increase in the CPI. That same proposal has been made by Dr. Rivlin in an internal memorandum in the Office of Management and Budget in October 1994.

Just a few days ago, on March 15, two eminent academics—and I think our panelists will recognize them—Matthew Shapiro, who is Professor of Economics at the University of Michigan, and David Wilcox, who is an Economist on the staff of the Federal Reserve Board, issued a report on that subject, an evaluation of mismeasurement in the Consumer Price Index.

They said in their assessment, "Available evidence suggests that the mid-point (median) of the probability distribution for the overall bias in the CPI is just under 1.1 percentage points per year." So we have something very close to a consensus here.

The question is, will we have the elemental responsibility—this is beyond courage, this is a question of duty—to make this adjustment? If we do, I think we have a chance. If not, just as we are in the process of stripping Title IVA from the Social Security Act, the Aid for Children, we shall see the other titles gradually go as well. We will remember Social Security as an episodic, perhaps quixotic, event of the Great Depression and the New Deal.

I thank you, sir.

Senator SIMPSON. Thank you very much, Pat. I deeply appreciate that.

Senator MOYNIHAN. Could I put the Shapiro-Wilcox paper in the record?

Senator SIMPSON. Indeed. Without objection, so ordered.

[The information appears in the appendix.]

Senator SIMPSON. And now, my sidekick from Louisiana, Senator John Breaux.

OPENING STATEMENT OF HON. JOHN BREAUX, A U.S. SENATOR FROM LOUISIANA

Senator BREAUX. Thank you very much, Mr. Chairman. Thanks, once again, for having your continuation of these very, very important hearings on the Social Security system, a system that has had 60 years of great success in this country, but has had many, many years of uncertainty.

I think that, as more and more information comes out, more and more people are more and more concerned about the future of this very successful Federal program. It is very clear that changes need to be made. It is, therefore, timely and very appropriate that this council, be before the Finance Committee today to give us an indication of some of your thoughts and suggestions.

We thought that we had fixed it back, I guess, in 1983. We thought we had made the right assumptions, the right projections, and the necessary steps were taken to ensure that the system would have a bright future and people would become more secure in the belief that that system would be there and available to them. But that has not happened.

So this council, I think, can give us some historical perspectives of what we did incorrectly or improperly back in 1983 to make sure that, in 1996 and 1997, we make the right corrections once again. It is clear that outlays will exceed income by the year 2013.

If that is a correct assumption, which I think it is, if you look at the speed at which Congress is acting in this Congress, it is very important that we now start today if we are going to get a solution that will take us through the year 2013 with a program that is economically sound and economically secure. The suggestions, as both of my colleagues have mentioned, run from privatization to making minor changes.

I happen to strongly agree with Senator Moynihan's comment on the Consumer Price Index adjustment. We would just be accurate in what that increase should be. We are not asking people to take less than they should, nor more than they should, just what they should. That means an accurate projection on the Consumer Price Index is absolutely essential.

We have had suggestions that we increase the retirement age as people increase their life expectancy. I think that, too, is reasonable and appropriate. It is a reflection and a recognition that people do live longer than they did in 1935. That is wonderful, and we should take recognition of that fact, as we should of a more accurate Consumer Price Index adjustment.

The privatization suggestions, I want to hear about them. I think that when we have looked at it in the past these ideas have not met with much favor. Some countries, however, have privatized their system and feel that it is serving their needs. I note Chile has done that with apparent success.

But we want to hear these ideas and suggestions, Mr. Chairman. I will terminate my comments, and look forward to hearing from this panel. Thank you.

Senator SIMPSON. Thank you very much, Senator Breaux.

Now our first panel, please. It is a panel consisting of Dr. Henry J. Aaron, director of the Economic Studies Program of the Brookings Institution in Washington, DC; Dr. Olivia S. Mitchell, co-chair of the Technical Panel on Trends and Issues on Retirement Savings of the Advisory Council on Social Security and professor of Insurance and Risk Management at the Wharton School of Business in Philadelphia, PA; and Professor Howard Young, Chair of the Technical Panel on Assumptions and Methods of the Advisory Council on Social Security, and professor at the University of Michigan, Livonia, MI.

If you would, please, proceed under the time constraints. We appreciate that very much, so that we can have a pretty good round of questions, and maybe two. Thank you.

If you would please proceed, Dr. Aaron.

STATEMENT OF HENRY J. AARON, PH.D., DIRECTOR, ECONOMIC STUDIES PROGRAM, BROOKINGS INSTITUTION, WASHINGTON, DC

Dr. AARON. Thank you very much. Let me begin by agreeing with something that Senator Moynihan just said about the incorrectness of designating Social Security as the third rail of American politics.

Over the past two decades, legislation of significance has been passed three times with respect to Social Security. All three were significant reductions in benefits. Lightening did not strike members of Congress dead in 1977 when they cut benefits, in 1983 when they cut benefits, or again in 1993, as part of the Deficit Reduction Agreement, when the share of benefits included in taxes was increased.

Furthermore, it is certainly correct that many workers today do not expect to receive Social Security benefits. The very same public opinion polls, however, that indicate doubt about receiving benefits also indicate that the public wants to receive them and, moreover—and this is worth noting—they are prepared to pay higher taxes in order to assure that they continue to receive them.

Let me turn to five summary points that I wanted to make, and that I made in my testimony. They concern more the tone and atmosphere in which debate on Social Security reform takes place, because I believe that is critical.

The first point is that the actuarial procedures used for assessing the financial status of Social Security in the United States are unusually conservative by international standards. We look out farther than most other countries do. Indeed, if we confined our attention to the next 25 years, as do many countries, the Social Security system would not be in projected deficit, but in projected surplus.

The second point is that I think the practice of making these 75-year projections is a highly valuable one that we should adhere to. Congress is correct to pay attention to these projections, but they should understand that they are precisely that, projections, and not forecasts.

Nobody closely associated with the projections makes any claim to predictive accuracy. In fact, recent projections have been well off the mark, and in the later parts of my testimony I indicate the sources of the errors since 1983.

The third major point, is that I believe that the projected long-run deficit in Social Security does not even come close to meriting the designation as a crisis. The total increase in the cost of Social Security over the three decades from the time the oldest baby boomer retires until the time the youngest baby boomer retires, if you accept the projections, comes to an increase of 2 percentage points of Gross Domestic Product.

That increase occurs over three decades. It happens to be the same increase that actually occurred in the 12 years from 1970 to 1982. That event was not a crisis. Neither is the projected one. The Social Security system, moreover, is collecting revenues well in excess of outlays. If you look 25 years ahead, trust funds rise throughout that period.

Fourth, the long-run deficit that is projected, in my view, should be the basis of remedial action taken just as soon as possible to restore the 75-year trust fund balance. It is important that the system be managed conservatively, as it has been throughout its history, in order to restore the confidence that, as you both pointed out, is so badly eroded at the present time.

The current Advisory Council is divided on how best to restore the long-term balance, and it is going to lay out some of the options that the American people should debate.

My final point, is that I believe the public and Congress should understand that the financial challenges posed by Social Security in the grand sweep of things are relatively modest, not only by historical standards, but in comparison with the challenges we face from increased health care spending.

Over those same three decades during which the cost of Social Security is projected to rise by 2 percentage points of Gross Domestic Product, the cost of Medicare is projected to rise by 5.5 percentage points of Gross Domestic Product, and those projections do not include the extra cost to government for Medicaid or for any initiatives we might undertake to deal with long-term care.

My conclusion, therefore, is that the modest size of the long-run deficit in Social Security gives no reason—based on financial projections alone to radically change the structure of Social Security.

Major changes such as mandatory private saving do deserve to be discussed and they should be evaluated on other grounds. They may be good ideas, they may not be good ideas, but they should not be considered in an atmosphere of, oh, my God, the financial sky is falling. Thank you, Mr. Chairman.

Senator SIMPSON. Thank you very much, Dr. Aaron.

Senator MOYNIHAN. That was very interesting.

Senator SIMPSON. Yes, that was very remarkable, actually. We do not see that often, do we?

Senator MOYNIHAN. An experienced witness, Mr. Chairman.

Senator SIMPSON. A very experienced witness, pungent and to the point. Punctual. My God.

Dr. AARON. I should be a Senator.

Senator SIMPSON. No, Henry, it would never work. We do not do that.

[The prepared statement of Dr. Aaron appears in the appendix.]

Senator SIMPSON. Dr. Mitchell, please.

STATEMENT OF OLIVIA S. MITCHELL, PH.D., CO-CHAIR, TECHNICAL PANEL ON TRENDS AND ISSUES ON RETIREMENT SAVINGS OF THE ADVISORY COUNCIL ON SOCIAL SECURITY; AND PROFESSOR OF INSURANCE AND RISK MANAGEMENT, WHARTON SCHOOL OF BUSINESS, PHILADELPHIA, PA

Dr. MITCHELL. Thank you very much, and good morning. It is a pleasure and an honor to be here.

Let me begin my remarks by commending this committee for holding such an important hearing on the work of the Social Security Advisory Council. I co-chaired the Technical Panel on Trends on Income in Retirement Saving for the council. The final report my committee prepared is the basis for my testimony today.

To introduce my topic we, first, must recognize that the Social Security system is not in long-term actuarial balance. As you have earlier alluded to, the trustees have projected that tax revenues will be less than currently legislated benefits after the year 2013, with a projected depletion of the trust fund in 2030.

Over the 75-year long planning horizon, the difference between projected income and cost flows to the Social Security Administration is a deficit equal to an annual 2.17 percent of taxable payroll. It is absolutely clear that some combination of benefits cuts and/or tax increases must be brought about to close this gap.

Let me summarize my panel's findings and recommendations. First, with regard to the question of whether trends in income and retirement savings outside Social Security will offset the need for Social Security reform.

My panel believes that there would probably be a slow tapering off of the trend to early retirement, but probably no dramatic change. Also, we found no evidence to suggest that private pension coverage would increase dramatically to fill the gap.

Because of this, and because of anticipated further increases in life expectancy and improvements in health, my panel concluded that delayed retirement would probably be the most likely and the easiest response to the general trend for the majority of older Americans.

Next, we asked how Social Security reforms could and should be evaluated. My panel developed six criteria that we felt would reasonably and usefully be employed to assess the Social Security reform proposals before you and before the Nation.

Any particular reform might not satisfy all of the six criteria, but they are very useful in helping understand the strengths and weaknesses of these proposals.

Let me run through them quickly. Criterion 1, is adequacy of retirement income. That is, in our view, Social Security reform should contribute to an adequate retirement income for older citizens.

Criterion 2, is insurance against income shocks. We believe that a Social Security reform should afford a degree of income protection, including against shocks that reduce a worker's earning due to disability and premature death of the breadwinner.

Criterion 3, was avoidance or reduction of inefficiencies. It seems clear that Social Security reform should limit or reduce labor market and savings distortions, and also increase system administrative efficiency.

Criterion 4, is equity of lifetime Social Security taxes and benefits. This is what Senator Simpson referred to as the "money's worth" question.

Criterion 5, is encouragement of national saving. In our view, a reform should be evaluated in terms of its expected effects on aggregate saving.

Finally, criterion 6 requires the strengthening of retirement income institutions. A good Social Security reform would strengthen the integrity of all individual, group, and employer retirement savings plans.

The panel also discussed several options for Social Security reform, and here we were unanimous on one key point. The time for reforming the Social Security is running out. We agree with Senators Simpson and Breaux, that changes in Social Security benefits should be announced soon, with sufficient lead time for workers and savers to react.

This is particularly important if we are talking about raising eligibility ages and changing benefit levels. These reforms must be legislated now and phased in over time rather than implemented abruptly.

My technical panel did not come to a single view regarding raising taxes or cutting benefits. Rather, we began with some benchmark options—combinations of tax and benefit changes—sufficient to restore actuarial balance over the next 75 years.

The table included in my testimony illustrates some of the polar cases. I think the main message is, delay is very costly. If Congress were to try to close the insolvency gap only by raising taxes and did it soon—that is, in the next 5 years—the payroll tax rate would have to rise by 2.5 percentage points. If we wait until the baby boomers are old, the tax will have to go up by four percentage points. That is a 33 percent increase.

Conversely, if we were to close the insolvency gap only by cutting benefits and did it soon, benefits would have to be cut by about 20 percent. If we wait till the baby boomers are old, the benefits will have to drop by a third. Sooner is better.

In terms of specific proposals, the panel also concluded that if benefits have to be cut, a good way to do it is by raising the normal retirement age beyond age 67 and also, quite possibly, by raising the early retirement age.

Turning to revenue proposals. My panel concluded that, if we have to raise taxes, the best approach would be to raise the payroll tax rate rather than increasing the earnings threshold or trying to tax employee benefits.

Finally, the panel explored the possibility of establishing individual accounts, the privatization mechanism alluded to earlier. Many panel members found this proposal very promising if the remainder of the Social Security system could still be made solvent.

Most of my group, in fact, would like to move toward this model, but only if workers could be prevented from accessing the funds prior to retirement. We also would not make funds available in individual accounts available as anything else other than an annuity.

Lacking time, I will not go into other panel conclusions, except to say that we strongly favored encouraging private saving and

pensions, particularly by simplifying the tax rules under which employer pensions operate.

Even more crucially, we were most supportive of the proposal to have the Government issue Treasury bonds indexed to price inflation, recognizing that if Social Security benefits were to be cut, allowing people an asset which is indexed would be extremely valuable.

To conclude, for 60 years the Social Security program in the United States has been very, very successful. When fiscal problems were experienced in the past, adjustments were made. The same effort is needed again to return Social Security's house to order. I commend you on turning your attention to this issue.

Thank you.

Senator SIMPSON. Thank you very much, Dr. Mitchell.

[The prepared statement of Dr. Mitchell appears in the appendix.]

Senator SIMPSON. Professor Young, please.

STATEMENT OF PROFESSOR HOWARD YOUNG, CHAIR, TECHNICAL PANEL ON ASSUMPTIONS AND METHODS OF THE ADVISORY COUNCIL ON SOCIAL SECURITY; AND PROFESSOR, UNIVERSITY OF MICHIGAN, LIVONIA, MI

Professor YOUNG. Yes, sir. The main task that was assigned to the panel which I chaired was to review the assumptions and methodology that is used to project the future financial status of Social Security.

The members of the panel included actuaries, demographers, and economists, and we were able to reach consensus on all of our conclusions with one significant exception. The only significant split within the panel was on the assumptions for the ultimate annual real wage growth and real interest rates.

About half the members of the panel endorsed the current assumptions of 1 percent per year for real wage growth, and 2.3 percent for real interest, and the rest of the members recommended 0.8 percent for real wage growth and 2.8 percent for real interest.

It is important to note that these pairs of assumptions produce about the same overall result for OASDI financial projections. That was not a pairing that was intended to achieve that, but instead it is a consequence of more basic considerations about things like national savings rates. If we get more savings, then there will be lower interest rates and higher productivity, so the two move in complementary directions.

The significance of the split is not that any of us were convinced that we knew the precise numbers that would result, but rather that we had a significant difference of opinion as to what the future might be and how to read the past.

One aspect of interpreting the historical data on real rates, that is, rates which are adjusted for inflation, is that they are affected by the CPI measurement errors that were referred to.

Panel members took that issue into account in using the historical record to project the future. We reviewed that in a lot of detail and concluded that a more accurate CPI is likely to reduce reported inflation, but it is also likely to increase measured real wage rates.

We also emphasize that developing the adjustments to get a more accurate CPI——

Senator SIMPSON. Well, obviously.

Professor YOUNG. Sir, it is not obvious. There is a difference of opinion as to whether or not the real wage rates would be different if we measured inflation differently. Clearly, in the past they would be different, but what the impact on the future would be is actually a matter of dispute among economists.

But we do think that it is important to emphasize that question. We felt that it is important that we get as accurate a measure of the CPI and of inflation as we can rather than to simply say, let us use the CPI and make some adjustment to it, like subtracting 1 percent, in order to determine how to provide benefits under Social Security.

On another question, which was referred to by Henry Aaron, of how to project the future, the panel recommended that there be evolutionary implementation of revised procedures for presenting and evaluating the uncertainty in the OASDI projections. Such uncertainty cannot be avoided, especially when they involve long-term operation of complex systems.

The Social Security actuaries recognize that, and the present procedure is to offer three projections: an intermediate or best estimate projection, a high-cost projection, and a low-cost projection. However, there are no estimates of the probabilities associated with these alternatives and similar questions.

For example, the projection that the trust fund could be exhausted in the year 2029 or 2030 really means that exhaustion before or after that time is estimated to be equally likely. But there is no estimate of the probability that exhaustion could occur within any specific time interval, such as, say, 2025 to 2035.

Considerations such as these led the panel to recommend a method called stochastic analysis with an evolutionary implementation approach because of the complexity of the work needed. In our report, we give some illustrations of this method and also of how it might be adapted to use in the Social Security system.

But the panel emphasizes that uncertainty about future projections cannot be avoided. Stochastic techniques make this uncertainty and some of its causes more explicit and provide some estimates of the probabilities associated with the various possible results.

Nevertheless, the results are still based on assumptions. In particular, there is still the need to decide which past experience is most relevant for projection of the future.

The Advisory Council specifically asked us to examine the 75-year forecast procedure. We do not recommend any change in the use of that timeframe, or in the concept of the 100 percent Trust Fund Ratio as an adequate contingency reserve, but we do recommend that less emphasis be put on the 75-year actuarial balance as the basis for evaluating the status of the program or designing reform proposals.

Instead, legislative revisions should consider the projected pattern of cash flows and Trust Fund Ratios over the 75-year period and the apparent subsequent trend line beyond the period. After specific reform provisions are enacted, a new long range test should

be developed which considers whether updated projections vary significantly from the patterns and trends that were intended in the legislation.

We also have some comments about the need for ongoing review in the future, especially since the new law does not provide for quadrennial advisory councils in the future.

In closing, I want to emphasize the point that Professor Aaron started with, that the panel particularly commended the fact that long-range projections have been done and that they have been taken into account in policy formulation during the entire existence of the Social Security program. The future cannot be predicted, but considerable effort and expertise has been devoted to anticipating how this program will operate over an extended time period.

Thank you very much.

Senator SIMPSON. Thank you very much, Professor Young.

[The prepared statement of Professor Young appears in the appendix.]

Senator SIMPSON. Just a quick word about the third rail. That is a very important one, because it still glows in the eyes of some politicians. It just gives off sparks.

I know that maybe Senator Moynihan may not concur, and Dr. Aaron, but I can tell you, I was here in 1985 when, in May, we voted to freeze the Federal budget to let the Social Security not go up as it did, and some other things.

In the 1986 election, six of our colleagues from my side of the aisle disappeared into the vapors on that one. The ads were, these are the guys who cut your Social Security. That happened.

Senator MOYNIHAN. Mr. Chairman, I did say that the third rail, was with regard to benefits for people now receiving them. But if you do not think you are ever going to receive them——

Senator SIMPSON. I hear that. I hear that clearly. But I can tell you, from a politician's standpoint and not a beneficiary or a payroll taxpayer, it is one. In the Contract for America, you will remember, they said, why, we were not going to let them tax you up to 85 percent of your benefits, or expose 85 percent of your benefits to tax; we are going to take that back to 50 percent. Of course, that will come directly out of Part A health care, which was impossible that we would ever get that done. But that was a good campaign promise.

Let me ask Dr. Aaron, you note, and you say that and you are very precise and clear, that Social Security is "actuarially sound for 25 years." But does that not leave the obvious impression then that the trust fund has been saved and, thus, is readily available for a draw-down in order to pay benefits? Do we not have to change something before the year 2013 in order to pay benefits starting in that year?

Dr. AARON. First, I did not use the term "actuarially sound." I stay away from that, because I know that I do not know actuarial science. I did say that the trust fund has a positive balance for the next 25 years.

When I think about whether the trust fund is real or not, I ask myself, would Chase Manhattan Bank, holding a portfolio of Treasury securities, regard that portfolio as real or not? The answer is, yes, they would regard it as real. Is the situation different with re-

spect to Social Security? Well, certainly it is different, because we are now talking about an obligation of the Federal Government.

But then one has to ask one's self, what is the source of the problem that you have just described? The source of the problem that you have just described does not reside within the Social Security system. It resides within the management of the remainder of the Federal budget, which, as you know better than I, has been in persistent deficit for a very long time.

This may be pie in the sky, but it seems to me that the proper goal should be to balance the rest of the Federal budget outside Social Security so that the accumulation of reserves within Social Security would constitute net additions to national saving that could increase our productive capacity, and the ability of workers in the future to pay those added benefits.

Senator SIMPSON. Indeed, that is true.

Let me ask Professor Young, you have noted that the measurement of inflation, in particular the CPI as a factor which influences stability projections, my question in chunks, is CPI really the best available measure of inflation? It is not the index which Congress uses to inflate our spending caps. Are there other measures of inflation which would more appropriately fix the size of COLAs, or should we not tie the COLA to another inflation measure?

Professor YOUNG. I do not think that there is any better general measure of inflation that we could use. There clearly are some reasons to believe that the CPI tends, over time, to overstate the rate of inflation, but even when one looks at the Gross Domestic Product deflator, for example, it has some of the same problems as the CPI does, particularly the question of how one keeps track of quality improvements, which is one of the major concerns.

So that, while there are some problems and, as has been done in the past there can be technical reevaluations and improvements in doing the CPI, there really is no better measure that we could use.

Senator SIMPSON. Let me ask a question of Dr. Mitchell. You make two very striking points in your testimony. One, is that we should not delay. In fact, all of you in one way or another on both panels are saying we must begin to do something, whether you agree on the deep substance.

But one of your points is that we should not delay, and another is that we should not solve the problem simply by hiking payroll taxes. Now, could you tell us why not, and maybe tell it in a way that makes sense to the seniors' organizations out there? Maybe they will hear us yet.

Dr. MITCHELL. I take it that I am not asked to discuss the question of whether we should not delay, that it is really the second question. I think that the reason that our panel was not in favor of increasing taxes as the sole response to the problem is twofold.

There are two reasons. One, is that there is a general reluctance to raise taxes anyway, particularly in view of so many other worthy factors that government has to spend money on.

I think the other concern was that Medicare is already perceived as being higher on the agenda and in more immediate need of tax revenue, thus, the feeling was after Medicare is fixed, it is not clear there is much give left on the tax front.

But I think that the other issue also has to do with the notion of a new system, a potentially privatized system, which would offer a number of other advantages on beyond the defined benefit offering which we have now.

Senator SIMPSON. I thank you.

Senator Moynihan.

Senator MOYNIHAN. Mr. Chairman, just a preliminary remark. We do not pay much heed to it, but we have finally, largely in response to the largest tax increase in history which this committee did pass in 1993, are in an operating surplus in the Federal Government for the first time since the 1960's.

Our revenues more than pay for our outlays. The difference is the interest on the debt, which is to suggest that the problem is not out of hand and that we do not need to amend the constitution, and such. We have to pay off that debt. But, if we do, we find ourselves with fairly stable finances.

I mean, I can recall—it is a sign of being much too ancient, perhaps, for this work—that in the 1960's the economic advisors to Presidents Kennedy, Johnson, and Nixon kept saying, you have to spend more money. You must spend more money. We have some terrible thing called fiscal drag; it is holding us back. Indeed, we did and things worked out well until the 1980's.

But I guess I would return to this question of a cost-of-living index. There is not now a cost-of-living index. Professor Young says that the panel also emphasized the development of the adjustments needed to get a more accurate CPI. Well, the Bureau of Labor Statistics insists that the Consumer Price Index is not a cost-of-living index. But we have some options. We can use judgment about how to correct for the overstatements.

Dr. Rivlin, as head of Office of Management and Budget, said the CPI overstates inflation somewhere between 0.4 percentage points and 1.5, on which average out to 1. The Finance Committee's commission, headed by Mr. Boskin, former chairman of the Council of Economic Advisors said to call it 1.0 percentage point; this new group at the Federal Reserve said somewhat less than 1.1. This is all practically a consensus.

Now, professional persons have to avoid being too specific. I understand that. But we have to make decisions. To govern is to choose. A 1 percentage point decrease in COLA adjustments tied to the CPI, would bring us $1 trillion in 12 years.

Now, can I ask you, do you think it possible to construct a cost-of-living index as such? The Bureau of Labor Statistics—I was Assistant Secretary of Labor 35 years ago—even then, would insist that the Consumer Price Index is not a cost of living. But no Nation, I believe, has a cost-of-living index, as such. Can you give us any advice?

Dr. Mitchell, you did not have a view on this, so why do we not ask you, first?

Dr. MITCHELL. I would simply respond that my panel did examine the discussions regarding the cost-of-living indexation for Social Security, and it was our view that if the BLS and other authorities thought that it was appropriate to adjust benefits in line with a more accurate cost-of-living estimation, that would be appropriate. We were really taking a focus on the broader issues, not on the

particular. So, we would not have any objection, I think it is fair to say, to a better measure of the inflation rate.

Senator MOYNIHAN. Dr. Aaron, do you think you could construct a cost-of-living index? I think it really is time we got all our statistics together, as they do in Canada. Ours are scattered all over the place. But could you construct a cost-of-living index?

Dr. AARON. Yes, you can construct one. Whether it will be immune to rather severe criticism within the academic and professional community, is another matter. I think Congress did something very important and admirable in 1972 when it said to retirees and disabled people, you are going to get a benefit, the purchasing power of which is going to be constant. Your comment, Senator, is that we did not have the right index to do it.

I think what Howard Young said is the right approach, which is, do not forsake the principle of securing beneficiaries a constant real benefit. If you do not like the index, let us commission the BLS to come up with a corrected version that makes an attempt at measuring the cost of living, that deals with the issue of bias in the Consumer Price Index, and then let us use that improved index to adjust benefits.

But I think it is really important to adhere to the principle that, when you tell a 25-year-old disabled person who may be on the rolls for 50 years, that he or she is not going to be getting a little less than the additions to purchasing power over time.

Let us stick to the principle and get the measure of prices right. I would go after the target that you have described, but I would try to do it through improving the index rather than abandoning the principle.

Professor YOUNG. May I add to what I said before?

Senator MOYNIHAN. Please.

Professor YOUNG. I think there is, as I understand it, some kind of semantic issue in terms of whether one is measuring inflation, which is what we generally mean by changes in the cost of living, or whether one is measuring what it costs for consumers to buy a certain group of products, which is what the CPI intends to measure.

I think that is the sense in which it said that the CPI is not literally a cost-of-living index. But, having said, as we all have, that there are problems with any such index, there is another aspect to this that is very important.

The CPI is used, as I indicated in my report, to also derive things like what we think real wage increases have been and what we think real interest rates are. There is no way to measure those things independently of measuring the rate of inflation.

Therefore, if we simply go along and say, well, the CPI is wrong, and we will make some adjustments to it for OASDI COLA, but use the unadjusted CPI to make conclusions about what is happening, say, to real wages, we will have a misconception of what our progress in the economy is.

That gets back to the point that was raised earlier, that really the problem in Social Security is not as enormous as it appears to be when measured against the total growth in the economy or the total growth in wages in real terms, and those can all only be assessed properly if we use consistent measures throughout.

Senator MOYNIHAN. Thank you.

Senator SIMPSON. Senator Breaux, please.

Senator BREAUX. Thank you very much, Mr. Chairman. Thank the panel for their testimony. We are not faced with many pleasant options. I mean, the options are pretty clear: we either raise taxes or we reduce benefits, or a combination. I mean, that is it. Neither one of them are very pleasant choices.

Later on this week we are going to be asked to vote on a proposal by some of our colleagues in the Senate to more than double the earnings limitation for Social Security retirees. If we were to do that, give me some thought about how, if in any way, does that affect the viability of the system. Anybody?

Dr. MITCHELL. Maybe I can speak to that. As I understand it, the issue before you is raising the earnings limit that retirees can earn before their benefits begin to be cut. There were a number of studies on——

Senator BREAUX. It more than doubles it, I think, from about $11,000 to about $30,000.

Dr. MITCHELL. On the positive side, I would say that this very much gives older people the incentive to continue working. So, obviously, that is a message which we would like older Americans to hear. I think, as a policy, it might be a beneficial policy to push.

On the other hand, there were a number of studies on this issue within the last 4 or 5 years at the Social Security Administration that showed that the main people who were working who would be affected by this increase in the earnings limit were relatively high-income workers. So you would end up giving them an additional benefit, and they would continue to receive their wages.

I think, on net, there would be a cost to the Social Security Administration. I think the broader issue is, do we want to encourage continued work at older ages? That would be consistent with the philosophy.

Senator BREAUX. I was sharing with the Chairman some of our frustrations with all of the suggestions we get, because I think almost every suggestion comes with the caveat, on one hand, but on the other hand. We have got a lot of hands involved in these suggestions.

Dr. AARON. Senator Breaux, could I respond to that?

Senator BREAUX. Yes, sir. Dr. Aaron.

Dr. AARON. I would urge you to vote against this proposal. The reason is the short-run budgetary consequences. In the long-run, there is some small increase in the cost to the system. It arises from the fact that, when one works past age 65 benefits one eventually receives are increased under current law but not by enough to compensate one for the benefit loss during the period of post-age-65 work. Gradually, we are moving into an arrangement under which the compensation will be complete and, at that point, the benefit cost would be the same whenever the worker retires.

Right now, we are struggling mightily in order to reduce the Federal budget deficit. And, to my regret in many ways and I think to Senator Moynihan's regret, we still include Social Security revenues and expenditures in the commonly used measure.

The consequence of raising the amount one can earn and still receive full benefits in the short-run would be to increase Social Se-

curity outlays without increasing revenues by anything approximating the same amount, worsening the deficit, and making more difficult the task of balancing the budget in a reasonable period of time.

Senator BREAUX. I appreciate that. I do not want to belabor that, because I only have a short amount of time. But your recommendation is——

Dr. AARON. Can I make just one point more. The evidence on the effect on labor supply is that it would affect labor supply by a matter of days, on the average, not months or years.

Senator BREAUX. I thank you.

Dr. Mitchell, you had suggested that one of the things we ought to do would be to raise the normal retirement age beyond the 67 that is scheduled to go up to eventually, and also to increase the early retirement age. I tend to favor that.

I was trying to get some type of comparison to life expectancy in 1935 when we picked that particular retirement age, 65, I guess, as opposed to what it would be now in relation to life expectancy. Obviously, life expectancy is going up and we are very pleased with that. Some would argue that the retirement age has not kept pace with the life expectancy that we started with.

Can you give me just a little discussion on what it would be today if it was connected to the same life expectancy that it was when it was first established?

Dr. MITCHELL. Certainly. My panel looked at this question in some detail, and I think the actuaries might like to add to the discussion. But we concluded that a normal retirement age of around 70 would be an appropriate target for the normal retirement age. I think that the reason——

Senator BREAUX. What is that based on? It is not just out of the sky, but life expectancy, ability to work?

Dr. MITCHELL. The increase in life expectancy since the beginning of the program for people reaching retirement age. I think that there was also general feeling that it would be feasible and desirable to raise the early retirement age, the notion being that since most people today retire early, that the period of time over which people would be receiving their Social Security benefits would be held relatively constant. That is, the number of years that you would be getting benefits should be maintained as life expectancy increases. That is why we suggested an early retirement age of 64 or 65.

Senator BREAUX. Thank you. Let me ask another question. Professor Young alluded to it in the discussion with Senator Moynihan on the CPI adjustment, Consumer Price Index. The so-called Chafee-Breaux group is recommending an adjustment in the Consumer Price Index which people use to bring about a cost-of-living increase in many programs.

How would an adjustment of 0.5 percent in 1997 and 1998 and 0.3 thereafter affect the soundness of the system, in your opinion; any discussion on what that would do? It is projected to raise $110 billion in savings over 7 years. Of course, it would directly affect Social Security retirees.

Professor YOUNG. I do not have handy the estimates of what impact it would have. Clearly, if less funds were paid out but the

same amount of tax revenue as is now projected came in, the financial status of the system would be improved. The exact measure, I do not have.

Senator BREAUX. Dr. Mitchell, you had a comment on that?

Dr. MITCHELL. The only thing I would add to that is, my panel very much agreed with a better measure of what it is we are trying to get at. I think, on the other hand, we were reluctant to advise a permanent cut in the indexation of benefits above and beyond whatever the proper measurement would be.

The problem is, if you have the good fortune to live to be 85 or 90 in a world where benefits are not indexed, then you have the misfortune to experience a declining real income. So, while we were in favor of picking a better measure, we were not in favor of perpetually lagging benefits behind the appropriate cost-of-living index.

Senator SIMPSON. I am going to take a few more minutes here, so we will still be out of here generally whenever you were told that would be. But I think, here is an important one from me, and certainly then my colleagues will have an additional round.

Professor Young, you indicated you do not know of a better inflation measure than CPI. Now, I found the most curious thing in the last few months. The CBO and OMB currently use something called the "Chain Weighted GDP Price Index." They use that inflate our discretionary appropriation caps. They do this because the Budget Act tells them and instructs them to use the "best measure" of inflation.

Now, if CBO and OMB do not think the best measure is CPI—and they do not, that is why they use the Chain Weighted GDP Price Index—why should we be using it for COLAs?

Professor YOUNG. As I understand it, the GDP, however one calculates it—chain weighted is part of the technique—is an attempt to measure how the total economy grows. That includes activity in the productive sector, purchases made by businesses, and so forth.

The CPI attempts to measure what happens to consumers in their purchasing and, therefore, in their "cost of living." So there has always been a difference in the mix of items that is looked at in the CPI and in the GDP. Presumably, there is a different reason for using the GDP relative to Congressional appropriations that involve things beyond consumer activities.

Senator SIMPSON. Well, you see, this is a problem for us. In your paper you spoke of stochastic analysis.

Professor YOUNG. Yes.

Senator SIMPSON. Those are things that escape our constituents, and nearly escape us. That is not a reflection, but they see it as very simple. If you spend more than you earn, you lose your fanny. They have that figured out. They are really quite amazing like that. They do not understand chain weighted issues, CPI, market basket, and stochastic analysis. They do not, you do, I have trouble. But I do know this. The trustees, people I greatly respect, are telling us that it is going broke.

That is where we are, as politicians. When you go back to your town meetings in places they say, it is going broke; what are you going to do about it? You say, well, we have a solution. We are going to either raise the payroll tax or cut the benefit. Then you

try to get out of town before dark. Now, that is where we are. That is real life, for politicians.

Professor YOUNG. If I may, Senator, confusion does get added to. I think that people in real life believe that if they buy a U.S. Government savings bond they have a real asset and they expect to collect it 10 years from now, or 20 years from now, or whenever they come to cash it in. Yet they are continually told that the bonds that are issued by the U.S. Government to the Social Security trust fund are somehow not a real asset. In my mind, that is just not a correct argument.

Senator SIMPSON. No. Neither is it when the year comes and we go and cash it in and say we need some money, and then there is a double hit on the Treasury. Those are things that are very puzzling for them, and not puzzling for us, especially those who have tried to discern it.

But let me ask you a final follow-up to Dr. Aaron. Granted, the Federal budget is in deficit, and this is one reason that the trust fund is "not there." But is it truly possible to save the surplus? Because I think, and I share your views about the balanced budget, if the Federal budget were otherwise balanced, would the cost of redeeming the bonds—this is where we are, where I am—to pay off Social Security not fall on future taxpayers?

Dr. AARON. Absolutely. What counts is national saving. If we can raise national saving—and that includes not just physical capital but investments in the skills of workers and in the scientific knowledge embodied in our production processes, national output will be larger in the future.

But the housing that I hope to consume when I am retired, or that my children will consume when they are retired, the food they eat, the clothing they wear, will be manufactured then. It is not being manufactured now.

All that counts, when you cut through all of the haze and all of the talk, is the rate at which the United States is adding to its capital stock, to its stock of skills for workers, to its stock of scientific knowledge, so that in the future we can produce more.

Senator SIMPSON. Let me just share with you, without a question, that I share your views about the earnings limit, raising it. I resisted it the first time and took my lumps.

But, then we came back with a revised bill which did show where the offsets would be, and that was Senator McCain. I have the highest respect for him, and I voted for that. But this horse is way down, not only out of the barn, but about 50 miles from here on the track somewhere. I think it passed the House 400 and something to something, and passed the Senate in its revised form 98 to something. I mean, it is gone.

If you do not go for that one, you will hear from every seniors' group in the United States with oak leaf clusters, I will tell you that. That is really one that is extraordinary. But I shared your view and fought the good fight.

Dr. AARON. Only one Senator voted against the Tonkin Gulf resolution.

Senator SIMPSON. Well, with that, Senator Moynihan.

Senator MOYNIHAN. In all truth, the earnings limitation is a depression relic. It is not understood. It probably is, as Dr. Aaron

said, in terms of increased work activity, something you can measure in days.

But why bother people about something which you can get rid of, and we are going to do, at no real cost and then that problem is behind us? The Government must not mystify it. The problems of the Social Security system have been an administration which, for too long, confident of its own reliability, has been rather indifferent to the perceptions of others. We still have that pasteboard card from the 1930's which used to say, "For Social Security Purpose. Not For Identification." You now get it in maternity wards.

We only finally are beginning slowly to tell people once a year what their personal earnings and benefits are. We go through these endless calculations of how much to reduce benefits if you work when you are age 67, and how much to add to benefits when you stop working and/or reach 70. It is not worth it, and we will get rid of it. We thank Senator McCain, and I hope the people of Arizona thank him.

But I do just want to say that we have to face this issue of the COLA adjustment. If you think of the U.S. budget as an enormous computer, we have a defective chip. It is a D chip. It stands for deficit. We bring in less revenue and we pay out more in benefits than we would had we had a more accurate COLA adjustment. The Bureau of Labor Statistics insists that the Consumer Price Index is not a cost-of-living index. They cannot say it more explicitly than they do.

In the current budget sent to us by people who, 18 months ago, were quite prepared to see an adjustment in the CPI, but then we lost the Congressional elections and that idea disappeared fast, they do, however, have a perfectly respectable 2-page statement of what the CPI is. They say it is not a cost-of-living index. Whether we could construct a cost-of-living index, I do not know.

The Chairman is absolutely right; the Office of Management and Budget and the Congressional Budget Office use a different deflator altogether. There is a problem. If you get too close to the way in which national indices are put together, it can be a disenchanting experience. This is a vast economy with incredible transactions.

They are the best estimates, good ones. Ours are the best in the world. It is a curious fact that the constitution built social science into our society by establishing a decennial census. For the longest time we have known more about what goes on than just about everybody else in the world. But that is just more than what others know. Others do not know a thing. Whatever we do, we have to do what maintains confidence and stability. Right now, we are losing both.

Thank you, Mr. Chairman.

Senator SIMPSON. Thank you very much. I think Senator Breaux did not have any further comments. We will conclude.

Senator MOYNIHAN. Well, I think he asked the question he was going to ask you, Dr. Mitchell.

Senator SIMPSON. Oh-oh. Well, he is not here. Well, I want to thank you very much. We do appreciate very much what you shared with us. It is very helpful for us, all of you.

Now we will go to the second and final panel, consisting of Edith Fierst, member of the Advisory Council on Social Security and attorney at law, Fierst and Moss, Washington, DC; Edward M. Gramlich, Ph.D., chairman, Advisory Council on Social Security, and Dean, School of Public Policy at the University of Michigan in Ann Arbor, MI; and Sylvester Schieber, member of the Advisory Council on Social Security and vice president of Watson Wyatt Worldwide of Washington, DC.

If you would proceed in that order, please, and under the time constraints. We certainly appreciate your being here.

STATEMENT OF EDITH FIERST, J.D., MEMBER, ADVISORY COUNCIL ON SOCIAL SECURITY AND ATTORNEY AT LAW, FIERST AND MOSS, WASHINGTON, DC

Dr. FIERST. I very much appreciate the opportunity to present my views, which are the views of six members of the Advisory Council.

