

Measuring Social Security's Financial Problems

By Jagadeesh Gokhale & Kent Smetters^{1,2}

This Draft: December 29, 2004

Abstract

The U.S. Social Security system has helped keep many retirees out of poverty. However, according to the Social Security and Medicare Trustees, Social Security faces a future financial shortfall of \$10.4 trillion in present value. This enormous imbalance has received little attention in public debates about Social Security. Instead, the media and policymakers continue to focus on the program's trust fund and several other ad-hoc measures that create a misleading impression of the size of Social Security's financial problem. Although the Social Security Trust Fund is not projected to be exhausted until 2042, Social Security's \$10.4 trillion present value imbalance is accruing interest and will grow by \$600 billion during 2004 alone. The current cash-flow federal budget, however, is biased against reforms that would improve Social Security's finances. As shown herein, a new federal accounting system would remove this bias.

1. Introduction

Social Security covers almost the entire U.S. population, providing participants and their spouses with retirement, disability, and other benefits during different stages of life. Social Security is currently the largest single outlay in the U.S. federal budget and it is judged by many to be one of the most successful programs in U.S. history. Although Social Security replaces only about 40 percent of annual earnings prior to retirement on average, it provides an important "first pillar" of retirement income. Social Security is often credited with reducing poverty among the elderly in the United States (Engelhardt and Gruber, 2004).

¹ Gokhale: Senior Fellow, CATO Institute (jgokhale@cato.org). 1000 Massachusetts Avenue, N.W. Washington D.C. 20001-5403. Smetters: Associate Professor, The Wharton School (smetters@wharton.upenn.edu), and NBER. 3302 Steinberg Hall - Dietrich Hall, University of Pennsylvania, Philadelphia, PA 19104.

² Smetters' research was supported by the U.S. Social Security Administration through a grant in 2003 to the Michigan Retirement Research Consortium as part of the SSA Retirement Research Consortium. The opinions and conclusions expressed are solely those of the authors and do not represent the opinions or policy of SSA, any agency of the Federal Government or the Cato Institute. We thank Felicitie Bell of the Social Security Administration for providing demographic projections and related underlying assumptions, and Howell Jackson, James Lockhart, and Peter Orszag and for useful comments.

Participation in Social Security is mandatory for most occupations.³ Social Security is financed by a 12.4 percent payroll tax on covered earnings up to a limit (\$87,900 in 2004) that increases each year with the economy-wide average wage. This tax is split evenly between employer and employee. Participants earn “fully insured” status after they contributed for 40 calendar quarters. Fully insured participants do not accrue a contractual right to specific amounts of benefits.⁴ Instead, they earn a non-contractual right to benefits that are payable according to the laws in effect at the time--laws that are subject to change by Congress.

Thus, Social Security is a “defined benefit” plan where a retiree’s benefit is determined by a specific formula applied to his or her wage history. In contrast, periodic withdrawals from a voluntary tax-favored retirement plans -- 401(k), 403(b), Keogh, and others -- generate retirement income based directly on a person’s previous contributions and subsequent returns.

Whereas withdrawals from voluntary tax-favored retirement plans are fully funded by previous contributions, Social Security was mostly financed on a “pay-as-you-go” basis between the 1940s and the early 1980s: payroll tax revenue collected each year was paid out almost immediately as benefits rather than saved. This financing structure meant that those who retired shortly after Social Security was launched received more benefits from Social Security in present value than they paid in past taxes. These windfalls continued as the Social Security program’s coverage and benefits expanded after 1950 until well into the 1970s (Geanakoplos, et al., 1998).

Unfortunately, the windfalls to previous generations do not come for free: they must be paid for by future generations who receive lower rates of return on their payroll taxes compared

³ A notable exception includes state workers who are covered by state pension programs.

⁴ See the U.S. Supreme Court case, *Nestor vs. Flemming*, 1960 (363 U.S. 603).

to the rates they could have earned if they instead invested their contributions in government bonds. In fact, *all* future generations are worse off (Breyer, 1989).⁵

1.1. Building the Trust Fund

During the early 1980s, the independent Office of the Actuary at the Social Security Administration projected that revenues would fall short of benefit outlays during the early part of the twenty-first century, largely due to the retirement of “Baby Boomers.” While Baby Boomers have contributed significantly to the labor force during the past several decades, they will soon retire and the number of workers alive to support retirees will decrease substantially. As shown in Figure 1, today there are almost five people of working age (between 20 and 64) for each retiree age 65 and over. By 2030, the number of working-aged people per retiree will decline to less than three; by 2080, the ratio will decline to about two.

The Social Security Act, therefore, was amended in 1983 in an attempt to increase the system’s cash flow over the subsequent 75 years. The amendments raised payroll taxes, subjected benefits to income taxation, and scheduled a gradual increase in the full retirement age from 65 to 67 beginning in 2003. These changes have generated surpluses since 1983 that are deposited into the Social Security trust fund. The investment of these surpluses into Treasury securities has resulted in the accumulation of \$1.6 trillion in the program’s trust fund.

Despite these reforms, the Social Security system is still mostly pay-as-you-go financed. Although \$1.6 trillion appears to be a large number, it is sufficient to pay current retirees their scheduled benefits for just three years. Had the 1983 Amendments “fully funded” the Social Security system, the trust fund would hold about \$12.7 trillion today. In that case, contributions

⁵ Assuming that the growth rate of the economy is less than the interest rate (the so-called “dynamic efficiency” condition), the present value of the gains and losses across all past, current and future generations is exactly zero.

by past and current generations would have been sufficient to cover their own benefits, and no burden would have to be imposed on future generations.

1.2. Future Shortfalls Projected -- Again

Although the 1983 Amendments were projected at the time to have resolved Social Security's financial shortfalls during the subsequent 75 years, projected imbalances began appearing soon thereafter. As shown in Figure 2, payroll tax surpluses are currently projected to continue until 2018 – the so-called “crossover” date – after which projected benefits will exceed revenues. The trust fund will then be gradually depleted to cover the cash flow shortfalls and it is expected to be exhausted by 2042.

