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Measuring Social Security's Financial Outlook Within an Aging Society

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EXECUTIVE SUMMARY

The U.S. Social Security program provides an important “first pillar” of retirement income for retirees. The financial viability of the program, therefore, receives considerable attention from policymakers and the media. Each year, the Social Security Trustees release a Report that summarizes Social Security’s financial position. Among other measures, the report draws attention to the program’s “cross-over date” (the year when the program’s benefit outlays begin exceeding its tax receipts), the date of “Trust Fund exhaustion”, and the present value of financial shortfalls over the next 75 years.

We argue that these measures have two problems. First, they create a misleading impression of the program’s financial outlook. Second, they are biased against potential reforms that could improve the program’s finances.

Fortunately, the Trustees have recently adopted new accounting measures that deal with both problems. They reveal an \$11.1 trillion shortfall in Social Security, or about 3.5 percent of all future taxable payrolls. Unfortunately, these new measures are buried in the Trustees’ Report and receive only scant consideration from policymakers and the media. This article explains why the newer measures should receive greater attention. Indeed, were these new measures taken more seriously, reforming Social Security and Medicare could reemerge as the top policy priorities that they deserve to be.

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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 many judge it to be one of the most successful programs in U.S. history. Although Social Security replaces only about 40 percent of a worker's annual earnings prior to retirement on average, it provides an important "first pillar" of retirement income. Indeed, for poorer retirees, 90 percent or more of their previous earnings are replaced by Social Security. Social Security is often credited with reducing poverty among the elderly in the United States (Engelhardt and Gruber, 2004).

Participation in Social Security is mandatory for most occupations.² Social Security is financed by a 12.4 percent payroll tax on covered earnings up to a limit (\$90,000 in 2005) 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 have worked in a covered job for 40 calendar quarters and earned more than a predetermined wage. Fully insured participants do not accrue a contractual right to specific amounts of benefits.³ Instead, they earn a non-contractual right to benefits that are payable according to the laws in effect when their eligibility to Social Security benefits is established. The laws governing eligibility to benefits and the benefit formula are subject to change by Congress.

Social Security's benefit formula is similar to a private-sector "defined benefit" (DB) plan where the benefit payable to a retiree's is determined by a specific formula applied to his or her wage history.⁴ In contrast, periodic withdrawals from a "defined contribution" 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 market investment 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

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out almost immediately as benefits rather than saved, thereby producing rates of return on previous contributions in excess of the risk-adjusted rates of return that could have been earned in financial markets (Liemer, 1991). 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 payroll taxes. These windfalls occurred each time that Social Security's coverage and benefits were expanded after 1950 until well into the 1970s (Geanakoplos, et al., 1998).