There is some good news. There is another way of increasing the amount of money that is available for Social Security purposes, and that is by investing in private markets. This is something that private companies that maintain pension plans are required to do in order to meet the standards of diversification and prudence that are set under ERISA.

All members of the Advisory Council favor private investments. The difference among us is on whether the investments in equities should be made——

Senator MOYNIHAN. Mr. Chairman, could I just call attention to what Dr. Fierst has just said? All members of the council favor private investments. I do believe this would be the first time in a 60-year history that this could be said. Would that not be so?

Dr. FIERST. Yes. It is a very significant change in our attitudes.

Senator SIMPSON. Well, Senator Moynihan and I met each other that morning when we learned of it and we were both just extraordinarily impressed that that was something that finally received that scope. Thank you.

Dr. FIERST. Thank you.

The difference among us is on whether the investments in equity should be made by individual workers or by the trust fund. The group that I represent believe the risk should be borne by the trust fund.

We suggest that investments be made through broadly based index funds so as to minimize government interference in business or the risks that political considerations will affect choice of investment. Investments should be made for the sole benefit of the workers covered by Social Security.

Professional leadership in managing the investments is necessary. We suggest appointment of a panel, perhaps three in number, to be chosen by the President and confirmed by the Senate, to determine the amounts to be invested, the appropriate vehicles, and to monitor the ongoing progress of investments.

If, instead of the trust fund making the investments itself, the risk of investment is placed on individuals as under the plan for personal savings accounts, the following problems would arise.

No. 1, estimates of earnings by private investments are based on averages, but not all investments have average returns. As you may know, the average return from private investment is about 4 percent greater than the average return in government bonds.

Those workers who make poor choices of securities or who retire when the market is in a downswing could get severely reduced or no income from their private investments. SSI—welfare for the elderly funded by general taxes—might have to fill the gap left by investment failures or loss of benefits for the other reasons discussed below.

No. 2, estimates of Social Security's actuaries show that the average earners would not gain from the PSA plan, and that low wagers would gain only marginally. Nevertheless, all employed persons would be required to shoulder major risks.

No. 3, payments under Social Security have always been made and on time. There have been no scandals. This is not true for private markets; remember insider trading and a lot of other scandals that I could mention.

To paraphrase Barnum, new swindles are born every day. They should not be allowed to threaten the basic retirement security of older Americans.

No. 4, at least 75 million working Americans have never invested in the stock market. How will they know what choices to make?

No. 5, administration of Social Security costs 8/10 of 1 percent. If investments are made individually, investment advisors, mutual funds, stock brokers, et cetera, will all expect to be paid.

No. 6, the personal savings account plan does not require retirees to annuitize their investments. Hence, some retirees will outlive their assets. If the proposal were amended to require annuitization, those who plan to retire during a bear market may be unable to buy adequate annuities.

No. 7, for a married person who has earned smaller benefits than his or her spouse, Social Security provides spouse and survivor benefits without additional cost. These auxiliary benefits usually go to the wife. They would not be payable on the portion of the Social Security benefit which is the personal savings account.

No. 8, as a matter of law, Social Security provides auxiliary benefits after divorce if the marriage has lasted 10 years or more. There is no reduction in benefits payable to either party. That is not true under the PSA. Instead, the savings account would become an asset for the divorce courts to divide in accordance with 51 differing States laws. Either husband or wife could lose, and badly. Only divorce lawyers would gain.

No. 9, cost-of-living increases would not be payable on PSAs as they are under today's Social Security.

No. 10, costs for transitioning to the PSA would be high. The way to pay these costs urged by proponents in the Advisory Council is a 1 percent sales tax on everything, including food, for 70 years. The written proposal said that this would be beneficial as a way to discourage consumption, but not all consumption is for luxuries. Do we wish to discourage purchase of food for children, oil for heating homes, medicine?

No. 11, when disasters such as unemployment or illness happen to individual workers, they will want to draw on their personal sav-

ings accounts. Will Congress be able to resist allowing invasion of the PSA in such cases?

Finally, the PSA does not provide for the disabled or the survivors of those who die young without having accumulated a personal savings account.

There are a couple of other provisions, ways of raising money, that our group—if you like, I will stop now.

Senator SIMPSON. Thank you. I appreciate that very much. But that is the conclusion of your written testimony. If you have more to submit at some future time, please do so. I appreciate that.

[The prepared statement of Dr. Fierst appears in the appendix.]

Senator SIMPSON. Dr. Gramlich, please.

STATEMENT OF EDWARD M. GRAMLICH, PH.D., CHAIRMAN, ADVISORY COUNCIL ON SOCIAL SECURITY; AND DEAN, SCHOOL OF PUBLIC POLICY, UNIVERSITY OF MICHIGAN, ANN ARBOR, MI

Dean GRAMLICH. Thank you very much, Mr. Chairman, for asking us down this morning. As you know, I am the chair of the group. For the most part, I have tried to be an impartial referee across these different plans.

We are going to be suggesting three different plans. You have just heard from Edith Fierst on what we call our Maintained Benefits Plan, and you will hear from Syl Schieber on the Personal Security Account Plan.

But this morning I want to drop the pretense of being an impartial referee and be an advocate of my own approach, which is what we call the Individual Accounts Plan.

It involves some of the same changes in benefits as Edith described in the Maintained Benefits Plan, but some additional scaling back of benefits at the high-wage end, buttressed by smaller scale defined contribution individual accounts, but no central fund investment in equities.

These individual accounts that are a part of my plan would be financed by a mandatory charge of 1.6 percent of payroll that would not, in my view, be a tax because they would go into people's individual accounts.

These accounts would be held by the Government with constrained investment choices, including equity index funds, they would be annuitized on retirement, with the proceeds taxed on a consumption tax basis.

I will not go on at length, but let me tick off six big advantages that I see in this approach. The first, is that it preserves all the important protections currently present in Social Security.

One of the plans that we are considering, the PSA plan, does scale back some of these benefits so much that I think that you could say that you could call that into question in that plan.

The second advantage to my plan is that it clearly raises national saving. All studies indicate that people should really be saving more for their retirement, and one of the problems that I have with the Maintained Benefits Plan described by fellow Council Member Fierst, is that there is not much increase in national saving in that plan.

The third advantage is that it provides a convenient way to get some retirement funds invested in equities. The Maintained Benefit Plan that has central fund investment in equities only works with a potentially large amount of equity done by some central board.

We really do not understand how this would work, or whether it would work. Would there be political tampering with the funds however passively they are managed? Would there be pressure from other trust funds, such as, say, the Highway Trust Fund, to invest in equities? Will there be natural limits to some amount of equity investment or will future Congresses press for more and more equity investment to avoid making benefit cuts?

There are a lot of very difficult questions there and one way to avoid all of those difficult questions is to limit the equity investment to the individual accounts, which my plan does.

A fourth advantage in my plan is that it raises the money's worth from retirement saving for younger workers. This is true of all of the plans that the council is considering.

A fifth advantage is that it avoids any particular transition difficulties, particularly the large transition tax in borrowing that you would need if you had a more dramatic change in the system.

Under the approach that I am advocating, the system is scaled back appropriately to preserve actuarial balance and workers naturally get the proceeds of their individual accounts as these are built up, and there is no particular transition problem.

The last advantage, is that it converts the individual accounts to minimum guarantee indexed annuities. While present Social Security benefits are of this form, some of the options that we are considering would not be of this form and, thereby, people entering retirement could be permitted to over-consume their benefits early in retirement. They would not be able to do that under my plan.

These are six impressive advantages. If there is a desire to preserve Social Security, to raise national saving, to have a sensible way to get this saving invested in equities, to raise the money's worth for younger workers without putting older workers at the mercy of transition difficulties and to protect retirees through their entire retirement, I see no way around to measure something like the plan that I am proposing and I urge you all to take it very seriously.

Thank you very much.

Senator SIMPSON. Thank you very much.

[The prepared statement of Dean Gramlich appears in the appendix.]

Senator SIMPSON. Now, Sylvester Schieber, please.

STATEMENT OF SYLVESTER SCHIEBER, MEMBER, ADVISORY COUNCIL ON SOCIAL SECURITY; AND VICE PRESIDENT, WATSON WYATT WORLDWIDE, WASHINGTON, DC

Mr. SCHIEBER. Thank you, Mr. Chairman, members of the committee.

I am one of several members of the Social Security Advisory Council proposing significant changes to the current structure of Social Security.

Under our proposal, workers would contribute a portion of their payroll tax to a Personal Security Account, PSAs, as we have heard them referred to here earlier.

The PSA would be an individual account, like an IRA or a 401(k), that many workers in our society are already using. It would be different than those accounts in that participation in the program would be mandatory and distributions would not take place until retirement.

Our group believes that the projected financial shortfalls in the Social Security system are very serious and are only one symptom of the problems that we are currently facing.

In addition to the financial problems, several of us believe that the growing perception that Social Security is not fair to many workers must be addressed.

Furthermore, we believe that the growing lack of faith in the system will dramatically erode its support. Finally, we believe that the natural inclination to delay addressing public policy issues prior to their reaching crisis status will exacerbate the system's other problems. Our approach, we believe, addresses all of these serious issues.

Under the option that my colleagues and I are supporting, the Personal Security Accounts would be financed by channeling a portion of the worker's share of the payroll tax now going to Social Security into the PSA. This would equal 5 percent of covered payroll. This is approximately half of the current tax used to finance retirement benefits under Social Security.

The PSAs would be subject to some restrictions as to where they could be invested, but they would be under the sole direction of the workers who owned them. The young survivors and disability programs that currently exist under Social Security would be left intact under Social Security.

Under our proposal, the part of the payroll tax that is not rebated to workers would continue to fund retirement benefits that would be payable through Social Security. The current benefit structure would remain in place for individuals already retired and receiving Social Security benefits, and for those workers 55 years of age and older at the end of 1997.

Ultimately, the total benefits paid to retirees would come from two separate tiers in the system. The first tier would be a basic benefit provided through Social Security. This would be a flat benefit payable to all workers. For workers with 35 years of covered earnings, the benefit would roughly equal $425 a month in 1996 dollars, indexed by the growth of average wages in future years.

In retirement, the flat benefit would be indexed by the CPI. In addition to the flat benefit, though, workers would receive benefits based on their accumulations in their PSAs during their working career.

The implementation date for the transition to the new plan would be January 1, 1998. Workers age 55 or older on that date would continue to be covered under the current system, paying their full payroll tax into that system and receiving benefits in accordance with the current structure.

Individuals between 25 and 55 would receive part of their benefit based on their years of participation in the current system and part

of their benefit based on their participation in the new system. Individuals younger than 25 years of age would be fully covered under the new system.

As under the current program, a spouse would be eligible to receive a benefit that is the larger of his or her own earned benefit, or one-half of the benefit of the primary earner. In addition, spouses would be entitled to any accumulations in their own personal accounts.

Under our proposal, we have assumed that annual contributions to the PSA would be directly to the worker's account. It would, however, be possible under this proposal to provide for contributions to the PSAs to be split between spouses during any period in which a worker is married and to exempt the personal accounts from consideration of property distribution in cases of divorce. We can deal with this problem that Edith Fierst is worried about.

Employer contributions for benefits would continue to be deductible expenses, while the employee contributions would continue to be made on a post-tax basis. Under the proposal, the taxation of benefits would be consistent with the tax treatment of retirement savings in tax-qualified plans.

Benefits financed by pre-tax dollars would be taxable at distribution, benefits financed by post-tax dollars would not be taxable at distribution.

For people covered under the new system, we assume that the employer's deductible contributions would be used to finance the first tier benefit. Thus, these benefits would be taxable to the extent that they were financed by employer contributions. We assume employees' post-tax contributions would finance the Personal Security Accounts and, thus, distributions from the PSA during retirement would be tax-free.

Under the proposal, Social Security would be transformed from a system that is largely funded on a pay-as-you-go basis to one that is largely funded. A problem by this shift is that previously accrued but unfunded liabilities would continue to mature during the transition period at the same time future benefits are being prefunded.

Financing the transition on a pay-as-you-go basis with a payroll tax would mean a relatively limited number of workers would have to pay off the prior debt while prefunding their own PSAs.

For illustration purposes, our proposal assumes that the cost of transitioning from the current system to the proposed one would be paid by an explicit tax. We have dubbed this a liberty tax, because it would free us over time from the completely unfunded retirement program that we currently have.

For reasons of intergenerational fairness, we propose that the transition costs not be imposed on a single generation of workers. Our proposal would require that some of the statutory unfunded obligations of the current system be converted into more formal debt, government-issued liberty bonds.

The magnitude of this formal debt will undoubtedly be an important consideration in evaluating the merits of our proposal. Based on the actuaries' intermediate assumptions, this converted debt would peak between 2045 and 2050 at $1.2 trillion. Beyond that time, the liberty bond balances would decline and would be fully paid off by 2063.

While the formal debt is sizeable, it would never amount to more than 12 percent of the accumulated balances in the PSAs, a tremendous source of new capital in our economy. We need to keep in mind that this accruing debt would be simply an explicit recognition of the implicit obligation that already exists in Social Security. The explicit debt in this case would be created in order to spread the transition costs across a broader set of generations than if we attempted to pay it off simply as it comes due.

The liberty bonds could be thought of as taking out a mortgage to help pay off a significant portion of the unfunded statutory obligations we have created in Social Security over the last 60 years.

A 70-year mortgage might seem a long one, but if an individual worker can take out a 30-year mortgage to buy a house, then it does not seem so unreasonable for our country to take out a 70-year mortgage, especially in light of the potential benefits of doing so.

Now, we all have agreed at the Advisory Council that we need to put some of the financial backing of our retirement system on the back of the capital base of our economy.

Under the option that Edith Fierst has discussed, the Federal Government, as a central investor, would be investing more than $1 trillion in the private capital markets of the U.S. economy.

Under the option that Ned Gramlich has outlined, the pool of individual savings would accumulate to more than $6 trillion in current-day dollars during the transition period, more than $2 trillion of that if the assets are distributed would be invested in the private financial markets. We think there are a variety of reasons why the Personal Account option is the best way to go to meet these goals.

Senator SIMPSON. Thank you. Thank you very much.

[The prepared statement of Mr. Schieber appears in the appendix.]

Senator SIMPSON. Let me ask Dr. Fierst a question. One of the difference you have with the plans addressed by Mr. Schieber and Dr. Gramlich is that you believe the risk of the system, the risk, should be borne by the system as a whole and not by the individual retirees.

Certainly, we do not ensure any proper retirement for people if we expose them to large individual risk. The things you have said about the market are so true, and that is what I tell people if they say, if I had had that money myself over those years, boy, I would have made a ton. And I said, pal, a lot of people lost everything. So, let us get back to some realistic observation on that.

But is it not possible to have individually-owned accounts which the Government could not spend, but which you regulated and risk-controlled? I think, like the Federal workers under the Thrift Savings Plan, which is the high, the low, the middle. Is that a degree of risk that is unacceptable, and can we not simply protect the individual pensions in a personal savings plan in such a similar way?

Dr. FIERST. Well, I do think that the pattern that has been set by the Federal Thrift Plan is a lot better than just having personal savings accounts that are completely risky.

As I recall, there are three options that Federal employees have. First, is to invest in a fund that is made up of government bonds,

another a fund that is made up of corporate bonds, and third, a fund that is made up of equities.

As it turns out, in the last few years, we all know how incredibly the stock market has been doing, the people who invested in equities have done much better and the people who invested in government bonds have not done well.

I think that this kind of investment entails a degree of anxiety that we do not want to place on people for their basic, fundamental retirement income, which is Social Security. It is fine to have a 401(k) or any other retirement plan on top of Social Security, but that, at least, should be secure.

Senator SIMPSON. Thank you.

Dr. Gramlich, while I was intrigued by your plan—you could tell by my eyes glistening—it in some ways resembles a component of the Kerrey-Simpson proposal. How would you critique the plan of Senator Kerrey and myself, and what you have chosen to do differently and why?

Do you believe we should proceed legislatively to try to mark up such a plan? Then, most importantly and politically, when Senator Kerrey and I proposed something similar we were accused of a deep and deceptive plot to destroy the Social Security system.

But you seem to represent, now, the middle ground in this debate. How is it that you are now espousing these choices similar to those of an arch-villain of the AARP such as myself?

Dean GRAMLICH. Well, first off, Senator, I never criticized the Kerrey-Simpson plan. It was, indeed, interesting and, as you anticipate, there are antecedents from it in my plan. The essential difference, I think, between the Kerrey-Simpson plan and the one that I am advocating is, what is the Social Security that it is on top of?

I would be the first to admit, and indeed all the council members realize, that you could vary the present 12.4 payroll tax in the add-on individual account in some dimensions to shape it.

But the one thing that I would criticize in the Kerrey-Simpson plan—and in this case I may run afoul of Senator Moynihan, too—is that the way that plan, as you know, carved the individual accounts out of the present 12.4 percent payroll tax. I first think that we probably need a little bit more aggregate retirement saving than 12.4 percent.

Second, the way the individual accounts were carved out were by a total suspension of indexing. On indexing, we support the principle that it is the right thing to do, in principle, though we are willing to talk about the numbers and how it is done.

So what my plan tries to do is to generate the individual accounts by a more long-run scaling back of the benefits through the benefits schedule, and then layering individual accounts on top of that.

But, beyond that, I suppose there is a sense in which we are only talking details. I do like a lot of the principles in Kerrey-Simpson.

Senator SIMPSON. Well, thank you very much.

I have a question of Mr. Schieber. Why do you believe that the current pooled type of setup for Social Security is inadequate for the country's needs?

Mr. SCHIEBER. Well, I think the concerns are, who is going to be managing the investment of these assets? Senator Moynihan, or maybe it was you, indicated earlier that you were shocked when the Advisory Council came out in unison advocating some investment of these assets in the equity markets.

I think if you go back and you look at the early hearings——

Senator MOYNIHAN. Sir, I represent New York City, so I am not shocked, I am delighted. But I was surprised.

Mr. SCHIEBER. If you go back and look at the early history of Social Security, it was originally intended that it would be partially funded. There was a great deal of concern though about the Federal Government as an investor in the private equity markets, and it was because of that concern that much of the early funding in the system was scaled back. I think that there are people still concerned that these moneys might be used for political purposes.

In some cases, they point to things such as the current use by the Secretary of Treasury of Federal pension funds to avoid the Federal debt ceiling limits. There are people at the Labor Department currently advocating socially-targeted investments with retirement money rather than trying to maintain the economic welfare of the participants in the plans. I think it is primarily a political concern.

Senator SIMPSON. Thank you very much.

Senator Moynihan.

Senator MOYNIHAN. Mr. Chairman, before I express my admiration and gratitude for what you have done here, can I just make a point which is perhaps important and not generally understood.

In 1977, we moved the Social Security funding from the pay-as-you-go system established in the 1930's—and I see Dean Gramlich is agreeing—to a partially-funded system. We put in place a surplus which would buy the New York Stock Exchange.

Indeed, when you pierce the veil of money you rarely return with your faculties altogether intact, so I will see if I can get this right. One way to clearly save a Social Security surplus is to buy down the public debt so that the surplus frees up funds for private investment; is that not right? I see that you are all agreeing.

Dean GRAMLICH. As was pointed out in the previous session, saving depends on what the whole Government is doing.

Senator MOYNIHAN. Yes.

Dean GRAMLICH. I know you know this.

Senator MOYNIHAN. If we ran a surplus and that surplus paid down public debt, it would translate into private investment.

Dean GRAMLICH. That is correct.

Senator MOYNIHAN. Well, we did not. We spent the money. We just spent it. The temptation to do so is very strong. In consequence, we have a distinguished panel divided on details but unanimous or unified in the principle that some portion of the Federal national retirement system should go into private investment. This is without equivalent and there is no precedent. I just want to thank the panel.

Could I ask you, I am not going to be so crass as to tell you how the vote breaks out, but we have polled you and we know. I think we had hoped to hear from you in January, did we not, originally?

Dean GRAMLICH. Well, maybe I can speak to that.

Senator MOYNIHAN. Dean Gramlich.

Dean GRAMLICH. We have had some difficulty in dotting all the i's and crossing all the t's on our report, but we are still making progress. There is a sense in which, when you ask 13 people who all have other jobs and are doing this on a volunteer basis to deal with a $350 billion program that has paid benefits to every American born after 1875, that if it takes a few more months——

Senator MOYNIHAN. Oh, no. I did not mean that. I meant, what you are doing is such a departure from the quadrennial panels of the past half-century that, heavens, I was just wondering. Do you think you will have something for us in April or May?

Dean GRAMLICH. We are hoping, in early May.

Senator MOYNIHAN. In early May. Good. Good. Well, we look forward to it.

Dr. Fierst.

Dr. FIERST. I would like to speak to one comment that you made, Senator Moynihan. There is some precedent for this in what the States are doing, some of them. New York State, I think, has been a shining example of how a pension fund has been able to invest in private investments and bring up its income.

Senator MOYNIHAN. That is right. With a single trustee, our comptroller. It is very nice to hear that. Would you say that again? New York State has been a shining example. I do not hear that often.

Dr. FIERST. New York State has been a shining example.

Senator MOYNIHAN. That is my kind of commissioner. No further questions, Mr. Chairman.

Senator SIMPSON. Was that comptroller not the same person for many, many years?

Senator MOYNIHAN. Yes. The comptroller of the State is also the sole trustee. The people of New York have had a curious pattern of electing a Governor of one party and a comptroller of the other.

Senator SIMPSON. So that changes back and forth.

Senator MOYNIHAN. Yes. Yes.

Senator SIMPSON. Yes. Senator Breaux.

Senator BREAUX. I thank you very much, Mr. Chairman. I thank the panel for their presentation.

I take it that there is agreement that trust funds could be invested in equities. It is a question of who controls those investments, whether it is a trust fund or some group associated with the trust fund, as opposed to having individuals take their funds and put them into equities themselves.

I think that the general notion that comes to my mind is probably closer to Dr. Fierst's position in the sense that the Social Security checks have always been there, they have always been paid. There have not really been any major scandals in the Social Security system. You cannot say the same for private investment funds that have had difficulties to various degrees over the years.

How do I respond to people who say, look, I am concerned about the system as it is, and we have never had a scandal. Yet, Senator, you are talking about allowing individuals who are not familiar to any degree, on average, with investing in equities to take that money and, instead, put it into private investments. It is going to

make it even more unstable than it is already. Of course, that is the argument we have to answer up here. Any comments on that?

Mr. SCHIEBER. Yes. First of all, let me say that, as Mr. Gramlich pointed out, one of the very large distinctions between his plan, our plan, and the first plan, is that we are creating very substantial real savings in the economy which I think is one of the universal goals that our technical panel and most of us on the council agree with.

In terms of how people individually invest, I would like to point to the example of the 401(k) system that we have created in this country over the last 15 or so years.

When many workers started out participating in 401(k)s, they never had any idea how to invest their money because they had never had any true financial wealth to invest. But they have become very savvy over the years in terms of the management of their money.

I have studied for some time how 401(k) participants invest their money. We find that when they are young, when they are in their 20's, they put about 60 percent of it in equity funds and they put about 40 percent of it in bond funds, fixed income funds.

By the time they get into their 60's, they have completely shifted that around. As they get older, they become far more conservative. They insure themselves against the financial risks and the financial markets.

I would expect individuals who begin to accumulate some wealth to have a self-interest, most of them for the first time, in figuring out how to invest those assets. I would expect them to behave much the way people who invest their own 401(k)s behave. I do not think we are facing any greater risks in the financial markets than the political risks these benefits are exposed to today.

Senator BREAUX. Dr. Fierst, do you have a comment on that? I am concerned about the difference between high-wage earners, average-wage earners, and low-wage earners all investing in equities. It seems to me when you retire, depending on what the market is at that particular time, will have a dramatic effect on that person's retirement. High-wage earners who invest a lot more are going to obviously get a lot more out of it than someone who is an average wage earner.

Dr. FIERST. Well, I agree with everything you have said. I am not sure how much more I can add, except to say that when Syl says that one of the purposes is to increase savings in the economy, I do not think that was as much our charge as to make sure that retirees get Social Security benefits when they retire.

The question of savings is a problem, and it is a problem for the members of the Finance Committee. But I do not think that we should sacrifice Social Security to a desire to have more national savings.

Dean GRAMLICH. Senator, I wonder if I could comment on that, too.

Senator BREAUX. Dr. Gramlich.

Dean GRAMLICH. There are ways of protecting against your risks. One way, is to keep a basic structure of Social Security in place. Another way is to hold the accounts within the government. I realize this bothers some people from a freedom side, but you could at

least then make sure that people are buying passively managed funds, or reputably managed funds.

Both of those protections are in my plan. So, I think it is possible, within the class of individual accounts, to provide a lot of protections against the kinds of things you're worried about.

Senator BREAUX. I think in so many cases, many people on this side of the dias here today are trying to find a way to accomplish these things with the least amount of disruption. I think that if we can encourage investment in equities that give a better return, I think it is a good idea.

But, at the same time, I think we ought to try to devise something that provides the maximum amount of protection.

Mr. Schieber, do you have a comment?

Mr. SCHIEBER. Well, two things. One, we do not want to raise savings just for the purposes of raising savings in our economy. We want to raise savings because it is going to make the economy larger.

As Henry Aaron pointed out on the earlier panel, more saving is going to grow the capital base. It is going to let us invest in our workers' education, and so forth. That is why we want to save. It is not purely so we can force people to consume less.

In terms of the capital markets, we have the most developed capital markets in the United States. We have got a plethora of financial institutions. We can license these institutions and require that they provide certain disclosure information. We could even require that they live within certain administrative cost boundaries. We could bond them. There is absolutely no reason for us to replicate what is widely available in the public marketplace.

Senator SIMPSON. Just a few more questions, and then we will conclude, if my colleagues have anything further. I will take another five, and then Senator Moynihan.

Thank you, Senator Breaux. I very much appreciate your presence.

Let me ask Dr. Fierst about a point made by Senator Moynihan. If we fail to act to correct CPI—and he and I totally concur in this and will proceed to do what we can—and, thus, all these troublesome projections continue to persist, which they will for the public, do we not then increase the volume of calls for privatizing the system which you and Senator Moynihan have some questions about?

Dr. FIERST. Well, I think that in the natural course of events the Bureau of Labor Statistics is now reexamining the CPI and is undoubtedly going to reduce the index that it uses. The President's budget anticipates, I think, a 0.3 percent reduction in the CPI. Whether that is what it will actually result in, I do not know.

But, if you just do that, you save 0.42 percent of the payroll from that one change, according to the projections I have seen. I think, along with some other measures that are being discussed and contemplated, that would do the trick without jeopardizing the financial security of a person who lives a long time after retiring.

Dean GRAMLICH. I wonder if I could comment on that.

Senator SIMPSON. Please.

Dean GRAMLICH. Henry Aaron, in the first panel, made an important point. That is actually something that is one of the few prin-

ciples that the council is going to state that it all can agree on. The point is, really, is that there is principle and there is practice.

As a principle, we heartily endorse the idea of indexing Social Security benefits, whatever they are, for inflation. As a practical matter, the CPI may be biased. There is, as has been pointed out, not a perfect measure of the cost of living. There are a number of steps the BLS could do to improve the CPI. But we actually view it as a mistake to bring all of that into political adjustments.

We would encourage the BLS to measure the cost of living as best it can, to use the best possible cost of living indicators that we can for adjusting the system for inflation. But the system ought to be adjusted for inflation, and we all agree with that.

Senator SIMPSON. You noted, Dr. Gramlich, one positive feature of your plan, contrasting with that favored by Robert Ball and others, was that it improves the "money's worth" treatment for today's young workers. Why is that important, and what features of your plan achieve that?

Dean GRAMLICH. Well, the reason that is important is that, in the polling evidence that I believe you cited in your initial statement, that more and more as you survey younger workers you find less faith in the system. Part of the reason for that is that if you just do the numbers for those workers, that they are getting less of a return on their contribution.

One of the things that all of the plans that we are proposing do is to try to raise that money's worth for younger workers. The hope is to rebuild the confidence in Social Security, and in retirement saving in general, based on the real facts. That is, it is a better deal for people.

Actually, this is not a distinctive feature of my plan; all of the plans discussed today do both resolve the actuarial balance and raise the money's worth from Social Security saving or retirement saving for younger workers.

Senator SIMPSON. Just a final question, Mr. Schieber. How do we meet the cost of supporting the current retirees, which is something you all talk about, the current retirees and the need to keep the contract, keep the faith, and so on? How are we going to do that if we undercut the payroll tax in the way that you suggest, Mr. Schieber?

Mr. SCHIEBER. Well, we have tried to be very explicit about what we are doing. If we are going to raise the national savings rate, someone has to put some additional money in the piggy-bank. We have a very explicit tax that we have identified to finance the transition costs.

The magnitude of that tax would not be as large as the additional savings that is required in the Gramlich proposal, but we would have a specific flow of money, plus some temporary borrowing, that would get us through the transition period.

At the end of that period, because of the additional savings that have been going on in the economy, the Social Security system would be operating in a reasonable, stable balance, and the personal accounts that were held by workers would be the equivalent of 2.5 times Gross Domestic Product.

There would be some additional cost, but people would end up at the end of the day with more than half of their retirement systems

based on actual real capital instead of an almost purely unfunded retirement system.

Senator SIMPSON. Senator Moynihan, did you have any further questions?

Senator MOYNIHAN. I have one last, brief, statement. I do not know, Mr. Chairman, where the resistance comes that we encounter and have felt all morning to this notion of the difference between a CPI and a cost of living.

Here is the President's budget that just came out last week. It has a section on fixing biases in real GDP, changing the CPI.

"This is done, even though the CPI is explicitly not a cost-of-living index. Rather, it measures changes in the average cost of a fixed market basket of goods and services. By design, the CPI does not allow for those changes in consumption patterns that people make routinely to maintain their standard of living when prices are changing."

Then it goes on to discuss various things that they might do. Every 10 or 12 years, the BLS puts together a new market basket. There will be about a 0.3 percent drop this time; there was about 0.8 change in the 1980's.

It says, "These improvements in the CPI will go some way towards correcting its apparent tendency to overstate inflation. The largest potential biases—quality, measurement, and adjustments for new goods—will not be addressed by these changes. Continued research in these areas by BLS and outside experts is needed to improve this vital economic statistic."

Now, that is coming from an administration which, having contemplated making a big adjustment just a year and a half ago, has heard the voices of E Street and others. But, still, this is not a matter in dispute, is it?

Mr. SCHIEBER. Can I respond to that? I am absolutely in favor of trying to get a more adequate measure of the change in the cost of living. One of the things that they could do, is they could begin to measure the market basket more frequently than every 10 or 12 years.

One of the problems is, you measure it at the beginning of the 1980's, and here we are a decade and some later and we are still thinking about the market basket of the 1980's.

Just think back to the 1980's. We did not have home computers, we did not have the VCRs, we did not have a whole variety of things that we have today. If we measure the market basket more frequently, we solve part of the problem.

Now, it costs money to measure the market basket, and the Department of Labor does not have the resources. When you think about the true cost of not getting that number right, then it seems to me we are being penny wise and pound foolish.

Senator MOYNIHAN. We have no disagreement. I thank the panel and thank the Chair.

Mr. SCHIEBER. Now, the concern, I think, that the members of the Advisory Council have is that if we arbitrarily decide that it is overstating by 1 percent and we are wrong——

Senator MOYNIHAN. One percentage point.

Mr. SCHIEBER. One percentage point. I am sorry. One percentage point. If we are wrong and it is only a half a percentage point,

what you do then is, you reduce the real income for people who have long lives, over their lifetime.

Now, it seems to me, and I think it seems to most of us on the Advisory Council, if we wish to reduce the beneficiaries' lifetime benefits under this Social Security system, we ought to reduce the beginning benefit and then try and get the CPI right.

I think that is why there has been a reluctance on the part of the Advisory Council members to come out advocating a 1 percentage point reduction, or anything else, because we had the same technical experts in that you had in and they weaseled as much on us as they have weaseled on you.

Senator MOYNIHAN. No, they do not weasel on us. They come right straight forward, in a good faith, American way, and tell us the truth. Our problem is dealing with it. There it is, "Toward a More Accurate Measure Of The Cost of Living. We are going to get a final report from the Boston Commission later in the year.

Mr. SCHIEBER. We had their report. We also had the folk in from the Department of Labor who did not support that it was quite as bad as the Boskin report would suggest. I wholly advocate and support trying to get that right, trying to get the biases out of it.

Senator MOYNIHAN. Yes.

Mr. SCHIEBER. I think almost all of us do.

Senator MOYNIHAN. May I just make one last comment, Mr. Chairman. Our task as the Finance Committee is not just securing the American Social Security system, but also the American economy. We added $4 trillion to the national debt in the last 15 years.

That means $4 trillion that did not go into savings, that did not go into the formation of capital, human and physical. That is a prospect we must not allow to go forward, and that is why this particular index, this chip, as I say, is of larger importance than specifically the social insurance system is.

Dean GRAMLICH. If I may add, that is why it is also important that, in connection with retirement saving plans, that national saving be raised.

Senator MOYNIHAN. Yes. Well, there you are. On that note of harmony, Mr. Chairman, I thank you.

Senator SIMPSON. Well, I would say to my friend, Senator Pat Moynihan, as I say, whom I have enjoyed working with thoroughly through years of this committee and other committees, that we sometimes differ, obviously, in our philosophy and our politics. But we do not use fake figures on each other. That is what happens in this game.

We will vote on this $5 trillion debt limit. Then I am waiting for the nod of the head, and perhaps that move from my colleague. But, if we do everything that is planned to be done with regard to—and this is a partisan note—the Republican plan, the debt at the end of seven years will then be $6.4 trillion.

Senator MOYNIHAN. I dare not think what it would be under the Democratic plan.

Senator SIMPSON. Why, it would shock our very sensibilities. But, nevertheless, that is where we are. When we finish whatever we are doing—and we will do something because the President wants to and the Republican Congress—we will do something called a balanced budget, and when we are through in 7 years it is still going

to be unbelievable what we owe in debt. Everybody is just kind of singing along.

But I do very much enjoy your participation and you are great to take the time, as you do. Thank you very much, all of you. This is very helpful to us.

This concludes the hearing.

[Whereupon, at 12:12 p.m., the hearing was concluded.]

APPENDIX

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

PREPARED STATEMENT OF HENRY AARON*

Mr. Chairman:

Thank you for the invitation to testify this morning on the status of the social security system. In my testimony, I wish to make five major points.

- **U.S. Social Security planning procedures are among the more conservative now in use.** According to the Office of Research and Statistics, most European countries look forward twenty-five to thirty years. A few project for longer periods. If the United States limited its projections to the horizons used in most other countries, **Social Security would appear to be in robust health, as the twenty-five year actuarial projection shows a surplus of 0.54 percent of payroll and trust fund reserves increase throughout that period.**
- The practice of making long-term Social Security projections is a major strength of the U.S. system. Congress is correct to pay attention to these projections. But officials should understand that projections are not forecasts and make no claim to accuracy. In fact, recent projections have been well off the mark. (I describe recent projection errors in the main body of my testimony.)
- **The projected long run deficit in social security does not come close to meriting designation as a crisis.** The total increase in the cost of social security from 2005, just before the oldest baby-boomers reach age 62, to 2035, when the youngest baby-boomer has retired, is projected at 2 percentage points of gross domestic product. That increase, which will be spread over three decades, is the same size as the increase that actually took place between 1960 and 1977 or between 1970 and 1982. Those events were not crises. Neither is this one. Moreover, the social security system is currently collecting revenues well in excess of outlays.
- **The projected long-term deficit in social security should be the basis of remedial action undertaken as soon as possible to restore projected seventy-five-year trust fund balance.** It is important that Social Security continue to be managed conservatively, as it has been throughout its history, to restore the confidence of the American people that intergenerational promises embodied in Social Security will indeed be kept. The current Advisory Council is divided on how best to restore long-term balance. It will lay out some of the options the American people should debate.
- **The public and Congress should understand that the financial challenges posed by Social Security are modest, not only by historical standards, but in comparison with the challenges of increased health spending.** *Over the same three decades, during which the cost of OASDI is projected to rise 2 percentage points of GDP, the cost of medicare is projected to rise 5.5 percentage points.* And that projection omits both any added medicaid spending and the budget consequences of any new public support of the costs of long-term care, through either direct spending or tax incentives. Given the size of these increases, budget pressures will require major changes in medicare. *The modest size of the long-run deficit gives no reason based on financial projections alone to radically change the structure of social security.* Major changes, such as mandatory private saving, should be evaluated on other grounds.

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*Director of Economic Studies. The Brookings Institution. The views expressed in this statement do not necessarily reflect those of staff members, officers, or trustees of the Brookings Institution.

WHAT SOCIAL SECURITY'S FINANCIAL STATUS MEANS FOR STRUCTURAL REFORM

From a purely mechanical standpoint, it is possible to restore projected financial balance in Social Security in many ways. The Advisory Council will present three. None commands majority support. In any event, the profound importance of Social Security for the financial security of the elderly, disabled, and survivors means that careful study of alternative approaches and widespread popular debate is merited. If ever there were an issue that called for assiduous and patient efforts to reach what public opinion expert Daniel Yankelovich has called "public judgment," this issue is it. Yankelovich contrasts "public judgment" with "mass opinion." Yankelovich describes as "mass opinion" the situation when attitudes depend sensitively on how a question is worded, when current news has a big effect on answers, and when responses vary based on what question was asked just before. He contrasts such will-o'-the-wisp views with "public judgment," a situation that prevails when answers are insensitive to wording, immediate events, or context. Reaching public judgment takes time for education and debate and, most of all, for the public to work through the conflicting goals at war with one another in any complicated question.

Public judgment exists on the current social security system. The public is unsure that it will get the benefits promised under current law. But the public has made clear beyond dispute through countless surveys not only that it wants those benefits but that it is even willing to pay higher taxes to secure them.

Public judgment does not yet exist on the issue of privatization. It could not possibly exist because the idea is so new and its virtues and shortcomings are so little analyzed. For example, neither the public nor many experts seem to understand that tax increases or other forced reductions in consumption are inevitable under all privatization plans. Furthermore, privatization comes in so many guises with such different features that the public as yet has no clear understanding of its meaning. In this respect, the concept is rather like "health care reform," an idea turned out to mean so many and such different things that the supposedly widespread support of the generality turned into chaotic disagreement over the specifics. Attitudes toward one or another variant of privatization may crystallize. But that has not happened yet.

The key aspect of the current and projected financial status of Social Security is that it allows time for the public to reach judgment on whether to make incremental reforms in the current system or to adopt more far-reaching changes, such as those entailed in one form or another of privatization. Social Security reserves are projected to continue growing for more than twenty-five years. The added costs of the system are significant, but they are not so daunting that panicky actions are justified.

Nonetheless, the commitments under any retirement system are very long term in character. People plan saving and work years before retirement based on their expected retirement incomes. It would be insupportable to make abrupt policy changes that falsify the expectations of people on the eve of retirement (and I feel this more strongly every year!). But for the same reasons, it would be irresponsible to wait until cash-flow deficits are upon us before taking steps to close projected deficits. That means that we should try to legislate changes now that would gradually take effect in time to correct the long-term deficits that the actuaries currently project. There is another argument for acting soon. Those soon to retire will receive higher returns from Social Security than will those who retire later. Making effective soon any benefit reductions that may be implemented as part of a program to close the long run deficit will impose some of the costs on these earlier cohorts.

In doing so, we should recognize that future projections are certain to differ from today's, just as current projections differ significantly from those made a few years ago. Future projections may be more adverse or more favorable than those made today. As noted below, certain current assumptions are probably too optimistic, others too pessimistic. Even if the current projections were forecasts, we would be foolish to regard them as accurate, given the quite dismal record of economic and demographic forecasts. But the projections are not forecasts, merely the explicit working out of the consequences of a set of assumptions most of which have been subject to important revisions in the past and will, assuredly, be subject to significant revisions in the future.