The Social Security Trustees project that the program's present value of benefits under current law over the next 75 years will exceed by \$3.7 trillion the present value of its payroll tax revenues plus the current value of the trust fund. The *present value* calculation discounts future financial shortfalls at the government's borrowing rate. In other words, if the government deposited an additional \$3.7 trillion immediately into the trust fund by raising taxes or reducing spending, it would be able pay benefits scheduled under current law during the next 75 years. An infusion of funds into the trust fund would also increase public and national saving if it were not re-borrowed and spent on other government programs—a topic of recent debate.⁶ If the new monies were entirely spent on other programs, the government's overall capacity to pay future benefits would not increase even though the trust fund would be larger.

One reason that 75-year imbalances reappeared after 1983 is due to the “moving window” phenomenon. In 1983, the 75-year projected window ended at 2057 whereas today it

⁶ See Diamond (2003), Nataraj and Shoven (2004) and Smetters (2004).

ends in 2078. Most of the \$3.7 trillion imbalance comes from simply moving the 75-year window to cover the years 2058 through 2078 when cash flow shortfalls are projected.

The problem of a “moving window” implies that reforms that produce solvency over just 75 years will soon begin to exhibit insolvency again as the window continues to move forward into the future. As shown in the first panel in Table 1, the 2004 Social Security Trustees’ Report projects that Social Security system faces an *additional* \$6.7 trillion imbalance in present value (as of 2004) *after* the year 2078. So a reform that solved Social Security’s 75-year imbalance today would soon be insolvent as the 75-year window moved beyond 2078.

Adding the \$6.7 trillion imbalance after the year 2078 to the \$3.7 trillion imbalance projected through 2078 produces a present value imbalance of \$10.4 trillion. Barring any reform this year, this \$10.4 trillion imbalance will grow with interest, just like any regular “debt rollover.” According to 2004 Social Security Trustees’ Report, this imbalance grow by about \$600 billion over just a single year.⁷

2. Measuring Sustainability

Whereas the concept of *solvency* has typically been used to determine whether the government can afford to pay benefits over the next 75 years, the concept of *sustainability* refers to the ability to pay benefits into the indefinite future. A Social Security reform that achieves solvency over a limited horizon but not sustainability will soon fail to even achieve solvency as the time window moves to include future years. However, a reform that is projected to be sustainable is also projected to be solvent during future years. Under current conditions,

⁷ The 2004 Social Security Trustees’ Report, Section IV.B.5.a.

achieving sustainability is harder than achieving solvency because sustainability requires making an additional \$6.7 trillion in adjustments in order to address the shortfalls after 2078.

An ad-hoc measure of sustainability that is routinely used by the government involves determining whether the following two conditions are satisfied.⁸ First, is the Social Security system *solvent*? That is, can Social Security afford to pay benefits over the next 75 years out of revenue collection over the next 75 years under current law plus the current trust fund value? Second, is the trust fund projected to be increasing in size toward the end of the 75-year window? Social Security is deemed to be sustainable if both conditions are met.

This ad-hoc measure of sustainability, though, assumes that the trust fund will continue to increase in size *after* the 75th year. This assumption is often not valid. For example, the recent reform plan by Peter Diamond and Peter Orszag (2004) appears to be sustainable under this ad-hoc approach. In particular, their reform plan is projected to achieve 75-year solvency and the trust fund is projected to start increasing toward the end of the 75th year. However, in order for the trust fund to not begin decreasing at some point after 75 years, tax rates must continue to increase after the 75th year in order to pay projected benefits. If tax rates did not continue to increase then their plan would appear to be sustainable under the ad-hoc approach but the trust fund would eventually become depleted at some point after the 75th year.⁹

Conversely, a reform might not appear to be sustainable under the ad-hoc measure even though it fully eliminates the current \$10.4 trillion present value imbalance. For example, Model 2 of the President's Commission to Strengthen Social Security (2001) is not projected to achieve

⁸ See, for example, the President's Commission to Strengthen Social Security (2001, pp. 68 – 71), The Economic Report of the President (2004, p. 139), The 2004 OASDI Trustees Report (Section IV.B.5.a)

⁹ Diamond and Orszag (2004), however, advocate continuing to increase payroll tax rates after year 75.

solvency over the first 75 years – the first condition for sustainability under the ad-hoc measure -
- without general revenue transfers from the U.S. Treasury. However, if its reform measures
were kept in place after the 75th year, Model 2 would more-than eliminate the existing \$10.4
trillion imbalance even without general revenue transfers. That is, the cost savings after the 75th
year in the reform would more-than offset in present value the shortfalls during the first 75 years.

3. Bias in Policy Making

The traditional ad-hoc measure of sustainability, therefore, has important shortcomings.
But probably the most important weakness of this and other traditional measures of Social
Security’s finances is that these measures introduce a bias in policymaking. In particular,
reforms that could actually reduce Social Security’s \$10.4 trillion imbalance – improving Social
Security’s long-run sustainability – often worsen each of the more traditional measures,
including the trust fund exhaustion date, the crossover date, and the 75-year imbalance.

Consider the following reform known as an “actuarially-fair carve out.” Social Security
participants would be allowed to “carve out” some of their payroll taxes and deposit them into a
personal account that would be used to augment their traditional benefit. Since these participants
would now be contributing less to the traditional system, their traditional benefit would be
reduced by an “actuarially-fair” amount equal to one dollar in present value for each dollar they
carved out and deposited into their personal accounts.

This reform would have no impact on the \$10.4 trillion imbalance. Each dollar that the
government loses in payroll contributions would be fully offset by a dollar that the government
saves in present value of future benefit payments. Furthermore, unless capital markets

responded in an uninformed manner (discussed in more detail later), this reform would not affect wages, interest rates or the Gross Domestic Product in any year. Neither would this reform change the net lifetime resources available to any household born at any time; in economic terms, this reform would be fully neutral.

Still, this reform would worsen all three of the traditional measures. The trust fund would become exhausted earlier because of the short-run decline in payroll contributions; similarly, the crossover date would occur sooner. The 75-year imbalance would also worsen because some of the benefit reduction would fall beyond the 75-year window.