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

Building the Trust Fund

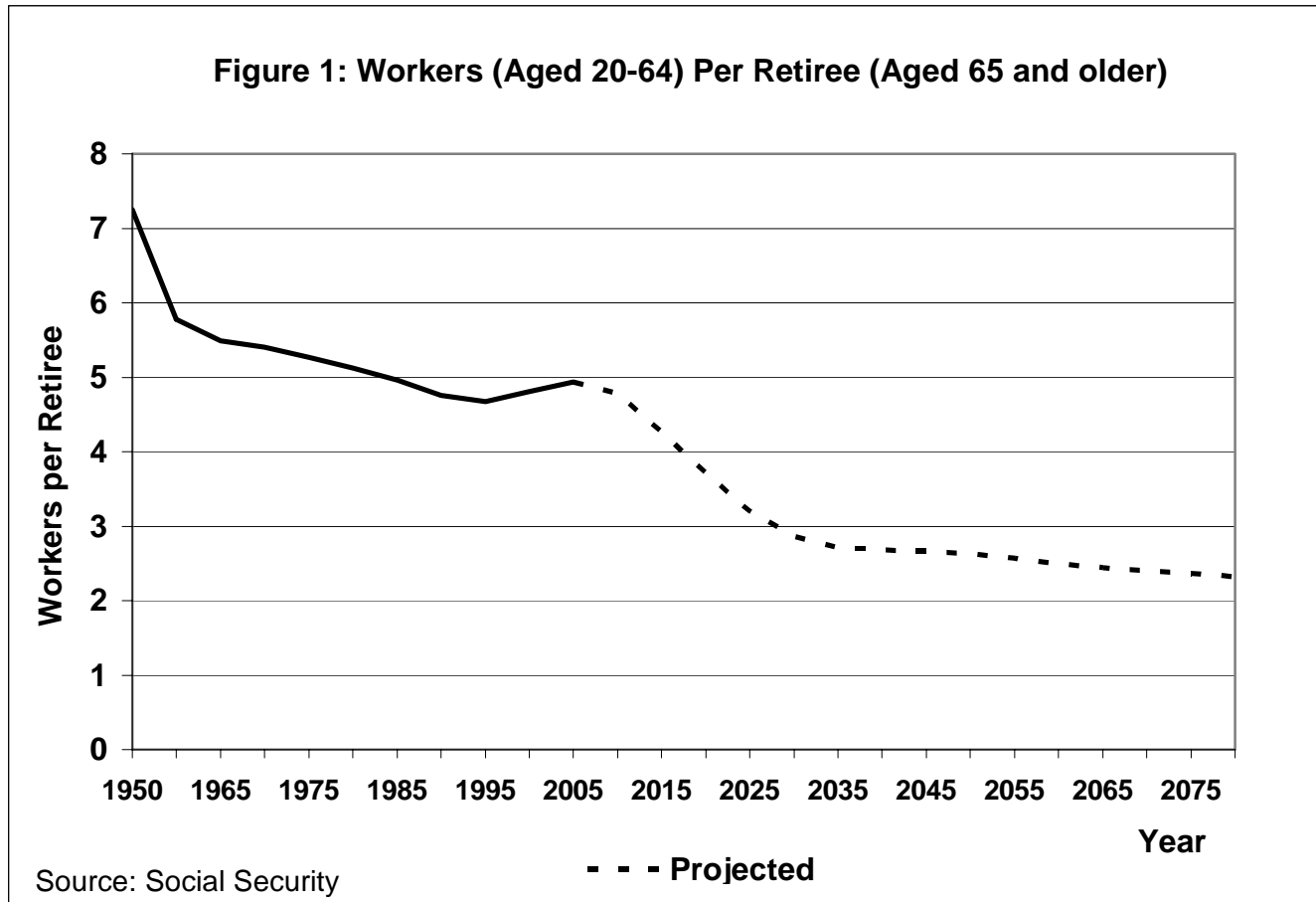
During the early 1980s, the independent Office of the Actuary at the Social Security Administration projected that revenues would fall short of benefit outlays during the early part of the twenty-first century, largely due to the retirement of the Baby Boom generation. Although that generation increased the labor force considerably, including through greater participation by women in the work-force, and made significant contributions during the past several decades, its members will soon enter retirement and the number of workers available to finance their Social Security and Medicare benefits through payroll and other taxes 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 people of working-age per retiree will decline to less than three; by 2080, the ratio will decline to about two.

Recognizing these future demographic changes, the Social Security Act was amended in 1983 in an attempt to increase the system's cash flow over the subsequent 75 years. Those amendments scheduled increases in payroll tax rates, subjected the Social Security benefits of those with other income sources 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 in the Social Security Trust Fund since 1983, which current holds \$1.7 trillion in Treasury IOUs.