To put the matter bluntly, only someone who was a fool or irresponsible would make radical changes in a program so fundamentally important as Social Security based solely on declines in the trust funds not projected to begin for more than a quarter of a century. There is nothing sacrosanct about the current Social Security system and changes should be debated and enacted if the public judges them desirable. But those actions should be based on sober consideration of the kind of retire-

ment system the public wants and the appropriate role for the federal government to play, not on a misguided rush to action based on fomented hysteria about "crisis."

CHANGES IN LONG-TERM PROJECTIONS

In 1983, the actuaries projected approximate long-term balance for the Social Security system. The 1995 trustees report projected a long-term deficit of 2.17 percent of taxable payroll, about one-sixth of projected program revenues. What happened in the interim? The answer is shown in the following table:

Balance in 1983 trustees report	+0.02
Changes:	
Legislation	+0.10
Valuation period	−0.55
Economic assumptions	−0.79
Demographic assumptions	+0.83
Disability assumptions	−0.70
Methods	−0.93
All other	−0.15
Balance in 1995 trustees report	−2.17

Before turning to an explanation of these changes, I think it is important to recognize that the economic and demographic assumptions used in the projections ultimately are made by the trustees upon the advice of the actuaries. The actuaries, who prepare these projections, are unusually explicit in reporting on changes in estimates, whether based on assumptions or methods, and all are explained in detail in annual trustees reports. While the adjustments over the past dozen years have, on balance, resulted in a more pessimistic vision of the future than existed at the start of this period, I believe that any suggestion that the trustees are acolytes of the siren, "rosy scenario," would be based on ignorance or mischief. I have observed the actuaries at work, from both the outside, as a student of the Social Security system, and from the inside, as assistant secretary for planning and evaluation in the (former) Department of Health, Education, and Welfare. I can testify to the irreproachable professionalism of the actuaries that I have observed.

I shall limit my explanation to the larger adjustments:

Valuation period—The payroll tax rate is flat over the entire seventy-five-year projection period at 12.4 percent of payroll. The cost of benefits rises over this period. Payroll taxes exceed benefits in the early years and fall short of them in the later years. With the passage of each year, one of the early, "surplus" years recedes from the projection period, to be replaced by a later, "deficit" year. Thus, the simple passage of time steadily moves the trust fund toward deficit. This shift does not reflect a projection error of any sort. The only way to avoid it under a seventy-five year projection would be to make sure that the relationship between revenues and costs were approximately constant over time.

Economic assumptions—Four major changes in economic assumptions have been made. First, the actuaries lowered the assumed rate of growth of real wages from 1.5 percent per year to 1.0 percent. This assumption remains, if anything, a bit optimistic, based on current earnings growth. Second, they reduced their projections of labor force participation, because female labor force participation stopped growing. Third, the actuaries lowered their projections of the percentage of covered earnings subject to payroll tax. They made this change because increase in earnings inequality means that an increasing share of earnings falls above the taxable maximum. Fourth, the actuaries increased the estimated real rate of interest on trust fund assets from 2 percent to 2.3 percent. This change improves the trust fund balance. Some further increase in this interest rate may be warranted, based on yields on Treasury securities over the past decade.

Demographic Assumptions—The actuaries have made two major changes in demographic assumptions that have improved the projected trust fund balance and one that has worsened it. These changes indicate the paradox that news most people would regard as unfavorable may improve the financial status of social security, and, conversely, news most people would regard as good may worsen financial status. The two modifications that improve financial prospects are explicit recognition that illegal immigration is here to stay and that life expectancy after age 62 has not been improving as much as previously projected. Working in the other direction, the projected total fertility rate was reduced slightly and is now a bit below actual birth rates. Were the assumed birth rate to be raised to its current actual level, the projected financial status of social security would improve.

Methods—Since 1983, the actuaries have begun to include in their projections the value of the initial trust fund and the cost of building a reserve of one-year's expenditures. In combination, these two changes improve projected trust fund balance. They have changed the age distribution of immigrants. They discovered an error in their former method of projecting new benefit awards. And they have returned to a method they used in the past for weighting the balances in each of the seventy-five years for purposes of calculating the average balance over seventy-five years. While the changes in methods adopted over the past twelve years have worsened the trust fund projection, there is no reason to believe that any future changes the actuaries may find necessary will on balance go one way or the other.

The actuaries also made a large number of other small changes, some of which (incorporating the effects of new legislation, for example) can hardly be labeled as mistakes.

PREPARED STATEMENT OF EDITH U. FIERST*

The Trustees have reported that Social Security will have a shortfall of 2.17 percent of wages over the next 75 years. After the 75 years have elapsed, we know this amount will increase as the smaller older generation on the benefit rolls is replaced by a larger younger generation. We must do something to save Social Security, the bulwark of the financial security of older Americans. Fortunately, small changes will be adequate.

One important change would be investment in equities. Private companies with pension plans are required to diversify their investments to meet ERISA's test of prudence. All members of the Advisory Council believe Social Security should do the same in order to gain the average of 4 percent per annum by which, over time, private equities outperform the government bonds in which the trust fund has heretofore been invested.

The difference of opinion among us is whether investments in equities should be made by individual workers or fly the trust fund. I am one of six members who believe the risk should be borne collectively by the trust fund.

We suggest that investments be made through broadly based index funds SG as to minimize government interference in business or the risk that political considerations will affect the choice of investment. Investment should be made for the sole benefit of the workers covered by Social Security.

Professional leadership in managing the investments is necessary. We suggest appointment of a panel (perhaps with three members appointed by the President and approved by the Senate) to determine the amounts to be invested, the appropriate vehicles, and to monitor the ongoing progress of investments.

Another advisory group should be appointed to advise on how to respond when companies in which Social Security has a major stake are the subject of hostile takeovers, are in danger of failing because of poor management, or face other issues of corporate governance.[1] Policy issues of this sort should be reviewed and general solutions developed before Social Security begins investment in private markets.

If instead of the trust fund making the investments and thereby pooling the risk, the risk of investing of nearly half their FICA tax were to be placed on individual retirees, as the plan for Personal Savings Accounts would do, the following serious problems would be raised:

1. Estimates of earnings by private investments are based on averages, but not all investors earn average returns. Those workers who make poor choices of securities or who retire when the market is in a downswing could get severely reduced or no income from their private investments. That would leave them primarily dependent upon benefits based on the portion of FICA not privately invested, the first tier, which would be approximately $400 a month. This is $200 a month short of the estimated poverty line of about $600 for an elderly person living alone in 1996.

SSI, welfare for the elderly funded by general taxes, might have to fill the gap left by investments failures and loss of benefits for the other reasons discussed below.

2. Social Security's actuaries estimate that average earners would not gain income from the PSA plan, and low-wage workers would gain only marginally. The high paid do better because earnings from PSA's would be proportionate

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*Member of the 1994–5 Advisory Council on Social Security

[1] An example of such a policy review was made in 1989 at the request of then Governor Mario Cuomo. The report was entitled *Our Money's Worth* and it was drafted by the Governor's Task Force on Pension Fund Investment under the leadership of Ira Milstein.

to the investments they made, and high income workers would invest more. Benefits to the low paid would not be adversely affected to the same extent as those of average workers because of the relative importance to them of the first tier of flat benefits. Nevertheless; average wage employees would be required to shoulder major risk with little likelihood of gain.

3. Payments under Social Security have always been made and on time. There have been no scandals. This is not true for the private markets. Remember insider trading and its victims, the savings and loan fiasco, the derivatives that sank Orange County. Currently we hear that some employers who withheld money from employees to pay for 401(k) plans have failed to make these investments. To paraphrase Barnum, new swindles are born every day. They should not be allowed to affect the basic retirement security of older Americans.

4. At least 75 million working Americans have never invested in the stock market. How will they know what choices to make? The SEC tries to protect investors primarily through required disclosures, but it takes sophistication to read a corporate report and understand what it means, a sophistication many of the 75 million are unlikely to acquire.

5. Administration of Social Security costs eight-tenths of one percent. If investments are made individually, investment advisers, mutual funds, stockbrokers, etc. will all expect to be paid. Small investors have traditionally been required to pay more than large investors. Agency fees could easily eat up a major portion of any extra earnings from equities.

6. The PSA plan does not require retirees to annuitize their investments; hence some retirees will outlive their assets. If, on the other hand, the proposal were to be amended to require annuitization, those who planned to retire during a bear market may be unable to buy adequate annuities. The resulting insecurity about retirement dates and income would replace the confidence in Social Security with which older workers now retire.

7. For a married person who has earned smaller benefits than his or her spouse, Social Security provides (i) a spouse benefit payable when both husband and wife are retired which assures the lower earner a separate income equal to half the higher earning spouse's benefit, and (ii) a survivor benefit payable during widowhood equal to the full benefit of the higher earning spouse. These auxiliary benefits usually so the wife. They would not be payable on Personal Savings Accounts. Rather, for benefits above the first tier, the couple would be entirely dependent on the worker's PSA, which might or might not be available to the lower earner.

If regulations do not control this—and none has been proposed—many retirees will spend their assets on themselves during their lifetimes, and leave only the auxiliary benefits on the first tier with its subpoverty level incomes for their surviving spouses. A joint and survivor option, similar to that ERISA requires private pension plans to offer in the absence of a waiver by the spouse, causes a reduction in the amount of benefit paid to the retiree; it is waived by some spouses who would otherwise benefit, perhaps out of ignorance or because the relationship leaves them without power to object.

8. In divorce today Social Security is rarely an issue. Both spouses know that if the marriage has lasted ten years or more, auxiliary benefits are payable to the lower earning spouse as a matter of law, without any reduction in the benefits payable to the higher earner. This would not be true under the PSA plan. Instead, the PSA would become an asset for divorce courts to divide in accordance with 51 differing state laws. Either husband or wife could lose, and badly. Both could incur litigation costs. Only divorce lawyers would gain.

9. Cost of living increases would not be payable on PSAs as they are under today's Social Security.[2] COLAs assure that the buying power of a Social Security benefit is not diminished by inflation. Even when inflation is low, they are necessary to prevent substantial decreases over time in the value of a benefit.

10. Costs for transitioning to the PSA plan would be high. The way to pay these costs urged by proponents in the Advisory Council is a 1 percent sales tax on everything, including food, for 70 years. The draft written proposal says this would be beneficial as a way to discourage consumption, but not all consumption is for luxuries. Do we wish to discourage purchase of food for children? Oil for heating homes? Housing? Medicine?

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[2] Our group is not suggesting legislative change in cost of living increases. However it is our understanding that a review of the Consumer Price Index on which the COLA is based is presently underway at the Bureau of Labor Statistics and that it is likely to result in a downward revision of the CPI. An estimate of savings has been included in our analysis.

11. When disasters such as unemployment or illness happen to individual workers, they will want to obtain their Personal Savings Accounts to preclude foreclosure of their homes and to pay for medical treatment. Will Congress be able to resist allowing invasion of the PSA in such cases? If it does not, retirees will be without adequate Social Security benefits.
12. In the versions I have seen, the PSA plan does not provide for the disabled or the survivors of workers who die young before they have accumulated a Personal Savings Account.

All of the above issues represent substantial dangers to retirees who today rely on Social Security as their basic retirement income. Let's not take away the financial security of older Americans, but let us save the system with reasonable and small changes.

PREPARED STATEMENT OF EDWARD M. GRAMLICH

Thank you, Mr. Chairman, for inviting my testimony on the status of the Social Security system. As you know, the Quadrennial Advisory Council on Social Security Policy, which I chair, is just now concluding its two-year study of this issue.

Our Council invited several outside speakers and engaged two Technical Panels to review the full set of issues. After many informational sessions and much internal debate, we have determined that there appear to be at least three long run issues of concern for Social Security:

- Actuarial balance. The system is now out of actuarial balance over the customary 75-year forecasting horizon. The imbalance of 2.17 percent of payrolls means that if the actuarial imbalance were to be confronted tomorrow by raising taxes, the combined OASDI rate would have to rise by 2.17 percentage points, from its present level of 12.4 percent combined rate to 14.57 percent combined rate. Since cuts on the spending side cannot be made so abruptly, they would have to be proportionately even greater.
- Long term trends. The aging of the US population means that benefit costs are gradually rising compared to revenue inflows. This means that any time the system is brought into actuarial balance over a 75 year period, the passage of time alone, with no changes in assumptions or experience, will take it out of balance.
- Money's worth. The system has gradually matured to the point where many workers, particularly younger workers, do not get a very high implicit rate of return on their payroll contributions and those their employer has made on their behalf.

The Council has agreed that these three problems need to be addressed, the sooner the better. There are, as you probably know, three different plans for addressing the three problems. One plan, presented this morning by my fellow Council member Edith Fierst, is called the Maintain Benefits (MB) plan. It involves increasing the taxation of Social Security benefits, an eventual diversion of revenues now going to the Hospital Insurance Trust Fund to the OASDI Trust Funds, and having the OASDI Trust Funds gradually build up their portfolio of equities. Another plan, presented by my fellow Council member Sylvester Schieber, is called the Personal Security Accounts (PSA) plan. It involves converting Social Security gradually to a flat benefit system with large-scale individual accounts held outside the government, along with a transition tax and some added borrowing to make good on benefit credits that workers have earned under the present system.

My own plan is called the Individual Accounts (IA) plan. It involves some of the same changes as made in the MB plan, a slight scaling back of the growth of benefits at the high wage end, buttressed by smaller-scale defined contribution individual accounts. These would be financed by a mandatory charge of 1.6 percent of payrolls, held by the government with constrained investment choices including equity index funds, annuitized on retirement, with the proceeds taxed on a consumption tax basis.

For the most part in my role as Council chair I have tried to be fair to each of these plans. This morning I drop that impartiality a bit to argue for my own plan. There are several points in its favor:

- It preserves all the important protections currently present in Social Security. The PSA plan scales back benefits so much that some of these protections are impaired.
- It raises national saving. All studies indicate that people really should be saving more for their retirement. The MB plan falls short of this goal, in my view. There are precious few measures to raise national saving in that plan.

- It provides a convenient way to get some retirement funds invested in equities. The MB plan only works with a potentially large amount of equity investment done by some central board. We really do not understand how this would work, or whether it would work. Would there be political tampering with the funds, however passively they are managed? Would there be pressure from other trust funds (the Highway Trust Fund, say) to get into equities? Will there be natural limits to the amount of equity investment, or will future Congresses press for more and more equity investment to avoid making benefit cuts? Will there be bailouts of Social Security if the stock market crashes? My plan limits the equity investment and lets people decide how much of their own funds should be invested in equities.
- It raises the money's worth from retirement saving for younger workers.
- It avoids any particular transition difficulties, particularly the large transition tax and borrowing of the PSA plan. The system is scaled back appropriately to preserve actuarial balance, and workers naturally get the proceeds of their individual accounts as these are built up.
- It converts the individual accounts to minimum guarantee indexed annuities. While present Social Security benefits are of this form, the PSA individual account proceeds would not be, hence permitting short-sighted retirees to overconsume early in their retirement.

These are six impressive advantages. If there is a desire to preserve Social Security, to raise national saving, to have a sensible way to get this saving invested in equities, to raise the money's worth for younger workers without putting older workers at the mercy of transition difficulties, and to protect retirees through their entire retirement, I see no way around a measure something like the IA plan. I urge you all to take it very seriously.

Prepared Statement of Olivia S. Mitchell

I am Olivia S. Mitchell, a Professor and Executive Director of the Pension Research Council at the Wharton School of the University of Pennsylvania. I co-chaired the Technical Panel on Trends in Income and Retirement Saving for the Social Security Advisory Council, and the Final Report my committee submitted last year forms the basis for my testimony today.

Let me begin my remarks by commending this Committee for holding such an important hearing on the work of the Social Security Advisory Council and the two Technical Panels that supported the Council's labors. On my panel, we were fortunate to have the advice and counsel of some very wise and hard-working experts, and I am delighted to summarize our findings before your group today. Also I believe that the consensus we achieved in preparing our Final Report speaks to the value of hard work and cooperation in arriving at a consensus regarding the critical issues before us.

To introduce my topic, we recognize that the social security system is not in long-term actuarial balance. As you know, the Social Security Trustees project that Old Age, Survivors, and Disability Insurance (OASDI) tax revenues will be less than currently legislated benefits after the year 2013, under current rules and intermediate assumptions. In the year 2020, annual benefits will begin to exceed OASDI revenues collected, with a projection depletion of OASDI Trust Funds in 2030. Over the 75 year long-range planning horizon, the difference between the projected social security income and cost flows is a deficit equal to an annual 2.17 percent of taxable payrolls. Some combination of benefit decreases and/or revenue increases will be required to close this gap.

With this fact in mind, the Technical Panel took on three tasks:

- First, we examined trends in pensions and retirement, to understand retirement and savings patterns in general.
- Second, we developed several criteria to be used in evaluating specific social security reforms.
- Third, we used these criteria to evaluate a range of potential social security reforms, ranging from tax increases, to benefit cuts, to partial privatization.

Let me now summarize our findings and recommendations.

Will Trends in Income and Retirement Savings Offset the Need for Social Security Reform?

The Panel believed that there would be a slow tapering off of early retirement, but probably no dramatic increase in pension coverage barring major regulatory change. We were also not optimistic about a dramatic turnaround in U.S. saving rates without institutional change.

Because of this, and because of anticipated further increases in life expectancy, we concluded that delayed retirement would be the most likely and easiest response to these trends for the majority of older Americans. (We recognized that for some, poor labor market prospects would make this adjustment difficult or impossible)

HOW CAN SOCIAL SECURITY REFORMS BEST BE EVALUATED?

The Panel developed six criteria that we felt should be used to evaluate social security reform proposals. Any particular reform might not achieve all six objectives, but we suggest that policymakers and system participants will find these criteria helpful in their analysis:

Criterion 1. Adequacy of retirement income.

A social security reform should contribute to an adequate retirement income for older citizens.

Criterion 2. Insurance against income shocks.

A social security reform should afford a degree of income protection, insuring against shocks which reduce a worker's earnings potential including death and disability.

Criterion 3. Avoidance or reduction of inefficiencies.

A social security reform should limit or reduce labor market and savings distortions and also increase system administrative efficiency.

Criterion 4. Equity of lifetime social security taxes and benefits.

A social security reform should be examined in terms of how it alters the distribution of lifetime benefits and taxes both between and within generations of taxpayers and workers.

Criterion 5. Encouragement of national saving.

A social security reform should be evaluated in terms of its expected effects on aggregate national saving.

Criterion 6. Strengthening the financial integrity of retirement income institutions.

A social security reform should strengthen the integrity of private individual, group, and employer retirement saving plans.

OPTIONS FOR SOCIAL SECURITY REFORMS

One conclusion the Panel came to agreement on is that time for reforming the social security system is running out. In our view, needed changes in social security benefits should be announced soon, with sufficient lead time for workers to adjust their savings, consumption, and retirement plans, to help people prepare for the future. And this is particularly important if eligibility ages and benefit levels must be changed: these reforms should be phased in over time, rather than implemented abruptly.

The Technical Panel did not come to a single view regarding raising taxes or decreasing benefits. Rather, we began with some benchmark options, which are combinations of proportional benefit cuts and/or payroll tax increases sufficient to restore actuarial balance over the next 75 years. The Table below illustrates the polar cases, which in each instance assumes the reform was legislated to begin in the year 2002, and no other changes were made beyond those in current law. In the Table, looking from left to right, benefit decreases become larger and tax increases grow smaller.

What this Table shows is that delay is very costly.

- If Congress were to close the insolvency gap only by raising taxes, and did it soon (in the next five years), the payroll tax rate would have to rise by 2.5 percentage points. However if we wait fifteen years, the tax rate would have to be 3.12%, and if we wait till the baby boomers are old, the tax will have to be 4%—a one-third increase in the current payroll tax rate.

COMBINATIONS OF PIA DECREASES AND PAYROLL TAX INCREASES ADEQUATE TO RESTORE 75-YEAR ACTUARIAL BALANCE, THREE ALTERNATIVE START DATES

	Size of social security retirement program		
	Larger		Smaller
Start date 2002:			
Percentage cut in benefits	0%	10.25%	20.5%

COMBINATIONS OF PIA DECREASES AND PAYROLL TAX INCREASES ADEQUATE TO RESTORE—Continued

75-YEAR ACTUARIAL BALANCE, THREE ALTERNATIVE START DATES

	Size of social security retirement program		
	Larger		Smaller
Tax rate increase	2.5	1.25	0
Start date 2012:			
Percentage cut in benefits	0	12.75	25.5
Tax rate increase	3.12	1.56	0
Start date 2022:			
Percentage cut in benefits	0	16.75	33.5
Tax rate increase	4.04	2.02	0

Note: Each proposal is structured so as to restore actuarial balance over the next 75 years, assuming changes implemented as of the start date given and no other changes beyond those already legislated. Computations are based on assumptions and time horizons relevant in 1994. Figures from SSA, Office of the Actuary. See Technical Panel (1995).

- If Congress were to close the insolvency gap only by cutting benefits, and did it soon, benefits would have to be cut by 21%. If we wait fifteen years, benefits will have to be cut by 26%, and by one-third if we wait till baby boomers are retired.

Turning to specific proposals on the benefit cut side, our Panel concluded that if benefits have to be cut, the best approach would include raising the Normal Retirement Age further (beyond 67) and eventually indexing it to life expectancy; both of these should be done quickly and smoothly. Also most of the panel favored raising the Early Entitlement Age, with most supporting a new early age of 64 or 65. On the whole, we opposed means-testing social security benefits on the basis of other retirement income or accumulated wealth. We also favored smaller benefit reductions for those already retired than for future retirees, if cuts are required, and also disproportionate benefit cuts for those receiving higher benefits versus an across-the-board decrease.

Turning to specific proposals on the tax increase side, our Panel concluded that if additional taxes had to be raised, the best approach would be to raise the payroll tax rate rather than increasing the taxable earnings threshold or including employee benefits in the taxable wage base.

The Panel also concluded that OASI should continue to be at least partly funded. And though we explored the idea of investing some of the retirement system Trust Fund reserves in equities, the Panel felt there were enough problems with the idea that we concluded the issue deserved additional study.

Individual Accounts Under Social Security

The Panel also evaluated converting a portion of the social security contribution stream into individual accounts. Many Panel members find this proposal promising, if the remainder of the social security system can still be made solvent. Most of our group would move toward this model only if workers could be prevented from accessing the funds for any reason other than retirement, and we also would not make funds in the individual accounts available as a lump sum cashout. In our report we also discuss whether it would be a good idea to have these individual accounts invested by a government run plan, or by the private sector.

Other Retirement System Changes

Lacking time, I will not go into the other Panel conclusions, except to say that we strongly favored encouraging private saving and pension investments, particularly by simplifying the tax rules under which employer pension plans operate and increasing the incentives for private savings, such as raising the limits on Individual Retirement Accounts. Even more crucially, we were very supportive of the proposal to have the government issue Treasury bonds indexed to price inflation, recognizing that some phasing in of this new credit instrument would be necessary.

Conclusions

For fifty years the social security program in the United States has been extremely successful. When fiscal problems were forecasted in the past, adjustments were made to address the problems. The same is needed now to return social security's fiscal house to order, and I commend you on turning your attention to this critical issue.

Thank you for your kind attention.

Reference: Technical Panel on Trends and Issues in Retirement Saving, Final Report to the 1994-1995 Advisory Council on Social Security, December 1995. (available over Internet on www.ssa.gov, or via lexis.pop.upenn.edu/aging—wps.html)

FINAL REPORT TO THE 1994-95 ADVISORY COUNCIL ON SOCIAL SECURITY TECHNICAL PANEL ON TRENDS AND ISSUES IN RETIREMENT SAVING

EXECUTIVE SUMMARY

The charge of the Technical Panel on Trends and Issues in Retirement Savings (TIRS) was to "assist the 1994-95 [Social Security] Advisory Council with respect to its charge to analyze the relative roles of the public and private sectors in the provision of retirement income, particularly how underlying policies of public and private programs, including relevant tax laws, affect retirement decisions and the economic status of the elderly."

The Panel members were:

Olivia Mitchell, International Foundation of Employee Benefit Plans, Professor of Insurance and Risk Management, The Wharton School,University of Pennsylvania (co-chair)
Joseph Quinn, Professor of Economics, Boston College (co-chair)
G. Lawrence Atkins, Director of Health Legislative Affairs,Winthrop, Stimson, Putnam & Roberts
Richard Burkhauser, Professor of Economics, The Maxwell School, Syracuse University
Gary Burtless, Senior Fellow, The Brookings Institution
Robert Clark, Professor of Economics and Business, North Carolina State University
Peter Diamond, Paul A. Samuelson Professor of Economics, Massachusetts Institute of Technology
John Haley, Watson Wyatt Worldwide, Inc.
Daniel Halperin, Professor of Law, Georgetown University
Eric Hanushek, Professor of Economics and Director, Wallis Institute of Political Economy, University of Rochester
Diane Macunovich, Associate Professor of Economics, Williams College
Dallas Salisbury, President, Employee Benefit Research Institute
John Shoven, Charles R. Schwab Professor of Economics and Dean, School of Humanities and Sciences, Stanford University,
Stephen Zeldes, Professor of Finance, The Wharton School, University of Pennsylvania.

The Panel met in Washington, D.C. for nine sessions, including two presentations before the Advisory Council, and produced this Report. The full text of the report is available from the Social Security Administration or over internet (www.ssa.gov).

INTRODUCTION

The social security system is not in long-term actuarial balance. The Social Security Trustees, using their intermediate assumptions, project that currently legislated Old Age, Survivors, and Disability Insurance (OASDI) tax revenues will be less than currently legislated benefits after the year 2013. Projected benefits begin to exceed the sum of OASDI taxes and interest earned in 2020, resulting in a decline in the OASDI Trust Funds, and projected depletion in 2030. Over the 75 year long-range planning horizon, the difference between the projected income and cost flows is a deficit equal to an annual 2.17 percent of taxable payrolls. Some combination of benefit decreases and/or revenue increases will be required to close this gap.

In addition to these social security retirement and disability program concerns, much more immediate funding problems exist with the Hospital Insurance component of Medicare, whose Trust Fund is projected to run out in 2002. Moreover, Congressional Budget Office analysis of the President's proposed budget for fiscal year 1996 projects continued federal budget deficits through the year 2000. It is in this context that the Technical Panel on Trends and Issues in Retirement Savings discusses various social security options below.

The Executive Summary begins with a section on current and projected trends in labor markets, employer pensions, savings and the well-being of the elderly. The Summary then discusses policy options designed to deal with projected social security fiscal imbalances, as well as selected other proposals to improve the economic well-being of future retirees. The Summary includes other conclusions and sugges-

tions that the Panel thought were useful to convey to the Advisory Council on Social Security and to the public at large.

The Panel did not seek consensus; rather, its charge was to develop evaluation criteria and to use them to discuss a range of policy options. The Panel discussed both incremental and wide-ranging changes in social security and related programs, changes designed to alleviate both social security's long run fiscal deficit and the broader problem of potentially inadequate retirement income for future generations of retirees. On many of the issues discussed, Panel members were not unanimous, although on some issues they did all agree. Available evidence and supporting arguments are contained in the body of the Final Report.

Some topics were beyond the Panel's charge and therefore are not discussed in detail in this Report. One is the central role of the nation's overall economic health, which has a major impact on the social security system's fiscal health. To the degree that social security encourages, or at least does not discourage, work and savings, it enhances the prospects for economic growth. The Panel also did not examine how changes in the medical care and health insurance markets will interact with the Medicare and Disability Insurance programs. These two components of the social security system were the subjects of reports by previous Social Security Advisory Councils, and were beyond this Panel's purview.

TRENDS IN LABOR MARKETS, PENSIONS, SAVINGS AND THE WELL-BEING OF THE ELDERLY

In this section, the Panel discusses recent and probable future trends likely to affect the economic well-being of future retirees. Here the Panel assumes no major changes in the institutional environment, even though it realizes that changes in the largest program, social security, are absolutely necessary. Given its importance to older Americans, significant changes in social security may well affect the trends discussed here.

Labor force participation rates of older Americans (especially men) declined dramatically between 1950 and the mid-1980s. This decline coincided with expanded coverage, increased real benefits and earlier ages of eligibility for retirement benefits in both social security and many employer pension plans. Since the mid-1980s, however, this early retirement trend has abated or stopped.

- In the absence of major institutional change, but given the already legislated change in the Normal Retirement Age for social security from 65 to 66, and then to 67, the Panel anticipates a slow and modest reduction in early retirement, with Americans retiring slightly later over the next several decades.

The American labor market is changing in significant ways. Traditional manufacturing employment is declining, and service jobs are on the rise. Some evidence suggests that the quality of jobs is becoming more bimodal, with job growth among low-skilled, low-paid service workers and high-skilled, high-paid technical and professional employees. This pattern of job growth is reflected in the changing American income distribution, which is becoming more unequal.

Employer pensions are also in flux. After increasing rapidly during the 1950s and 1960s, the proportion of workers participating in an employer pension has leveled off, with slight increases appearing in 1993 and 1994 for the first time in years. About half of the full-time civilian labor force is participating at any given time. Participation rates increase significantly with age, job tenure and earnings level, suggesting that the proportion of workers covered at some time during their work lives will be higher than indicated in any cross-sectional snapshot. Vesting in plans has grown, meaning that entitlement to benefits has increased. There is a movement away from traditional employer-managed and directed plans (often with defined benefits) to more individualistic plans, with faster vesting, more elective contributions and participant-directed investments.

- Barring major institutional change, it is unlikely that pension coverage will increase significantly over the next several decades. Benefit entitlement will grow because of faster vesting, and the trend toward more participant-directed, defined-contribution plans will continue. Below, the Panel discusses policy options that might be adopted to encourage additional pension coverage.

Private and aggregate national saving in the United States are low by international and by the nation's own historical standards. Many Americans reach retirement age with little personal savings beyond equity in a home. Little professional agreement exists on what public policies short of mandates would encourage a significant change in American savings habits.

- The Panel is not optimistic about any dramatic turnaround in U.S. saving rates, although there is some expectation of modest increases in private savings if future social security benefits were decreased.

The economic status of elderly Americans has improved significantly over the past several decades. Median incomes of the elderly have risen relative to those of the rest of the population, and elderly poverty rates have fallen precipitously, even as fewer and fewer older Americans remained at work. Much of the credit for this improvement goes to federal programs—especially social security—and to the growth of employer based pensions. Around these encouraging averages, however, remain significant pockets of economic distress, with poverty much more prevalent among elderly who are very old, living alone, female, Black or Hispanic. The financial costs associated with long-term care remain a major economic risk, even for middle- and upper-middle income Americans.

Evaluation of the retirement prospects of the current generation of middle-aged workers, the baby boomers, depends on the point of comparison. Their income and asset accumulation experiences thus far suggest that current workers, especially those at the upper end of the income distribution, will approach retirement with more resources than their parents did, but without enough to maintain the standards of living that they themselves enjoyed prior to retirement. The baby boomers are unlikely to enjoy the dramatic increases in the value of their real estate or the legislated real increases in social security benefits that their parents did; in fact, social security benefits have been cut (through legislated delays in the Normal Retirement Age and the taxation of some benefits), and additional decreases may be legislated in the future. The groups of elderly now disproportionately at risk of poverty are likely to remain so. An important unknown is the rate of growth of real wages over the next several decades. Some analysts extrapolate from the dismal record of the past two decades, and foresee only very modest growth in the future. Others point to demographic changes on the horizon (smaller entry level cohorts), and anticipate real wage growth more in line with long-term trends

Life expectancy is expected to continue to increase. Although life expectancy and health status do not always move in lock step, recent evidence suggests that the health status of the elderly is improving on average and will continue to do so in the future.

Because the social security system is not in long-term actuarial balance, significant adjustments in future contribution levels and/or benefit outlays will be necessary. Social security benefit cuts (either directly or through further delays in retirement ages) are one option. The Panel asked whether there are changes already under way that would offset the effects of potential benefit cuts on the future economic well-being of the elderly. The general answer is no—the Panel sees no easy solution on the horizon. The Panel anticipates small increases in the average age of retirement, which will help, and some members foresee either higher real wage growth and/or some increase in personal savings. But the Panel believes that far more substantial adjustments than are currently under way will be necessary to compensate for any significant decreases in social security benefits.

What adjustments are most likely? Employer pension coverage? Patterns of personal savings? Labor force participation late in life? The Panel considered policy initiatives to encourage each of these, and discusses them below.

- The Panel's consensus, especially given further expected increases in life expectancy, is that the last option—delayed retirement—would be the most likely and easiest response for the majority of older Americans who leave career jobs and the labor market voluntarily and in good health. For others, however, poor health or poor labor market prospects late in life would make this adjustment difficult or impossible.

Policy Options for Dealing with Projected Social Security Imbalances

The Panel stresses that some combination of benefit cuts and/or revenue increases is necessary to restore the social security system to actuarial balance, and urges that appropriate legislation be enacted promptly. Policy options were analyzed in a three step process. First, the Panel developed six criteria against which to judge any specific proposal. Then, a straightforward baseline benefit cut (an across-the-board decrease in the Primary Insurance Amount (PIA) formula for future retirees) was compared with a straightforward baseline revenue increase (an increase in the OASI payroll tax rate). Finally, the Panel compared other means of lowering benefits with the baseline PIA decrease, and other means of raising revenues with the baseline payroll tax increase.

The Panel adopted the following six criteria:

1) Adequacy of retirement income, relative to poverty thresholds and to the household's pre-retirement income;

2) Insurance against unforeseen income fluctuations (such as those caused by disability, the death of an earner, unanticipated early retirement or unexpected longevity);

3) Avoidance of market inefficiencies; in particular, in the labor-leisure choice (the allocation of time during and at the end of the worklife) and in the consumption-savings choice (the allocation of lifetime income between consumption during the worklife, consumption during retirement and bequests);

4) Equity of lifetime social security taxes and benefits, both between and within generations;

5) Encouragement of private and aggregate national saving; and

6) Strengthening the financial integrity of the nation's retirement income systems.

Timing and Implementation of Policy Options

Panel members concur on several issues regarding the timing of legislation and the implementation of whatever social security adjustments are chosen.

The Panel urges that any significant changes in social security benefits be announced with sufficient lead time for workers to adjust their savings, consumption and retirement plans.

The Panel suggests that promptly legislated policy changes combined with some delay in implementation best helps people plan for the future. The desirability of delayed implementation only increases the urgency of prompt legislation.

The Panel urges that any payroll tax increases and benefit reductions be phased-in over time, rather than implemented abruptly. Gradual implementation reduces the magnitudes of notches (different treatment of cohorts close in age) and the perception of unfairness that notches engender.

BENEFIT DECREASES VERSUS REVENUE INCREASES

The Panel acknowledges that the fiscal imbalance facing OASDI is a very serious one, demanding immediate attention, but did not attempt to reach a consensus on the appropriate mix of benefit cuts and revenue increases to address the imbalance. The Panel's focus was to analyze the pros and cons of achieving balance with different mixes of reduced benefits and increased revenues and to compare alternative means of both benefit decrease and revenue increase.

The Panel's criteria do not unequivocally favor either raising taxes or decreasing benefits. Rather, some criteria, such as adequate retirement income, favored tax increases, while others, like equity of lifetime social security taxes and benefits between generations, favored benefit cuts.

Closing the fiscal imbalance with additional revenues rather than benefit decreases is suggested if one emphasizes the first two criteria, adequate retirement income and insurance against unforeseen income fluctuations. Social security benefit cuts would increase the number of Americans with inadequate retirement income, and lower the insurance protection offered to workers, survivors and dependents. Within a generation, the use of tax increases rather than general benefit cuts favors those with the longest life expectancies—those most likely to receive benefits for a long time—and those with lower incomes for any given life expectancy.

- Closing the fiscal imbalance with benefit decreases rather than tax increases is suggested if one emphasizes the fourth and fifth criteria, equity between generations and the encouragement of private savings. The expected return on social security contributions is already going to be lower for baby boomers than for past, current and near-future recipients (and this return will decline even further when either social security taxes are raised or future benefits are cut). Younger participants would pay the higher taxes for many more years than would older participants planning to retire soon. Lower benefits would also encourage some individuals to offset part of the loss through their own savings behavior.
- Social security retirement benefits induce some older workers to leave the labor force earlier than they otherwise would. Benefit cuts, especially if combined with an increase in the early age of entitlement (now age 62), are likely to reduce this effect. In addition, payroll taxes may discourage the labor supply of younger workers, a labor market distortion that is more likely to decline if benefits are cut than if payroll taxes are increased.
- The Panel found little professional consensus on the size of the impact of social security on private savings. To the extent that social security benefits substitute for private savings, benefit cuts rather than tax increases would encourage private savings. But many workers with little or no savings beyond their home equity are unlikely to make significant changes in their savings behavior in response to the changes in social security benefits being contemplated. The Panel

concludes that reducing benefits might have a small positive effect on private savings.

Alternative Types of Benefit Decreases

The Panel compared the effects of the baseline benefit cut (an across-the-board decrease in the PIA formula) with those of several alternatives, including reducing disproportionately the benefits of high-wage workers, delaying retirement ages, reducing the cost-of-living adjustment and means-testing benefits.

- If benefits are to be reduced, strong arguments suggest increasing the ages of eligibility for early and normal social security benefits. Most Panel members believe that delaying these retirement ages is a sensible response to increases in life expectancy, and one that prevents lifetime benefits from automatically increasing as recipients live longer.
- If benefits are to be reduced, most Panel members believe that the Normal Retirement Age (NRA) for social security benefits, currently scheduled to increase to age 67, should be increased further, and that it should eventually be indexed to life expectancy. Most agree that the scheduled hiatus between the increases to age 66 (2000-2005) and 67 (2017-2022) should be eliminated.
- Most Panel members believe that the Early Entitlement Age (EEA) for social security benefits should also be raised, with most supporting a new EEA of 64 or 65.
- The Panel opposed means-testing social security benefits on the basis of other retirement income or accumulated wealth. To avoid loss of social security benefits, some workers might reduce their own retirement saving or persuade employers to shift compensation from pension contributions to earnings. Either response would lower savings and private retirement incomes.
- If benefits are to be reduced by means other than or in addition to increases in the NRA and EEA (for example, if the PIA formula becomes less generous), most Panel members prefer disproportionate cuts at the top to an across-the-board decrease.

The Panel also discussed how to allocate the burden of benefit reductions across different cohorts—those already retired, those about to retire (for example, within 5 years), and those further away from retirement.

- If benefits are to be cut, the Panel does not favor entirely exempting people already retired or about to retire. However, the Panel favors smaller benefit reductions for these groups than for future retirees.
- Social security benefits are the only fully indexed annuity available to (nearly) all workers. The threat of inflation would be a very serious concern to retirees, especially those with long lives after retirement, if full indexation were eliminated. For this reason, the Panel opposes permanently indexing social security benefits by less than the cost of living. At the same time, the Panel urges that the Bureau of Labor Statistics investigate whether the specific Consumer Price Index currently used to adjust benefits correctly measures the cost of living. If this measure is found to be biased, the Panel would support corrective changes in the method of calculation.
- The Panel was split on whether a temporary delay or reduction in the cost-of-living adjustment would be desirable, Some Panel members favored this if benefits were decreased for future retirees, as a way of spreading some of the burden to current and near-future retirees.

The Panel is concerned about the well-being of workers in poor health if the Early Entitlement Age (EEA) were raised from age 62. Under current law, individuals can apply for Disability Insurance (DI) before age 65, and those deemed eligible receive benefits equal to 100 percent of their PIAs. If the EEA were raised, some people who would have opted for early social security benefits at or after age 62 would instead seek DI benefits. Some would be found ineligible, and others would not even apply. In the case of an increase in the EEA, the Panel discussed whether DI rules should be relaxed for people aged 62 and older and whether the age of entitlement for Supplemental Security Income (SSI) should be lowered from age 65 to age 62. Both DI and SSI might experience large increases in applications if the age-of-eligibility rules were changed, highlighting the fact that altering one piece of the social security benefit structure can have profound effects on other components of social security and on other programs.