Let's modify the example to consider a "carve out with a haircut." Under this approach, a participant's traditional Social Security benefit would be reduced by more than a dollar – say, \$1.10 – for every dollar carved out and deposited into his or her personal account. A worker might be willing to take this "haircut" on his or her future benefits in order to obtain greater control over his or her retirement resources.

Now, the \$10.4 trillion imbalance *would* be reduced since the government saves more on benefit payments in present value than it loses in contributions. Still, the traditional measures of Social Security's finances would again worsen.¹⁰ If policymakers, therefore, continued to focus on these traditional measures, this reform might be rejected even though it would improve Social Security's financial outlook. Because all calculations are made on a present value basis, this reform would actually improve Social Security's finances immediately – not just eventually.

In sum, the traditional measures used to analyze Social Security's finances are not very revealing of the program's true financial status, and they are biased against reforms that could

¹⁰ Technically, whether the 75-year imbalance would improve or worsen would depend on the timing of the haircut. In any case, the 75-year imbalance measure would fail to capture many of the benefit reductions after the 75th year.

reduce Social Security's current \$10.4 trillion imbalance. The traditional measures can also influence the design of reform plans. For example, in Model 2 of the President's Commission to Strengthen Social Security, participants are allowed to carve out up to 4 percent of payroll, up to a maximum of \$1,000 per year (wage indexed over time). The Commission had to impose the \$1000 contribution ceiling because it did not want the traditional Social Security system to "lose" too much money over the 75-year projection horizon since a large fraction of the concomitant benefit reductions occurred after the 75th year. Model 2, however, could easily eliminate the entire \$10.4 trillion imbalance even with larger personal accounts.

4. New Accounting Measures

Beginning with the 2003 Social Security Trustees' Report and continuing with the 2004 Report, the Trustees now report two important new measures of Social Security's finances. Beginning in 2004, the Medicare Trustees' Report also includes these measures for the Medicare system. These measures provide considerable insight into the financial status of both programs, and they have recently been endorsed by the Social Security Advisory Board's Technical Panel on Assumptions and Methods that is composed of leading economists and actuaries outside of the Social Security Administration.¹¹ Indeed, these new measures correspond to the way that economists have thought about these Social Security's finances for many years.¹²

The first measure is sometimes called the "open group unfunded obligation." It sums across all *past, present and future* generations (or "groups") the amount of benefits that they

¹¹ See "The 2003 Technical Panel on Assumptions and Methods Report" [<http://www.ssab.gov/NEW/documents/2003TechnicalPanelRept.pdf>].

¹² See, for example, Auerbach (1994), Gokhale and Smetters (2003), Auerbach, Gale and Orszag (2004), and Gramlich (2004), Rettenmaier and Saving (2004).

received (and are projected to receive) in present value less the amount of taxes they paid (and are projected to pay). It can be calculated as the present value of projected future Social Security benefits minus the present value of projected payroll taxes and minus the current value of the trust fund.

The open group unfunded obligation indicates the extent that the current Social Security program is unsustainable – that is, it shows Social Security’s financial imbalance arising from all generations—past, present, and future. Table 1 shows that based on calculations provided by the independent Office of the Actuary at Social Security, the Trustees estimate the open-group obligations at \$10.4 trillion in present value. So, in order to make Social Security sustainable, scheduled benefits must be reduced and/or taxes increased so that the sum of these cost savings plus new revenues total \$10.4 trillion in present value.

The second measure is sometimes called the “closed group unfunded obligation.” It shows the amount of Social Security’s \$10.4 trillion imbalance from providing benefits to *past and present* generations (those aged 15 and older plus those who are dead as of 2004) in excess of their payroll taxes in present value. This calculation is “closed” to future generations whereas the “open group” includes past, current, as well as future generations.

Table 1 shows that, based on calculations provided by the independent Office of the Actuary at Social Security, the Trustees estimate that past and current generations are projected to receive about \$11.2 trillion more in benefits in present value than they will pay in taxes. In contrast, future generations (those aged 14 and younger in 2004 as well as the unborn) are projected to receive \$0.8 trillion *less* in benefits than they will pay in taxes (see Table 1). The “overpayment” by future generations, though, is not enough to pay for the “overhang” of \$11.2

trillion they are projected to inherit from current and past generations under current law. Either future generations will have to pay an additional \$10.4 trillion in present value or generations alive today will have to make this sacrifice, or a combination of both.

The open-group and closed-group measures are robust to the criticisms that apply to traditional measures of Social Security's finances—as note above. For example, both measures would correctly identify the economic as well as intergenerational neutralities of the actuarially fair carve out discussed earlier. In the case of a “carve out with a haircut,” the open-group and closed-group measures would both decline, corresponding to a move toward sustainability and smaller burdens on future generations. In contrast, the traditional measures such as the trust fund exhaustion date and crossover date would both show a worsening of Social Security's finances.

4.1. Usefulness of the Closed-Group Measure

While the open-group measure obviously plays a very useful role in determining sustainability, the closed-group measure is not as widely understood. Still, the closed group measure plays a crucial role in understanding Social Security's impact on the economy.

Some believe that the closed group measure is mostly meaningful to the extent that the Social Security was intended by policymakers to be “fully funded” (Goss, 1999).¹³ In that case, the closed group obligation would be zero since each generation would pay its own benefits.

But the closed-group measure is a very important statistic even in a pay-as-you-go system for two key reasons. First, it indicates the extent that any reform will reshuffle fiscal burdens across generations. For example, supposed that Social Security benefits were increased and financed on a strict pay-as-you-go basis by increasing payroll taxes. This policy change would

¹³ An equally plausible story is that policymakers allowed Social Security to become mostly pay-as-you-go over time because the burdens being placed on future generations were not easily observable under traditional measures.

have no impact on the open group unfunded obligation measure nor any impact on any of the traditional measures of Social Security's finances discussed earlier. But the closed-group measure would increase because this reform would transfer wealth from future generations to current generations. Current generations would gain from this policy change since they will receive more in benefits in present value than they paid in taxes; indeed, current *retirees* would receive additional benefits for free. But future generations would pay for this windfall by receiving a benefit that is less valuable than the additional taxes they pay in present value. The closed-group measure will clearly indicate this intergenerational transfer.