Despite these reforms, Social Security remains mostly pay-as-you-go financed. Although \$1.7 trillion appears to be a large number, it is sufficient to pay current retirees their

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scheduled benefits for just three years. Had the 1983 Amendments “fully funded” the Social Security system, the trust fund would hold about \$13.7 trillion today. In that case,

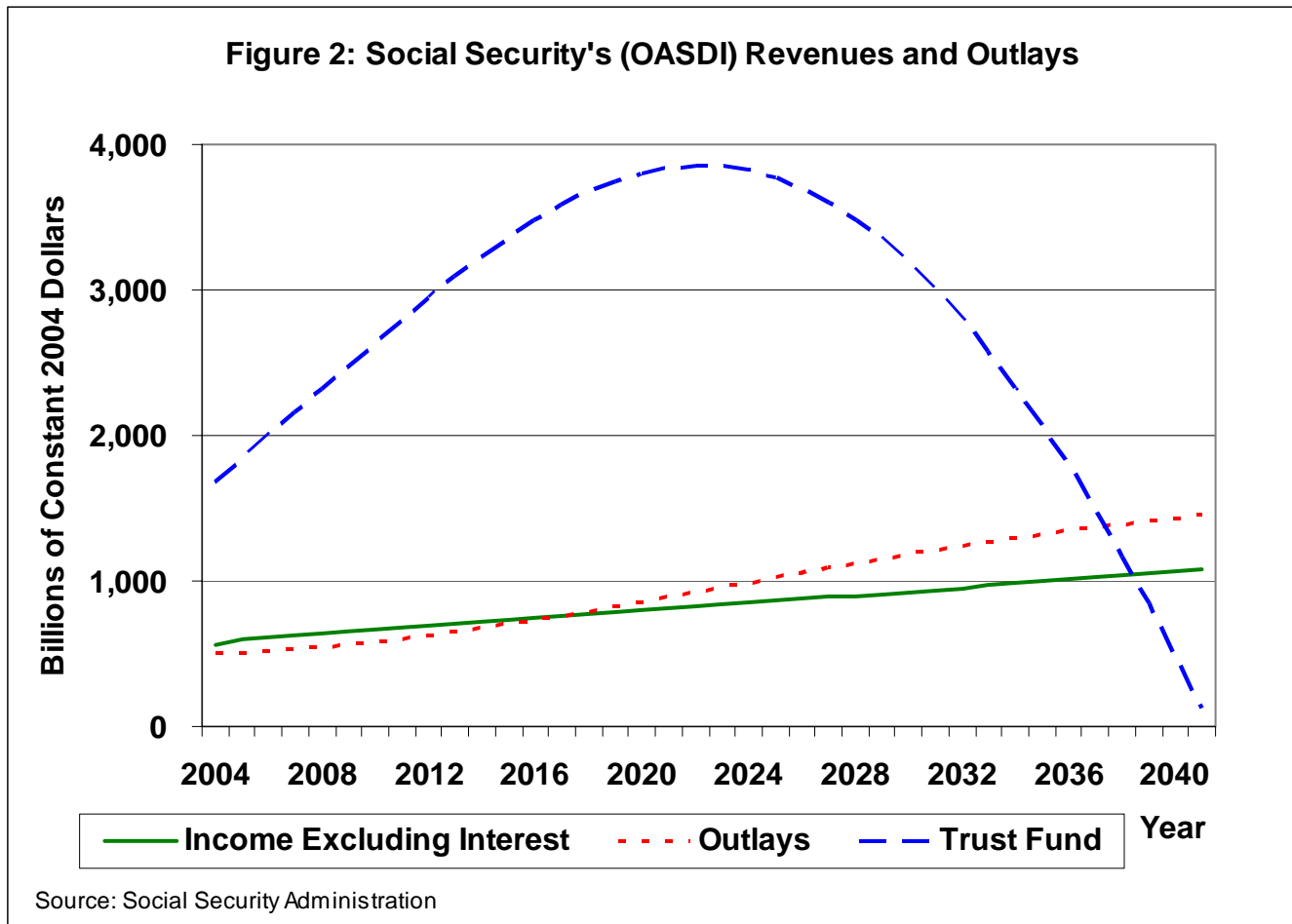
contributions by past and current generations would have been sufficient to cover their own benefits, and no burden would have to be imposed on future generations.