- The discussion persuaded some Panel members that persons as young as 62 should be allowed to apply for SSI benefits or face relaxed DI rules if the EEA is raised, to provide a safety net for those unable to support themselves until eligible for retirement benefits under the new EEA rules. Some members think that DI benefits should continue to equal 100 percent of PIA, regardless of the age of the disabled recipient, while others feel that DI benefits should be set

equal to the early retirement amount, to avoid increased incentives to seek DI benefits if early retirement benefits are reduced. Others are concerned about the effect of such a reduction on the well-being of young and old disabled beneficiaries.

- The Panel focused in detail on the status of surviving spouses, because family benefits can fall substantially with the death of a husband or wife. The significant disparity in the poverty rates of elderly couples and those living alone suggest that mechanisms be considered to raise the ratio of survivors to couples benefits. If the early age of entitlement for widows' benefits is increased, then the calculation of benefit reductions for widows should be changed to preserve benefit levels or limit benefit cuts for this population.

Alternative Types of Revenue Increases

The Panel compared the effects of the baseline revenue increase (a simple increase in the payroll tax rate) with those of three alternatives: raising the earnings limit on which payroll taxes apply, expanding the definition of taxable income to include employee benefits, and infusing additional general revenues into the Social Security Trust Fund.

- If additional revenues are to be raised, most Panel members favor raising the payroll tax rate rather than increasing the taxable earnings threshold. The threshold increase, unless applied only to the employers' portion or combined with a change in the benefit formula, would increase future benefits for those at the upper end of the income distribution, which a payroll tax increase would not.
- Panel members expressed little enthusiasm for including employee benefits in the taxable wage base, citing significant measurement problems.
- Panel members expressed almost no enthusiasm for additional direct infusion of general revenues, preferring to maintain the link between social security contributions made and benefits received.

The OASI Trust Fund

The OASI program is partially funded. The OASI Trust Fund currently exceeds one year's outlays, and is projected to grow for about two decades, as revenues exceed benefit payments. The Panel discussed whether OASI should remain at least partly funded or revert to a pay-as-you-go system as was in effect before the 1983 amendments.

- The Panel believes that OASI should continue to be at least partly funded, meaning that the Trust Fund should maintain a significant and stable margin over annual expenditures over the foreseeable future.

On the assumption that Trust Fund reserves will continue to exist, the Panel discussed how to invest it. The Fund is currently invested in special issue Treasury securities, whose interest and principal are virtually free of default risk. The Panel examined whether part of the Trust Fund should be invested in private capital markets, with the expectation that investments would earn a higher rate of return than if invested solely in Treasury securities.

The Panel believes that a judgment on this proposal should depend on an assessment of its opportunities and its costs. If investing the Trust Fund in stocks carried no risk and provided a higher expected return, the stock portfolio would obviously be preferable. However, there is a risk-return tradeoff which must be examined and assessed in light of social security objectives. A related issue involves who bears the risk if equities perform poorly—future social security recipients, future social security contributors, or general taxpayers?

Panel discussions raised other questions. To what extent would investing the Trust Fund in equities increase national saving? How might it change perceptions about the size of the government deficit and increase political pressure to reduce it? How much would the inclusion of equities in the Trust Fund alter private household saving decisions? To what extent would this proposal expose future beneficiaries to additional political risk, because government officials might encourage the selection of private equity investments using criteria other than pure risk and return?

- The Panel did not reach a consensus on the proposal to invest some of the Trust Fund reserves in equities, and concluded that the issue deserves additional study.

Individual Accounts within Social Security

The Panel discussed the pros and cons of converting all or part of the Social Security Trust Fund (or the annual surplus) to individual social security accounts, over which participants would exercise some investment discretion. In considering this proposal, the Panel noted that distributing the annual surpluses to individual ac-

counts would require additional adjustments to benefits and/or taxes beyond what would be required to achieve system solvency without this distribution.

The Panel identified several attractive features of this proposal. Participants could allocate their funds as they preferred. Personal control might reduce uncertainty about the future politics of social security and increase public confidence in the system. It would probably be easier to increase social security taxes if the increases were directed to individual accounts. Moving these funds off-budget might create pressure to reduce the deficit, and thereby increase national saving.

Panel members also raised concerns about introducing individual accounts within social security. Would people manage these retirement assets prudently, and understand the risk and return tradeoffs inherent in private investment holdings? Would additional regulatory structures be necessary? Should the government offer a market index fund as a low-cost option? Would the administrative expenses of an individualized system substantially exceed those of the current Social Security Administration? Should participants be permitted to access the funds prior to retirement, or lump sum payouts at retirement? Would these accumulations be considered "assets" for means-tested assistance programs? Can they be bequeathed?

- Despite these questions and concerns, many Panel members find promising the proposal to convert part of the Social Security Trust Fund to individual accounts, if the remainder of the social security system can still be made solvent. The Panel recognizes the need to coordinate the pattern of any benefit cuts with the pattern of benefits that would be received from these individual accounts.
- Most Panel members would prohibit access to the funds for any reason other than retirement, and would mandate that the benefits be wholly or in part distributed in the form of an annuity, rather than permitting a 100 percent lump sum cashout. The Panel was divided on whether the annuity could be best managed by the government or the private sector.

Other Retirement System Changes

The Panel considered other issues related to the nation's retirement system, public and private.

- The Panel identified strong arguments for including all new state and local employees in the social security system.

The Panel reviewed the range of ages currently used in retirement income policy, and concluded that much more coherent and integrated policy is needed. These ages include several discussed above (the NRA, the EEA and the ages at which people can apply for SSI and DI) as well as the age at which surviving spouses can apply for survivor benefits and the maximum age of the social security earnings test. In addition, the Panel noted that ages specified in IRS tax code for tax-qualified pension plans should be coordinated with any new ages recommended for social security purposes. For example, tax law specifies that employer-provided pension benefits under qualified plans may not exceed a certain dollar level when the worker attains the social security NRA, and an actuarially reduced amount at earlier ages. These linkages should be considered as the NRA increases. Similarly, tax law requires that workers receive minimum distributions from their private retirement accounts once they attain age 70.5. This age should probably be reevaluated in light of other proposed reforms and increasing life expectancies.

- The Panel favors a more coherent policy on the ages the IRS uses in the tax code and the SSA uses in social security regulations.

Many Americans save very little and many workers reach retirement with little or no employer pension benefits. To remedy this situation, some have advocated mandatory private pensions outside the social security system, or proposed additional tax inducements to save or simplified pension regulations to reduce the regulatory burden. The Panel discussed these issues concerning retirement saving, both inside and outside employer pension plans.

- The Panel overwhelmingly opposes mandated employer-pensions at the present time. This contrasts with the Panel's openness to individual accounts within social security.
- The Panel favors simplification of the tax rules under which employer pension plans operate. Differences arose regarding the precise ways in which the tax code and nondiscrimination legislation should be reformed. Some members favor raising the contribution and benefit limits covering employer-provided pensions, and/or coordinating the very different benefit levels for different types of defined-contribution vehicles. Many members also support the idea of having streamlined regulations that companies can follow when establishing a tax-qualified defined-benefit or defined-contribution plan.
- Most Panel members favor increasing the incentives for private savings, such as raising the limits on Individual Retirement Accounts.

A valuable attribute of social security benefits is that they are the only life annuities that are fully inflation-protected and available to (almost) all workers in the United States. The Panel urges the federal government to consider issuing inflation-indexed bonds which firms or individuals could buy to generate private sector retirement annuities protected from inflation.

- The Panel favors the government issue of Treasury bonds indexed to price inflation, recognizing that some phasing in of this new credit instrument would be necessary.

SSA Policy Modeling and Research

The Panel urges the Social Security Administration to take advantage of its new independent agency status to re-structure its policy analysis and forecasting functions, making more use of the expertise in the policy community. Some Panel members suggest that the Social Security Administration would benefit from more frequent interactions with academic and practicing experts outside the government to advise SSA on issues of assumptions and methods, and also on broader issues facing the nation's retirement income system.

- The Panel urges SSA to make available to the research and policy community the actuarial and economic models it uses for forecasting and analysis. Computer programs, documentation and research reports should be more widely available.
- The Panel also urges that the data used in modeling social security system outcomes be made available to the research and policy community, in ways that preserve confidentiality while permitting analysts outside SSA to evaluate forecasts and simulate alternative policy scenarios. We note that implementation of these recommendations would have resource implications for the SSA research offices.
- Many questions that the Panel struggled with require up-to-date, sophisticated modeling and data sets. The Social Security Administration's longitudinal Retirement History Survey (1969-79) played a major role in augmenting our understanding of retirement processes in the 1970s. The current longitudinal Health and Retirement Survey will do the same in the 1990s. The Panel urges that the Social Security Administration increase its support of data gathering and analysis efforts as a means of answering the policy questions raised in this report and others that will confront the system as it continues to evolve.

Conclusion

The social security program in the United States has been extremely successful and popular since its inception, and has been instrumental in improving the well-being of millions of American retirees and their dependents and survivors. When fiscal problems have been forecast in the past, adjustments have been made to address them. The same is needed now. The earlier the necessary adjustments are legislated, the better, because early notification of impending changes gives people time to adjust their savings and retirement plans accordingly.

The fiscal problems currently anticipated with the graying of the baby boom generation are manageable, and the Panel strongly urges policymakers and politicians to decide promptly on the appropriate mix of benefit decreases and revenue increases to return social security's fiscal house to order.

PREPARED STATEMENT OF SYLVESTER J. SCHIEBER, PH.D.

INTRODUCTION

Mr. Chairmen, and members of the Committee, I am one member of a group on the Social Security Advisory Council (the Council) proposing significant changes to the current structure of Social Security. Under our proposal, in the future each worker would contribute a portion of his or her payroll taxes to a Personal Security Account (PSA). The PSA would be an individual account like an individual retirement account or a 401(k) account that many workers in our society already utilize in order to help assure their retirement income security.

The reasons that we are suggesting such significant changes relate to our perceptions of the problems that have arisen under the current system and because we believe that the solutions being proposed by other Council members will not be achievable. There is a consensus among Council members that a portion of the Social Security trust funds should be invested in the capital base of our economy. A number of us believe that such investment will only be meaningful in a macroeconomic context if we can increase the level of national savings at the same time that we diversify the investments of the system. We believe that only two of the

proposals would create such increases in national savings. We believe that the pools of savings that would be created under these options would grow to be so large that it would be impractical and undesirable to have them invested in the private capital markets through the auspices of a centrally managed fund.

In the first section of my testimony, I lay out what I believe are the serious Social Security financing problems that must be addressed soon. This provides a context for the structure of our proposal which is presented in the second section. The final section addresses criticisms of the proposal and compares it to the others before the Council.

THE PROBLEMS WE FACE IN SOCIAL SECURITY FINANCING

Several members of the Social Security Advisory Council believe that the projected financial shortfalls are very serious and are only one symptom of the problems facing the system. In addition to the financing shortfalls that we face, several of us believe that the growing perception that Social Security is not fair to many workers is worthy of policymakers attention. Furthermore, we believe that the growing lack of faith in the system has the potential to lead to its ultimate downfall. Finally, we believe that the natural inclination to delay addressing public policy issues prior to their reaching crisis status will exacerbate the other problems that we see with the system.

Social Security's Financing Status

One popular notion about Social Security's financing status is that the actuarial imbalances in the system are relatively minor. Holders of this notion point to the 1995 Trustees Report which shows that the system is only underfunded by a projected 2.17 percent of covered payroll. Given the sharing of the burden of financing Social Security between workers and employers, the actuarial imbalance disassembles into something around 1.1 percent each, a seemingly small number. Although Social Security's underfinancing can be stated in ways that make it seem relatively small, from a variety of perspectives it is significant and it is serious.

From a macroeconomic perspective, if we were to levy increased taxes to make up the 75-year shortfall today-i.e., the actuarial deficit of 2.17 percent of covered payroll—we would have to increase payroll tax collections during 1996 by approximately $65 billion, a significant tax increase by almost any measure.

From a more narrow perspective of Social Security financing, the 2.17 percent actuarial deficit represents underfinancing of 16.4 percent under current law relative to the projected 75-year income rate for OASDI of 13.27 percent of covered payroll. For a program that is already claiming around 5 percent of gross domestic product, being underfunded by 16 percent is substantial.

Finally, while everyone on the Council accepts that the 2.17 percent actuarial deficit was a reasonable estimate of the 75-year deficit as of April 1995, a number of Council members believe that the actual deficit that policymakers will have to cope with will be significantly larger than that. This conclusion follows from two observations about the development of public policy in situations like the one we are currently facing with Social Security. The first of these relates to the American sense of fair play that holds that it is unfair to change the rules on participants toward the end of a game, and thus, rebalancing solutions that include significant benefit cuts can only be implemented on a prospective basis. The second of these relates to the momentum of inertia that drives the public policymaking process in our political system when all of our policy choices are perceived to be bad by significant segments of society.

The 2.17 percent actuarial deficit is largely a numerical artifact. It is calculated to give us a point-in-time estimate of the 75-year relationship between Social Security's expected income and outlays. The 2.17 percent, calculated in the Spring of 1995, suggests that if we would have reduced future outlays by an average of 2.17 percent of covered payroll over the next 75 years, then the system would have sufficient revenues and funds to pay benefits at the reduced rates until 2070. Alternatively, the calculation suggests that if we would have raised the payroll tax by 2.17 percentage points last spring, then we would have sufficient revenues and funds to pay benefits promised by current law over the subsequent 75 years. The problem is that neither of these policy options was attainable on the measurement date when the 2.17 was calculated. Delaying the fix means that the changes ultimately required will almost certainly be larger than the 2.17 deficit posted last year.

In the past, policymakers have been extremely reluctant to impose significant benefit reductions on people who were already retired or about to retire. Since policymakers are reluctant to significantly reduce benefits for current or near-term retirees, benefit adjustments to balance the system would have to be larger for future retirees. If the sense of fair play makes us reluctant to cut benefits in the short-

term, political inertia makes us reluctant to adopt tax increases before they are absolutely necessary, if ever. Again, delay means that the ultimate cost of a fix will be higher than the 2.17 published in the 1995 Trustees Report. Delaying action on OASDI reform until the projected depletion of the trust funds is within the same span of years as the current projected depletion of the Medicare HI trust fund and would mean that we would face an actuarial deficit of more than 4 percent of covered payroll over the 25-year period from that point and more than 5 percent over the 75-year projection.

Intergenerational Equity and Social Security

In the past, Social Security Advisory Councils have focused on a concept of equity whereby workers who pay more into the system should receive higher benefits. This Council has focused on a broader concept of equity, namely on whether or not Social Security provides workers with a "fair rate of return" for their contributions to the system, and whether it provides consistent treatment for various generations of workers. This broader concept of equity is much different than merely assuring that workers who contribute to the system get a larger benefit than those who contribute less.

The concept of a fair rate of return is often evaluated on the basis of whether various generations of workers are getting their "money's worth" from Social Security. In the early days, Social Security was an extremely good buy from a "money's worth" perspective. An average wage worker who had never been married, retiring at age 65 in 1960 could expect to receive benefits that were seven to nine times the value of lifetime payroll taxes paid on his or her wages accumulated with interest. For a married worker whose spouse had never worked, the value of benefits relative to the value of lifetime wages was more than 13 times. High-wage workers did not fare so well, but the difference was slight. Even for workers retiring at age 65 in 1980, the value of expected lifetime benefits was 2.5 to 3.5 times the value of lifetime contributions for single workers and around five times for married workers.[1] While there were undoubtedly other investment opportunities that would have performed better than Social Security for such workers, the majority of investors would not have realized such high returns on other retirement savings.

Under Social Security, the relative value of lifetime benefits in comparison to lifetime contributions has declined for each subsequent age cohort of beneficiaries. The deterioration has occurred because each subsequent cohort of workers has participated more fully in the contribution side of the program. In 1940, when the first benefits were paid, roughly 60 percent of the U.S. workforce was subject to the payroll tax. The beneficiary population in that first year included only those over age 65 who had paid the tax for three years and had retired, a minuscule portion of the elderly population. Those who did receive benefits, however, received a relatively full benefit, as though they had participated in the program for many years. Since the majority of the workers were contributing to the system while only a minority of elderly were receiving benefits, the payroll tax rates could be kept low because the program was being funded on a pay-as-you-go basis. It was not until the mid-1970s that the Social Security program in the United States reached the point where the percentage of people over age 65 receiving benefits was equal to the percentage of the workforce paying them. The early generations under the program received lifetime benefits for something significantly less than the cost of maintaining the program once it matured.

The deterioration in the value of Social Security benefits relative to the value of lifetime contributions continues today. The increases in the payroll tax rates during the late 1970s and into the 1980s were not matched by increased benefits. Indeed, workers today, paying the highest real taxes in the history of the program thus far, are already facing the prospect of reduced benefits relative to those being provided to current retirees. For average- and high-wage single workers born after 1940, the value of benefits, including disability and survivors' benefits, is consistently less than the value of the anticipated lifetime payroll taxes. For an average-wage worker born in 1960 who is single or who is married to a spouse also earning average wages, the expected value of Social Security benefits under current law will only be 75 to 90 percent of the value of the taxes paid on their lifetime earnings accumulated with interest. For a high-wage worker, the value of benefits will only be about half the value of his or her lifetime taxes.[2] But these ratios are calculated in accordance with current law, which we know is not sustainable. Either cutting future benefits or raising taxes to rebalance the system will further reduce the value of Social Security benefits for the bulk of today's workers.

The relationship between the accumulated payroll taxes that many workers are expected to pay and the Social Security benefits that they can expect to receive under the current structure is both unfair and unsustainable. Money's worth ratios

for middle-aged and younger workers are unfair relative to those for earlier generations and unfair relative to other opportunities to save and invest for their retirement. This conclusion has led the Council to consider a number of options that would result in higher rates of return on workers' contributions to the system. While the various options are consistent in seeking higher returns on contributions, each is significantly different in how it would achieve those higher returns. I personally believe that two of the options that have been put forward would result in the undesirable intrusion of the federal government into private investment markets.

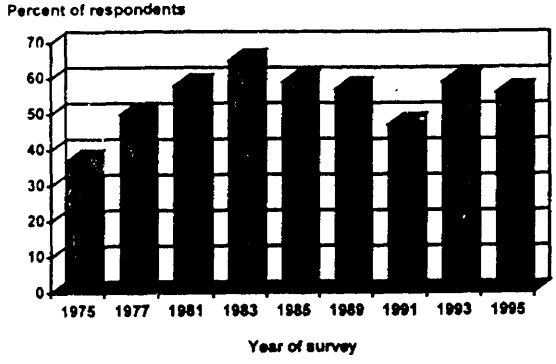
PUBLIC CONFIDENCE IN SOCIAL SECURITY

Another major concern of several Council members is the level of public confidence in the system. Figure 1 shows the results of a number of national surveys done over the last 20 years eliciting information about the public's confidence in Social Security. The first of these surveys was completed before there was a general understanding of the financing problems created by the changes to Social Security adopted in 1972. The lack of confidence in the system grew steadily between 1972 and 1983 when Social Security's short-term funding crisis had to be addressed. In the 1983 survey, nearly two-thirds of the public indicated a lack of confidence in Social Security. Confidence in the system recovered somewhat as the trust funds began to grow after the 1983 Amendments. But, since 1983, as successive Trustees Reports have indicated that the trust funds will be depleted toward the beginning of the baby boomers' retirement, the lack of confidence has been rising again.

Undoubtedly, the system's current actuarial deficit is partly to blame for this lack of confidence. While much of the public might not fully understand the nuances of Social Security financing, they are threatened when the news media report annually that the Social Security Trustees are predicting the trust funds will be depleted during their expected lifetimes. The lack of confidence related to the financial stability of the program is exacerbated by the decline in the value of Social Security benefits relative to taxes paid into the system for younger generations of workers.

Figure 1

Percentage of Respondents in Public Surveys Reporting They Are "Not Too Confident" or "Not At All Confident" about the Future of Social Security



Source: American Council of Life Insurance, "Monitoring Attitudes of the Public" surveys by Yankelovich, Skelly and White (1975-1982) and the Roper Organization/Roper Starch Worldwide (1983-1994) as reported in Jennifer Baggette, Robert Y. Shapiro, and Lawrence Jacobs, "The Polls—Poll Trends, Social Security—an Update," ***Public Opinion Quarterly*** (Fall 1995), vol. 59, no. 3, p. 426.

Timing Problems

One final concern that a number of Council members share is that immediate action is crucial. Many workers begin to plan for their retirement decades before it actually occurs. Employers often design and communicate their retirement programs with such planning horizons in mind. If such workers are facing the prospect of reductions in their expected levels of Social Security benefits, giving them as much time as possible to adjust will minimize the disruption of their retirement planning and their lives. Workers within 10 years of retirement when a reduction is announced would have to save more than three times as much relative to their annual salary to make up for the reduction than workers who were notified of the change 30 years prior to their intended retirement. It is partly because of this that benefit reductions are implemented with long lead times-e.g., the retirement age increases included in the 1983 Amendments will not start to take effect until the turn of the century. Given that the baby boom generation, the eldest of whom are now turning age 50, is at the heart of the Social Security underfunding problems we now face, we do not have the long lead times to implement changes that we have had in the past.

A PROPOSED SOLUTION TO THE SOCIAL SECURITY FINANCING PROBLEM

One group of Social Security Advisory Council members has put forward a Social Security reform plan that would create mandatory personal security accounts dedicated to retirement savings and financed by a rebate of a portion of the FICA payroll tax. This option would allow us to restore Social Security to actuarial balance. It would ultimately raise the money's worth ratios for program participants and thus increase the perceptions of fairness in the program across generations. It would improve workers' perceptions about the security of their benefits because a significant portion of their retirement security would be reflected in the value of financial assets that they would hold and control in their own name. This proposal could be implemented quickly enough that the benefit levels for the baby boom generation could largely be protected against substantial cutbacks. It would provide a vital pool of savings that will help to expand our economy so the expected growth in the retiree population could be more easily sustained by a stable or shrinking workforce in the early 21st century.

PERSONAL SECURITY ACCOUNTS AND RETIREMENT BENEFITS

This proposal would create personal security accounts for workers. These accounts would hold a portion of the payroll tax that has traditionally been used to finance retirement benefits through Social Security. The annual contributions to the accounts would be equal to 5 percent of covered payroll. This is approximately half of the current FICA payroll tax that is used to finance retirement benefits under Social Security. The PSAs would be subject to necessary regulatory restrictions to make sure they were invested in financial instruments widely available in the financial markets and that they were held for retirement purposes. Individuals would not be able to withdraw funds from their accounts until they had met Social Security's age criteria qualifying them for benefits. However, the PSAs would be under the sole direction of the workers who owned them. The young survivors and disability programs would continue to be financed and administered through Social Security, a point we will return to later.

Under this proposal, the half of the payroll tax that is not rebated to workers would continue to fund retirement benefits provided through Social Security. The current benefit structure would remain in place for individuals already retired and receiving Social Security benefits or workers grandfathered under the existing system. At retirement, individuals not grandfathered under the current system would receive a modified benefit from Social Security financed by the portion of the payroll tax still being paid into the system.

Ultimately the total benefits paid to retirees would come from the two separate tiers of the system. The first tier would be the basic benefit provided through Social Security. This would be a flat benefit. For individuals with a relatively full career of covered earnings, this benefit would be roughly equal to $400 in 1996 dollars, indexed by the growth in average wages for future years. For individuals who do not work a full career, half of the flat benefit would be earned with 10 years of covered earnings. The remainder of the benefit would be earned at a rate of 2 percent per year for which four quarters of covered earnings are reported. This benefit accrual pattern mimics the accrual pattern of the current Social Security benefit formula in that a disproportionate portion of benefits are earned during the first years of coverage. The second tier benefit would be based on the balance in the PSA accumulated over a worker's career.

Retirement eligibility under this modified system will be different than under current law. Under this proposal, the normal retirement age will begin to increase in the year 2000 at a rate of two months per year until it reaches 67 years of age in 2017. Beyond 2017, the normal retirement age (NRA) would continue to increase at the rate of one month every other year, roughly the rate of increase in life expectancy among the elderly population as projected by the Social Security actuaries. The proposal would require that Congress periodically review the increase in the retirement age to assure that an appropriate balance is struck between the increase in life expectancy and individuals' ability to extend their working lives. In developing the cost and benefit estimates under this proposal, we assumed that the earliest eligibility age for Social Security retirement benefits-now age 62-would remain at that level. This implies that benefits at age 62 would be actuarially reduced beyond the levels anticipated under current law. An alternative that some members of the Council favor would raise the earliest retirement age in lockstep with the increases in the normal retirement age until the earliest eligibility age reached age 65. From a cost perspective, it makes little practical difference whether the earliest eligibility age is increased or not. The reason for proposing the increase is to minimize the probability of people retiring at benefit levels substantially below minimal adequacy levels.

The implementation date for the transition to the new plan would be January 1, 1998. Workers aged 55 or older on that date would continue to be covered under the existing system. They would continue to pay their full payroll tax into the system and receive benefits in accordance with the current benefit structure, subject to any changes in retirement ages and benefit taxation that would apply generally under the proposal. Individuals between the ages of 25 and 55 would receive a first tier benefit under Social Security that was a combination of their accrued benefit under the existing system at the point of transition and a prorata share of the flat benefit that would be provided under the new system. Their second tier benefit would be whatever the accumulated balance in the PSA would finance when the worker retires. Individuals younger than 25 years of age would be fully covered under the new system.

BENEFITS FOR WORKERS BETWEEN THE AGES OF 25 AND 55 AT TRANSITION

The accrued benefit under the current system for workers aged 25 to 55 would be calculated at the point of the transition to the new system. This accrued benefit would be determined in two steps. In the first step a primary insurance amount (PIA) would be determined using current law procedures for determining the PIA for a disability award. The second step would be to multiply the PIA by a factor reflecting the portion of a worker's career worked under the old system. If we assume that a typical career spans 45 years, from age 20 to age 65, a worker who is age 35 at the date of transition would have an accrued benefit under the closed system that equaled one-third (i.e., 15 years under the closed system divided by a 45 year career span) of the PIA.

This accrued benefit under the closed system would be indexed from 1998 until the worker actually retired. We still have not determined whether the benefit would be indexed by the rate of growth in wages in covered employment or by the rate of growth in prices in the economy as measured by the consumer price index. The issues that are still being researched relate to the overall cost of the program, the ultimate level of benefits to workers of various vintages, and intergenerational equity issues measured by the money's worth calculations discussed earlier.

Benefits for Young Survivors and Disabled Workers

Benefits for young survivors (i.e., juvenile children) and for disabled workers would be calculated as under current law. These benefits would be reduced, however, in accordance with the general reductions in benefits under the system. These reductions would be computed on the basis of the portion of the PIA that is payable to a worker retiring at age 65, but subject to a limit on the reduction such that benefits for young survivors and disabled workers would never fall below 70 percent of current law benefits.

Spousal Benefits

A worker's spouse would be eligible to receive a benefit from the first tier of the program based on the worker's benefit. As under the current program, a spouse would be eligible to receive a benefit that is the larger of his or her own earned benefit or one half the benefit of the primary earner. In addition, spouses would be entitled to any accumulations in their own personal accounts. Under our proposal, we assumed that annual contributions to the personal accounts would be directly to the account of the worker. It would be possible under this proposal to provide

for contribution to the PSAs to be split between spouses during any period in which a worker is married and to exempt the personal accounts from consideration of property distribution in cases of divorce.

Surviving spouses would be eligible for a benefit that is equal to 75 percent of the combined value of the first tier benefits that both members of the couple would receive if both were alive. In addition, there would be no inheritance taxes or any other levies on the inheritance of the PSA left by a dying spouse.

Taxation of Benefits

Applying regular income tax treatment to retirement savings has the effect of significantly increasing the effective tax rates on earnings that are deferred for purposes of financing retirement consumption. Consider the case of a worker who is contemplating saving a portion of her annual earnings for consumption during her retirement years. Assume that this worker decides that she can save up to $2,000 of her gross earnings, but that she is in the 28 percent income tax bracket. This means that her potential net savings will only be $1,440 because she has to pay $560 in federal income taxes on the $2,000 of earnings. If the worker decides to consume this portion of her disposable income in the year she earned it, she pays the 28 percent tax in accordance with the law and spends 72 percent of her real gross earned income on consumer goods and services. Alternatively, assume that she can invest the money in a fund that pays her an annual rate of interest of 5 percent, and further assume that the rate of inflation in the economy is averaging 5 percent per year.

Table 1 shows what happens to this woman's savings and effective tax rates under the normal income tax treatment of regular savings. In this case the interest income on the savings is taxed each year as regular income at the 28 percent rate. The longer the worker defers consumption, the greater her effective tax rate on her original earnings. If she defers consumption for up to 10 years, her effective tax rate on her earnings jumps from 28 percent to 37 percent. If she defers consumption for 20 years, her effective tax rate jumps to 45 percent, and if she saves for 30 years it jumps to 52 percent. If she can invest her earnings at a rate higher than the rate of inflation, she can offset some of the effects of the double taxation penalty on deferring consumption, but the double taxation eats into her real rates of return and ultimately reduces her consumption in retirement.

Leaving aside for the moment the issues of funding, Social Security is essentially a mandatory retirement savings program for workers. The reason the program was set up in the first place was to provide a basis so workers could accumulate adequate income rights for their retirement period. When you consider the financing of Social Security, it makes sense to tax a portion of benefits, because the employer share of the payroll tax is a deductible expense. In that regard it is income ultimately paid to workers on which no income taxes have been paid. The worker's share of the benefit, however, is financed with post-tax dollars. To the extent that the income taxation of benefits does not consider the phenomenon shown in Table 1, it doubly taxes the share of benefits financed by workers' contributions. Under our proposal, the taxation of Social Security benefits would be consistent with the tax treatment of retirement savings in tax-qualified retirement plans. Employer contributions for benefits would continue to be deductible expenses while employee contributions would continue to be made on a post-tax basis. To the extent benefits are financed by pre-tax dollars, they would be taxable at distribution. To the extent they are financed by post-tax dollars, they would not be taxable at distribution. For people covered under the current system, 50 percent of benefits would be taxable. For people covered under the new system, we assume that employers' deductible contributions would be used to finance the first-tier benefit. Thus, these benefits would be taxable to the extent financed by employer contributions. We assume employees' post-tax contributions would finance the personal security accounts, and thus, distributions from these accounts would be tax free.

Table 1

Relative Value of Money in a Normal Savings Account Paying a Rate of Return Equivalent to a 5 Percent Inflation Rate and Subject to 28 Percent Income Tax

Year	Nominal Value of Constant Purchasing Power	Nominal Value of Saving	Gross Interest	Net Interest	Purchasing Power of Savings as Percent of Orginal Earnings	Effective Tax Rate on Original Earnings
0	$ 2,000.00	$ 1,440.00	$ 72.00	$ 51.84	72.0 %	28 0 %
1	2,100.00	1,491 84	74.59	53.71	71.0	29.0
2	2,205.00	1,545.55	77.28	55.64	70.1	29.9
3	2,315.25	1,601.19	80.06	57.64	69.2	30.8
4	2,431.01	1,658 83	82.94	59.72	68 2	31.8
5	2,552.56	1,718.55	85.93	61.87	67.3	32.7
6	2,680.19	1,780.41	89.02	64.09	66.4	33.6
7	2,814 20	1,844.51	92.23	66.40	65.5	34.5
8	2,954.91	1,910.91	95.55	68.79	64.7	35.3
9	3,102.66	1,979.70	98.99	71.27	63.8	36.2
10	3,257.79	2,050.97	102.55	73.84	63.0	37.0
20	5,306.60	2,921.18	146.06	105.16	55.0	45.0
30	8,643.88	4,160.59	208.03	149.78	48.1	51.9

Transition Financing

One of the conditions that arise in a pay-as-you-go retirement system is the creation of substantial unfunded liabilities. These unfunded liabilities are statutory obligations for which there are not offsetting assets. In the case of the OASDI programs, the obligations are defined by the Social Security Act, by the underlying structure of the economy and its performance, and by the demographic structure of current and future populations that participate in the programs. There are two ways that the actuaries calculate the unfunded accrued obligations for the OASDI programs. One of these assumes that the system will continue to operate under current law over the 75-year projection period. In this case the actuaries estimate the present value of the stream of future income plus the existing trust funds and then subtract the present value of the stream of future benefits that would be paid under current law. The trust fund balances at the end of 1995 were approximately $500 billion. Under this calculation method, the actuaries estimated unfunded obligations in the program currently at $2.8 trillion. The alternative assumes that no one under age 15 would be covered under the current program and they estimate the present value of the cumulative income that will be coming into the program if the system was closed to new entrants and compare that to the present value of the cumulative stream of benefits that are promised under current law for the remainder of the population that would be covered. Over the 75-year projection period in this case, the OASDI programs are underfunded by approximately $8.3 trillion.

The unfunded obligations in Social Security are somewhat akin to other debt of the federal government—but it is also distinctly different. It is similar to the other debt in that current law defines a stream of obligations and revenues or assets where the obligations significantly exceed the assets to cover them. It is different than the other debt in that the underlying statutes defining the obligations and revenue streams can be modified. For example, technically the Social Security Act gives Congress the power to completely eliminate the Social Security program today if it

so wished. If it did so, it would completely eliminate the unfunded obligations. The more formally recognized debt of the government is somewhat more contractual in nature in that there are formal IOUs backing those obligations. To be sure, Congress could force the default on that debt, but cannot practically wipe out the government bonds held by millions of investors around the world. While it is theoretically possible for Congress to renege on the statutory obligations implied by the Social Security Act, to do so in any major way seems politically unlikely.

Under the PSA proposal, Social Security as we know it today would be transformed from a system that is largely funded on a pay-as-you-go basis to one that is significantly funded. One of the problems created by a shift from a pay-as-you-go retirement system to one that is partially funded is that previously accrued but unfunded liabilities continue to mature during the transition period at the same time future benefits are being prefunded. When the system is financed with a payroll tax, the implication is that a relatively limited number of workers will have to pay off the maturing liabilities on a pay-as-you-go basis while prefunding their own retirement security. In the specific case of this proposal, people who are currently retired and those between the ages of 55 and retirement age at the transition date would continue to receive benefits roughly in accordance with the benefit levels implied by current law. Many of those between the ages of 25 and 55 at the date of transition would also receive larger benefits from Social Security than they would receive if they could be immediately transitioned to the flat benefit provided under the first tier of the modified plan. In this case, the benefit stream promised by current law would persist for a while and only then gradually taper down, but the tax rebates for the PSAs would begin immediately; additional funds, therefore, would be required to meet projected benefits during the transition.

There are several ways that the transition costs implied by this proposal could be financed. If the government was running a fiscal surplus, the transition costs could be financed by tapping that surplus. The Federal Government of the United States is not currently running surpluses, however, and does not anticipate doing so in the relatively near future, so alternative financing mechanisms would be required. Some policy analysts advocate that we reduce or eliminate other sorts of government spending in order to finance the transition. For example, one of the individuals who testified before the Council suggested that we eliminate $80 billion in corporate welfare in the current budget or that we drop out of NATO. While each one of us might have a favorite set of government expenditure programs that we would be willing to live without, the current structure of the federal budget has been developed over many years through a pluralistic process of reconciling widely varied public priorities. It is unlikely that we can radically alter all these earlier priorities to garner the marginal resources needed to meet the costs implied by this proposal. If we can, the policy shift proposed here could be easily accomplished.

Another option for financing the transition is to merely issue government bonds as the liabilities come due, thus converting unfunded statutory obligations into more formal contractual debt. The extent to which such a policy would truly increase our national "indebtedness" would only be the extent to which we would have otherwise reneged on the statutory promises imbedded in Social Security. The problem with this option is that there is already significant concern about the magnitude of existing formal government debt and there may be a reluctance to create significant additional formal debt that does not have an amortization schedule and source of revenues to pay it off. It seems likely, in the spirit of current budgetary rules, that any proposed reduction of revenues or increase in expenditures has to be counterbalanced by offsetting expenditure or revenue streams elsewhere in the fiscal accounts. Since recommending that we significantly alter other spending priorities seems to be somewhat beyond the Council's charter, this proposal includes a stylized transitional revenue financing mechanism.

For purposes of exposition, we have chosen to develop this proposal by suggesting that the costs of transitioning from the current structure of Social Security to the proposed alternative will be paid by an explicit tax. We have dubbed this a "liberty tax" because it would free us over time from a completely unfunded retirement program, in which current workers and retirees are completely dependent on the willingness and ability of younger workers and future generations to support future benefit liabilities, to one that is significantly funded and where, through PSAs, workers accumulate rights to benefits based on their own savings and investments. This liberty tax could take on several forms. It could be a surtax placed on the regular income tax, a supplemental payroll tax, or some completely new tax levied independently of current sources of federal revenues. So we could fully understand the overall magnitude of the costs of transition, the Social Security actuaries have developed two preliminary sets of projections where the transition would be financed through a supplemental payroll tax. This is clearly not the form of transitional fi-

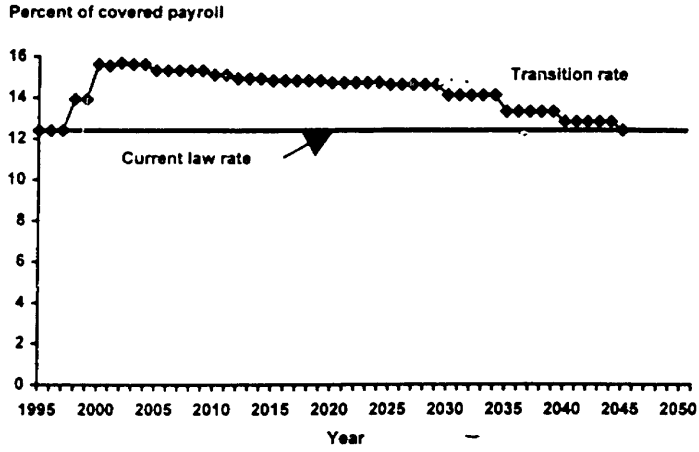
nancing that members of the Council supporting this option would favor, but we utilize the projections so we can set the stage to discuss the alternatives.

Figure 2 shows the transition costs to the proposed system if it were to be financed on a pay-as-you-go-basis through a supplemental payroll tax. The top line in the figure is the combined employer and employee tax rates that would be required in each year of the transition. The lower line shows the current law rate of 12.4 percent of covered payroll. Fairly quickly after the beginning of the transition, the payroll tax to support the non-Medicare portion of the total benefit package would have to increase to roughly 16.2 percent of payroll. It would gradually taper down over time, but some supplemental tax collections would be required for nearly 50 years. They would be substantial for 35 to 40 years.

The essence of the story in Figure 2 is that virtually all of the transitional costs under this proposal would be paid off within the span of a regular working lifetime. Some workers nearing the end of their careers when the plan was implemented would pay only a small portion of the transition costs. Likewise those entering the work force near the end of the transition would bear little of the cost. Those workers who were relatively young when the proposal was adopted would have to bear the full brunt of the transition costs throughout their lives. Yet all generations might benefit from this proposal under the right circumstances, with the largest benefits accruing to future workers yet unborn. This raises the question of whether it is fair to hit one generation of workers so much harder with the transition costs than others, or whether these costs might be spread over a broader set of participants in the system.

Figure 2

Pay-As-You-Go Payroll Tax to Fund Transition to Personal Security Accounts



Source: Office of the Actuary, Social Security Administration.