Second, the closed-group measure indicates the extent that pay-as-you-go financing may “crowd out” private saving and, hence, increase interest rates, reduce wages, and reduce the nation's Gross Domestic Product.¹⁴ Consider again a pay-as-you-go financed increase in benefits. Because this reform transfers resources from future to current generations, it reduces the amount of money today's generations must save for their own retirement. This reform, therefore, could *permanently* reduce the economy's level of capital.¹⁵

The CBO (1998) estimates that one dollar's worth of closed-group obligations could reduce private saving between zero and \$0.50, although this range of estimates is subject to considerable uncertainty. It follows that Social Security may reduce the U.S. capital stock by as much as \$6 trillion and reduce GDP by as much as \$1.1 trillion each year.¹⁶ Nonetheless, as

¹⁴ The impact of Social Security financing on private saving is an empirical issue first analyzed by Feldstein (1974).

¹⁵ The Ricardian equivalence hypothesis, however, argues that parents might leave a larger bequest in response to a transfer from their children, thereby leaving national saving unchanged (Barro, 1974). Altonji et al.'s (1992) empirical tests, however, reject this hypothesis. Consistently, Gokhale et al. (1996) trace a large share of the secular decline in U.S. national saving during the last several decades to the fiscal transfers from workers to retirees.

¹⁶ The calculated reduction in GDP assumes Cobb-Douglas production with inelastic labor supply, a net-of-depreciation capital share of 0.25 and a current capital-output ratio of three. The calculation also assumes that the private saving offset is constant at \$0.50 for each \$1 of closed-group obligation.

noted above, the traditional measures as well as the open-group measure do not indicate these large macroeconomic effects. Presumably, any discussion of Social Security reform would want to take into account the impact of a reform on the economy. Although Social Security has had many successes, its potentially large deleterious effect on the capital stock and national output probably deserves more attention in the debate over Social Security reform.

4.2. Long-Run versus Short-Run

Since the open-group measure extends the traditional 75-year imbalance measure beyond the 75th year, one might at first be tempted to argue that the open-group measure places too much emphasis on Social Security's long run finances. In particular, one could imagine a hypothetical "reform" that does nothing to fix Social Security's finances during the first 75 years but enacts large reforms after the 75th year in order to eliminate Social Security's \$10.4 trillion imbalance.

This potential criticism, however, is misplaced since it forgets the fact that the \$10.4 trillion open-group obligation measure is in *present value* terms. Besides adjusting for inflation, the present value calculation adjusts for the real interest costs that are saved from paying obligations sooner rather than later. For example, increasing payroll taxes by \$1 today would reduce the open-group obligation by, of course, \$1. But postponing this \$1 tax increase (still measured in 2004 inflation-adjusted dollars) by 100 years would reduce the \$10.4 open-group obligations by only 4.7 cents today.¹⁷ Postponing the dollar tax increase 150 years would reduce the unfunded obligations by only 1 cent. In other words, attempting to postpone reforms would require promising to enact unrealistically large reforms later on.

¹⁷ This calculation uses an inflation-adjusted interest rate of 3.1 percent, the rate used by the Trustees to calculate the \$10.4 trillion unfunded obligations.

Moreover, a delay in attempting to bring Social Security's financial troubles under control would also be clearly indicated by the closed-group obligation measure. In particular, letting current generations "off the hook" by postponing reforms would produce a larger closed-group obligation than a reform that required current generations to bear more of the costs.

Rather than drawing "too much" attention to the long run, the open-group and closed-group obligation measures actually remove the current biases embedded in the traditional financial measures against reforms that could improve Social Security's long-run financial outlook. These newer measures also draw attention to the truer magnitude of the reforms that are needed to place Social Security on a sustainable path and, hence, indicate the urgent need for action. Social Security's open-group unfunded obligations of \$10.4 trillion are almost *three times* as large as its imbalance over the next 75-years, despite the fact that shortfalls after the 75th year are heavily discounted in the present value calculation, as discussed above.

4.3. Sensitivity to Assumptions

Another common criticism of present value estimates beyond 75 years is that they are sensitive to the underlying demographic and economic assumptions.¹⁸ Of course, uncertainty should only *enhance* the desire to take remedies rather than to ignore the expected problem.¹⁹

Furthermore, as shown in Gokhale and Smetters (2003), the size of the policy changes – either tax increase or benefit cuts – that are needed to reduce Social Security's imbalance are not affected by much under different interest rate and productivity assumptions and different demographic projections. Although the present value of the imbalance will be altered by changes in these underlying assumptions, the present value of Social Security's tax base and future

¹⁸ See, for example, CBO (2004).

¹⁹ This fact holds under any standard preference toward risk that exhibit a prudence motive.

benefits also move almost proportionally and in the same direction. As a result, the increases in tax rates or cuts in benefit rates required to eliminate Social Security's current fiscal imbalance exhibit little sensitivity to parametric changes in economic and demographic assumptions.

5. Improving the Federal Budget

Recently, numerous media organizations have reported that the "transition" to personal accounts would cost as much as \$2 trillion over the first 10 years. However, these "transition costs" are often an artificial by-product of incomplete accounting in the current federal budget.

To be sure, diverting payroll tax revenue to personal accounts will increase the debt held by the public. But the concomitant reductions in the present value of future Social Security benefits are not counted in the current federal budget since it omits Social Security's unfunded obligations. As a result, an "actuarially-fair carve out," for example, appears to involve a short-term "transition cost" in the form of more government debt even though the reform is neutral.

The President's 2005 Budget, like previous budgets, highlights the deficits projected over the next five years along with the amount of debt held by the public. The debt held by the public represents the net federal liabilities to the public accumulated from past overspending. Because this Budget is, in effect, "backward looking," it fails to account for the present value imbalances in Social Security, Medicare as well as other government programs.

The government's current backward-looking accounting would be illegal if done by companies in the private sector. Indeed, under ERISA and FASB rules, private-sector firms are required to make projections of their pension and retirement health obligations.²⁰ Although the

²⁰ See, e.g., Howell Jackson (2004) and comments to his article appearing immediately after his article.

methodology used in reporting future pension and other liabilities in the private sector is different than the one suggested here (arising from the fact that a private company cannot assume it will operating indefinitely into the future), the notion of complementing cash-flow-shortfall projections with present values of projected financial imbalances is not a very radical one.