In an alternative projection developed by the Social Security actuaries, a payroll tax supplement of 1.53 percent of covered payroll is assumed to finance the transition. In this case, we assume that the government is willing to borrow—i.e., issue "liberty bonds" converting a portion of the existing statutory debt created by current Social Security law into more formal debt. The bonds would be used to finance a portion of the transition during the times when the 1.53 percent payroll tax supplement is insufficient to meet pay-as-you-go costs. We assume that the government will continue to levy the liberty tax until all of the liberty bonds are ultimately redeemed. In this case, the transition takes 72 years, or nearly two full working lifetimes. Under the extended transition, the burden on any single worker would not increase more than 12.3 percent (i.e., 1.53 percent payroll tax supplement divided

by the base rate of 12.4 percent) in any given year. Under the pay-as-you-go transition, some workers would realize annual increases in their payroll taxes of as much as 25.8 percent (i.e., 3.2 percent supplement divided by 12.4 percent). Spreading the transition costs over a larger number of cohorts of participants would make the transition less onerous for those caught at the early part of the transition. Of course, it increases the cost for those at the end of the transition, but then they have the most to gain from the proposal under consideration.

Concerns about equity in the Social Security program and about sharing the cost of transition naturally give rise to a question about the potential sharing of some of the burden of the transition with the current participants in the system who are now receiving benefits. The reason that this question arises is because the benefits that were provided to early participants in the system, including those now retired are so favorable relative to the taxes these groups paid in. A single man who earned the average wage level throughout his career and retired in 1985 at age 65 could expect to get back benefits with a present value equal to about 1.75 times the present value of his lifetime contributions to Social Security. For such a man still alive today, the lifetime benefits he can expect to receive will be even greater in relation to his lifetime contributions than they were 10 years ago. This occurs because the total time between this retiree's 65th birthday and his current life expectancy is greater than the time between his 65th birthday and his life expectancy when he was just turning age 65. For a single woman retiring at age 65 in 1985 who had earned the average wage level throughout her career, the expected value of benefits was about 2.25 times the value of her lifetime contributions to the system. For a couple with only one earner retiring in 1985, the expected value of benefits was about 3.3 times lifetime taxes paid by the worker.

A single man who earned the average wage level throughout his career and is retiring in 1995 at age 65 can expect to get back benefits with a present value equal to roughly 1.25 times the present value of his lifetime contributions to Social Security. A single woman with a similar earnings history can expect to get back about 1.5 times lifetime contributions. A single-earner couple with this earnings pattern can expect to get back about 2.5 times lifetime contributions. None of the workers in the baby boom generation or the generation behind it can expect to do as well as their counterparts now receiving benefits. Under current law, the baby boomer who earned average wages throughout his or her career could expect to get back less than the value of the payroll taxes paid on his or her earnings. And we know that since current law is unsustainable, the actual situation for the baby boom cohorts will be even worse than current law suggests.

The combination of equity considerations and the potential drag of an increased payroll tax on economic output has led advocates of the PSA plan on the Council to conclude that a consumption tax would be a preferred way to finance the transition costs incurred under the proposal. A consumption tax would not have the same effect of reducing the marginal wage for workers as the payroll tax. It would discourage consumption and encourage saving, which is clearly desirable from a macroeconomic perspective, as well as in the narrower context of preparing for the baby boomers' retirement claims. Finally, it would allow broader sharing of the cost of the transition with the older generation of citizens now benefiting from Social Security, thus improving the equity of the required modifications to Social Security across generations. As an example, a national sales tax of 1 percent on personal consumption expenditures would generate revenues roughly comparable to a 1.5 percent payroll tax.

The members of the Council supporting the PSA option are mindful that creating a whole new federal tax would require the establishment of an administrative mechanism that does not currently exist. This prospect would render the use of a national sales tax or other consumption tax an inefficient means of financing the transition costs incurred under this proposal. If the general revenue financing of federal government operations moves more toward a consumption taxation system, financing the transition costs through that mechanism rather than a payroll tax would be highly desirable.

If a payroll tax were used to finance the transition, the individuals now receiving Social Security benefits and those workers grandfathered in the current system would not share in paying the transition costs even though they have received a significantly better deal from the system than younger participants in the system can ever expect to receive. One way this might be handled would be to have a one-time reduction in the CPI adjustment of benefits. If workers covered under the modified system are required to pay an added payroll tax of 1.5 percent per year, a case could be made that retirees should give up 1.5 percentage points of their COLA increase in the transition year. For people coming on the rolls in subsequent years, they could have a similar one-time adjustment of their benefits. A one-time adjustment

of this sort would carry through in the form of reduced annual benefits for the remainder of their lives. If there is a concern that the reductions in the COLA would jeopardized the low-income elderly, those in the bottom 40 percent of the benefit distribution could be exempted.

Either a 1.5 percent payroll tax or a 1.0 percent consumption sales tax to finance the transition would require that some of the statutory unfunded obligations of Social Security be converted into more formal debt over a portion of the period. The magnitude of this formal debt will undoubtedly be an important consideration in evaluating the merits of this overall proposal. Using the 1.53 percent payroll tax as the basis for financing the transition over 72 years, the Social Security actuaries have estimated the OASDI trust fund balances year-by-year over the transition period. Table 2 shows the balances in the OASDI trust funds under this proposal at five-year intervals, starting with 1995. These preliminary projections were developed assuming that the transition would begin in 1998. Based on the intermediate assumptions for valuing Social Security, the OASDI trust funds, which would be used to finance outstanding liabilities under the old system as well as new liabilities for the flat benefit under the new system, would have a balance of $661 billion at the end of 1997. The balance would then start to decline as the modified system was implemented. By 2010, the trust funds would be depleted, and by 2015 they would have a negative balance of $562 billion. The negative balances would continue to grow, peaking between 2045 and 2050 at just over $10 trillion in nominal dollars or about $1.2 trillion in 1996 dollars. Beyond 2050, the liberty bond balances would start to decline, and they would be fully paid off by 2063.

Running up an additional formal federal debt of $1.2 trillion dollars in the context of current deliberations on how to balance the federal budget may seem a bit outlandish. We need to keep in mind, however, that this accruing debt would be simply an explicit recognition of an implicit obligation that already exists under Social Security. The explicit debt, in this case, would be created in order to spread the transition costs across a broader set of generations than if we attempted to pay it off on a pay-as-you-go basis. The "liberty bonds" could be thought of as taking out an explicit mortgage to help pay off a significant portion of the unfunded statutory obligations we have created in the OASDI programs over the last 60 years. A 70-year mortgage might seem a long one. But if an individual worker can take out a 30-year mortgage to buy a house, then it is not so unreasonable for our country to take out a 70-year mortgage, especially in light of the potential benefits for doing so.

Table 2

Trust Fund and PSA Balances at Selected Years

Year	OASDI Trust Fund Balances at End of Year ($ billions)	PSA Balances at End of Year ($ billions)	Combined Balances at End of Year ($ billions)
1995	502	-	502
2000	619	527	1,146
2005	401	2,052	2,453
2010	15	4,665	4,680
2015	(562)	8,876	8,314
2020	(1,379)	15,407	14,028
2025	(2,624)	25,212	22,588
2030	(4,478)	39,696	35,218
2035	(6,732)	60,840	54,108
2040	(8,840)	91,373	82,533
2045	(10,152)	135,056	124,904
2050	(10,172)	197,309	187,137
2055	(8,557)	286,265	277,708
2060	(4,826)	414,068	409,242
2065	1,975	599,059	601,034
2070	11,295	868,310	879,605

Source: Office of the Actuary, Social Security Administration.

One concern about taking out such a mortgage might be that as the OASDI negative flows begin to require the sale of "liberty bonds" to help finance the transition, the credit markets might not be able or willing to purchase such additional federal debt. But given the magnitude of federal debt that we have marketed over the last 15 years, it is not clear that an additional $1 trillion or so of federal debt created over a 35 to 40 year period would be a particularly significant challenge.

Because our proposal would give workers significant rebates on the current FICA tax, there would be very large build-up of privately held assets in the PSAs. The Social Security actuaries' projection of the build-up is also shown in Table 2. It is clear that the build-up in the private accounts would dwarf the temporary negative balances in the OASDI accounts. At no point during the transition would the projected liberty bond levels required to finance the transition be more than 11.5 percent of the accumulated balances in the PSAs. In other words, if as little as 12 percent of the PSAs were invested in government bonds during the transition, this proposal would create sufficient private wealth in the hands of workers to finance the

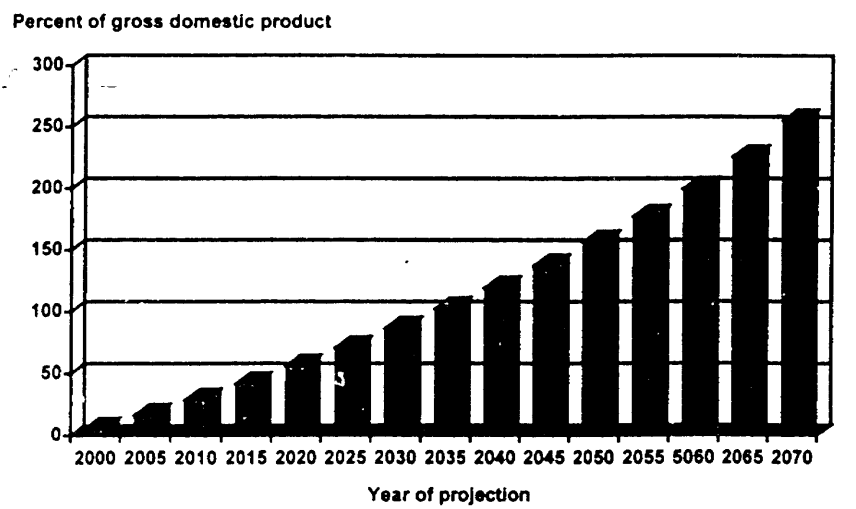
additional government bonds that would have to be issued to support the transition. Individual investors routinely invest this much in government bonds when allocating private investment funds already, so marketing the liberty bonds would not appear to be a significant hurdle under the proposal. The residual 88 percent of the PSAs balances would be a significant source of capital for the economy and the long-term retirement security of U.S. workers.

Personal Security Accounts as a Source of Capital

The balances in Table 2 are stated in nominal dollars, which make them difficult to understand in a relative context. Figure 3 shows the projected balances in the PSAs as a percent of gross domestic product over the projection period. The figure suggests that PSAs would quickly become a major source of capital in the United States. If the plan were implemented in 1998, the projections suggest that accumulated PSA balances would equal 5.82 percent of gross domestic product by the year 2000. By 2010 they would equal nearly 30 percent of GDP; by 2030 the balances would be up to 87 percent of GDP; by 2055 they would equal 200 percent of GDP; and by the last year in the projection, they would equal 255 percent of GDP.

Figure 3

Projected Personal Security Account Balances as a Percent of GDP



Source: Office of the Actuary, Social Security Administration.

Certainly one important concern will be whether or not the PSA balances will represent new savings within the economy or whether they will merely displace other forms of savings. The economic literature on this question does not lead to a definitive conclusion one way or the other. Some studies suggest that Social Security has adversely affected private savings rates because the accumulated pension wealth—i.e., the value of the pension promises—is not funded through the accumulation of real assets or met by real capital investment. Other studies find little or no effect on private saving. While proponents on each side are convinced their conclusions are correct, policymakers cannot be expected to sort out the technical issues underlying the debate.

These ambiguities notwithstanding, the reason for saving for retirement is to accumulate sufficient wealth during one's working career to support a standard of living in retirement that is roughly equivalent to that achieved prior to retirement. Indeed, much of the deliberation around the adequacy of Social Security or pension

benefits is carried out by evaluating the level of benefits that would be sufficient to sustain preretirement standards of living during retirement. By far, the overwhelming majority of retirement saving that is accomplished in this country is done in the form of accumulating Social Security and employer-sponsored retirement benefits. One goal of the PSA proposal is to continue to accumulate individual retirement wealth for workers that is roughly akin to the retirement wealth they might accumulate under current Social Security law. But there is one big difference here: we would fund a portion of that wealth with real assets instead of pay-as-you-go obligations for future generations. If this goal were achieved, it should result in the creation of real wealth that otherwise would not have existed.

There is some potential that employers might curtail their own retirement plans as they see workers accumulating real wealth in their PSAs, which would have the effect of offsetting the positive savings effects of the proposal. This seems unlikely, at least in the short term, since employers have traditionally designed their retirement plans around the same types of income replacement models that underlie the design of Social Security. This proposal does not imply immediate increases in the retirement income from the Social Security portion of the retirement system and thus should not encourage curtailment of employer-sponsored plans. Indeed, the proposed increases in the retirement eligibility ages for Social Security under this proposal may encourage some employers to enhance their existing retirement plans so workers will continue to retire in accordance with past patterns.

The creation of real wealth in the hands of workers during the decades between 2010 and 2050 ultimately could be as important to the baby boomers' retirement income security as the fundamental soundness of Social Security. Potentially, we could see a situation arise where just as Social Security increases its claims on the wages of workers in order to deliver promised benefits to the baby boomers, the financial markets would be looking for additional disposable income from workers to liquidate the assets of the baby boomers to supplement their retirement consumption needs. The issue is that the baby boomers are going to make a claim on the capital markets at precisely the same time they will make their claim on Social Security. The potential problem is that the timing and the magnitude of the claim could stress the financial markets during the time in which it is being made.

The baby boomers will also be liquidating other assets at the same time as they are making their pension claims, so the net effects of pension liquidation are only part of the story. This implies that a greater portion of the marginal saving that workers undertake during the baby boomers retirement will go to finance the resale of previously held assets than is occurring now. Being able to transfer ownership of previously held assets from one generation to another will not be enough to sustain the capital needs of a growing economy. We will need additional savings.

Certainly, there is the prospect that the international financial marketplace will facilitate the disposition of the baby boomers' financial assets during their retirement. We should keep in mind, however, that virtually every country in the developed world and many of those in the underdeveloped world are going to be facing exactly the same aging problems as we are sometime within 10 to 20 years of our own experience. There may not be a large reservoir of readily available international assets to bail us out if we need it.

In some regards, we seem to be in a state of double jeopardy. Both the unfunded element of our retirement system—Social Security—and the funded element—pensions and personal saving—will require an increased stream of resources to assure the retirement income security of the baby boomers. We need higher savings rates than we currently enjoy to minimize the prospect of baby boomers swamping either element of the system. The prospect of accumulating real wealth in the PSAs before any significant slow-down in the net saving created by employer-based retirement plans would almost certainly contribute to the real accumulation of wealth. The continued growth in PSA wealth during the baby boomers' retirement would significantly increase the probability of getting through the danger period without significant dissaving in the total economy.

CONCERNS ABOUT THE PSA PROPOSAL

A number of issues have been raised about the PSA proposal. The first of these is that support for the system will wither, especially among higher-wage workers, if we restructure the system into the two tiers that we have suggested. The second is that we are exposing workers to undue risk by allowing them to invest a portion of their own retirement assets. The third is that many people are ignorant about investing. The fourth is that this proposal would create a financial bonanza for the business of asset management and people would eat up most of the return on their

retirement assets paying the administrative costs associated with individual investing.

Support for Social Security in a Two-Tiered System

Social Security has always had two prominent goals. The first of these relates to providing retirees with an adequate income to sustain a decent life in retirement. The second is the equity goal that has been discussed at length. These two goals have been muddled in the public's mind over the years. This muddling of goals has been relatively uncontroversial until now because virtually all participants reaching retirement have gotten an actuarially good deal from the program. The earlier analysis of the differences in the treatment of various generations suggests that situation is changing. The fundamental premise of the PSA proposal is that we should separate and clarify the two goals.

The adequacy goal under Social Security has led us to a program that redistributes income. In the PSA proposal, we are keeping the redistributional element of the system through the flat benefit that would be paid by Social Security. If we can convince the American people that it is desirable to create retirement income redistribution through a single-tiered system by means of a tilted benefit formula, why can't we convince them that similar redistribution is desirable through a two-tiered system?

The equity goal has led us to design a program that provides higher benefits for people making larger contributions. Looking to the future, however, Social Security provides such a low rate of return that many workers want to have alternative investment choices. Both of the other options being offered by other Council members concede this desire on the part of workers. The PSA proposal would give workers the opportunity to realize a fair rate of return on a significant portion of their mandatory retirement contribution.

Risk and Retirement Benefits for Future Generations

One common criticism of the PSA proposal is that it would expose workers to the risks of financial investing. This is clearly true. Yet, it is not clear that the risks posed by the financial markets are any greater than the political risks to which previously promised retirement benefits are now exposed, or that this risk is not offset by the higher expected benefits of this option over the other options considered. To understand the reality of the political risk surrounding unfunded government promises, consider the current debate over Medicare. The budget bill developed in recent months under the Republican leadership in the Congress would reduce the projected expenditures under current Medicare law by an estimated $270 billion over the next seven years. The Clinton Administration has argued that the budget bill cuts too much out of Medicare over this period and has offered an alternative proposal that would reduce the program's expenditures by only about half the amount proposed by the Congressional Republicans. Possibly the most telling element of the current acrimonious debate is not over whether to cut Medicare benefits or not cut them, but over how much to cut and how rapidly to do so.

While the public debates whether these proposed budgetary reductions will mean reductions in the level of services that will be provided under Medicare or simply in the reimbursement to providers, there is an understanding that at the end of this debate another round of more significant adjustments to Medicare will be required. The budget bill being debated at the end of 1995 and early 1996 was quite explicit in this regard. It would create a special commission to study how Medicare might be modified to deal with the baby boomers' claims on the system. Not one of the current defenders of the Medicare system has raised a single question about this provision of the budget bill. At the end of 1995, the political debate has not touched upon the major issues considered by the Council. However, the frequent discussions about means testing of benefits and significantly limiting COLA adjustments are indicators of the direction the debate will take when the issues are seriously considered. Anyone who believes that the current unfunded retirement promises are not at risk has not paid attention to the Medicare debate that is unfolding. That debate will ultimately extend to Social Security.

While there is risk investing accumulated wealth, there is even greater risk in not having any wealth to invest. That is the problem facing many workers today. They must depend on the good faith of various third parties and on these third parties' ability to deliver on promises made earlier. PSAs give their owners control over their personal interests even if future policymakers decide that prior governmental commitments cannot be met. Individually owned assets are exposed to the risk of price variations in assets, but that risk can be quantified and managed. The fact that 60 percent of assets owned by workers in their 20s are in equities while 60 percent of the assets owned by workers over 60 years of age in a typical 401(k) plan

are invested in fixed-income securities suggests that workers have figured out how to manage financial risks. Their understanding of political risks is probably not nearly as well developed. To understand the relative size of financial versus political risks, consider the scenario of bringing the Social Security system back into actuarial balance purely through benefit reductions, a scenario seriously considered by the Council. Such an approach would have a greater impact on many middle-aged workers than if they had all their retirement assets in the stock market in October 1987. The decline in the value of stocks during October 1987 was the largest since the market crash of 1929. After the 1929 crash, a variety of banking and financial market regulatory reforms were implemented to insure against another such catastrophe. After the October 1987 decline, a variety of trading restrictions were adopted to prevent overly rapid declines in prices. There is no such safety net under political promises.

People Do Not Know How to Invest Individually

One of the interesting aspects of the growth of 401(k) plans is that millions more workers today are saving and investing significant amounts for their own retirement than had done so before the advent of these plans. Pointing back to the work cited earlier, workers participating in 401(k) plans generally invest in a way that financial advisors would encourage. If they err in their investment, many believe they are somewhat more conservative than they should be. Many participants in 401(k) plans today were ignorant about investment five or ten years ago because they did not have any assets to invest at that time. When people begin to accumulate wealth, there is a natural tendency to begin to learn about managing it. We believe this would happen in the case of PSA holders. Will we need public education? Of course. Should we already be having such education? Definitely so.

While there is universal agreement among our Council members that we should be investing some of our retirement assets in the private capital markets, both of the other options under consideration depend on a Social Security investment strategy that has been discussed and debated previously in the U.S. Congress and dismissed. There are several reasons why we would not want the pooled investment of Social Security funds in private markets.

In the "Maintenance of Benefits" option, the accumulated assets that would be invested in private equities would accumulate to about $700 billion in 1996 dollars by 2010 and to $1.5 trillion by 2030. In the "Individual Account" option, the aggregate accounts would accumulate to about 80 percent of GDP over the 75-year projection period. In current terms, this would amount to a centrally managed pool of more than $5.5 trillion dollars. If 40 percent of these assets are invested in private equities, we would have centrally managed equity funds of $2.2 trillion.

Some Council members have have conjured a hypothetical way to manage the pooled investment of Social Security assets in the private financial markets so as to insure against political influence in investment decisions. The Council cannot design a model that would bind Congress, however, nor can any one Congress design a construct that would bind future Congresses' ability to make new laws or amend old ones. Suggestions by Clinton Administration policymakers in the Department of Labor that assets in employer-sponsored defined benefit plans should invest in certain vehicles because of their social merit—rather than purely for the economic welfare of the participants in the plans—are merely one indication of the political temptation to put retirement assets to some use other than the security of workers. The use of trust fund assets from federal retirement plans to avoid the default on government securities during the recent budget and debt ceiling disputes between the Clinton Administration and Congress is an explicit example of government using retirement monies for something other than what they are intended.

The members of the Council supporting the PSA proposal have come to the conclusion that the only effective way to expand the investment options for contributions to Social Security is through the establishment of truly individualized accounts.

Management and Administrative Issues

One other criticism of PSAs is that investment managers would charge extremely high rates for managing the funds, essentially using up the superior rates of return on equity and private bond funds. Another concern is that the world would become inundated with unscrupulous fund managers who would swindle workers out of their hard-earned contributions to their personal accounts. We believe a regulatory environment would evolve if this proposal were to become law. Funds being offered as PSA options likely would have to be licensed. In addition, the widespread prevalence of funds that have annual administrative fees below 1 percent per year would

allow the establishment of maximum administrative charges-say at 50 or 75 basis points per year-that could become part of the licensing requirements.

Conclusions

There are a number of advantages to modifying the current Social Security system along the lines of the PSA model. It has the potential of creating substantial wealth that would increasingly back the retirement security of U.S. workers. It has the potential to generate benefit levels that significantly exceed those that can be offered by the current Social Security system or any of the alternatives considered by the Advisory Council. Finally, it has the potential to provide clearly superior value to many workers participating in the plan relative to the current system or any of the other alternatives that are being considered by the Advisory Council. This is especially the case for younger workers and for future workers. Given the burden that the baby boomers' retirement will place on younger and future workers, we must do everything possible to ensure that those workers enjoy a fair return on their own retirement savings. We must do everything to restore their faith that participating in this system while they work will secure their welfare during their own retirement. PSAs are the answer.

We believe that it is vital that the public have full faith and confidence in Social Security if we are to expect future generations of workers to contribute to and support the system. We believe that it is impossible to generate such faith and confidence in the system when annual Trustees Reports project the depletion of trust fund balances within the life expectancy of current workers. Finally we believe that a system that provides workers with an opportunity to accumulate real, owned wealth along with a backstop of protection against a lack of success during their working lives is one that will generate much more confidence than the current system based on unfunded promises.

Besides the additional personal confidence that workers might achieve with the accumulation of wealth as the foundation for their retirement security, the potential increase in real savings that can be achieved by funding some portion of Social Security will provide further benefits to workers. Virtually all economists today believe that savings rates in the United States are too low. They believe that higher savings rates will lead to more investment and to an expansion of the economy that, in turn, will lead to higher levels of real income in future decades. We believe it is imperative that the Advisory Council seek solutions to our Social Security financing problem that translate into significant increases in national savings and investment.

Timing Is Critical

The timing of changes to Social Security are extremely important for a number of reasons. First among these is that failing to deal with the issues raised above sooner rather than later will merely exacerbate each of them. Each year that we delay addressing Social Security's underfunding means that the actuarial deficit that has to be resolved will be larger. The larger the deficit that has to be addressed, the larger will be the benefit reductions or tax increases needed to deal with it. Larger benefit reductions or tax increases will further deteriorate the value of benefits relative to contributions. Finally, each year that passes without resolving the underfunding of the current system adds to the anxiety many people already have about the program and their skepticism that they too will receive benefits.

Not only are we concerned about economic growth as a mechanism to dampen the effects of the baby boomers in retirement on their own general welfare and that of workers, we also are concerned about the mechanisms used to finance consumption for retirees as the baby boomers make their retirement claims. The problem we face if we continue to rely on the pay-as-you-go system largely financed through a payroll tax is that if we do implement policies that create significant growth in productivity between now and the time the baby boomers retire, we need to find ways to get workers to share the productivity increases with the growing pool of retirees. The coercive nature of the payroll tax, its negative effects on the economy, and political reluctance to increase taxes all suggest that the payroll tax is not the optimal way to finance the extra consumption needs that the baby boomers will pose in retirement. The alternative is to have the baby boomers accumulate more capital while working than they would under current policies and, during their retirement, to have them sell-off of that additional capital to younger workers as the mechanism for financing their retirement needs.

Our General Conclusion Given Our Perception of the Problems

We believe that the magnitude of Social Security's underfunding constitutes a serious problem that should be dealt with as soon as possible. We believe that the solution to this problem must add to national savings, not merely reshuffle the ownership of existing wealth. The increase in national saving should be accomplished

in such a way that the increase in wealth results in the creation of tangible wealth owned by workers. We believe this is the only way to improve the deal that workers can receive from Social Security and it is the only viable way to improve their faith in the program.

ENDNOTES

[1]: Robert J. Myers and Bruce D. Schobel, "A Money's-Worth Analysis of Social Security Retirement Benefits," *Transactions* (Society of Actuaries, 1983), pp. 542-543.

[2]: Stephen C. Goss and Orlo R. Nichols, "OASDI Money's Worth Analysis for Hypothetical Cohorts—INFORMATION," (Office of the Actuary, Social Security Administration, Internal Memorandum, March 1, 1993).

PREPARED STATEMENT OF HOWARD YOUNG, F.S.A.

My name is Howard Young, and I am testifying in my capacity as Chair of the Technical Panel on Assumptions and Methods, that was appointed by the current Advisory Council on Social Security.

I understand that the full Report of that Panel has been supplied to this Committee by Advisory Council staff. The Executive Summary of that Report, and a list of the Panel Members is included in my written testimony; therefore, at this time I will summarize the main points and elaborate on some of those.

The main task assigned to the Panel, by the Advisory Council, was to review the assumptions and methodology used to project the future financial status of the old age, survivors, and disability insurance (OASDI) programs, including, if necessary, measures of the financial soundness of these programs. The thirteen members (including me) of the Panel are listed in the Report and in my written testimony; their professional specialties include actuarial science, demography and economics.

Needless to say, the Panel's deliberations covered a wide range of expertise, among the Panel members themselves and from others who were consulted. Nevertheless, we were able to reach consensus on practically all conclusions in our Report. Only one member filed a Supplemental Statement; it mainly reflects his view that since the Panel concluded that the then current* procedures were "reasonable," it was not the Panel's role to recommend "best" assumptions or alternative methods.

The only significant split within the Panel was on the assumptions for ultimate annual Real Wage Growth (RWG) and Real Interest (RI) rates. About one half of the members endorsed the then current assumptions of 1.0 percent for RWG and 2.3 percent for RI; the rest of the members recommended 0.8 percent for RWG and 2.8 percent for RI. It is important to note that these pairs of assumptions produce approximately the same overall results for OASDI financial projections. They were not paired in order to achieve that effect; instead it is a consequence of more basic considerations about national savings rates—e.g. more savings should mean lower interest rates, producing higher productivity and wage rates—and the consequent effect on OASDI.

It should be recognized that none of the Panel members claim to be able to make precise forecasts of these rates for the 75-year projection period; therefore the split of Panel members into two groups does not mean that everyone believes these are the only likely results, rather it indicates that significantly different evaluations of the historical data and future prospects prevented agreement on a compromise recommendation.

One aspect of interpreting the historical data on real rates (that is, rates which are adjusted for inflation) is that they are affected by CPI measurement errors. Panel members took that issue into account in using the historical record to project the future. The members reviewed in considerable detail questions that have been raised about the CPI, and concluded that a more accurate CPI is likely to reduce reported inflation and increase measured real wage rates. The Panel also emphasized that developing the adjustments needed to get a more accurate CPI are different from modifications of benefit formulas, such as proposals to increase benefits

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*Throughout this testimony, "current" refers to the situation which was reflected in the 1994 Report of the OASDI Trustees; that was the most recent Trustees Report publicly available during the Panel's deliberations. The 1995 Report was being worked on during that period, but Social Security staff believed they were not at liberty to share preliminary results or other aspects of deliberations about that Report with the Panel. Although few significant procedural changes were implemented in 1995, the Panel could have been reviewing obsolete procedures; therefore, the Panel recommends that SSA staff be authorized to share such up-to-date information on an as-needed basis and subject to confidentiality rules.

by the CPI minus 1 percent. Benefit formulas based on arbitrary estimates of the overstatement or understatement of inflation would change the real benefits that Social Security recipients receive.

As I have previously indicated, the Panel suggested that modifications be considered in various demographic and economic assumptions, but concluded that the overall effect of the then current assumptions is reasonable. The Executive Summary includes comments on each of those assumptions, and the full Report gives detailed conclusions and rationale; those matters cannot be covered in the time available for oral testimony.

The Panel recommends evolutionary implementation of revised procedures for presenting and evaluating the uncertainty in the OASDI projections. Such uncertainty about projections cannot be avoided, especially when they involve long term operation of complex systems.

Social Security actuaries recognize this; therefore, they supply high-cost and low-cost projections to supplement the intermediate (or best estimate) projection, and sensitivity analysis of various assumptions. However, there are no estimates of the probabilities associated with these alternatives and similar questions. For example, the intermediate projections, indicating that the Trust Fund could be exhausted in the year 2029 or 2030, really mean that exhaustion before or after that time is estimated to be equally likely; however, there is no estimate of the probability that exhaustion could occur within any specific time interval (such as 2025 to 2035).

Considerations such as these led the Panel to recommend that a method called "stochastic analysis" be used (this is discussed in more detail, with examples, in the full Report), with an evolutionary implementation approach because of the complexity of the work needed. For example, relatively simple stochastic techniques could help decide on the packages of assumptions to be used in the three-alternative projection procedure. Also, there could be periodic Actuarial Studies, which describe the techniques being developed and compare their projections with results of the official procedures. In addition to learning how to apply such revised techniques to OASDI, there is the need to develop effective methods for communicating their results to policy makers and others.

The Panel emphasizes that uncertainty about future projections cannot be avoided. Stochastic techniques make this uncertainty and some of its causes more explicit, and provide some estimates of the probabilities associated with various possible results. Nevertheless, the results are still based on assumptions; in particular, there still is the need to decide which past experience is most relevant for projecting the future.

The Advisory Council specifically requested an examination of the 75-year forecast procedure. The Panel does not recommend any change in the use of that time frame, or in the concept of 100 percent Trust Fund Ratio (i.e. the size of the fund divided by the following year's payout) as an adequate contingency reserve. However, less emphasis should be put on the 75-year Actuarial Balance (the convenient single number that compares average income and outgo over the 75-year period) as the basis for evaluating the status of the program or for designing reform proposals.

Instead, legislative revisions should consider the projected pattern of cash flows and Trust Fund Ratios, over the 75-year period and the apparent subsequent trend line beyond the end of the formal projection period. After specific reform provisions are enacted, a new long range test should be developed which considers whether updated projections vary significantly from the patterns and trends that were intended in the legislation. More details on this, and related suggestions, are presented in the Panel Report.

Finally, the Panel explicitly noted the high-quality work done by Social Security Administration staff, but expressed concern about the level of resources available to do the ongoing research and analysis that will be needed. Also, since the law (P.L. 103-296) which gave the Social Administration independent agency status eliminated the provision for quadrennial Advisory Councils, periodic review of assumptions and methods by outside experts may be bypassed. The Panel recommends periodic comprehensive reviews by Technical Panels, as well as an ongoing advisory committee of experts to provide advice on specific matters. In general, there is need for additional in-house resources, and the ability to utilize extramural research and analysis.

In closing, I want to emphasize that the Panel particularly commends the fact that long-range projections have been done, and that they have been taken into account in policy formulation, during the entire existence of the Social Security program. The future cannot be predicted, but considerable effort and expertise has been devoted to anticipating how this program will operate over an extended time period.

Thank you; I will be happy to answer any questions you may have about the Panel's Report.

Attached extracts from Panel Report (10/95) show:
Panel members
Charter to Panel from Advisory Council
Executive Summary of Panel Report.

On August 4, 1994, the Advisory Council on Social Security appointed the following experts to the Panel on Assumptions and Methods.

Howard Young, Chair, University of Michigan

Barry Allen, Combined Insurance Company of America

Eileen Crimmins, Andrus Gerontology Center,
University of Southern California

David Cutler, Department of Economics,
Harvard University

Martin Holmer, HR&A

Diane Macunovich, Department of Economics,
Williams College

Robert Myers, Actuarial Consultant

Samuel Preston, Population Studies Center,
University of Pennsylvania

Eugene Steuerle, Senior Fellow,
The Urban Institute

Michael Sze, Partner, Hewitt Associates

Kathleen Utgoff, Groom & Nordberg

Larry Wiltse, Consultant Actuary,
Buck Consultants, Inc.

Barbara Wolfe, Professor of Economics, Preventive
Medicine and Public Affairs,
University of Wisconsin - Madison

The Charter provided to the Panel was to:

[a]ssist the 1994-95 Advisory Council by reviewing the assumptions and methodology used to project the future financial status of the old age, survivors, and disability insurance (OASDI) programs, including, if necessary, measures of the financial soundness of these programs.

Based on the work of the previous Technical Panels in 1988-91 and the work of the Public Trustees since then, the 1994-95 Technical Panel is requested to do the following:

- Provide expert scrutiny of key assumptions: mortality and morbidity and, to a lesser extent, fertility and immigration; disability incidence and duration; productivity and real wage growth, and the real interest rate. Provide expert opinion concerning the effect on these factors of changes (particularly increases) in national savings.

- Examine alternatives to 75-year forecasts to reflect better the long-run financial soundness of the program and to make the estimates less dependent on particular timeframes.

- Examine the use of administrative data to update assumptions (e.g., sampling methods used for determining the level of new benefits) and other methodology issues identified by the Office of the Actuary, and make recommendations concerning improvements.

- Examine the use of administrative and other data sets to do short-term (in particular, cash-flow) estimates of proposals for program changes (e.g., raising normal retirement age, changing retirement earnings test), and make recommendations concerning improvements.

- Examine labor force participation estimates, particularly those regarding women's lifetime earnings.

The Technical Panel also is encouraged to undertake its own review of the work of the 1989-91 Technical Panel and the work done for and by the Public Trustees and expand the above agenda as appropriate and feasible.

The Council also may ask members of this Panel to work with members of the Technical Panel on Trends and Issues in Retirement Policy to develop and assess policy and program alternatives.

1994-95 Advisory Council on Social Security

Assumptions and Methods Panel

II. EXECUTIVE SUMMARY

The Panel's major conclusions are:

The "intermediate" projection of the Trustees Report for the Old-Age, Survivors, and Disability Insurance (OASDI) program provide a reasonable evaluation of the financial status. Although the Panel suggests that modifications be considered in various specific assumptions, the *overall effect* of those suggestions would not significantly change the financial status evaluation.

There should be evolutionary implementation of procedures to indicate more adequately the uncertainties involved in the projections. Even though such uncertainties are unavoidable, stochastic analysis should be used to examine more explicitly the probabilities of alternative projections. It is emphasized that there should be an extended period during which the new procedures would supplement, rather than replace, the current methods of considering high-cost and low-cost projections and individual assumption sensitivity analysis.

Evaluation of the long-range financial status should put less emphasis on the "75-year actuarial balance" and the "test of long-range close actuarial balance." Prior to enactment of legislation reforming the program, primary emphasis should be on the projected date the Trust Fund Ratio would fall below 100 percent; when definitive legislative revisions are adopted, subsequent long-range evaluation should compare up-dated projections with the intended results of the legislation.

There should be a substantial expansion of SSA's resources and its interaction with experts in related areas; increased recognition should be given to the inter-relationships between OASDI and many public and private programs as well as other aspects of the economy. Social Security Administration (SSA) staff does high quality work, but is relatively small and works with inadequate resources. In addition to internal expansion, there should be greater use of outside consultants and contractual research; periodic comprehensive review by technical panels should be supplemented by ongoing arrangements for advice on specific matters.

Summaries of Individual Sections of the Report

Uncertainty of Projections

The Panel recommends evolutionary implementation of stochastic analysis procedures for presenting and evaluating the uncertainty in the OASDI projections. The current methods of considering high-cost and low-cost projections, and sensitivity analysis of individual variables, do not provide satisfactory indicators of the range of results and related probabilities that should be given consideration in evaluating program status.

It is emphasized that uncertainty about projections cannot be avoided, and that they must be based on assumptions (about the mean and variance of specific variables, and the correlations between them); in particular, there still will be the need to decide which past experience is most relevant. Nevertheless, such assumptions and the probability of resulting projections can be more explicitly examined than under current procedures.

Some interim arrangements are suggested for new procedures to supplement, rather than replace, the current methods of considering high-cost and low-cost projections and individual assumption sensitivity analysis. Illustrations of the stochastic analysis technique are provided in the appendices and are summarized later in this report.

Demographic Assumptions

This section discusses Mortality, Fertility, Marriage and Divorce, and Immigration. Emphasis is on the assumptions used for the "intermediate" projection. Although the Panel suggests that modifications be considered in various specific assumptions, the *overall effect* of those suggestions (including the economic assumptions discussed in the next section) would not significantly change the financial evaluation provided by the intermediate projection in the Trustees Report.

While the Panel has offered its best guesses as to the path of each demographic assumption for the 75-year period required for SSA projections, it is important to note the higher level of uncertainty in the latter part of the period.

Mortality

Alternative II (intermediate cost) projections should more closely reflect long-run past experience. The current Alternative II assumption is for a lower rate of mortality improvement than has been experienced in the near-term (20-year) or long-term (90-year) past: such a decrease in the rate of mortality declines appears unwarranted. A mid-range projection that reflected continued mortality declines at the level experienced over the past century would be more appropriate.

The Panel recommends that the average rate of decline in age-specific death rates observed over the period 1900-1989 be reflected in Alternative II year-to-year projected mortality changes beginning in about 20 years. The Panel is not recommending a change in the procedures used for the earlier years, but the above-stated change would imply faster declines during this period, as well, because they grade into faster "ultimate" rates of decline.

Alternative methods of projection should be investigated. Cause-specific projections tend to produce conservative projections (that is, projections with slow mortality declines) because slowly declining causes become more prominent. Cause-specific projections also ignore the tendency for medical research and health intervention efforts to be targeted at diseases that are relatively more prominent. The use of relational models that impose some plausible age-pattern of mortality change should also be investigated. Also there should be further investigation of the financial impact of alternative patterns of age-sex improvement factors.

Fertility

The Panel believes that fertility rates in the near future could be relatively volatile, and that the SSA should continue to monitor trends -- especially those among the younger age groups, to determine possible effects of birth-cohort size on fertility timing, and among baby-boom cohorts to identify trends in completed family size. In the meantime, the Panel recommends that the intermediate estimate of the long-term Total Fertility Rate be raised from its current level of 1.9 to 1.95. The high-cost and low-cost estimates of 1.6 and 2.2 are considered to provide an adequate range, in light of the stochastic effects of combining numerous demographic and economic assumptions. The Panel further recommends that an increase in the fertility rate should be assumed in the short-term, in the intermediate- and low-cost assumptions, before the long-term levels are reached.

Marriage and Divorce

The Panel recommends that the intermediate estimate of marriage rates should be raised from the current age-adjusted central rate of 5,730 to 6,000 per 100,000 unmarried of each sex, and that the estimate of divorce rates should be lowered from the current age-adjusted central rate of 2,140 to 2,000 per 100,000 married couples.