5.1. Augmenting the Federal Budget's Summary Tables

Table 2 shows how Social Security and Medicare's unfunded obligations could be integrated into the President's federal budget in order to remove the bias against reducing these unfunded obligations. In creating this table, we calculated the imbalances for Social Security, Medicare and the Rest of Federal Government for the end of each year shown using the policy, economic and demographic assumptions in the President's 2005 Fiscal Year Budget.²¹

Although the President's Budget and the Trustees use similar demographic projections, the economic assumptions differ somewhat. Notice, for example, that we estimate Social Security's imbalance at \$8 trillion (compared with the Trustees' estimate of \$10.4 trillion) and Medicare's imbalance at \$61 trillion (compared with \$62 trillion).²² The main reason that our estimates are a little smaller than the Trustees is that we use a larger discount rate (a 3.6 percent inflation adjusted rate versus the Trustees' 3.1 percent rate). Our larger discount rate has a more noticeable effect in reducing Social Security's imbalance relative to Medicare's because Social Security's cash flow deficits are projected to occur at a later date than Medicare's.

²¹ Our methodology is discussed in detail in Gokhale and Smetters (2003). The current numbers update that report.

²² The Trustees' projected fiscal imbalance for Medicare (Parts A, B, and D) can be found in Tables IIB.11, IIC.16, and IIC.22 of the 2004 Medicare Trustees' Report. The \$62 trillion imbalance includes the present value of general revenue contributions for Parts B and D, which are not funded. Our own \$61 trillion calculation is larger than the value we reported in Gokhale and Smetters (2003) that was written before Part D became law. Another difference between our estimates and the Trustees' is that our estimates, like the budget, are stated in end-of-year dollars.

Table 2 shows that the Rest of the Federal Government actually has a present value *surplus* (negative imbalance) of about \$5.6 trillion under current law.²³ The Rest of the Federal Government is equal to current level of debt held by the public plus the present value of expenditures on defense, Medicaid, education, homeland security and all other federal government programs (except Social Security and Medicare) less the present value of all federal revenue sources (except Social Security and Medicare Part-A payroll taxes).²⁴ These calculations include all of the President's recently enacted and proposed policies.

5.2. Removing the Bias Against Pre-funding

Consider, now, how an “actuarially-fair carve out” would affect the more inclusive budget presented in Table 2. Suppose that a person alive starting in 2004 is allowed to carve out \$1 in 2004 and deposit it into a personal account in exchange for an actuarially-fair reduction in their future Social Security benefits equal to \$1.

The “Fiscal Imbalance in Social Security” in Table 2 for the 2004 end of year would remain unchanged by this reform. The revenue loss from the carve-out would decrease the value of the Trust Fund by \$1 in magnitude. But the “Future Net Benefits of Living Generations” would decrease by \$1 due to concomitant reduction in future benefits -- a perfect offset. The “Fiscal Imbalance in Social Security” would remain unchanged in all future years as well.

Similarly, the “Fiscal Imbalance in the Rest of Federal Government” would remain unchanged in the year 2004. The debt held by the public would increase by \$1 because of the

²³ This calculation is larger in magnitude than the value we reported last year (Gokhale and Smetters, 2003) for the 2004 Budget, largely due to adjustments in economic and policy assumptions in the 2005 budget.

²⁴ As Auerbach, Gale and Orszag (2004) point, however, our distinction between Medicare and the Rest of the Government is a little artificial since Medicare Parts B and D are partially financed by general revenue rather than with dedicated payroll taxes. We separate out Medicare because, similar to Social Security, it has been traditionally viewed as a distinct entitlement program even though payroll taxes cover only a small fraction of actual costs. In any case, the Total Fiscal Imbalance for the U.S. Government is unaffected by our decomposition.

loss in revenue but the “Liabilities to Social Security and Medicare Trust Funds” would decrease by \$1 – again, a perfect offset. Furthermore, the “Fiscal Imbalance in the Rest of Federal Government” would remain unchanged in future years

In sum, an actuarially-fair carve out would decrease the size of the Social Security trust fund and increase the size of the debt held by the public. But it would have no impact on the Fiscal Imbalances of Social Security or the rest of government, consistent with the economic-neutrality of this reform. In contrast, if we restricted our focus to just the debt held by the public in Table 2 -- as under current budget reporting -- we would interpret this reform to imply that the government’s fiscal position has worsened.

This example, therefore, illustrates that the traditional measures, including the debt held by the public and the trust fund, are potentially very misleading. The more inclusive fiscal imbalance measures—the open and closed group obligations—properly capture the neutrality of an actuarially fair carve out reform.

6. “Implicit” Versus “Explicit” Debt

Table 2 combines the government’s “explicit debt” in the form of debt held by the public with the “implicit debt” debt in the form of the present value of future Social Security and Medicare benefits. Debt held by the public is a legal *liability* that must be honored by the government unless it declares bankruptcy.²⁵ Social Security and Medicare benefits, however, are only *obligations* of the government, which can be altered by an act of Congress.

²⁵ Of course, in practice, the government can use inflation to reduce the real value of nominally-denominated debt. The government would have to declare bankruptcy, however, to avoid paying off inflation-protected instruments.

It might appear at first that commingling implicit and explicit debt effectively “bonds” the value of Social Security and Medicare obligations, putting them on par with the liability to repay the debt held by the public. But this perspective, if valid, should also apply to the short-term projections made in the current federal budget; the “projected” nature of the budget has not changed with the more inclusive measures. Indeed, unlike the current federal budget framework, the fiscal imbalance measure presented in Table 2 would clearly indicate the *unsustainable* nature of the federal government’s fiscal policy.

7. Reaction of Capital Markets

In theory, real interest rates should not increase in response to an actuarially fair carve-out reform of Social Security because investors should be indifferent between a dollar of explicit debt and a dollar of present value of future Social Security benefits. However, in practice, capital market participants may be discounting future Social Security benefits at a higher rate because they perceive that at least some of these benefits might not be paid. Replacing a dollar in present value of future Social Security benefits with a dollar of explicit debt, therefore, could worsen how investors perceive the outlook of the federal government’s finances.