With regard to the high-cost and low-cost estimates, the Panel believes that the range provided by the assumptions used in the current Trustees Report is adequate. Consideration should be given to the anomaly created by combining low marriage rates and high divorce rates, however, with high fertility rates in the low-cost estimate (Alternate I), and *vice versa* in the high-cost estimate (Alternative III). In addition, current high levels of labor force participation, even among married women, suggest that the assumed link between high marriage rates and high OASDI auxiliary benefits may be outdated.

Immigration

The Panel recommends no change in the current procedures used to make immigration assumptions. The procedures used by the SSA actuaries to update the assumptions seem appropriate. The level of the Alternative II projection seems appropriate.

Economic Assumptions

This section discusses Real Wage Growth, Real Interest Rates, Inflation, and Unemployment assumptions, with emphasis on the intermediate projection. Although the Panel suggests that modifications be considered in various specific assumptions, the overall effect of those suggestions (including the demographic assumptions discussed in the preceding section) would not significantly change the financial evaluation provided by the intermediate projection in the Trustees Report.

The Panel split in its recommendations about assumptions for ultimate annual Real Wage Growth (RWG) and Real Interest (RI) rates. Half the Panel recommends RWG of 0.8 percent and RI of 2.8 percent; the other half recommends continued use of the assumptions used in the current Trustees Report: RWG of 1.0 percent and RI of 2.3 percent.

The Panel does not recommend any change in the ultimate Inflation (4 percent) or Unemployment (6 percent) assumptions.

Regarding short-range assumptions, the Panel recommends that considerable weight be given to the forecasts in the budget submissions of the Administration. However, a procedure for use when the long-range assumption for a variable is significantly different from actual recent experience is suggested.

The Panel does not recommend any explicit adjustment in assumptions attributable to possible changes in measurement of the Consumer Price Indices; implicit allowance for improved measurement procedures is reflected in the conclusions about each variable. It is emphasized that modifications to benefit formulas (for example, CPI minus 1 percent) have a result different from that of measurement changes; arbitrary adjustments would produce changes in the real benefits of the program.

Suggestions for future research are indicated; these should be considered in conjunction with the subsequent section on Research and Other Matters.

Disability Rates

The Panel recommends periodic updating of the age-sex matrices used to project disability incidence and termination by recovery

rates. In addition, use of different matrices for major categories of disability should be considered. Analysis and projection of the factors, which reflect the overall levels of these rates, should give explicit recognition to the effect of unemployment and of claims administration practices.

Assumptions Regarding Retirement Age Under Current Law

The Panel recommends that the assumed pattern of retirement ages and the related benefits, and the sensitivity of the cost rates to such assumptions, be studied further and that detailed results be made available for review.

Presentation of Long-Term Status of the Trust Funds

Evaluation of the long-range financial status should put less emphasis on the "75-year actuarial balance" and the "test of long-range close actuarial balance."

The Panel does not recommend any change in the 75-year projection period, or in the concept of 100 percent Trust Fund Ratio (TFR) as an adequate contingency reserve.

The 75-year actuarial balance is an overall measure of changes in financial status, but should be less emphasized as a basis for evaluating the status of program or for designing reform proposals (especially if a substantial trust fund is to be accumulated).

The Panel suggests some revision in the presentation of annual balance projections (a different concept from the actuarial balance) and the treatment of trust fund interest.

Prior to enactment of legislation reforming the program, primary emphasis should be on the projected date the Trust Fund Ratio would fall below 100 percent.

When definitive legislative revisions are adopted, subsequent long-range evaluation should compare up-dated projections with the intended results of the legislation; based on the most frequently discussed proposals, such evaluation should consider whether the 75-year actuarial balance tends to deteriorate as the projection period moves forward; also whether the pattern of annual balances or TFR trend line departs significantly from legislative intent, or if the latter shows an apparent lack of stability beyond the 75-year valuation period. The Panel notes there is an important distinction between the financial adequacy tests appropriate for the Trustees Reports versus considerations for satisfactory legislative action.

Suggestions are also provided regarding indicators of future affordability of the program.

Research and Other Matters

The Panel recommends a substantial expansion of SSA's research capabilities, using additional in-house resources as well as outside consultants and contractual research. The prior (1990-91) Panel suggested an extensive list of research topics, many of which are still relevant; therefore, just a few topics are highlighted in this report, but the important question of methodology is also discussed. The gradual erosion of support for the Office of the Actuary and the Office of Research and Statistics, in particular, pose fundamental problems to the system as a whole. These Offices operate with only a very small fraction of the resources that would be made available in private insurance companies and actuarial consulting firms to study matters of importance to clientele. Adequate funding and organizational support for these Offices is vital to the long-range status and effectiveness of the Social Security Administration.

To ensure periodic review and that the most appropriate assumptions and techniques are used for projections of the operations of the trust funds and other policy purposes, the Panel recommends that:

1. Technical panels be appointed periodically (at least once every 5 years) to conduct comprehensive reviews of the assumptions and methods;

2. An ongoing advisory committee of experts be established to provide, on an as-needed basis, advice on specific matters; and

3. The SSA develop procedures to enable the staff easily to contract for extramural research and expert analysis to supplement ongoing staff activities.

An Evaluation of Mismeasurement in the Consumer Price Index

Executive Summary

Matthew D. Shapiro and David W. Wilcox
March 18, 1996[1]

This paper has four main objectives. First, it presents a comprehensive review of available evidence concerning the size and variability of the bias in the consumer price index. The paper presents not only a point estimate of the bias, but also an explicit assessment of the uncertainty surrounding that point estimate.

Second, the paper introduces a new index for the price of treatment for cataracts. The purpose of building this index is to illustrate not only how current BLS procedures in the medical care area can overstate inflation when the technology of medical care delivery improves, but also how one might more accurately handle the pricing of medical care.

Third, the paper discusses the consequences of CPI mismeasurement for fiscal policy, monetary policy, and the behavior of other economic data, including GDP and productivity.

Finally, the paper suggests several ways in which the CPI could be improved.

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1. The opinions expressed herein are those of the authors, and do not necessarily represent the views of the Board of Governors of the Federal Reserve, nor of the other members of its staff. Shapiro is Professor of Economics at the University of Michigan, Ann Arbor, MI 48109, and Research Associate at the National Bureau of Economic Research; Wilcox is Senior Economist at the Federal Reserve Board, Washington, D.C. 20551.

The main conclusions of the paper are as follows:

- The consumer price index is one of the most carefully researched and best executed statistical programs in the United States. Many of the difficulties that have been the focus of public discussion recently lie at the frontiers of economic knowledge. Moreover, a very large fraction of the primary research concerning imperfections in the consumer price index has been conducted at the Bureau of Labor Statistics (BLS), the agency that publishes the index. BLS personnel have been at the forefront of the effort to identify and quantify the influences that cause the CPI to be less than an ideal index. Over the years, the BLS has instituted a number of important improvements in the index based on this research.

- Improving the index from its current state will not be easy. None of the problems still affecting the CPI is simple. Several of the remaining difficulties will require additional research before they can be addressed adequately. Even those cases in which the economics profession collectively "knows" in principle what to do may be resolvable only with a substantial commitment of additional resources.

- There is enough evidence at this juncture to develop an informed opinion about the magnitude of the overall bias in the CPI. But, despite the efforts of the BLS and others, available evidence on the magnitude of several of the imperfections in the consumer price index is far less than complete. For this reason, we attempt an explicit assessment of the uncertainty that must be attached to these estimates, and we couch our statements about the size of the bias in the vocabulary of probability.

- Available evidence suggests that the midpoint (median) of the probability distribution for the overall bias in the CPI is just under 1.1 percentage points per year. It also suggests that about 80 percent of the mass of the distribution lies between 0.7 percentage point per year and 1.6 percentage points per year. Put slightly differently, there is a 10 percent probability that the bias is less than 0.7 percentage point per year, and a 10 percent probability that it is greater than 1.6 percentage points per year.

The probability distribution for the overall bias should be interpreted with care. The probability distribution can be

used to make statements of the following type: "Available evidence suggests that the consumer price index, as currently calculated, overstates the rate of inflation by an amount that is centered approximately on 1.1 percentage points per year; that is, there is a 50 percent probability that this excess is greater than 1.1 percentage points per year, and a 50 percent probability that it is less than 1.1 percentage points per year."

Likewise, the probability distribution is consistent with a statement of the following form: "Available evidence suggests that there is a 90 percent probability that the consumer price index, as currently calculated, overstates the rate of inflation by at least 0.7 percentage point per year."

The consumer price index (CPI-U) attempts to price market transactions involving out-of-pocket expenses for all urban consumers. Thus, for example, the index does not price medical care that is financed by the employer-paid portion of health insurance. The analysis of this paper is confined to this concept of inflation.

The paper also makes the following suggestions for improving the CPI.

- The BLS should move away from the modified Laspeyes index concept, and toward one that attempts to reflect how consumers change their spending patterns in response to changes in relative prices.

  -- At the most disaggregated level of the index, ("within strata"), the BLS should adopt the weighted-geometric-means formula as a replacement for the current fixed-weight Laspeyres formula. A weighted-geometric-means index assumes that consumers will substitute toward items that have become relatively less expensive (with an elasticity of substitution equal to 1). By contrast, the current Laspeyres index assumes that consumers will not engage in any such substitution. A switch to the weighted-geometric-means approach would also fix a technical problem that arises when items are brought into the index ("the base-price imputation

effect" [referred to by some earlier analysts as "formula bias"]).

-- At the more aggregated level of the index ("across strata"), the BLS should adopt the so-called Tornqvist index formula within geographical areas. This formula updates the expenditure weights to reflect changes in spending patterns. The textbook formulation of the Tornqvist concept can be implemented only with a lag, because the weights must be derived from the results of the ongoing Consumer Expenditure Survey, and those results are available only with a lag. One approach to solving this problem would involve forecasting the expenditure shares, and then making the index subject to revision as actual data on those shares became available.

-- Across geographical areas, the BLS should continue to use the Laspeyres index formula, which (quite sensibly) builds in the assumption of no substitution across areas.

- The BLS should investigate new techniques for the medical care area, and should focus on pricing treatments (e.g., the restoration of eyesight impaired by cataracts, the repair of a broken bone, the treatment of a heart attack, the treatment of psychosis, and so forth), rather than on pricing a fixed basket of medical "inputs" (e.g., an hour of a physician's time, a day in the hospital, a piece of medical equipment).

- The BLS should investigate the payoff from rotating the CPI sample more rapidly. Currently, the BLS rotates the entire sample (that is, all items) in about 20 percent of all CPI areas each year, and so completes a full rotation once every five years. Original plans (as of 1978) called for the sample to be rotated once every three years, but those plans were modified in light of budgetary constraints. Starting in 1998, the BLS plans to change the basis of this procedure, and rotate 20 percent of the items in the index in all areas simultaneously, rather than rotating all items in 20 percent of the areas. This will allow the BLS to introduce faster rotation for those items experiencing rapid change and obsolesence. A further improvement in the index might be gained by rotating the entire sample more quickly. A move in this direction would almost surely require investment of additional resources.

- As for the longer-term agenda, the BLS and the Census Bureau should consider revamping their surveys in the retail area, in order to coordinate the collection of price, wage, employment, sales, and inventory data at the same establishments. Coordination of this type would almost surely yield important new insights into the dynamics of the

retail sector. In addition, it might result in operating efficiencies for the statistical agencies and a reduction in aggregate respondent burden.

- The BLS should maintain and expand efforts already under way to make all of the data underlying the consumer price index available on a convenient basis to researchers, both inside and outside the agency. An aggressive move in this direction would be one good way for the BLS to enhance the prospects for future improvements in the index.

- As for the issue of quality change, there appears to be no alternative but for someone to undertake detailed case studies on an item-by-item basis; probably hundreds of useful and interesting studies of this type need to be executed. This is an area where academic researchers can--and ought to--make a large and constructive contribution to the efforts of the BLS. Many of the most interesting case studies will probably bear on the pricing of medical care commodities and services. Such case studies will have the greatest impact if they attempt to construct prototypes of indexes that could actually be implemented by the BLS using reliable data sources available in real time.

Causes and Consequences of Imperfections in the Consumer Price Index

Matthew D. Shapiro and David W. Wilcox*

February 9, 1996

Note: This document is preliminary and subject to revision. It is not to be circulated, quoted, or cited without the permission of the authors. The opinions expressed herein are those of the authors alone, and may not represent the views of the Board of Governors of the Federal Reserve, nor of the other members of its staff. We are grateful to Roland Benabou, John Greenlees, David Lebow, Brent Moulton, Marshall Reinsdorf, and David Stockton for helpful comments on earlier drafts, to Frank Diebold for very useful conversations, to Irving Shapiro, M.D., for assistance on the section on cataract surgery, and to Dwight Bibbs for excellent research assistance. Shapiro is Professor of Economics at the University of Michigan, Ann Arbor, MI 48109, and Research Associate at the National Bureau of Economic Research; Wilcox is Senior Economist at the Federal Reserve Board, Washington, D.C. 20551.

I. Introduction

A number of analysts have claimed recently that the consumer price index is biased upward relative to the true cost of living. The Congressional Budget Office estimates that a permanent 1/2 percentage point reduction in the annual rate of growth of the CPI beginning in 1996 (holding all other elements of the economic environment constant) would reduce the Federal deficit in 2000 by $26 billion relative to baseline projection, and the savings would continue to escalate from there. That the CPI might overstate changes in the cost of living has led some to reexamine the role of indexation in the Federal budget. This paper aims to provide a detailed examination and systematic evaluation of the evidence on the magnitude of biases in the CPI.

The main objectives of this paper are as follows: First, we assess the size of the bias in the consumer price index as a measure of the cost of living. Where possible, we also report evidence on the variability of that bias (although the evidence on this issue is scant). The variability of the bias is of independent interest because--especially from the point of view of the monetary authority--any given average bias would be more important the more variable it is.

Second, we present a preliminary version of an index for the price of cataract treatment. We hope that this index might serve as a prototype for an alternative approach to the pricing of medical care. Our results for this one course of treatment are not representative of what would be found in any comprehensive examination of the medical area; nonetheless, they do suggest that the overstatement of medical care inflation may be considerable.

Third, we discuss some of the implications of any bias in the CPI, including implications for fiscal policy, monetary

policy, as well as implications for other measures of economic performance including real GDP and productivity.

Finally, we suggest a few steps that we believe the BLS should consider taking as part of its ongoing efforts to improve the CPI.

We summarize our main conclusions as follows:

- The consumer price index is one of the most carefully researched and best executed statistical programs in the United States. Many of the difficulties that have been the focus of public discussion recently lie at the frontiers of economic knowledge. Moreover, a very large fraction of the primary research concerning imperfections in the consumer price index has been conducted at the Bureau of Labor Statistics (BLS), the agency that publishes the index. BLS personnel have been at the forefront of the effort to identify and quantify the influences that cause the CPI to be less than an ideal index. Over the years, the BLS has instituted a number of important improvements in the index based on this research.

- Improving the index from its current state will not be easy. None of the problems still affecting the CPI is simple. Several of the remaining difficulties will require additional research before they can be addressed adequately. Even those cases in which the economics profession collectively "knows" in principle what to do may be resolvable only with a substantial commitment of additional resources.

- There is enough evidence at this juncture to develop an informed opinion about the magnitude of the overall bias in the CPI. But, despite the efforts of the BLS and others, available evidence on the magnitude of several of the imperfections in the consumer price index is far less than complete. For this reason, we attempt an explicit assessment of the uncertainty that must be attached to these estimates, and we couch our statements about the size of the bias in the vocabulary of probability.

- Based on our review of available evidence, we place the midpoint (median) of our subjective probability distribution for the overall bias in the CPI at just under 1.1 percentage points per year. We also estimate that about 80 percent of

> the mass of the distribution lies between 0.7 percentage point per year and 1.6 percentage points per year. Put slightly differently, we estimate that there is a 10 percent probability that the bias is less than 0.7 percentage point per year, and a 10 percent probability that it is greater than 1.6 percentage points per year.

The rest of the paper is organized as follows: Section II gives a thumbnail sketch of the methods used to construct the consumer price index in the United States. Section III provides a framework for the analysis of imperfections in the consumer price index. Section IV reviews available evidence on the nature and magnitude of various imperfections in the consumer price index. In Section V, we discuss our preliminary efforts to construct an alternative index for the price of cataract treatment. We assess both the shortcomings in the current official treatment of medical care prices and the significant conceptual barriers to constructing a better index. Section VI assesses a few of the consequences of imperfections in the CPI as an index of the cost of living. Finally, Section VII advances some suggestions about what might be done to improve the consumer price index.

II. How the CPI is constructed: a brief primer

This section gives a thumbnail sketch of the methodology that the BLS uses to construct the consumer price index. Our goal is not to provide a comprehensive treatise, but rather to touch on the main features of the methodology that will be relevant for the discussion that follows. The primary source of information on this topic is Chapter 19 of the BLS *Handbook of Methods* U.S. Department of Labor (1992).

A. Prices

Each month, the Bureau of Labor Statistics collects about 70,000 price quotations from roughly 21,000 outlets in 88 locations

known as primary sampling units (PSUs). In the five largest urban areas (comprising eight PSUs), prices are collected every month for all items; in the other areas, prices are collected monthly for food, fuels, and a few other items, and bimonthly for other items (BLS 1992 p.178). Separately, the BLS collects information from about 40,000 renters or landlords and about 20,000 homeowners for the housing components of the CPI (Abraham 1995, p.107). These individual price quotations are aggregated into the overall CPI in two stages.

In the first stage, individual price readings are aggregated into 9,108 strata--one for each of 207 *items* in each of 44 *areas*. For example, prices at individual filling stations in the Chicago consolidated metropolitan statistical area are aggregated to form an index for the price of motor fuel in that area. Other examples of items at the stratum level include ground beef, women's dresses, new cars, physicians' services, and information processing equipment. As these examples suggest, some strata (e.g., ground beef) are quite homogeneous, while others (e.g., physicians' services and information processing equipment) decidedly are not.

Collectively, the 207 items are meant to provide exhaustive coverage of all consumer expenditures (treating owners' housing expenditures on a rental equivalence basis, and including only that portion of spending for medical care which is financed either out of pocket or by the portion of health insurance coverage paid for by individuals).[1] Of the 44 areas, 32 actually correspond to individual geographical locations in 29 cities, which are self-representing in the index on account of their size. The remaining 12 areas are composites constructed from the 56 primary sampling units which are not themselves

1. At present, only 184 of the item strata are actually priced; the other 23 strata, which collectively account for less than 2 percent of the weight of the overall index, are moved in line with the fluctuations of various priced strata.

areas. Thus, these 12 areas do not correspond to single locations; rather, they provide representation in the index for the smaller and mid-size cities in each of several regions of the country.

The modified Laspeyres formula for the first stage of aggregation is given by:

$$(1) \quad \frac{P_{it}}{P_{il}} = \frac{\sum_j q_{jb} p_{jt}}{\sum_j q_{jb} p_{jl}},$$

where P_{it} is the price index for item-area stratum i in period t, p_{jt} is the price of individual item j in period t, and q_{jb} is an index of the quantity of item j purchased during a base period b. The time period l referenced in the denominator of both the left- and right-hand-sides is the *link period*, the date when the weighting structure represented by the q's is introduced into the index. In a true Laspeyres formula, the base period b would coincide with the link period l; in the CPI, the base period and the link period differ by about 2 years on average.

In the second stage, the item-area strata are aggregated into higher-level indexes (including the overall index) using another modified Laspeyres formula:

$$(2) \quad \frac{I_t}{I_L} = \frac{\sum_i Q_{iB} P_{it}}{\sum_i Q_{iB} P_{iL}}$$

where I_t is a higher-level index, P_{it} is the price index for stratum i in period t from the left-hand side of equation (1), and Q_{iB} is the quantity of stratum i consumed in the base period B. Once again, the Laspeyres formula is modified rather than true because the base period B differs from the link period L.

B. Samples and weights

An extensive array of sample-based information undergirds the calculation of the consumer price index. In brief, this information base can be described as follows: The quantities that are used in the second stage of aggregation are derived from the Consumer Expenditure Survey. This survey collects detailed information covering all out-of-pocket expenditures from a national sample of urban households.

Historically, the Bureau of Labor Statistics has updated these quantities (popularly known as "the marketbasket") about once per decade. For current data, the weights represent an average of results derived from the surveys for 1982 through 1984; hence, the base period denoted as *B* above is 1982-84. By contrast, the link period denoted as *L* above currently is the end of 1986. Therefore, the base period and the link period are separated by roughly 3 years. In the next comprehensive revision of the index, due for introduction in 1998, the BLS will update the base period to 1993-95 and the link period to the end of 1997.

The not-seasonally-adjusted CPI is revised only under extraordinary circumstances.[2] In particular, it has been the policy of the BLS, when it updates the composition of the marketbasket, not to revise the index backward in time. Thus, for example, the monthly values of the index from January 1978 through December 1986 reflect the average marketbasket as of 1972-73, whereas the monthly values from January 1987 forward reflect the average marketbasket as of 1982-84. The use of different marketbaskets at different points in time is another way that the CPI departs from the standard Laspeyres index.

2. The CPI is seasonally adjusted at a very detailed level of disaggregation. Seasonal factors are revised annually.

The quantity indexes that are used in the first stage of aggregation (within strata) are derived from two sources: First, the Census Bureau conducts a survey of households (known as the Point of Purchase Survey, or POPS) to determine the distribution across specific outlets of household expenditures for various classes of items. Based on the results of this survey, the BLS selects a sample of outlets (including, say, a particular grocery store). The probability of selection for any given outlet is proportional to that outlet's share in total expenditures in the survey area for the item in question. Once the sample of outlets is drawn, a BLS representative visits each selected outlet and chooses one or more specific items (e.g., a particular brand of breakfast cereal) from within the broader category of items (all breakfast cereals) to be priced. The probability of selection for any given specific item is proportional to its estimated share in the outlet's revenue.

This process of outlet and item selection is part of the continuous sample-refreshment procedure known as *sample rotation*. This process generates a sample of specific items, each of which had a probability of selection into the sample proportional to its share in nominal expenditure during a base period. About 20 percent of all PSUs undergo sample rotation in any given year; thus, the sample is fully rotated every five years. All items brought into the index through the sample rotation process are treated as not directly comparable to those already included in the sample; that is, the BLS performs an implicit quality adjustment of the prices coming into the sample using the *overlap method*. We describe the overlap method and the other quality-adjustment methods used by the BLS in the next subsection.

C. Item substitutions

BLS representatives aim to reprice exactly the same items from month to month. According to Armknecht and Weyback (1989), however, this was not possible in 3.95 percent of all pricing

attempts during 1984, because the previously-priced item was either sold out, discontinued, or otherwise unavailable. In a few categories, the frequency of substitution was very high indeed. For example, Armknecht and Weyback report that the substitution rates in 1984 for women's suits, women's dresses, and girls' coats, jackets, dresses and suits were all in excess of 40 percent.[3] In most cases in which an old item cannot be repriced, the BLS representative will substitute a new one.

When an item is substituted into the index, the BLS representative must evaluate whether the new item is sufficiently comparable to the old one to make a direct comparison of prices meaningful. For this purpose, the BLS has developed an item-specific set of guidelines spelling out the essential characteristics that different individual items must share if a direct price comparison is to be allowed: items may differ in other less consequential ways and still be judged "comparable" for item substitution purposes. Armknecht and Weyback (1989) report that in 1984, about 43 percent of substitute items were judged to have been comparable: according to Armknecht, Lane, and Stewart (1994), this fraction has risen to 56 percent more recently.

If a substitute item is determined to be noncomparable, then the BLS makes one of several adjustments to the price of the new item, depending on what information is available.

1. If both the old and new varieties of the item can be priced in the same month (say, month t), then the BLS uses "the overlap method" (see Fixler (1993) p.7). In this approach, the growth of the index from period $t-1$ to period t is calculated using the price of the old item, whereas the growth of the index from period t to period $t+1$ is calculated using the price of the new item. In effect, the difference in price between the old and new varieties in

3. More recently, the BLS has taken a variety of steps to reduce the noncomparable substitution rates in apparel. See Reinsdorf, Liegey, and Stewart (1995).

the overlap month is taken as reflecting the difference in quality between the two varieties, to the exclusion of all other possible influences. Aside from its application as part of the sample rotation process, the overlap method is seldom used because the BLS rarely observes the prices of both the old and new varieties in the same month (precisely because the need for item substitution usually is triggered by the disappearance of the old item).

2. In some categories of items, manufacturers are asked to provide estimates of the cost of producing a given quality improvement. This cost (marked up to an estimated retail value) is then netted out of the observed increase in price to produce an estimated quality-adjusted increase in price. The most prominent application of this approach is in the area of motor vehicles (Triplett (1988), p.39).

3. The BLS also makes some limited use of hedonic techniques in constructing the consumer price index. The first application of such techniques in the CPI was in the area of housing; since 1988, hedonic equations have been used to adjust rent quotes for the age of the rental unit (see Randolph (1988)). More recently, the BLS has begun to use hedonic equations to assist in the pricing of apparel (see further discussion below).[4] Although at one time hedonic techniques were viewed as holding great promise for widespread application in the CPI, the current consensus appears to be much more cautious, and views hedonics as probably ill-suited for extremely complicated items such as motor vehicles (see, for example, Gordon (1993) and Triplett (1988)).

4. According to Armknecht and Weyback (1989), by far the most common technique for dealing with noncomparable substitutions is *link pricing*, which is used when the new and old versions cannot both be priced in the same month (again, see Fixler (1993) p.7). Suppose the price of the old item is last observed in period $t-1$ and the price of the new variety is first observed in period t. In this case, the growth of the index from period $t-1$ to period t is estimated using the prices of closely related items (that is, excluding both the price of the old variety in

4. Hedonic methods are used to price information processing equipment in the PPI, but not in the CPI.

period $t-1$ and the price of the new variety in period t).[5] The growth of the index from period t to period $t+1$ (and thereafter) is computed using the price of the new variety. As is the case with the overlap method, link pricing involves an implicit quality adjustment; in this case, the adjustment is given by the difference between an imputed price of the old variety[6] in period t and the price of the new variety in period t.

The importance of these techniques is illustrated by figures presented in Armknecht and Weyback (1989) and Armknecht (1984). As was noted above, item substitutions were made in the course of 3.95 percent of all pricing attempts during 1984. The official CPI-U for the items studied by Armknecht and Weyback increased 3.4 percent during 1984.[7] Of this amount, 3.26 percentage points of price increase was derived from pricing attempts which involved a substitution. To put it slightly differently, the CPI-U for all repriceable items within the purview of the Armknecht-Weyback study increased 0.14 percent during 1984.[8] Results presented in Armknecht (1984) for 1983 are slightly less dramatic but still very striking: In 1983, item substitutions were performed in 3.85 percent of all pricing

5. The BLS has recently refined this technique as it is applied to non-service items other than food, so that the price change from $t-1$ to t is imputed using only the results from other pricing attempts in which an item substitution also took place, but in which the new item was judged comparable to the old, or a direct quality adjustment was possible. We discuss the reasons for this change in Section IV.G.

6. The imputed price of the old variety in period t is calculated as the price of the old variety in period $t-1$ extrapolated forward using the growth of the subindex in question.

7. Armknecht and Weyback excluded residential rent, homeowners' equivalent rent, used cars, health insurance, and magazines, periodicals, and books from their study.

8. As Reinsdorf pointed out in commenting on an earlier draft, this outcome of near-zero average price change for repriceable items probably reflects a mix of behaviors, with many items experiencing normal price increases and a few being marked down sharply prior to discontinuation.

attempts. The CPI-U for all items included in the study (same exclusions as in Armknecht and Weyback) increased 2.99 percent; of that amount, 1.83 percentage points were contributed from item substitutions.

The fact that measured inflation was concentrated in newly introduced products does not necessarily make it any less genuine. It does, however, demonstrate the importance of BLS's techniques for handling item substitutions. It also demonstrates that item turnover is a fundamental aspect of the inflation process: Something quite dramatic on the pricing front happens when an old variety of an item disappears and a new one is introduced. That a substantial majority of aggregate price change coincides with changes in some characteristics of items seems not to widely known, and is certainly worthy of further study.

Table 1 (adapted from BLS (1992)) provides a selective chronology of major changes in the consumer price index. Among other things, the table shows that the methodology underlying the CPI is frequently modified to reflect developments in the marketplace and advances in technique.

III. A framework for analyzing measurement problems

This section proposes a conceptual framework for analyzing measurement problems in the CPI.[9] This framework is intended to represent an exhaustive and mutually exclusive organizational structure for problems with the consumer price index as currently

9. Bryan and Cecchetti (1993) propose a similar framework.

defined.[10] We use the framework as a roadmap for our discussion below of the various imperfections in the CPI as a measure of the cost of living. We hope other analysts of measurement problems in the CPI will adopt this framework (or one like it) to facilitate comparison of different estimates.

Table 2 presents our framework in schematic form. We divide the universe of possible problems with the consumer price index into several categories. The first category of issues pertains to the problem of aggregating individual prices and subindexes into the overall index. In economic terms, these issues correspond to the choice of a particular utility concept

10. There is a broader set of questions that we do not address in this paper pertaining to the overall design of the index. For example, should the index attempt to measure how much a representative consumer would have to *spend* in the current period in order to be as well off as she was in some base period, or should it attempt to answer how much she would have to *receive in income*? The difference is driven by direct taxes. Gillingham and Greenlees (1987) note that an expenditure-defined index (such as the current official CPI) will increase in response to a revenue-neutral swap of indirect taxes for direct taxes; this might be a matter of some concern given that some plans currently being discussed in the political arena would entail such a swap. A second design-related issue concerns the coverage of medical care. If the CPI is intended to serve as a comprehensive index of the cost of living, then it should price all of medical care consumed, whether financed by employer-paid insurance or not. On the other hand, if the index is intended primarily to serve as an escalator for social security benefits, then it makes sense to follow current practice in excluding government-provided health care, although in this case the marketbasket and item selection presumably should be specifically tailored to the beneficiary population. Moreover, if the index were to be optimized for this purpose, and the objective of the Congress was to provide a benefit with constant purchasing power, then the index probably would ideally be reconstituted as an income-defined index with tax treatment targeted specifically at taxation of social security benefits.

for use as a theoretical foundation for the index.[11] As we discuss in Section II, the consumer price index is a modified Laspeyres index, and so is approximately rationalized by the Leontief utility function. Like most other researchers, we focus exclusively on issues related to substitution in response to changes in relative prices. A separate issue, which we ignore in the rest of the paper, relates to nonhomotheticity and the influence of the choice of a benchmark level of utility on the estimated rate of change of the cost of living. The structure of the CPI makes it natural to discuss substitution at two different levels--a relatively aggregated level (e.g., food versus apparel, medical care versus automobiles) and a relatively disaggregated level (e.g., shopping for a particular brand of breakfast cereal at various different outlets). We refer to these two effects as the "across-strata" substitution effect and the "within-strata" substitution effect, respectively.

The second category of issues relates to the implementation of the chosen underlying utility foundation, which involves the estimation of weights and prices for individual items. The first issue in this category we consider eoncerns the weights of items within strata. In particular, we focus on a flaw in the current implementation pertaining to the imputation of a certain price that is not observable given the current sample design. As a label for this flaw, we use the mellifluous phrase "base-price-imputation effect."

The next group of issues pertains to prices of items that are not included in the CPI sample at any given moment. The BLS

11. Our focus on utility as the organizing concept for the consumer price index places us in the tradition of Fisher and Shell (1972), Pollak (1989), and many others who have analyzed price index theory from the economic perspective. The competing paradigm is represented most prominently by Fisher (1922), and is based on the specification of axioms that a well-designed index should possess. (See Diewert (1987) for a modern treatment of the axiomatic approach.)

must constantly bring a sample of such prices into the sample because entirely new items are constantly being created and new outlets are opening. Absent offsetting action by the BLS, both of these circumstances would render the BLS's sample of items increasingly unrepresentative of transactions actually taking place in the economy. The issues we group under this heading stem indirectly from BLS's methodology for implementing this constant renewal of the sample. We refer to these issues as the new-items effect and the new-outlets effect.

The last group of issues pertains to the measurement of the prices of individual items that are included in the sample. Here, by far the most important issue has to do with quality change that is either undetected (and hence not controlled for) or that is detected but not handled accurately. We refer to this issue using the label "quality-change effect." Here we are referring only to that element of quality change that is not already accounted for by the BLS's procedures.

IV. The plumbing of mismeasurement

This section reviews available evidence on the sources and magnitudes of various imperfections in the consumer price index. We begin by describing our method for aggregating estimated magnitudes of imperfection across sources. Then we turn to a consideration of the imperfections themselves.

A. Aggregation of results

One way to describe the estimated magnitude of a particular imperfection is to give a point estimate. A point estimate may be a good way of conveying a best estimate (or a conservative estimate) of the magnitude of a particular bias. A point estimate conveys nothing, however, about the extent of the analyst's uncertainty about the magnitude in question. Previous authors in this genre (e.g., Advisory Commission (1995) and

Lebow, Roberts, and Stockton (1994)) have attempted to convey information about their uncertainty by specifying ranges. While ranges convey that there is uncertainty, they are not informative about the shape of the analyst's probability distribution over the magnitude of the imperfection, either inside or outside the range. Moreover, ranges do not convey sufficient information to allow rigorous aggregation of magnitudes across different sources of imperfection.

We address this problem by presenting our results explicitly in terms of subjective probability distributions. Because we use numerical rather than analytical techniques to aggregate across the various sources of imperfection, we have considerable flexibility in the specification of our beliefs. In particular, we are not constrained to use the normal distribution; nor are we constrained to assume that the various effects are uncorrelated with one another.[12] A possible shortcoming of this approach is that it requires us to be very specific about the nature of our beliefs. We might prefer a technique that allowed us to be somewhat "fuzzy" in the specification of our beliefs, but we know of no such technique.

We now proceed to consider the various major sources of bias in the CPI.

B. The across-strata substitution effect

As relative prices change over time, consumers will generally find that the cost-minimizing strategy for achieving a given level of utility requires them to change the mix of their purchases. Other things equal (in particular, holding tastes and

12. We are grateful to Frank Diebold for helpful suggestions in developing this method for summarizing our results. Stockton (1995) uses the vocabulary of probability to discuss in an informal manner how beliefs about the overall bias in the CPI could be expressed and interpreted.

real incomes constant), consumers will tend to purchase less of items whose relative prices have increased and more of items whose relative prices have declined. A Laspeyres index ignores such shifts.

Aizcorbe and Jackman (1993 and updates) estimate the influence of the across-strata substitution effect by calculating the difference between the annual rates of growth of a 1982-based Laspeyres index and a chained Tornqvist index.[13] These estimates are shown in Chart 1. The small sampling variance of the CPI suggests that the variation in these estimates probably is not statistical noise.

A striking feature of these estimates is that they fail to show an easily recognizable upward trend despite a widely held presumption that there should be such a trend.[14] This is an important finding that deserves further research because it bears on the likely efficacy in reducing the across-strata substitution effect of updating the marketbasket more frequently. One possible explanation of this finding is that it reflects a slowdown in the rate of drift of relative prices away from their base-period values (and hence a diminished scope for cost-minimizing substitution) during the 1990s as compared with the 1980s. We investigated this hypothesis by constructing the

13. A Tornqvist index calculates aggregate price change as a weighted geometric mean, where the weights are the arithmetic averages of the expenditure shares in the base and comparison periods. Diewert (1976) showed that both the Tornqvist index and Fisher's "ideal" index have desirable theoretical properties.

14. The presumption that there should be such a trend derives from the observation that if the elasticity of substitution is greater than zero, a Laspeyres index calculated using period 0 as the base period will assign a lower weight to items whose relative prices have declined between period 0 and period t-1 than will a Laspeyres index calculated using period t-1 as the base period. If changes in relative prices are persistent, the Laspeyres index with fixed base year will increasingly underweight the price changes of items whose prices are growing more slowly than the average.

following index of the cumulative drift of relative prices from the base period:

$$J_t = \sum_i w_i(\ln p_{it} - \ln \tilde{P}_t)^2,$$

where the w_i's are nominal expenditure shares in 1982-84 (taken from Mason and Butler (1987)), the p_{it}'s are the most detailed national-level price available on the BLS's public database, and $\tilde{P}_t$ is an aggregate price index calculated as the weighted geometric mean of the p_{it}'s. We then computed the 12-month changes in J_t and found, unfortunately, that they have essentially no explanatory power for the Aizcorbe-Jackman estimates. Details are reported in a not-for-publication appendix.[15]

Empirical magnitudes. In their interim report, the Advisory Commission (1995) gave a point estimate for the average influence of the across-strata substitution effect over the next decade of 0.3 percentage point per year, with a range extending from 0.2 to

15. We note that there are two important differences between the experimental design adopted by Aizcorbe and Jackman and the methodology underlying the official CPI. First, Aizcorbe and Jackman calculate their Laspeyres index using expenditure shares for 1982 only, not averages for 1982-84 as is done in the official index. Second, Aizcorbe and Jackman use the 1982 expenditure shares in calculating 12-month aggregate price changes starting in December 1983. By contrast, the 1982-84 weights were introduced into the official index only in December 1986; until then, the official index was computed using expenditure weights for 1972-73. As a result, the Aizcorbe-Jackman results probably are not the most precise possible estimates of the extent of the substitution effect in the official index. Nonetheless, they should give a very good indication of the extent of that effect in the official index, especially in 1987 and after.

It would probably be worth complementing the existing Aizcorbe-Jackman estimates with another set of calculations in which the Laspeyres index is constructed using expenditure shares averaged over 1982-1984. As noted in Section VIII, the BLS is conducting research on the construction of experimental CPIs using different three-year base periods.

0.4 percentage point per year.[16] Lebow, Roberts, and Stockton (1994) give a range extending from 0.1 to 0.2 percentage point per year.

We assess available evidence as suggesting that the average influence of the substitution effect over the next decade or so is centered roughly around 0.2 percentage point per year (see Chart 1). Based on economic theory and available evidence, we are fairly confident that the substitution effect will be positive on average over the next decade or so. However, we do assign a low positive probability to the possibility that the substitution effect will cause the CPI over the next decade to *understate* the rate of increase of the true cost of living index; this would occur if relative prices were to drift back toward their base-period (1982-84) values between now and the introduction of updated weights in 1998.[17]

We summarize these beliefs using a random variable that is distributed according to the normal distribution with mean 0.2 percentage point per year and a 90 percent confidence interval extending from 0.0 to 0.4 percentage point. (We defer

16. The Advisory Commission did not give separate specifications for substitution across and within strata--only one specification for both effects. Nonetheless, the evidence they cited in support of this specification came from the same study that both Lebow, Roberts, and Stockton and we relied upon in support of our specifications of across-strata substitution alone. Therefore, we compare the Advisory Commission's specification for substitution bias with that of Lebow, Roberts, and Stockton for "high-level substitution bias" and ours for the across-strata substitution effect.

The interim report was written before the Aizcorbe-Jackman estimate for 1994 was available. The report highlights the commission's expectation that the substitution effect will be relatively large until the marketbasket is updated in 1998, then drop back a bit for a few years, and then drift up again as the new base period (1993-95) becomes more distant.

17. For example, relative prices would be driven back toward their base-period values if oil prices were to increase substantially from their current levels.

specification of correlation with other influences until those other influences are introduced.) Chart 2 displays our probability distribution along with the information provided by the Advisory Commission and by Lebow, Roberts, and Stockton.

C. The base-price-imputation effect

A problem was inadvertently introduced into the index in 1978, when the BLS implemented a new and--in other respects--greatly improved method of calculating the item-area strata (BLS 1995a p.14).[18] For reasons that will become apparent in what follows, we call this bias the *base-price-imputation effect*. Frequent assertions to the contrary notwithstanding, the base-price-imputation effect has nothing to do with any misunderstanding of logarithms on the part of the BLS.[19]

In simple terms, the problem can be understood as follows: If the price of an item is abnormally low during the period when the weight of the item in the index is determined (perhaps because the item happens to be on sale), then the item will receive too large a weight in the index, for reasons we explain in greater detail in the not-for-publication appendix. Moreover, the price of the item will tend to increase abnormally rapidly as it returns to its normal level. The combination of high weight and above-average price increase implies that the growth of the index will be biased upward.

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18. The Advisory Commission referred to the base-price-imputation effect as "formula bias." The first evidence pointing to difficulties in the estimation of the item-area strata was reported in Reinsdorf (1993). A 1993 version of Reinsdorf (1995a) interpreted that evidence as relating to the implementation of Laspeyres aggregation, and was cited as doing so by Moulton (1993).

19. This incorrect assertion is perhaps partially perpetuated by the BLS's inauspicious use of the term "formula bias" for what we call the base-price-imputation effect.

In large part, this problem is a byproduct of *sample rotation*, which is the method that the BLS uses to update the sample of items it prices. (See Section II for a detailed description of sample rotation.) The sample rotation process can be thought of as yielding estimates of nominal expenditure shares in some base period for an updated sample of items in a particular city. However, real quantities are what is needed for use in Laspeyres aggregation. In an attempt to construct real quantities, the BLS imputes prices which it then uses as deflators for the base-period nominal expenditure shares. Unfortunately, the current method of base-price imputation induces the aforementioned correlation between weights and price relatives.[20]

One approach to solving this problem involves using one price reading to estimate the weight of the item in the index, and a separate one taken a few months later to form the denominator of the price relative. Thus, this approach allows

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20. If the BLS observed the base-period price, the weight would be calculated as

$$\omega_j = [(\frac{e_{jb}}{p_{jb}})p_{jl}]/[\sum_K (\frac{e_{kb}}{p_{kb}})p_{kl}].$$

where e_{jt} is nominal spending on item j in period t, p_{jt} is the price of item j in period t, b is the base period (when nominal spending shares are determined), and l is the link period (when the weights are introduced into the index). Note that ω_j can be interpreted as the nominal spending share associated with purchasing base-period quantities at link-period prices. The BLS does not observe base-period prices for items to be brought into the index because the base period occurs before the items are even selected. Instead, the BLS extrapolates the item-specific price back from the link period to the base period using the growth in the aggregate substratum price index. This--somewhat surprisingly--makes the weight equal to

$$\hat{\omega}_j = e_{jb}/[\sum_J e_{jb}].$$

$\hat{\omega}_j$ can be interpreted as the nominal spending share associated with purchasing base-period quantities at base-period prices or, more simply, as the base-period expenditure share.

the new item to become "seasoned" before it is linked into the index. The presumption underlying this approach is that the transitory element of item-level prices is essentially uncorrelated with its own lagged value across a span of several months. This solution has already been implemented for the prices of food purchased for consumption at home (three-month delay introduced as of January 1995). The BLS plans to report on the extent to which this adjustment slowed the growth of the CPI.[21]

Armknecht, Moulton, and Stewart (1995) simulate the impact of a closely related fix.[22] The data included in their simulation cover about 64 percent of the weight of the overall index over a 12-month period, from May 1993-May 1994. The alternative price index they calculate increased an estimated 0.11 percent less over that period than did the current-practice

21. Several related changes to the formulae used to calculate price indexes for rent and owners' equivalent rent were also implemented in January 1995 (Armknecht et al., pp.12-17). Figures presented in Armknecht et al. (p.16) suggest that these changes would have held down the growth of the overall index from March 1992 through June 1994 by about 0.07 percentage point per year. 0.07 percentage point = -0.22*0.05835 + 0.41*0.19303, where 0.05835 is the relative importance weight of residential rent as of December 1991, 0.19303 is the relative importance weight of owners' equivalent rent, 0.22 is the estimated annual *increase* in the rate of growth of the residential rent index associated with switching from the current composite estimator to a 6-month chained estimator (the increase being thought to stem from under-estimation of rent increases over the preceding month based on respondent recall), and 0.41 is the estimated annual decrease in the rate of growth of the owners' equivalent rent index associated with switching from a composite estimator with average-of-ratios imputation to a 6-month chained estimator with ratio-of-sums imputation.

22. In particular, they simulate the impact of using the so-called initiation price (collected by the BLS field representative at the same time she or he selects a specific item into the sample) to calculate the weight of the soon-to-be-introduced item in the index, and using the separate link-period price reading as the base for the price relative (see their page 10).

CPI (p.10). This figure probably understates the overall influence of the base-price-imputation effect because it pertains only to item replacements that occur at sample rotation time, and those replacements constitute only about two-thirds of all item replacements. (Most of the other one-third of item replacements are performed in response to item attrition from the sample.) Taken literally, this evidence suggests that only about 0.05 percentage point of upward bias due to the base-price-imputation effect remains in the official index, once one takes account of the change already made to the pricing of food purchased for consumption at home.[23] We judge this estimate to be surprisingly small, however, based partly on evidence reported in Reinsdorf (1993).[24]

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23. 0.05 = (3/2)*0.5*0.64*0.11, where 0.11 is the base-price-imputation effect estimated by Armknecht et al., 0.64 is the relative importance of the items examined by Armknecht et al. in the overall index, (1-0.5=0.5) is the fraction of the effect accounted for by items other than food at home (Armknecht et al. report that half of the effect they detect was in food at home--a category where the BLS has already implemented a fix along these lines), and 2/3 is the fraction of all item replacements accounted for by the simulation conducted by Armknecht et al.. Residential rent, owners' equivalent rent, and apparel account for the bulk of the index weight not included in the Armknecht et al. simulation. The base-price-imputation effect should not be a significant issue in any of these categories, in part because (as was described in the text) an adjustment to owners' equivalent rent was implemented in January 1995. As a result, there should be no need to extrapolate the Armknecht et al. estimate to the rest of the index.

24. Reinsdorf (1993) presents evidence suggesting that the base-price-imputation effect could be considerably more important than would be indicated by the figures given in the text. He develops this evidence using the BLS's so-called average-price series, which (for certain categories judged to consist of relatively homogeneous items that experience relatively little quality change over time) are calculated as the quantity-weighted averages of the individual price quotes collected by the BLS each month. Reinsdorf identifies 52 such series for which there is a relatively close match in concept to a detailed component of the CPI. He then compares the growth of each average price series to

(Footnote continues on next page)

It would be very useful to have additional estimates of the base-price-imputation effect based on the approach explored by Armknecht et al.[25] A time-series of annual estimates analogous to the ones presented by Aizcorbe and Jackman (1993) would be ideal because it would shed light on the year-to-year variability of this source of bias. It would also be useful to

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(Footnote continued from previous page)
the growth of its corresponding CPI component over the period 1980-89, and finds that in 48 of the 52 cases, the average-price series increased more slowly, on average. For example, the average-price series for bananas increased a total of 23.5 percent between January 1980 and January 1989, while the CPI for bananas increased 32.1 percent, implying an average growth discrepancy of 0.77 percentage point per year. Moulton and Smedley (1995) extend this calculation through January 1995 and report an average growth discrepancy of 1.05 percentage points per year. Taken together, these two pieces of information imply that the average-price series for bananas was diverging from the CPI for bananas at the rate of 1.5 percentage points per year between 1989 and 1995!

Although the base-price imputation effect is not the only possible explanation for the discrepancy between the CPI and average-price series, it is probably the most important one. The conventional substitution effect cannot explain the discrepancy because the discrepancy occurs below the level of 207 items. Quality change should not explain much, if any, of the discrepancy because the average price series are only calculated for categories that are thought to be relatively immune to quality change. Outlet substitution (discussed below) may play a role. (Indeed, Reinsdorf originally hypothesized that outlet substitution accounted for all of the discrepancy between the average-price and CPI series.) However, as we note below, the best evidence (also due to Reinsdorf) is that outlet substitution induces only about 0.05 percentage point bias per year in the overall index, suggesting by default that the bulk of the discrepancy between the average-price series and the CPI components is accounted for by the base-price-imputation effect.

The tension between this inference and the more direct evidence presented in the text (suggesting a minimal role for item replacement) could also be interpreted as casting doubt on the latter evidence.

25. At the time of this writing, the BLS is engaged in conceptual and empirical research on the base-price imputation effect as part of its effort to eliminate the problem from the CPI.

have variances and autocovariance of the estimates if possible, so that conventional hypothesis tests could be conducted.

Empirical magnitudes. Pending receipt of additional evidence to the contrary, we are inclined to place some weight on Reinsdorf's (1993) results (see footnote above), and thus to believe that the figure we calculated from the results reported in Armknecht et al. is too small. As a rough and ready summary of our beliefs on this issue, we use a variable that is distributed normally with mean 0.1 percentage point per year (twice the point estimate we computed from Armknecht et al.) and with a 90 percent confidence interval ranging from 0.0 to 0.2 percentage point per year. We also assume that the correlation between the base-price-imputation effect and the across-strata substitution effect is zero.

Lebow, Roberts, and Stockton did not offer an estimate of the size of the base-price-imputation effect. In their interim report, the Advisory Commission (1995) gave a point estimate for the influence of the base-price-imputation effect over the past few years of 0.5 percentage point per year, with a range extending from 0.3 percentage point to 0.7 percentage point. Looking prospectively, the Commission assigned an estimate of 0 to the influence of this effect, based on its expectation that the BLS will soon implement procedures to eliminate whatever influence from this effect remains in the index. Because the BLS has not yet implemented such procedures, we concentrate our attention on the Commission's backward-looking estimate. In support of its historical estimate, the Commission cited comparisons of the growth of conventional Laspeyres-based indexes with the growth of indexes derived using the geometric-means estimator. These estimates appear to fold in not only the weight correlation problem that is the source of the base-price-imputation effect, but also some measure of substitution bias at the substratum level. We prefer to draw a distinction between

these two effects, and pick up the influence of the latter effect in the next subsection.

D. The within-strata substitution effect

This effect is similar to the across-strata substitution effect: Other things equal, consumers will shift the composition of their spending toward items and outlets whose relative prices have declined since the relevant base period.[26] Especially within relatively homogeneous strata (e.g., ground beef) the economic mechanism underlying substitution within strata probably differs from the mechanism underlying substitution across strata (a point emphasized by Triplett (1995)). Within strata, the substitution of one seller for another does not alter the bundle of goods and services that is consumed. Therefore, the extent of such substitution will likely be influenced by factors (e.g., search costs) other than those important for the determination of substitution across strata (e.g., the curvature of the utility function). Nonetheless, relative price change is one of the factors driving substitution at both levels, so it makes sense to think of the two effects as related.[27]

There exists no direct evidence on the extent of the within-strata substitution effect because the data from the CEX are not sufficiently detailed to support the calculation of a superlative index at the substratum level. (For example, the CEX data do not distinguish between spending on different brands of breakfast cereal, much less spending at different outlets.)

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26. Our label "within-strata substitution effect" is intended to refer to the same phenomenon as Reinsdorf's (1995a) "seller substitution effect," and Lebow, Roberts, and Stockton's "low-level substitution bias."

27. Within relatively non-homogeneous strata (e.g., new cars or information processing equipment), conventional substitution undoubtedly plays some role. Anglin and Baye (1987) and Reinsdorf (1993) examine the implications of search for the theory of the cost of living.

The most important indirect evidence on this issue comes from comparisons between two indexes--one in which the elementary aggregates are computed using the official modified Laspeyres formula, and the other in which the elementary aggregates are computed as weighted geometric means. Moulton and Smedley (1995) perform such a comparison using data covering 96 percent of the weight of the overall CPI for the 30 months from June 1992 to December 1994.[28] They find that the index based on geometric means increases 0.49 percentage point less per year than the index based on the Laspeyres formula.

A switch from the current modified Laspeyres aggregation method at the substratum level to a method involving weighted geometric means has two effects: First, it adjusts the underlying utility concept from Leontief utility (elasticity of substitution equal to 0) to Cobb-Douglas (elasticity of substitution equal to 1). Second, it eliminates the base-price-imputation effect.[29] The fact that a weighted geometric mean does not suffer from the base-price-imputation effect is fortuitous. If utility is Cobb-Douglas, then a weighted geometric mean is the theoretically appropriate aggregation formula. According to the theory, the weights should be the nominal expenditure shares for the individual items; moreover, according to the theory, these shares should be constant, so the base-period shares are appropriate.

28. The elementary price indexes are aggregated using the same weights and Laspeyres aggregation formula. Moulton and Smedley are building on the work of Reinsdorf and Moulton (1995), who performed similar calculations using a dataset covering 12 months and about 70 percent of the overall index. Moulton and Smedley state (p.13) that the 4 percent of the index not covered by their calculations consists of "items for which there are exceptional methods of calculating price change for the actual CPI, and where it would be inappropriate" to apply geometric means.

29. Recall that the base-price-imputation effect results from an inappropriate correlation between the weights and the price relatives at the most detailed level of disaggregation.

Figures presented in Moulton and Smedley (1995), in combination with our assumption about the magnitude of the base-price-imputation effect, can be interpreted as suggesting that the switch in underlying utility concept taken alone (that is, excluding the correction of the base-price-imputation effect) would reduce the growth of the overall CPI by about 0.15 percentage point per year.[30] If one believes that the effective elasticity of substitution differs from 1, then one should scale up or down this estimate of the seller substitution effect accordingly.

Empirical magnitudes. As we noted earlier, the Advisory Commission (1995) in its interim report did not separately specify a point estimate or range for the within-strata substitution effect.

Lebow, Roberts, and Stockton estimated the size of the within-strata substitution effect at between 0.3 percentage point and 0.4 percentage point per year. In support of this estimate, Lebow, Roberts, and Stockton cited the evidence based on comparisons of geometric means and Laspeyres formulae.

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30. 0.15 percent = 0.49*0.96 - 0.52*0.193 - (3/2)*2*0.11*0.64, where 0.49 is Moulton and Smedley's annualized estimate of the difference between the growth of a Laspeyres index and a geometric means index for the 96 percent of the index they cover. 0.52 is the estimated reduction in the growth of the index for owners' equivalent rent due to the shift implemented in January 1995 from a Sauerbeck imputation formula to a ratio-of-sums imputation formula (see Armknecht et al. 1995). 0.193 is the relative importance of owners' equivalent rent. 2*0.11 is twice the estimated item-replacement effect reported by Armknecht et al. for the 64 percent of the index they study, and 3/2 is the factor required to account for the fact (noted earlier) that only about two-thirds of item substitutions take place at sample rotation. Note the assumption that the shift to ratio-of-sums imputation in the calculation of owners' equivalent rent has the same effect, insofar as elimination of the base-period-imputation effect is concerned, as a switch to geometric means. Note also that the Armknecht et al. estimates were developed using data for May 1993-May 1994, whereas the Moulton and Smedley estimates are based on data for June 1992-December 1994.

Two key considerations guide us in specifying our beliefs about the magnitude of the within-strata substitution effect. First, Tellis (1988) surveys a sample of 42 econometric studies of the elasticity of substitution between closely related items, and concludes that the average elasticity is about 1.7. Second, it seems likely that any such estimate of an archetypical elasticity should be scaled back a bit before being applied in this context, given that 12 of the 44 "area" indexes prepared by the BLS do not represent single geographical locations. Presumably, across geographical locations, 0 or something close to it is the most reasonable assumption. These two considerations give us a rough idea as to how we should scale the evidence we cited earlier and interpreted as pertaining to the case of unitary elasticity.

We summarize our assessment of these various considerations using a variable that is distributed normally, with a mean of 0.25 percentage point per year and a 90 percent confidence interval ranging from 0.0 to 0.5 percentage point per year. Thus, we place our mean at roughly 1-1/2 times the figure we calculated would be appropriate if the elasticity of substitution at the substratum level were equal to 1. We also assume that there is no correlation between the within-strata substitution effect and either the across-strata substitution effect or the base-price-imputation effect, on the theory that the factors governing search probably have little bearing on the magnitude of either of the other two effects.

All three authorship teams--the Advisory Commission, Lebow, Roberts, and Stockton, and we--have been influenced importantly by the geometric means evidence, but each has used that evidence differently. The Advisory Commission used it in specifying the base-price-imputation effect, Lebow, Roberts, and Stockton used it in specifying the within-strata substitution effect, and we use it in specifying the sum of the two. In

consequence, we compare the combined estimates of these two effects in Chart 3.

E. The new-items effect

New items generally are brought into the CPI sample in a way that guarantees that their prices will have no effect on the level of the index in the first month of their inclusion.[31] In effect, the *levels* of these prices are stripped of any implication for the index, and only the *changes* from the date of inclusion forward matter. In economic terms, this approach can be thought of as building into the index the assumption that access to new items does nothing to bring down the minimum cost of attaining the benchmark level of utility--that is, that these new items create no consumer surplus at the prices at which they are brought into the index. For the bulk of new items that are close substitutes for others already represented in the index, the current approach probably works reasonably well, but this may not be so for the rare new item that delivers services radically different from anything previously available. For example, even the earliest generation of personal computers allowed consumers to undertake tasks that previously would have been prohibitively expensive.

The difficulty of analyzing the impact of new items on the CPI is compounded by the fact that such items are not brought into the index immediately upon their introduction into the market, but only with a lag. According to conventional wisdom, many items experience large price declines early in their life cycles. If this conventional wisdom is right, then the delay in incorporating new items into the index causes them to be linked in at a lower price, and hence with a larger amount of omitted

31. New cars represent an important exception to this general rule. As we discussed in Section II, the BLS makes direct adjustments to the prices of new cars on the basis of manufacturers' cost estimates (marked up to the retail level).

consumer surplus.[32] (See, for example, Gordon (1993, p. 238) for a statement of the general problem, and Scherer (1993, pp. 102-3) for specific application to the case of pharmaceuticals.)

We stress, however, that earlier incorporation of new items into the index, by itself, would not fix this problem. In fact, a U-shaped pattern of prices over the life of a typical item creates a dilemma that cannot be resolved within the context of a Laspeyres-type index. Early incorporation of new items into the consumer price index will cause them to be underrepresented in the index because they will not have won a significant share of the market compared with the share that they may attain later in their lifecycle. On the other hand, late incorporation will cause the period of supernormal decline in relative price to be missed entirely. The only way out of this dilemma is to abandon the Laspeyres framework.[33]

A second factor complicating the analysis of new items is the disappearance of old ones. The common presumption (shared by us) is that the loss of the consumer surplus associated with the disappearance of old items does not fully offset the gain in

32. Sample rotation alleviates this problem because it brings new products into the index more rapidly than would be the case if the BLS refreshed the sample only in the course of a comprehensive (roughly decennial) revision. Even under the best of circumstances, however, new items still attain only 40 percent of their steady-state representation in the index after about 4 years, and 100 percent after about 7 years. And if a new item is so dissimilar from anything previously available in the marketplace as not to fit naturally within any existing item stratum, the delay can be much longer.

33. Our analysis here is similar in spirit to that of Griliches and Cockburn (1994, p. 1229). They construct several different price indexes for the drug cephalexin, including a Laspeyres index which suffers from "late inclusion of generics with too low and too fixed a weight." A further important complication in this regard involves the slow diffusion of knowledge about a new product. Griliches and Cockburn present evidence suggesting that knowledge about newly available generic drugs may take about 6 months to diffuse through the economy.

consumer surplus associated with the appearance of new ones. Although such presumptions may well be valid, models presented in Dixit and Stiglitz (1977) and Spence (1976) indicate that there is not theoretical proof that this must be the case.

Hausman (1994) argues that in the general case, the only fully satisfactory method for dealing with new goods in the CPI involves explicit modeling of the demand for the new item. In principle, such modelling allows the researcher explicitly to estimate a reservation price for each new item, and thus to calculate the consumer surplus it produ es even at its introductory price. Hausman applies this approach to the market for breakfast cereals, and concludes that the CPI overstates the true rate of increase of a cost-of-living subindex for breakfast cereals by about 20 percent, or 0.8 percentage point per year if the measured average annual rate of inflation in this category is 4 percent.[34] Although explicit modeling of demand may be of dubious practicality for widespread implementation in the CPI, strategic application in a few selected cases might be worthwhile.

Griliches and Cockburn (1994) illustrate the importance--until recently--of the new items issue in the market for prescription drugs.[35] Until January 1995, newly available

34. Hausman's results may be overstated to the extent that the constant introduction of new varieties of cereal reflects changing tastes rather than utility gain for given tastes. Separately, there is a difference of opinion between Hausman (1994) and Fisher and Griliches (1995): Whereas Hausman models the *market* demand curve, and advocates use of the intercept in the price index, Fisher and Griliches (1995) argue that the tightest lower bound on the rate of growth of the true cost-of-living index is obtained by using the quantity-weighted average of the intercepts from each *individual*'s demand curve.

35. Strictly speaking, Griliches and Cockburn tailored their discussion to the treatment of prescription drugs in the producer price index, but qualitatively the same critiques could have been made of the treatment of prescription drugs in the CPI.

generics were not represented in the CPI unless and until they were brought in through regular sample rotation or other item replacement. Consistent with the BLS's usual methodology, any generic that was brought into the index through either of those mechanisms influenced the index only to the extent that the price of the generic changed subsequent to its inclusion, and no account was taken of any gap between the price of the generic and the price of its branded counterpart as of the date of inclusion.[36] In January 1995, the BLS implemented a new approach which does allow for direct comparison between the prices of generic and branded versions of a given drug. We have no presumption that the new approach results in any bias in either direction.[37]

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36. While Griliches and Cockburn demonstrate a substantial upward bias in price indexes for two generic drugs based on BLS methodology, they do not provide an estimate of the bias in the overall prescription drug component of the CPI.

37. Under the new methodology (see Armknecht et al. (1995)), the BLS monitors the expiration of all prescription drug patents. Six months after the expiration of the patent for any prescription drug in the CPI sample, a BLS representative will survey each outlet where that drug was priced, and ascertain the distribution of quantities dispersed at that outlet as between the branded drug and any generic substitutes. Based on sampling probabilities proportional to those quantities, the representative will then designate either the branded drug or one of the generics as the item to be priced henceforth at that outlet (until the next sample rotation). If a generic version is selected, any gap between its price and the price of the branded version will be fully reflected in the CPI, contrary to prior practice. According to Armknecht et al., this adjustment in procedure "will have the effect of slightly slowing the rate of growth in the CPI prescription drugs component" (page 18).

In several important respects, BLS's new procedures appear to conform to the recommendations of Griliches and coauthors. The special survey after patent expiration greatly speeds up the introduction of generics into the sample relative to the previous approach of waiting for regular sample rotation or other item replacement. At the same time, the six-month delay before that special survey is conducted should allow sufficient time for knowledge about the generic to diffuse through the market (an

(Footnote continues on next page)

Empirical magnitudes. In its interim report, the Advisory Commission penciled in a point estimate of 0.3 percent for the new-items effect, with a range extending from 0.2 percent to 0.7 percent.[38] The Commission offered no empirical evidence in support of these estimates. Instead, the Commission suggested a "thought experiment" where it asked "how much more income would you require to be as satisfied with the 1995 basket and prices as with the 1970 basket and prices?" (p. 24). The Commission conjectures that the percentage change in income required would be substantially less than the percentage change in the CPI. The Commission then attributes the difference to new items ("the many benefits of modern life"). The difficulty with this thought experiment is that any of the other problems we and the Commission analyze also causes the CPI to misstate the cost of living, so it is inappropriate to attribute all the difference to new items. In any case, the Commission promises further analysis of this issue in its final report, so its interim estimates should be regarded as tentative.

(Footnote continued from previous page)
issue emphasized by Griliches and Cockburn (1994)). Moreover, the new procedure involves a direct comparison between the price of the generic and the price of its branded counterpart. However, it treats the entire difference between the price of the generic and the price of the branded drug as representing an increase in consumer surplus (for those households that purchase the generic). In this respect, as Armknecht et al. note, the BLS approach is less conservative than the recommendations advanced by Griliches and coauthors. Armknecht et al. do not comment on the motivation for the assumption that generic and branded versions are perfect substitutes. In a BLS memo, Reinsdorf argued that an index constructed along these lines was preferable to one that assumed a quality difference between the generic and branded versions.

38. Under the rubric of "new product bias," the Commission also included that the BLS does not build into the index direct price comparisons between old and new items that provide similar services. (Among other examples, the Commission cites the fact that the CPI does not recognize video rentals as a substitute for trips to movie theaters.)

Lebow, Roberts, and Stockton (1994) make "some rather extreme assumptions" (p.11) to calculate an upper bound on this effect: They begin by judgmentally identifying those categories of consumer expenditures in which introduction of new goods is likely to be most important. These categories had a combined relative importance weight in December 1993 of 2.4 percent. Lebow, Roberts, and Stockton then assume that a like share of households' *true* marketbasket at any given moment is spent on items that are not yet represented in the index. Finally, they assume that the relative price of the unrepresented portion of the marketbasket is declining at a 20 percent annual rate (roughly in line, as Lebow et al. point out, with the rate of decline of the relative price of information processing equipment). If all of these assumptions were true, the new-items effect would be adding 0.5 percentage point per year to the growth of the overall index. Lebow, Roberts, and Stockton believe their assumptions "surely make the estimate an upper limit on this effect" (p.11).[39]

As the preceding discussion should make clear, the scientific basis for making a judgment about the magnitude of the new-items effect is particularly thin. Nonetheless, we find the conventional arguments plausible, and we find the Lebow, Roberts, and Stockton arithmetic suggestive. Although we are highly uncertain about the magnitude of this effect, we are quite confident it should be positive. We attempt to convey the gist of these beliefs using a variable that is distributed lognormally, with mean 0.20 percentage point per year and

39. By focusing exclusively on the declining relative price of new items and making no assumption about their rate of introduction into the marketplace and the amount of consumer surplus created upon their introduction, Lebow et al. implicitly are assuming that new items are introduced into the marketplace at zero increment to consumer surplus. This assumption is considerably less restrictive than the similar assumption of the BLS: the former stipulates zero consumer surplus at the date of introduction into the marketplace, whereas the latter stipulates zero consumer surplus at the date of introduction into the index.

90 percent of its mass to the left of 0.4 percentage point. This calibration puts nearly all of the probability mass below the top end of the Lebow, Roberts, and Stockton range, consistent with their view that the top end of their range is a very loose upper bound on the true magnitude of the effect. Chart 4 compares this assumption with those of the Advisory Commission and of Lebow, Roberts, and Stockton.

The more responsive are consumers to changes in relative prices, the more they might substitute to new goods. Hence, if we are underestimating the substitution effect, we will also be tending to underestimate the new-goods effect. To capture this correlation of the uncertainty of the magnitudes of the two effects, when aggregating the effects we assume that there is 0.25 correlation between the within-strata substitution effect and the new-items effect. This correlation merely reflects our subjective prior, not specific empirical evidence. All we have to go on is our presumption that the correlation is positive (because both effects depend positively on consumers' elasticity of substitution) and that it is not one (i.e. there is some independent uncertainty about the two effects).

F. The new-outlets effect

In many respects the "birth" of a new outlet is analogous to the introduction of a new item into the marketplace. Under certain circumstances, such a birth may create consumer surplus. And under certain circumstances, such consumer surplus will not be captured in the CPI. We analyze the various possibilities by considering four cases.[40]

40. Most discussions of outlet substitution fail to emphasize that the relevant outlet is a new one. If consumers merely are switching between existing outlets in response to a change in relative prices, they are only engaging in within-strata substitution. Any bias in the index resulting from this behavior would be corrected by adjusting the underlying utility concept at the substratum level.

In the first case, we suppose that an entrepreneur discovers a technological innovation that allows her to deliver some item to consumers at a lower price than is offered by incumbent outlets. This entrepreneur goes into business. Knowledge in consumer markets is less than perfect, however, so although some consumers chance upon the new outlet and purchase the item there, not all consumers make this discovery. A few of the incumbent outlets may go out of business, but not all do, and the ones that remain keep their prices for the item at the same level as before. In this case, the birth of the new outlet creates consumer surplus. Moreover, that surplus will not be captured in the CPI, because when the new outlet is brought into the sample, its prices will be linked into the index in a way that will guarantee no impact on the level of the index in the first month (exactly as is the case with new items). Therefore, in this case, the index will be biased upward.

The suppositions for the second case are the same as for the first, except that in this case knowledge is perfect, and all consumers discover the new outlet. In response, incumbent outlets cut their prices to match the entrant's price, possibly by copying the entrant's technological innovation. In this case, the current methodology works perfectly. Consumer surplus is created, and the index captures it. Competition forces the impact of the technological innovation to be fully reflected in the prices of incumbent outlets (that is, reflected in the prices in the CPI sample). Therefore, there is no distortion stemming from initial exclusion of the entrant.

In the third case, a new outlet enters the market offering the item at a lower price, but only because it offers an inferior mix of other attributes (e.g., service, store location, etc.). Consumers have homogeneous tastes, and knowledge is perfect. In this case, a price differential between incumbents and the entrant is established, and that differential exactly reflects the market valuation of the difference in satellite

characteristics. No consumer surplus is created, and none is recorded under current procedure. Once again, the current procedure works exactly correctly. The common thread of the second and third cases is that the law of one price holds at every instant, so price differentials reflect quality differentials.

In the fourth case, a new outlet enters the market at the *same* price as the incumbents, but offers a different mix of other services. Consumers have heterogeneous tastes, which cause different relative preferences for the two outlets. For example, some may appreciate attentive service, while others prefer to browse undisturbed. Similarly, consumers with higher labor income might sort to higher price--but greater convenience--outlets owing to greater opportunity cost of time. In this case, consumer surplus is created because variety in shopping experience is valued in the marketplace. However, no increase in surplus will be recorded in the CPI, because no price change has occurred.

Reinsdorf's (1993) paper often is cited as evidence on the magnitude of the bias associated with what has previously been referred to as "outlet substitution bias." For certain food and fuel items, he compared the average price among outlets rotating into the sample with the average price among outlets rotating out. He found that, for the set of items he studied, the average difference was about 1-1/4 percentage points. Because sample rotation takes place at the frequency of once every five years, he converted this to a bias in the rate of change equal to 1/4 percentage point per year.

Reinsdorf himself interpreted this difference as a substitution effect, but he later became dissatisfied with the term "outlet substitution" because it obscured the fact that both items and outlets are rotated simultaneously, and one effect cannot be disentangled from the other. Therefore, he began to

refer to this phenomenon with the more neutral term "seller substitution," and noted that "seller" could be interpreted as either outlets or items. Some subsequent readers of this literature seem to have concluded, however, that he had identified two separate problems with the CPI.

We concur with Reinsdorf that his evidence is relevant for gauging the magnitude of the within-stratum substitution effect. Under certain circumstances, however, it will also deliver useful evidence on the size of the new-outlets effect. In particular, if Case I is the relevant one, then Reinsdorf's experiment provides an exact reading on the consumer surplus created by the birth of the new outlet provided there is no movement among the relative prices offered by incumbents. (If there is any change in the relative prices offered by incumbents, then Reinsdorf's estimate is an upper bound on the surplus created by the new outlet; it will also, in this case, pick up substitution among incumbent outlets, and so will be a non-binding bound.) In case II, there is no bias in the index, and Reinsdorf's approach correctly would suggest none.

Case III involves no creation of consumer surplus, but Reinsdorf's evidence would suggest some increment to surplus. On the other hand, in case IV, Reinsdorf's approach would show no difference between incoming and outgoing samples even though consumer surplus had been created.[41] Case IV has considerable salience with us in light of the explosion of varieties in many categories of goods, types of stores, and even modes of shopping. Nonetheless, we know of no formal evidence that would help us determine which of cases III and IV is the more important.

As this discussion should make clear, the new-outlets effect would be difficult to correct--at least as difficult, in

41. To be clear, this was not the conceptual experiment had in mind in his 1993 paper.

our estimation, as the new-items effect. The only avenue to a solution appears to involve explicit modelling of preferences across outlets.

Empirical magnitudes. In their interim report, the Advisory Commission assigned a point estimate of 0.2 percentage point per year to the impact of "outlet bias," with a range extending from 0.1 percentage point to 0.3 percentage point. Lebow, Roberts, and Stockton (1994) developed their estimate of an upper bound on the magnitude of this problem by building on Reinsdorf's (1993) estimate. Specifically, they judgmentally identified all the categories of the CPI (including those studied by Reinsdorf) for which, in their opinion, outlet substitution might be operational. These categories amount to 40 percent of the overall weight of the index. They used the resulting figure (0.1 [=.40*.25] percentage point) as the top end of their range, and 0 as the bottom end.

Possible shortcomings for this purpose notwithstanding, Reinsdorf's evidence still is the best available. It persuades us that the new-outlet effect is small--probably less than 0.1 percentage point per year. However big this effect may be, we are willing to assume that it is positive.

In light of these considerations, we summarize our understanding of the magnitude of this effect using a variable that is distributed lognormally, with mean equal to 0.1 percentage point per year, and 90 percent of its mass to the left of 0.2 percentage point per year. We further specify that this effect is positively correlated with both the within-strata substitution effect and the new-items effect with coefficient equal to 0.25. To be clear, we have no empirical basis for this last assumption, but a fairly strong presumption on theoretical grounds that 0 is not the right answer because all three effects involve the sensitivity of consumers to incentives provided by changes in relative prices. Chart 5 compares our assumption with

respect to the marginal distribution for the new-outlets effect with those of the Advisory Commission and of Lebow, Roberts, and Stockton.

G. The quality change effect

The operating characteristics of existing goods and services are continually being changed--and generally for the better. Quality change must be controlled for in the course of calculating the CPI; failure to do so would induce an upward bias in the index, assuming that new varieties are better than old ones on average. (For example, it is clear that one should not compare the price of a 1970 Chevrolet with the price of a 1995 Chevrolet without taking account of all the added features in the later model.)

Contrary to widespread misimpression, the BLS does not ignore quality change, even outside automobiles. In fact, as we discussed in some detail in Section II, the BLS uses several methods for dealing with quality change, the most important of which on a month-to-month basis (i.e., outside the context of sample rotation) is the one called "link pricing."

Despite these extensive efforts on the part of the BLS, many analysts believe that there have been and continue to be serious quality-change-related problems in the index causing it to overstate the true rate of change of the cost of living. Gordon's monumental 1990 volume is the foremost piece of empirical work on the magnitude of the quality-change effect in BLS price series. While the bulk of Gordon's attention was directed toward constructing alternative deflators for producers' durable equipment, eleven of the 105 product indexes described in his volume also are relevant for the issue of quality bias in the CPI. Gordon constructs two indexes using the Tornqvist aggregation formula--one using the official CPI detailed components and the other substituting his eleven price series for

the corresponding official series.[42] On the basis of a comparison of these two aggregates, Gordon concludes that the CPI for durable goods overstates the true rate of inflation for those goods by at least 1-1/2 percentage points per year on average over the period 1947-83. Measurement problems in this area were especially severe prior to 1960; for the last decade of his sample (1973-83), Gordon estimates an average bias of at least 1 percentage point.[43]

Gordon finishes the opening chapter of his book with a list of factors which even he did not take into account in constructing his indexes. This list aptly conveys the difficulty of quality adjustment. In particular, among many other factors, Gordon cited his own inability to adjust for:

- "Improved design of power lawn mowers, which has resulted in an order-of-magnitude reduction in injuries since the mid-1970s; ...
- Improved cleaning ability of automatic washing machines and dishwashers; ...
- And finally, immeasurably better picture quality of color television sets." (p.39)

Gordon's inability to take account of these and the many other factors he lists, as well as his assumption that all of the other elements of consumer durables he did study were not mismeasured, implies that his estimate of 1.0 percentage point per year for

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42. Gordon estimates that his series cover about half of the weight of the CPI durables index. For the other half of the index, about which he has no evidence, Gordon assumes that the CPI measures quality change without error. Therefore, his summary result are a lower bound on the quality-change effect for the overall durable goods category over the period he studied.

43. In basing his results on a comparison of Tornqvist aggregates, Gordon can be interpreted as focusing exclusively on the quality-change effect, and as filtering out the separate contribution of substitution bias.

the average bias in the CPI for durable goods probably is too low for the period he studied.[44]

Many specific cases of quality change can be thought of as reflecting improvements in the efficiency with which a particular item priced by the CPI produces the service which is actually valued by the consumer. Below, we use the example of cataract surgery to illustrate this point.

Over the years, a few sources of downward bias have also been identified. For example, the BLS's technique for linking replacement items into the index--as it was implemented prior to 1993--caused the CPI to understate the true rate of inflation whenever a *bona fide* price increase coincided with the introduction of a new variety. Bias occurred in this situation because the prices of items that could be repriced behaved differently from the prices of items that could not be repriced. According to Reinsdorf, Liegey, and Stewart (1995), price increases often accompany the introduction of new models of motor vehicles and new varieties of apparel. For example, Armknecht and Weyback (1989, pp.114-5) report that the average month-to-month price change during 1983 for repriceable men's suits was only 0.3 percent. By contrast, the average price change for substitute suits judged close enough in quality to their predecessors to be "comparable" (and therefore requiring no quality adjustment) was 15 percent.[45]

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44. It is immaterial whether the CPI controlled for the factors listed by Gordon or not. The historical rate of increase of the CPI must be taken as given for this purpose. The reason Gordon's list is relevant is because if he had somehow managed to take account of these factors, the gap between his indexes and the CPI would be even wider.

45. Diewert (1995a, p.30) characterizes the occurrence of real price *declines* upon introduction of a new variety as the "typical" case. A comprehensive summary of available evidence on this issue would be useful.

The BLS has addressed this problem by refining its method for imputing the missing price change: Rather than using the prices of all repriceable items (of the same type and in the same area) to impute the missing price, the BLS began to limit the information set to include only those pricing attempts in which an item substitution took place, but in which the new item was judged comparable to the old, or a direct quality adjustment (e.g., an adjustment based on manufacturer's cost) was feasible.

The BLS applied this improved method of imputation to the pricing of new cars beginning in October 1989. Stewart (1988) reports that an index for new cars covering the 12 months ending in February 1988 increases 2.76 percent when it is constructed using the new methodology, compared with only 2.42 percent when it is constructed using the old methodology. The BLS extended the use of this technique to other non-food, non-service items in the CPI beginning in December 1992.

The BLS evaluates the entire body of evidence on the quality-change effect as ambiguous, and maintains that "the total magnitude--and even the direction--of quality change effects on prices not accounted for by [the BLS's] current procedures is unknown" (BLS, 1995b).

Empirical magnitudes. Quality change is the house-to-house combat of price measurement. There is no simple formula that one can apply to deduce a magnitude of the problem, nor any simple solution. Unfortunately, there is no substitute for the equivalent of a ground war: an eclectic case-by-case assessment of individual products.

In its interim report, the Advisory Commission placed a range of 0.2 percentage point to 0.6 percentage point around the quality change effect, with the point estimate at the bottom of this range. Lebow, Roberts, and Stockton developed their estimate of the quality change effect in the following manner:

First, they judgmentally identified "those categories [of the CPI] where year-to-year quality adjustment difficulties appear to be most acute" (p.10). These categories collectively had a relative importance weight in the index of about 23 percent at the end of 1993. They then assumed that Gordon's (1990) estimate of quality change bias for durable goods over the period 1947-83 (1.5 percentage points per year) could be applied to this broader aggregate. These assumptions yield their "high end" estimate of 0.3 percentage point per year. Lebow et al. used 0 for their "low end" estimate.