Of course, it is not obvious that explicit debt liabilities are really more likely to be paid or serviced in real terms than Social Security obligations. Indeed, the opposite is feasible. Most explicit debt is nominally denominated and so its value could be easily eroded through a small increase in inflation compounded over time. In contrast, Social Security benefits, once determined, are fully protected against inflation, and they will likely remain so well into the future, especially as the share of retirees in the population increases over time.

However, even if the legal distinction between government debt liabilities and Social Security obligations is deemed important, the federal government’s budget would be incomplete if it did not report all sources of projected outlays. The purpose of the budget is to show the projected financial ramifications of the continuation of current (or newly proposed) law – it is not meant to predict future law. Uncertainty about future law itself is more appropriately handled through policy, not by omitting the sources of promises under current law.

For example, if policymakers believe that market participants discount future Social Security benefits by 10 percent above the government’s discount rate then policymakers could offer a carve out with a 10 percent “haircut” (as discussed earlier) to avoid disrupting capital markets. But, without any policy change, it would be inappropriate to simply discount future Social Security benefits in Table 2 by an extra 10 percent since that would not correspond to current law. Indeed, if federal budget projections incorporated the risks associated with how future policymakers might change the law, the very meaning of a budget would be undermined. Policymakers would never have to worry about the financial ramifications of current (or proposed) laws because they could just assume that future policymakers would fix the problems. By definition, there would never be a problem and, hence, no need for budget projections.

Instead, the ramifications of current law itself must be fully exposed as a precondition to enact change. We conjecture that the adoption of an inclusive budgetary framework, as shown in Table 2, would signal that the government is now serious about reducing its fiscal imbalance, which would *improve* that capital market’s outlook. As explained earlier, an actuarially fair carve-out does *not* reduce the federal government’s fiscal imbalance. Rather, it is completely neutral. So the government would still have to either increase taxes or reduce the growth rate in

benefits (maybe with a “haircut”) in order to lower its fiscal imbalance. Officially acknowledging a fiscal imbalance in excess of \$63 trillion, as shown in Table 2, would likely prepare the environment for taking action sooner rather than later. If, instead, the fiscal imbalance were allowed to grow over time, it could further erode the confidence of market participants in the government’s ability to meet its future obligations.

8. Conclusions

Traditional accounting measures tell us very little about the true fiscal problems facing the Social Security system, and they are biased against reforms that could reduce the federal government’s fiscal imbalance. This paper presents an alternative and more inclusive budgetary framework, one that incorporates the present value imbalances in Social Security, Medicare, and all other government programs. The adoption of such a budgetary framework would remove an important accounting roadblock against Social Security reform. Explicitly recognizing the existing \$63 trillion federal fiscal imbalance could also ease the way to fiscal reforms and likely improve the operation of capital markets.

References

- Altonji, Joseph G., Fumio Hayashi, and Laurence J. Kotlikoff, "Is The Extended Family Altruistically Linked? Direct Tests Using Micro Data." *American Economic Review*, 1992, 82(5): 1177-98.
- Auerbach, Alan. "The U.S. Fiscal Problem: Where We Are, How We Got Here, and Where We are Going." In NBER Macroeconomics Annual, Stanley Fischer and Julio Rotemberg, Eds., National Bureau of Economic Research, Cambridge, MA, 1994.
- Auerbach, Alan, William Gale and Peter Orszag, "Sources of the Long-Term Fiscal Gap," Tax Notes, 2004, 103: 1049 – 1059.
- Barro, Robert, J. "Are Government Bonds Net Wealth?" *Journal of Political Economy*, 82 (6): 1095-1117.
- Breyer, F. "On the Intergenerational Pareto Efficiency on Pay-as-you-go Financed Pension Systems." *Journal of Institutional and Theoretical Economics*, 1989, 145: 643-58.
- Congressional Budget Office. "Social Security and Private Saving: A Review of the Literature" *CBO Paper*, July, 1998.
- Congressional Budget Office. "Measures of The U.S. Government's Fiscal Position under Current Law." *CBO Paper*, August, 2004.
- Council of Economic Advisors, 2004 Economic Report of the President, Washington, DC, 2004.
- Diamond, Peter, "Social Security, the Government Budget and National Savings," unpublished mimeo, MIT, March 24, 2003.
- Diamond, Peter and Peter Orszag, Saving Social Security: A Balanced Approach, Brookings Institution, Washington, DC, 2004.
- Engelhardt, Gary and Jonathan Gruber. "Social Security and the Evolution of Elderly Poverty" NBER Working Paper #10466, May, 2004.
- Feldstein, Martin. "Social Security, Induced Retirement, and Aggregate Capital Accumulation." *Journal of Political Economy*, 82, 5, Sept./Oct. 1974: 905-26.
- Geanakoplos, John, Olivia S. Mitchell and Stephen P. Zeldes, "Would a Privatized Social Security System Really Pay a Higher Rate of Return?" In Framing the Social Security Debate: Values, Politics and Economics. Eds. D. Arnold, M. Graetz, and A. Munnell. Brookings Institution, 1998: 137-157.

Gokhale, Jagadeesh, Laurence J. Kotlikoff, and John Sabelhaus. Understanding the Postwar Decline in U.S. Saving: A Cohort Analysis, Brooking Papers on Economic Activity, Winter 1996.

Gokhale, Jagadeesh and Kent Smetters. Fiscal and Generational Imbalances: New Budget Measures for New Budget Priorities, AEI Press, 2003.

Goss, Stephen. "Measuring Solvency in the Social Security System." In Prospects for Social Security Reform. Olivia S. Mitchell, Robert J. Meyers, Howard Young, Robert Julius Myers, Editors, 1999: 16-36.

Gramlich, Edward. "Rules for Assessing Social Security Reform," Remarks to the Retirement Research Consortium Annual Conference, August 12, 2004.

Jackson, Howell. "Accounting for Social Security and It's Reform," Harvard Journal on Legislation, Winter, 2004, 41 (1): 59 – 225.

Nataraj, Sita and John Shoven, "Has the Unified Budget Undermined the Federal Government Trust Funds?" Mimeo, Stanford University, 2004.