As background for the specification of our probability distribution for the quality-change effect, we modify the Lebow, Roberts, and Stockton calculations in two respects. First, we use Gordon's estimate of the bias in the CPI for durable goods over the last decade of his sample (1973-83) rather than his estimate for the entire 1947-83 period, in the belief that the more recent evidence provides a better indicator of the quality-change effect still remaining in the durable goods component of the CPI. Over the later period, the average bias computed by Gordon was 1 percentage point. (We would have preferred to have used still more recent evidence, but neither Gordon nor anyone else to our knowledge has updated his series beyond 1983.) Second, we use data from the Consumer Expenditure Surveys for 1993 and 1994 to recompute the relative importance weights for the categories designated by Lebow, Roberts and Stockton as susceptible to the quality-change effect.[46] This results in a tiny upward revision to the relative importance weight of the designated categories, to 24.5 percent. The combination of these modifications yields an estimate of 0.25 (=1.0x0.25) percentage point. Partly on the basis of our preliminary exploration of the

46. We would have calculated an average for 1993-95 in conformity with the planned base period to be introduced in 1998, but the data for 1995 are not yet available. We are grateful to Stephanie Shipp of the BLS for supplying detailed tabulations of the 1993 and 1994 CEX.

medical care area (see Section VI), we are inclined to treat this estimate as a mean rather than an upper bound.

These considerations lead us to summarize our beliefs concerning the size of the quality-change effect using a variable that is distributed normally, with mean 0.25 percentage point per year and 90 percent confidence interval extending from -0.05 to 0.55 percentage point. We place non-zero probability mass in negative territory in light of the fact that examples have occurred in the past in which quality-adjustment problems contributed a downward bias to the index. Chart 6 compares our assumption with those of the Advisory Commission and of Lebow, Roberts, and Stockton.

H. The total bias from all sources

In their interim report, the Advisory Commission calculated their point estimate for the overall bias in the CPI by summing the point estimates they specified for each of the individual imperfections described above. Similarly, the Commission calculated an upper bound on the total bias by taking the sum of the upper bounds they specified for the individual imperfections, and likewise for a lower bound on the total bias.

By this means, the Commission arrived at a point estimate for the total bias in the CPI during the last few years of 1.5 percentage points per year, with a range extending from 1.0 percentage point to 2.7 percentage points. Looking ahead, the Commission assumed that the BLS would soon take action to eliminate the base-price-imputation-cum-within-strata-substitution effect from the CPI. As a result, they estimated the likely total bias in the CPI over the next decade or so at 1.0 percentage point per year, with a range extending from 0.7 percentage point to 2.0 percentage points. As of this writing, however, the BLS has not taken such action, so we focus

on the Commission's backward-looking rather than forward-looking estimate.

In both the forward-looking and the backward-looking versions of the Advisory Commission's specifications, the point estimate is less than the midpoint of the range. One possible interpretation of this circumstance is that the Commission filtered their point estimates for the individual effects through an asymmetric loss function which penalized estimates that turn out to be too large more heavily than it penalized estimates that turn out to be too low.[47]

Like the Advisory Commission, Lebow, Roberts, and Stockton calculated their range for the overall bias in the CPI by summing the ranges for the individual estimates, and thus declared a range extending from 0.4 percentage point to 1.5 percentage points per year.

To calculate the distribution for the total bias, we construct a random variable equal to the sum of the effects whose distributions are shown in Charts 2 through 6. Chart 7 shows the distribution of this total bias.[48] It also compares our distribution with the estimates of the Advisory Commission and Lebow, Roberts, and Stockton. We estimate that there is a 90 percent probability that the total bias in the CPI is greater than 0.7 percentage point per year, and a 90 percent probability that it is less than 1.6 percentage points per year. The median

47. Neither the Advisory Commission nor Lebow et al. specified whether their ranges (or, in the case of the Commission, its point estimate) could be given a formal interpretation in terms of probability theory. Nor did either group specify whether the interpretation of the range for the overall bias was necessarily the same as the interpretation of the ranges for the individual effects.

48. Because the total bias is a sum of normals and lognormals and because we allowed the elements in the sum to be correlated, we carried out this calculation numerically.

of our distribution occurs at just under 1.1 percentage points per year, and the mean at 1.1 percentage points per year. The slight skewness in the distribution reflects our specification of lognormal distributions for the new-items and new-outlets effects.

V. A Case Study in Quality Change: The Price of Treatment for Cataracts

One clear message from the theory of the cost of living is that the most straightforward approach to building a cost-of-living index involves focusing on pricing the proximate causes of consumer utility. This is easier said than done, however, and--as Nordhaus (1994) notes--for a variety of practical reasons, the BLS in a large number of areas prices goods and services that are one step removed from the items that directly produce consumer satisfaction.

In principle, the pricing of inputs rather than outputs is not fundamentally inconsistent with adequate adjustment for quality change; one could simply adjust the price of the input for changes in the efficiency of the input in delivering consumer satisfaction. The conventional wisdom seems to be, however, that relatively few such adjustments are performed. If the efficiency of the inputs increases over time and no compensating adjustment is made, the resulting index will overstate the true rate of increase of the cost of living.

Nordhaus studies one example of this phenomenon--the pricing of household lighting. Whereas consumers presumably derive satisfaction from the intensity and reliability of the lighting services they purchase, the CPI prices the inputs that produce those services (light bulbs and fixtures, electricity, and so forth). Nordhaus constructs a proxy for the true price of

lighting, and finds that it increases much more slowly than the most comparable elements of the CPI.[49]

By far the most important example of the problem highlighted by Nordhaus occurs in the area of medical care. Here, the CPI prices inputs--an hour of a physician's time, a day in the hospital, a piece of medical equipment--despite the fact that it clearly should be pricing treatments--the restoration of eyesight impaired by cataracts, the repair of a broken bone, the treatment of psychosis, and so forth. The notion that relatively little quality adjustment is performed in the medical area is supported by figures reported in Armknecht and Weyback (p.110) showing that in 1983 and 1984, only about 1-1/2 percent of attempts to price medical care goods and services resulted in noncomparable item substitutions--less than in any other major category other than food and beverages. This result causes us some concern in light of the rapid pace of technological and institutional change in the medical sector in recent years. This concern would be heightened if data on substitution rates for the years since 1984 were to show a continuation of the pattern identified by Armknecht and Weyback.

The main purpose of this section is to present a progress report on our effort to develop an index of the price of treatment for cataracts. We hope this index will not only be of interest in itself, but will also serve as another illustration of the potential for indexes based on the prices of inputs to

49. Gordon (1993, p.251) points out that pricing outputs rather than inputs would have its own set of disadvantages, because for some purposes other than calculating a cost-of-living index, it is convenient to have price indexes suitable for use in creating an inflation-adjusted measure of inputs. As an example, Gordon focuses on the case of transportation, and notes that while the appropriate component of a cost-of-living index may pertain to the price of transportation services, it would nonetheless be awkward not to have a price index for new cars. Here, the obvious answer seems to us to be that the BLS (at least in principle) should do both.

seriously overstate the rate of change of the relevant quality-adjusted price.

Several cautions need to be raised at the outset. First, we have not selected cataract surgery randomly, and the biases that we uncover are not representative of the overall bias in the CPI (nor, for that matter, in medical care in all likelihood). Second, the preliminary quantitative results that we present in this section are based on interviews with medical personnel that we have conducted. While we believe that our data tell a reasonably accurate story about the broad movements in prices, they are far from systematic or representative. Therefore, the precise numbers we generate should be interpreted with caution.

Given the prevalence of third-party payment for surgical procedures, we need to address the issue of whether a study of the price of cataract treatment is relevant for the consumer price index. We believe that it is. On a practical level, the CPI covers not only out-of-pocket purchases of medical care, but also that portion of medical care that is financed by payments from health insurers, to the extent that the associated premia were paid directly by households. In the case of cataracts, which mostly afflict the elderly, roughly 20 percent of total expense is paid by consumers, either directly or through their own private Medicare supplemental insurance policies (the other 80 percent being covered by Medicare Part B). On a theoretical level, one might further argue that the *whole* of medical care expense would be relevant if the objective were to construct a comprehensive index of the cost of living.

A. Background on cataract surgery

The lens, located behind the iris and in front of the vitreous humor, focuses light coming into the eye onto the retina. A cataract is a cloudy lens, which impairs vision. Cataracts are removed surgically. Until recently, patients required thick

glasses or contact lenses to provide focus once the cataract was removed. Since the late 1970s, surgeons in the United States routinely have been inserting an intraocular lens (IOL) into each eye as part of cataract surgery. IOLs eliminated the need for thick glasses or contact lenses. Consequently, the quality of cataract treatment from the point of view of the patient has improved substantially.

There have also been dramatic changes in the technology of cataract surgery. Between the late 1950s and early 1970s, there were significant changes in how cataracts were extracted. As a result, the average length of stay in a hospital fell from seven nights in the 1950s, to one night in the 1970s. Beginning in the 1980s, it became common to perform cataract surgery on an out-patient basis (i.e., with no stay overnight in a hospital). Today, surgery for cataracts is almost universally performed on an outpatient basis. The improvements in techniques of cataract surgery involved how the cataract was extracted, the nature of the incision, and the techniques for closing the incision. These improvements allowed for faster ambulation owing to more secure healing and therefore paved the way for the foreshortening of hospital stays. They also reduced the rate of complication and number of follow-up office visits required. See Table 4 for a summary of the evolution of cataract treatment, and an estimate of the number of days in hospital each treatment required for a standard patient with no other complications.

B. A hypothetical CPI for the treatment of cataracts

The CPI does not price treatment for cataracts *per se*, but instead prices hospital services and physician services, among other items. The BLS constructs an index of medical prices by first determining the relative importance weights in the base period (currently 1982-84) of the various inputs it is going to track, and then applying these weights to price indexes for the individual inputs. If current practice is maintained, the BLS

will reweight the basket of medical inputs in 1998 according to expenditure shares in 1993-95, and will then compute changes in the index from 1998 forward as weighted averages of the changes in the prices of the inputs.

This approach has a startling implication in the case of a procedure like cataracts, which has undergone revolutionary technological change: The change in the composition of the marketbasket (reflecting the sharp decline in the average length of hospital stay) will only be relevant for the subsequent *growth* of the index; the decline in the quantity of hospital services consumed will never be reflected in the *level* of the index.

To illustrate this problem, we have constructed a hypothetical CPI for cataracts. Our hypothetical CPI for cataract treatment is based on the information in Table 4, and the CPI components for physician and hospital services.[50] We construct the hypothetical index by first estimating relative importance weights in hypothetical benchmark years for the physician services and hospital services required to treat a standard cataract patient. We then use these relative importance weights to aggregate the CPI components for physician and hospital prices. The resulting time-series for selected years is shown as the lightly shaded bars in Chart 8. According to this input-based measure, the price of cataract treatment increased by nearly a factor of 10.

For comparison with this input-based index, we have constructed an alternative that recognizes the implication of the reduction in the average length of hospital stay for the *level* of the index. (We constructed this alternative as $(\Sigma q_{jt}p_{jt})/(\Sigma q_{j0}p_{j0})$, where q_{jt} is the quantity of input j

50. Thus, we are ignoring--at least in this preliminary version--other components, including office visits, anesthesia, and glasses, contact lenses, or intraocular lenses.

required to treat a standard patient using standard techniques in period t, and p_{jt} is a CPI detailed component for item j.) The result is shown as the darkly shaded bars in Chart 8. According to this unit-value index, the price of cataract treatment increased over our sample period by a factor of only about 3.[51]

C. Caveats

Our preferred alternative price index omits two key factors, one of which biases the alternative up and the other one down. As for the former, our alternative does not take into account the dramatic improvement in the quality of the good: lower complication rates, shorter hospital stays, faster recoveries, better post-operative optical results, and no thick glasses. On the other side, our alternative does not control for the fact that, with the improvements in techniques and reduction in relative price of cataract treatment, many more surgical procedures are done. Therefore, the benefit to the marginal person receiving the operation in 1996 is probably much less than that of the marginal person in 1969. In future work we will explore whether any assessment can be made as to which of these omissions is the more important.

D. Conclusions

Lebow, Roberts, and Stockton built into their assumptions about the quality change effect a high-end estimate 0.1 percentage point per year for the upward bias on the overall

51. This expenditure index is a major step toward pricing the product of cataract surgery, but it relies on the BLS indexes for the broad components determining the price. In work in progress, we are attempting to price directly a cataract operation--e.g. the opthamologist fee and the hospital charges for the specific operation. The results of this exercise will differ from our expenditure index to the extent the prices for these specific doctor and hospital services diverged from the averages captured by the BLS index.

CPI coming from unmeasured quality change in the medical care sector (commodities and services). With a great deal more development, the type of work reported here for cataracts may provide the basis at some point in the future for refining the estimate.

VI. Consequences of mismeasurement

The consequences of CPI mismeasurement for policymakers are fairly straightforward to enumerate. On the fiscal side, CPI mismeasurement matters because social security benefits, federal civilian and military pension benefits, veteran's benefits, tax brackets, personal exemptions, the standard deduction, the amount of investment income a child can receive tax free, and school lunch prices are all indexed to the CPI. As we noted in the introduction, the consequence of this indexation, according to the CBO, is that a permanent 1/2 percentage point reduction in the annual rate of growth of the CPI, relative to baseline and starting in 1996, with all other factors in the economic environment held constant, would reduce the Federal deficit $26 billion in 2000, and nearly $67 billion cumulatively over the five years ending in 2000, including the consequent reduction in debt service payments (O'Neill (1995) pp. 2-3).[52]

52. Duggan, Gillingham, and Greenlees (1995) point out an important feature of the indexation of social security benefits: The initial benefit entitlement does not depend on the CPI. (Each individual's nominal wage history is adjusted using a national-average wage series developed for this purpose.) Only the *growth* of the benefit subsequent to initial receipt depends on the CPI. The important implication is that measurement errors in the CPI have only temporary (albeit highly persistent) effects on outlays for social security benefits. Duggan et al. apply this insight to the estimation of the budgetary implications of the mistreatment of homeowners' costs in the CPI during the 1970s and early 1980s, and show that simple back-of-the-envelope calculations based on the assumption that measurement errors have permanent effects are seriously misleading. CBO estimates of the

(Footnote continues on next page)

CPI mismeasurement also matters for the conduct of monetary policy. The Federal Reserve has made clear that its long-run policy objective is the attainment of price stability. Chairman Greenspan has defined price stability as obtaining when households and businesses no longer view inflation as an important factor in their economic decisionmaking. The existence of upward bias in the rate of growth of the CPI suggests that true price stability will correspond to positive *measured* inflation.

For short- to medium-term monetary policy, it may be that the most important aspect of the bias in the CPI is its variation from year to year. A bias that was both highly variable and difficult to observe or estimate would increase the difficulty of judging the appropriateness of the stance of monetary policy at any given moment. Unfortunately, we have been almost completely unable to deliver evidence on the year-to-year variation in the bias (the one exception being across-strata substitution bias, where the time series of estimates from Aizcorbe and Jackman (1993) were suggestive of some year-to-year variation).

By and large, the consequences of CPI mismeasurement for other U.S. economic statistics are straightforward, and we only mention a few brief points. The current poverty line is calculated as three times the 1965 food budget for a poor family, adjusted upward by the cumulative increase in the CPI. Hence, the CPI (and any biases in it) have a mechanical effect on official poverty statistics. There is, however, a growing consensus that this measure--notwithstanding its linkage to the CPI--understates the current poverty level (see NAS study, 1995).

(Footnote continued from previous page)
budgetary impact of indexation properly account for the provisions of entitlement programs, and so do not suffer from the problem of the back-of-the-envelope calculations.

CPI mismeasurement affects the measured rate of growth of real GDP less than one-for-one for two reasons: First, consumption is only about two-thirds of GDP. Second, real GDP now is calculated using Fisher's Ideal aggregation formula; as a result, real GDP should not suffer from bias induced by substitution across relatively aggregated categories. Together, these factors imply that the mean of our subjective probability distribution over the bias in the growth of real GDP implied by the bias we see in the CPI is on the order of 2/3 percentage point per year (≈2/3*(1.25-0.2)).

Similarly, the bias affects the measured growth of productivity by about as much as it affects real GDP and it affects the measured real growth of wages by the full amount of the bias in the CPI.

These implications for the macroeconomic indicators are important to the extent that they affect perceptions of the performance of the U.S. economy. But their importance should not be exaggerated. We highlight two issues for which CPI mismeasurement is *not* particularly important, frequent claims to the contrary notwithstanding. First, we have essentially no evidence that CPI mismeasurement helps explain the apparent slowdown in growth during the 1970s. As Reinsdorf (1995) points out, the base-price-imputation effect goes in the right direction because it was only introduced in 1978, but available evidence suggests that this effect is small compared to the slowdown in trend output growth. Furthermore, Gordon's evidence goes in the other direction: The quality-change effect was a bit bigger before 1973 than after.[53]

53. In commenting on an earlier draft, Moulton speculated that the within-strata substitution effect might have been introduced or exacerbated in 1978, when item definitions were drawn much more narrowly than before. On the other hand, he noted, apparel prices were biased downward between 1978 and 1986.

It is tempting to imagine that the pace of unmeasured technological change or productivity improvement has increased in recent years, especially given the shift to the information economy. But it is important to bear in mind that there were dramatic changes in the 1950s and 1960s, including the harnessing of the atom and the space race. While we do not want to minimize how electronics have changed consumer goods recently, one should not forget Teflon, nylon, penicillin, and the automatic dishwasher.

Second, CPI mismeasurement does not imply that the the economy can grow more rapidly without overheating. If the CPI is mismeasured, then "potential" output may have been growing more rapidly than current official statistics would lead one to believe. But in that case, *actual* output would have been growing more rapidly as well. CPI mismeasurement has essentially no implication for the gap between actual and potential output, or between the "natural" and actual rates of unemployment. Therefore, it has essentially no implication for the stance of monetary policy or other aggregate demand policy.

VII. Looking to the future

The consumer price index is not a static construct. Over the years, the BLS has taken many important steps to improve the index (recall the selective listing of changes given in Table 1), and we fully believe that this process of ongoing improvement will continue in the future. Many further improvements will be made as part of the BLS's comprehensive CPI revision, which spans the period from now through 2000.[54] As noted above, in 1998 the CPI will incorporate a new set of expenditure weights based on CEX data for 1993-95. Other revision activities will include introducing new geographic and housing samples based on the 1990

54. We thank John Greenlees for supplying the following description of the BLS's plans for the comprehensive revision.

Census, updating the housing estimation and processing system to improve the accuracy of the CPI shelter indexes, and using computer-assisted technology to improve the speed and accuracy of data collection.

Also as part of the revision, the POPS survey of households (used to determine shopping patterns across outlets) will be restructured using telephone interviewing to permit more efficient sample rotation. Instead of revising all samples in 20 percent of areas each year, approximately 20 percent of item strata will be resampled in each area every year. This will add the potential for more frequent resampling of item strata that exhibit higher rates of product or outlet turnover.

The BLS is also developing a broader array of experimental indexes to evaluate the importance of substitution and other issues. For example, indexes based on the Aizcorbe-Jackman approach are being constructed using different three-year base periods, using both fixed-weight and superlative formulas for aggregating stratum indexes. Another experimental index under development will employ a weighted geometric mean formula at the substratum level.

Within the CPI medical care component, the BLS is engaged in a variety of research activities and other enhancements, including changing the item structure and data collection forms for hospitals to better reflect the shifting mix of inpatient and outpatient care and the increasing divergence of transaction prices from list prices.

The main purpose of the rest of this section is to advance a few suggestions of our own for improving the consumer price index. The structure of this section is patterned after the framework we outlined in Section III. (In this connection, we refer to the organizational framework laid out in in Table 2.) Our objective is to propose changes that would bring the consumer

price index more closely in line with the theoretical benchmark of a true cost-of-living index. We recognize that most or all of these suggestions would have to be explored and developed further before they could be implemented; that process would no doubt require time and resources.

To address concerns related to the issue of substitution, we suggest that the BLS consider moving to some aggregation formula other than the modified Laspeyres formula currently in use. One possibility that strikes us as well-motivated theoretically would involve a hybrid of theoretical structures designed to exploit *a priori* theoretical restrictions and availability of information at each level of disaggregation. Specifically, the BLS might consider constructing the CPI as a geometric mean at the substratum level, a Tornqvist index within geographic areas at the superstratum level, and a Laspeyres index across geographic areas. This approach would have the virtue of adjusting the underlying utility construct at both the substratum and superstratum levels toward a benchmark that is more plausible within geographical areas than the current Leontief benchmark, and yet still preserve (roughly speaking) the assumption of no substitutability across geographic areas.

At least three points would have to be explored further before such a structure could be put in place. First, the Tornqvist formula is not implementable in real time because end-of-period expenditure shares obviously are not available at the beginning of the period. Therefore, further research would be required to determine whether the there might be a feasible real-time approximation to the true Tornqvist formula, possibly based on a forecast of expenditure shares. Alternatively, the BLS might reconsider (and not only for this reason) its current policy of never revising the CPI, although we recognize that a host of issues would be raised by any move away from that policy; or, following a recommendation of the Advisory Commission in its interim report, the BLS might consider publishing one index that

is never subject to revision and another that is.[55] Finally, some thought would have to be given to the fact that 12 of the 44 strata currently do not pertain to a single geographical location, so a pure geometric-means formula might not be the most appropriate for those strata. Despite these significant conceptual hurdles, we believe that an alternative index formulated along these lines might represent a significant step forward.

With regard to concerns about the current implementation of the Laspeyres aggregation formula, there are at least two avenues open to, and under consideration by, the BLS. One possibility would be to implement "price seasoning" more widely throughout the index. (As we described in Section IV.C, this is a technique in which one price reading is used to transform nominal expenditure shares into quantity indexes for use in the Laspeyres aggregation formula, and a second price reading taken a few months later is used as the base for calculation of subsequent price change.) This approach has the advantage of cleanly separating the issue of biased implementation of the Laspeyres formula from the issue of the underlying representation of consumer behavior. A second possible approach would involve implementation of weighted geometric means at the substratum level. This approach would render moot the issue of biased estimation of the Laspeyres index and would also take a step toward building into the index a more realistic degree of substitutability across items.

As for concerns about new goods and new outlets, one useful (albeit expensive) step might be to put the sample

55. The Advisory Commission (p.21) suggested that the BLS consider publishing two versions of the CPI, one resembling the current index, "dedicated to timely measures of month-to-month price changes, and a second supplementary index produced with a greater time lag and subject to periodic revision, dedicated to accurate measurement of price changes over years and decades."

rotation process on a once-every-three years basis (as originally planned) rather than the once-every-five-years stance it currently is on. An adjustment along these lines would cause new items to be brought into the sample more rapidly, and so would probably cause a larger fraction of the total consumer surplus created by such items to be captured. In this regard, however, we should stress an important linkage: The pace of the point-of-purchase survey probably should not be stepped up unless and until the aggregation formula at the substratum level has been adjusted. The current Laspeyres formula probably performs relatively poorly when the index is chained (as it is at sample rotation time), but an alternative aggregation formula such as the weighted geometric mean probably would be much more robust to chaining. In addition, some explicit modelling of consumer demand (in the manner of Hausman) might be undertaken on an exploratory basis; this in the only avenue we are aware of for addressing either the problem of the surplus created by new items or by the birth of new outlets.

Two other issues are also related to sampling. First, we wonder whether an explicit linkage between the CPI, employment, and retail sales samples (the last of which is currently maintained by the Census Bureau) might yield some operating efficiencies, reduction in aggregate respondent burden, and cross-fertilization of ideas between agencies. Such a linkage would be very interesting substantively if it resulted in prices, sales, inventories, and employment being measured at exactly the same outlets. A coordinated dataset of this type might yield dramatically new insights into the dynamics of adjustment at the microeconomic level, much in the same way that the Census Bureau's Longitudinal Research Database has done for the manufacturing sector.

On the quality front, there seems to be no alternative but to undertake detailed case studies of the type performed by Gordon (1990) for a subset of consumer durables, Griliches and

Cockburn (1994) for two generic drugs, and us (in a very preliminary fashion) for cataract surgery. Probably hundreds of useful and interesting case studies remain to be executed. This is an area where academic researchers can--and ought to--make a constructive contribution to the efforts of the BLS. Our sense is that many of the most interesting case studies will bear on the pricing of medical care commodities and services. Such case studies will have the greatest impact if they attempt to construct prototypes of indexes that could actually be implemented by the BLS using reliable data sources available in real time. Ideally, the structure of the CPI should be flexible enough to allow yesterday's best thinking on any given item to be supplanted according to today's latest research. Finally, there should be at least a "research" version of the CPI that incorporates these quality-adjusted prices on a consistent basis as far back as possible.

Much interesting work also remains to be done in the realm of basic research. On the empirical front, the gaps in evidence are obvious and widespread. More extensive investigation using longer sample periods should be undertaken of the within-strata substitution effect and the base-price-imputation effect. An attempt should be made to develop standard errors for existing estimates of the across-strata substitution effect (though this problem may be so complicated as to defy solution). On the theoretical front, our sense is that there is further work to be done in spelling out the consequences of heterogeneity in preferences among households for the construction of aggregate price indexes.[56] We are also interested to learn about the sensitivity of calculations based on Tornqvist and Fisher ideal indexes to nonhomothetic

56. Fisher and Griliches (1995) made one valuable contribution, but--as we noted earlier--even that contribution apparently is contradicted in the approach taken by Hausman (1994). A resolution of this issue would be useful.

preferences--a violation of one of the assumptions required for the proof of the desirable properties of those formulae.

To facilitate all this research, the BLS should assign a high priority to the further development of a longitudinal database--recently established but still relatively inaccessible--housing all of the information used to construct the CPI each month including the individual price quotes and comprehensive data on item substitutions and quality adjustments. An easy-to-use dataset could serve as a laboratory for testing new theories and methods, and hence redound rather quickly to the benefit of the CPI. If there are concerns about confidentiality associated with such a database, then perhaps non-BLS researchers could be limited to on-site use of the data. Much of the excellent research performed by BLS staff has been undertaken *despite* the lack of ready access to detailed data, with the consequence that a considerable portion of our evidence on key questions is based on sample periods of three years or less. In the future, it should be the case that additional research is performed *because of* ready access to such data.

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Table 1
A Selective Chronology of Modifications
to the Consumer Price Index

Date	Action
1953	Weights adjusted to reflect 1950 spending patterns
1964	Weights adjusted to reflect 1960-61 spending patterns of single persons as well as families.
1967	Quality adjustment introduced for new-car prices.
1978	Weights adjusted to reflect 1972-73 spending patters. CPI-U introduced. Point-of-purchase survey introduced as mechanism for selecting outlets. Probability sampling within each outlet introduced as the method for selecting specific items.
1983	Rental equivalence introduced as concept for measuring homeowners' costs in CPI-U.
1985	Rental equivalence introduced as concept for measuring homeowners' costs in CPI-W, which is the index used as the escalator for social security benefits.
1987	Weights adjusted to reflect 1982-84 spending patterns. Quality adjustment introduced for used-car prices.
1988	Depreciation adjustment for housing introduced.
1991	Use of hedonics for direct quality adjustment of apparel items introduced.
1992	Procedures for pricing of air fares modified to allow pricing of discount fares. Also, use of specialized subsample of items for imputing price change for substitutions.
1995	New method for pricing generic drugs introduced (see Section IV.E). Price "seasoning" introduced as method for improving the treatment of food purchased for consumption at home (see Section IV.C). Housing estimator changed from average-of-ratios to ratio-of-sums (see Section IV.C).

Table 2
Measurement Problems in the Consumer Price Index:

1. Choice of underlying utility concept for aggregating prices
   a. Across-strata substitution
   b. Within-strata substitution

2. Estimation of weights and prices *given* the underlying utility concept
   a. Weights ("Base-price-imputation effect")
   b. Prices not included in the CPI sample
      i. New items
      ii. New outlets
   c. Prices included in CPI sample
      i. Quality change

Table 3
Annual Estimates of the Substitution Effect

Year	Estimated Substitution Effect (percent per annum)
1983	.18
1984	.09
1985	.13
1986	.11
1987	.25
1988	.33
1989	.30
1990	.67
1991	.07
1992	.19
1993	.17
1994	.17

Source: Aizcorbe and Jackman (1993) and updates provided by the Bureau of Labor Statistics. Note: The estimates are calculated as the difference between the growth of a fixed-base Laspeyres index (based in 1982) and the growth of a chained Tornqvist index.

Table 4
A Brief Chronology of Typical Treatment for Cataracts

Year	Procedure	Average length of hospital stay (nights)	Comments
1947	extracapsular extraction	7	cataract removed mechanically or by irrigation.
1952	intracapsular extraction	7	
1969	intracapsular extraction	3	improved methods of extraction and of suturing; also, routine use of operating microscope
1972	extracapsular extraction	1	modern extracapsular extraction pioneered with phacoemulsification; typical extraction mechanical and suction
1979	extracapsular extraction with intraocular lens (IOL)	1 or outpatient	
1985	extracapsular extraction with IOL	outpatient	techniques to lessen complications; improvement in incisions and placement of IOL
1990	extracapsular extraction with IOL	outpatient	phacoemulsification now common for extraction
1995	extracapsular extraction with IOL	outpatient	reduced size of incisions

Chart 1

The Aizcorbe–Jackman Estimates of the Across–Strata Substitution Effect

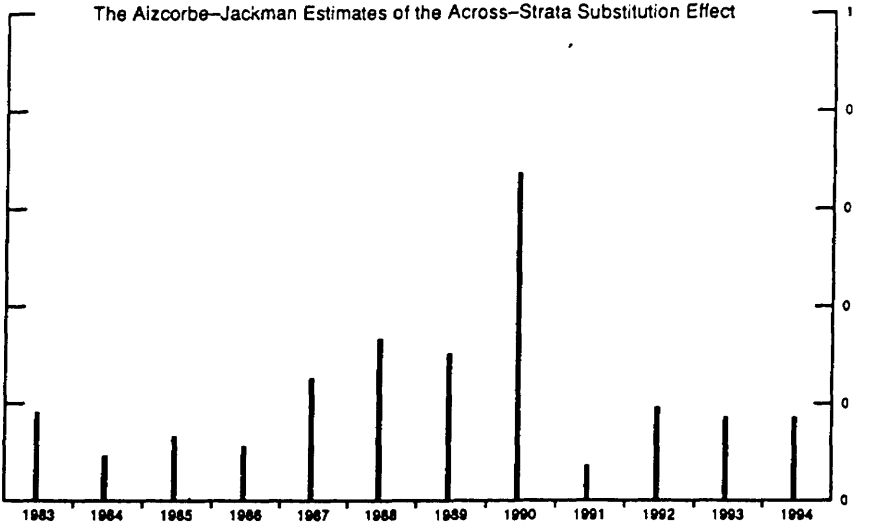
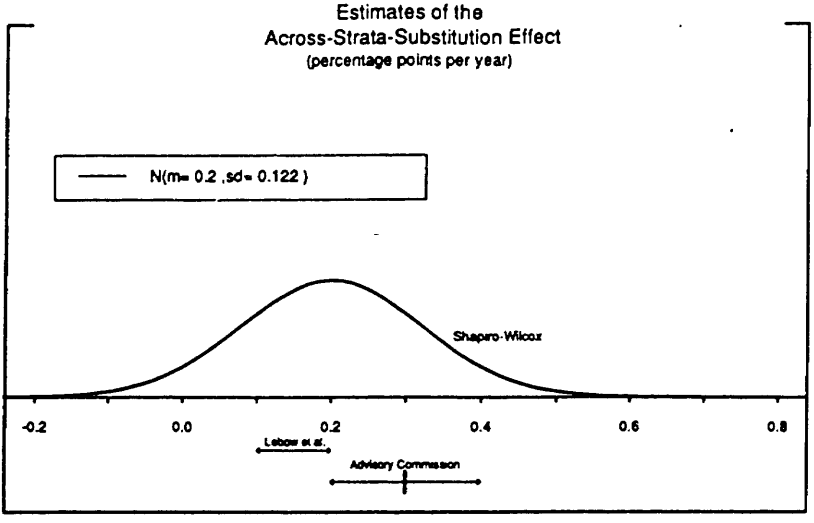


Chart 2

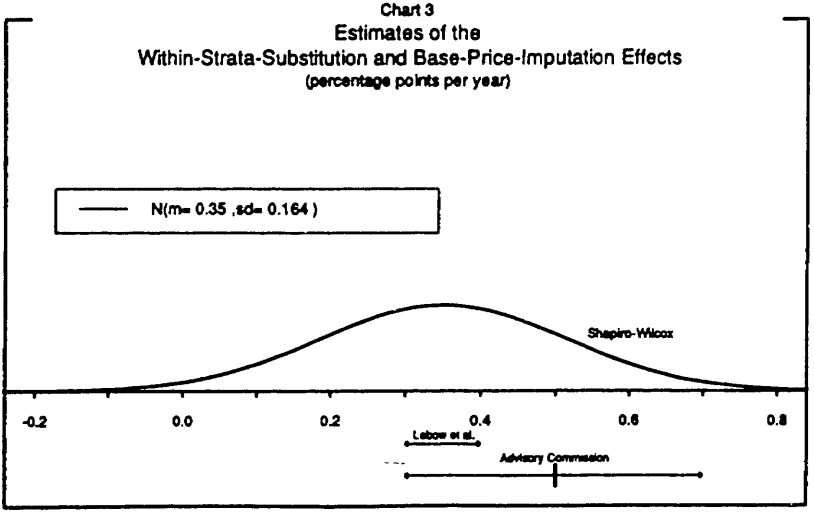
Estimates of the
Across-Strata-Substitution Effect
(percentage points per year)



Note: The short vertical segment denotes the Advisory Commission's point estimate.

Chart 3

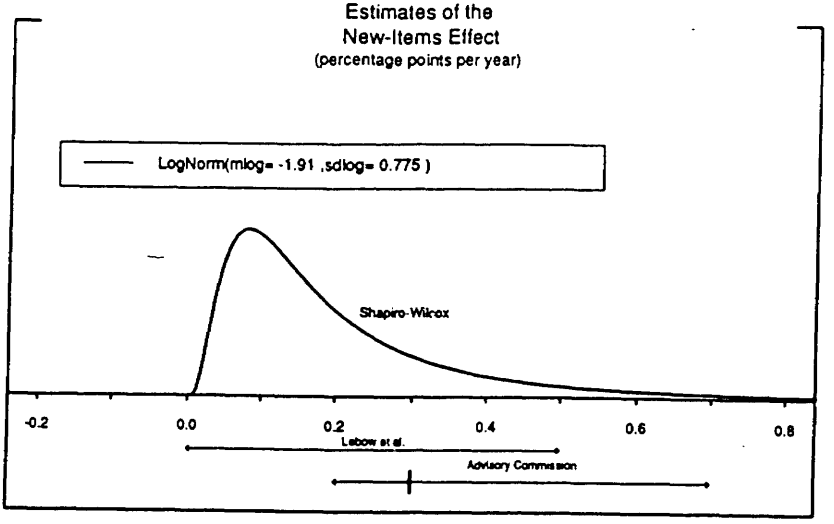
Estimates of the
Within-Strata-Substitution and Base-Price-Imputation Effects
(percentage points per year)



Note: The short vertical segment denotes the Advisory Commission's point estimate.

Chart 4

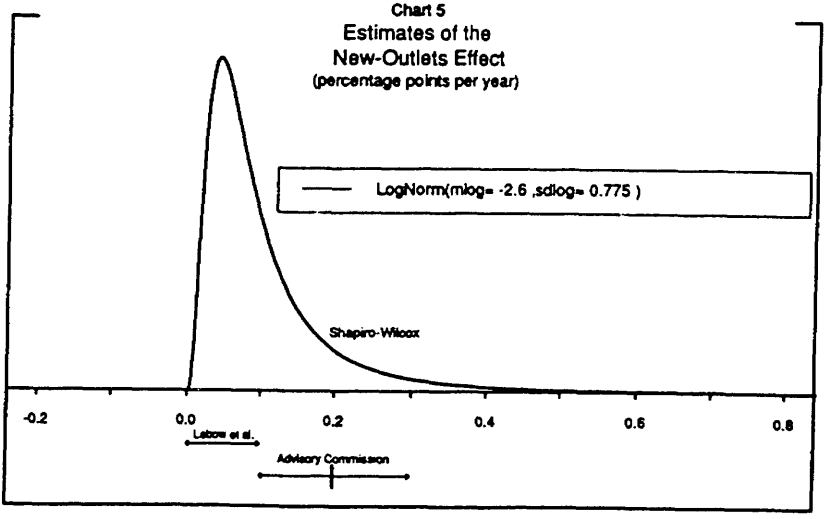
Estimates of the
New-Items Effect
(percentage points per year)



Note: The short vertical segment denotes the Advisory Commission's point estimate.

Chart 5

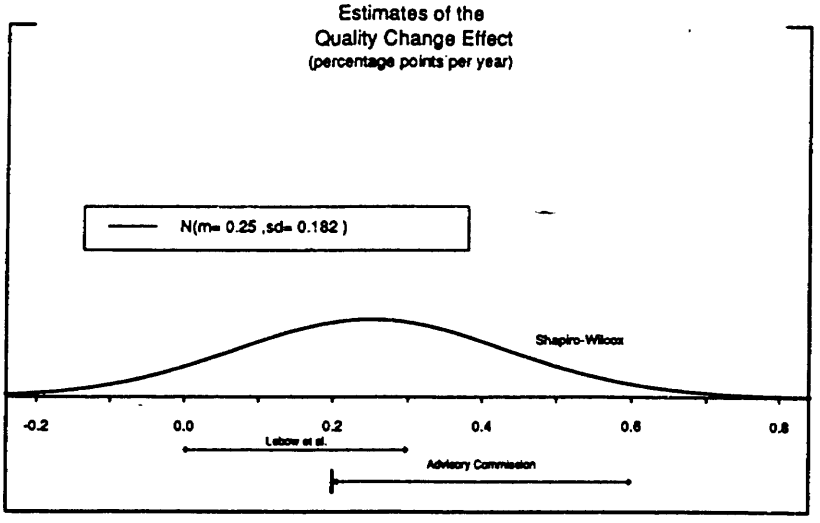
Estimates of the
New-Outlets Effect
(percentage points per year)



Note: The short vertical segment denotes the Advisory Commission's point estimate.

Chart 6

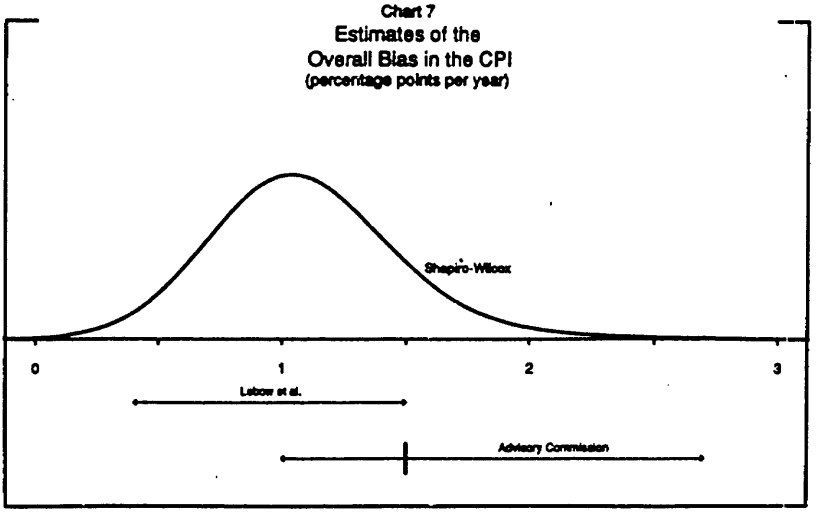
Estimates of the
Quality Change Effect
(percentage points per year)



Note: The short vertical segment denotes the Advisory Commission's point estimate.

Chart 7

Estimates of the
Overall Bias in the CPI
(percentage points per year)



Note: The short vertical segment denotes the Advisory Commission's point estimate.

Chart 8

Unit Expenditure versus Hypothetical CPI for Cataract Surgery