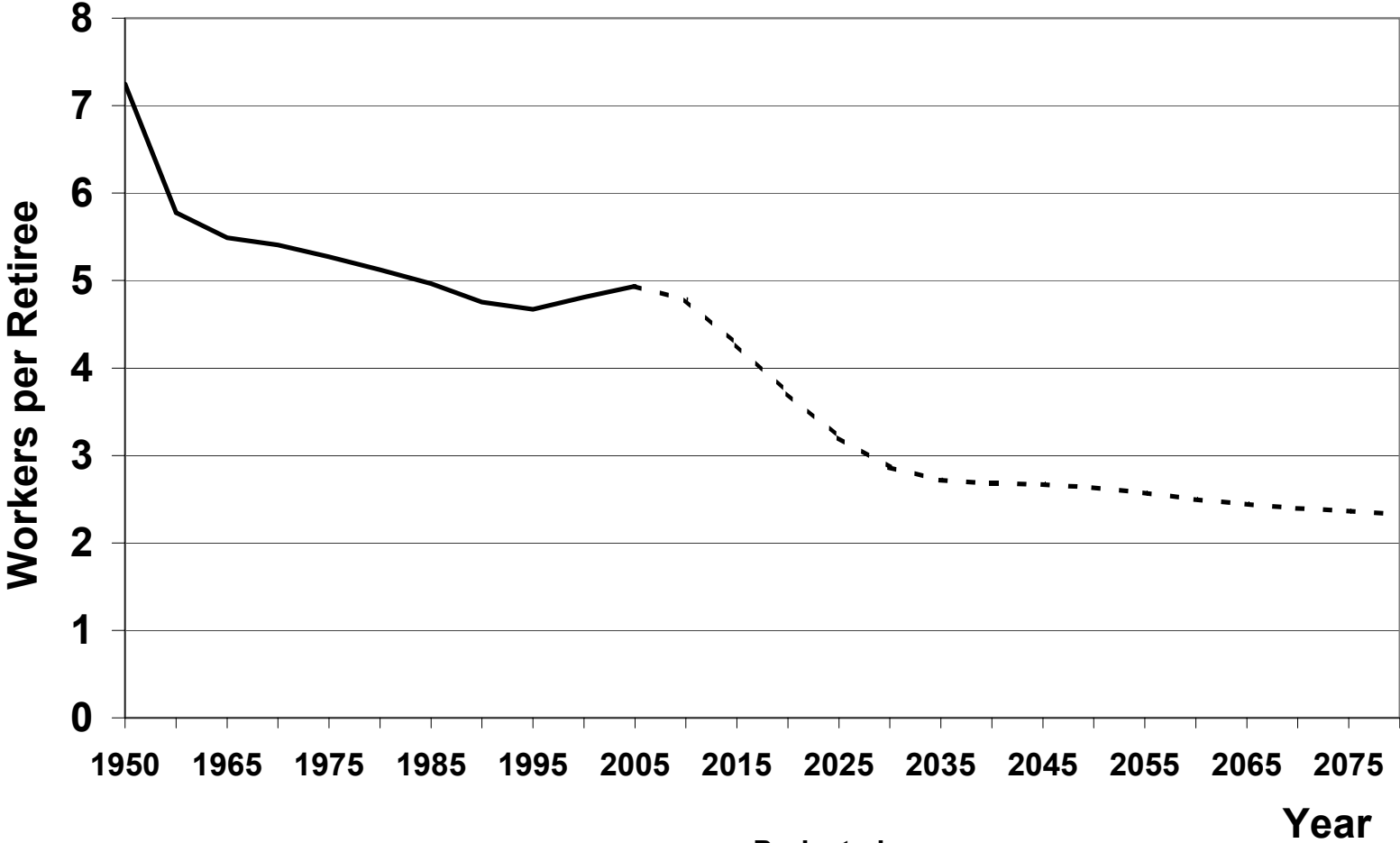
President's Commission to Strengthen Social Security, Final Report, 2001.

Rettenmaier, Andrew and Thomas Saving. "The 2004 Medicare and Social Security Trustees Reports." NCPA Policy Report No. 266, June, 2004.

Smetters, Kent. "Is the Social Security Trust Fund a Store of Value," *American Economic Review, Papers and Proceedings*, May 2004, 94 (2): 176 – 181.

Social Security Trustees, 2004 Social Security Trustees Report, Washington, DC, 2004.

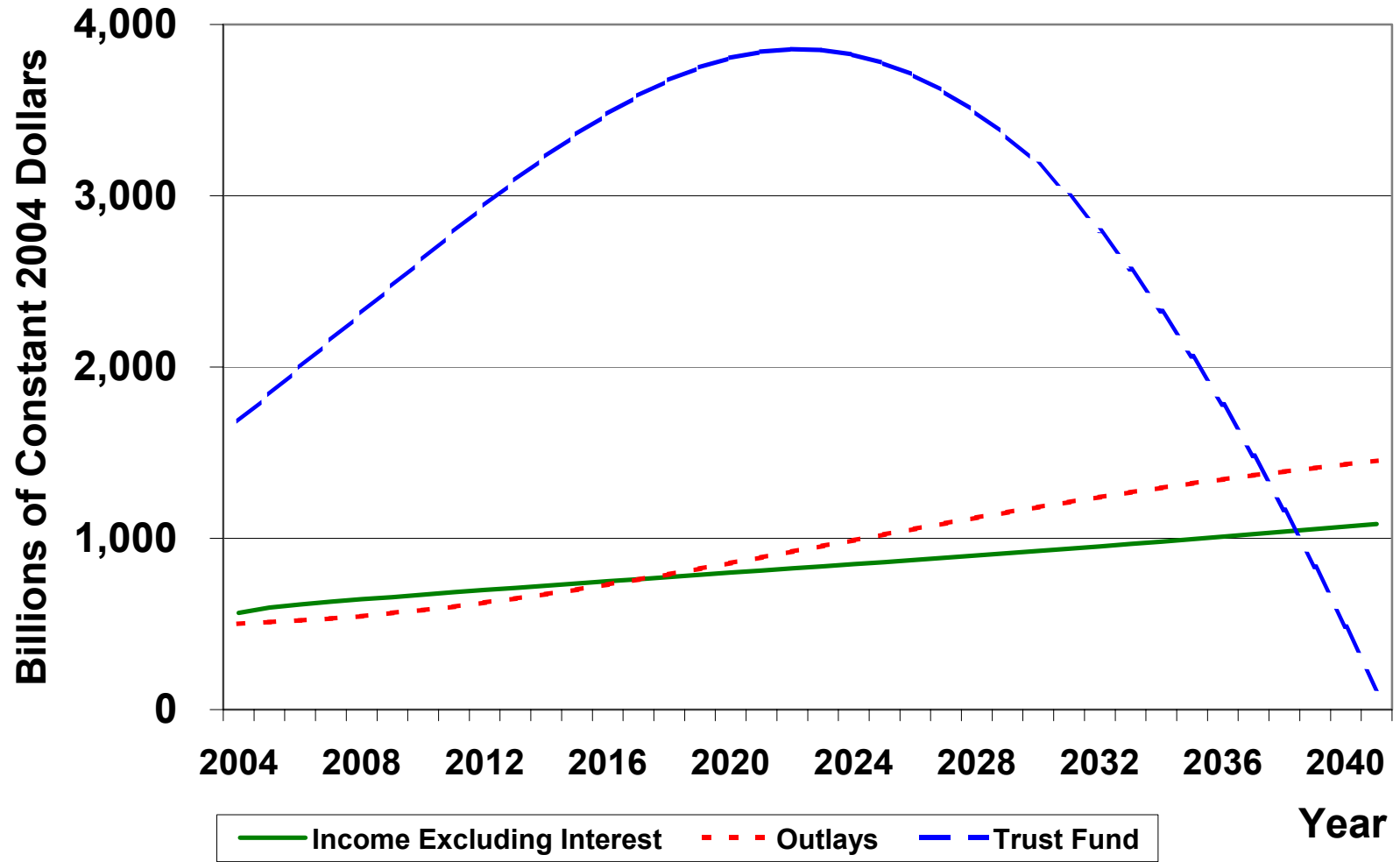
Figure 1: Workers (Aged 20-64) Per Retiree (Aged 65 and older)



Source: Social Security Administration.

- - - Projected

Figure 2: Social Security's (OASDI) Revenues and Outlays



Source: Social Security Administration

Table 1: Unfunded OASDI Obligations
[Present values as of January 1, 2004; dollar amounts in trillions]

Unfunded obligations through 2078 ¹	\$3.7
Unfunded obligations after 2078 ²	6.7
Equals Total Unfunded Obligations (Open-Group Obligations)	10.4
Unfunded obligations attributable to past and current participants (Closed-Group Obligations) ³	11.2
Unfunded obligations attributable to future participants ⁴	-0.8
Equals Total Unfunded Obligations (Open-Group Obligations)	10.4
¹ Present value of future costs less future taxes through 2078, reduced by the amount of trust fund assets at the beginning of 2004.	
² Present value of future costs less future taxes after 2078.	
³ This concept is also referred to as the closed group unfunded obligation. It is equal the present value of benefits paid to current and past generations less the taxes and after subtracting the value of the trust fund.	
⁴ People age 14 and below in 2004.	

Source: Social Security Trustees' Report, 2004.

Table 2: Fiscal and Generational Imbalances at End of the Year Shown (billions of constant 2004 dollars)*

Fiscal Years	2004	2005	2006	2007	2008	2009	2010
Total Fiscal Imbalance--U.S. Federal Government	63,220	65,861	68,564	71,245	73,893	76,570	79,337
Social Security	8,006	8,352	8,710	9,067	9,423	9,784	10,158
Medicare	60,822	63,315	65,805	68,249	70,641	73,044	75,518
Rest of Federal Government	-5,608	-5,805	-5,951	-6,071	-6,171	-6,258	-6,339
Fiscal Imbalance in Social Security	8,006	8,352	8,710	9,067	9,423	9,784	10,158
Past and Living Generations (GI)	9,549	9,899	10,256	10,610	10,958	11,311	11,676
Future Net Benefits of Living Generations	11,182	11,686	12,205	12,729	13,255	13,787	14,338
Trust Fund	-1,634	-1,787	-1,949	-2,120	-2,297	-2,476	-2,662
Future Generations	-1,543	-1,547	-1,547	-1,543	-1,535	-1,527	-1,518
Fiscal Imbalance in Medicare	60,822	63,315	65,805	68,249	70,641	73,044	75,518
Past and Living Generations (GI)	24,094	25,430	26,777	28,130	29,483	30,860	32,287
Future Net Benefits of Living Generations	24,375	25,725	27,097	28,465	29,834	31,226	32,668
Trust Fund	-282	-295	-320	-335	-350	-366	-381
Future Generations	36,728	37,885	39,028	40,118	41,158	42,184	43,231
Fiscal Imbalance in the Rest of Federal Government	-5,608	-5,805	-5,951	-6,071	-6,171	-6,258	-6,339
Future Outlays	81,323	83,402	85,537	87,576	89,492	91,375	93,304
Future Revenues	-93,266	-96,013	-98,675	-101,168	-103,500	-105,770	-108,055
Living Generations	-34,939	-36,156	-37,325	-38,417	-39,431	-40,405	-41,364
Future Generations	-58,327	-59,857	-61,350	-62,751	-64,069	-65,365	-66,691
Excess Future Outlays Over Revenues	-11,943	-12,611	-13,138	-13,591	-14,008	-14,395	-14,751
Liabilities to Social Security and Medicare Trust Funds	1,915	2,082	2,269	2,454	2,648	2,842	3,043
Debt Held by the Public	4,421	4,724	4,918	5,066	5,190	5,294	5,368
MEMO Items:							
Present value of GDP	762,921	772,260	790,733	812,819	834,656	855,240	874,525
Present Value of uncapped Payroll	291,063	294,436	301,354	309,630	317,783	325,432	332,577

* Positive numbers add to the imbalance and negative numbers reduce it.

Source: Authors' calculations based on FY2005 budget information obtained from the Office of Management and Budget.

Calculated under OMB economic assumptions.