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 75-year imbalances began appearing soon thereafter. As shown in Figure 2, payroll tax surpluses are currently projected to continue until 2017 – the so-called “crossover” date – after which projected benefits will exceed revenues. The trust fund will continue increasing (because of interest income accruals) through 2027, after which it is projected to decline

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gradually and be exhausted by 2041. The Social Security Trustees project that the present value of current-law benefits over the next 75 years will exceed by \$4 trillion the present value of its payroll tax revenues plus the current value of the trust fund's

Treasury securities. The present value calculation discounts future financial shortfalls at the government's borrowing rate. In other words, if the government deposited an additional \$4 trillion immediately into the trust fund by increasing 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 Social Security benefits would be no larger even though the value of Treasury securities in the Trust Fund would be larger.

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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 ends in 2079. Most of the recent \$4 trillion imbalance comes from simply moving the 75-year window to cover the years 2058 through 2079 – years when cash flow shortfalls are projected to accrue. In other words, achieving a sustainable Social Security system under the 1983 reform would have required additional adjustments to taxes and benefits. But the required adjustments were obscured by policymakers focusing on limited-time horizon measures of the system’s solvency. Unfortunately, failure to make Social Security fully sustainable back in 1983 implies that even larger adjustments must be made in the future.

The same time-limited perspective on the system’s financial condition is again hampering reform efforts today. Indeed, 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 2005 Social Security Trustees’ Report projects that Social Security system faces an additional \$7.1 trillion imbalance in present value (as of 2004) after the year 2079. So a reform that solved Social Security’s 75-year imbalance today would immediately become insolvent as the 75-year window moved beyond 2079.

Unfunded obligations through 2079 ¹	\$4.0
Unfunded obligations after 2079 ²	7.1
Equals Total Unfunded Obligations (Open-Group Obligations)	11.1
Unfunded obligations attributable to past and current participants (Closed-Group Obligations) ³	12.0
Unfunded obligations attributable to future participants ⁴	-0.9
Equals Total Unfunded Obligations (Open-Group Obligations)	11.1

¹ Present value of future costs less future taxes through 2079, reduced by the amount of trust fund assets at the beginning of 2005.
² Present value of future costs less future taxes after 2079.
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 2005.

Source: Social Security Trustees’ Report, 2005, Table IV.B6 and IV.B7

Adding the \$7.1 trillion imbalance after the year 2079 to the \$4 trillion imbalance projected through 2079 produces a present value imbalance of \$11.1 trillion, which is

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equal to about 3.5 percent of the present value of all future taxable payroll revenue.⁷ Barring any reform this year, this \$11.1 trillion imbalance will grow with interest, just like any regular “debt rollover.” Indeed, according to Trustees, this imbalance grows by about \$600 billion over just a single year if no legislation action is taken.⁸ To be sure, the economy also grows over time and so this \$600 billion figure only tells part of the story. Still, even relative to the present value of future payroll, Social Security’s problems grow worse over time. When added to Medicare’s shortfalls – about 7 times larger than Social Security’s⁹ – the imbalance in both programs grow by almost 2 percent of the present value of all future covered payroll for every 5 years that fundamental reforms are delayed. In other words, for every 5 years that policy action is not taken, taxes would have to permanently increase by an additional 2 percent of taxable payrolls, or an equivalent reduction in outlays would be needed. The cost of delaying Social Security reforms is, therefore, enormous.

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 achieve even 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 Social Security’s current projections, achieving sustainability is harder than achieving solvency over the next 75 years because sustainability requires making an additional \$7.1 trillion in tax and benefit adjustments in order to address the shortfalls accruing after 2079.

An ad-hoc measure of sustainability that is routinely used by the government involves determining whether the following two conditions are satisfied.¹⁰ 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 assumes that the trust fund will continue to increase in size after the 75th year. This assumption is often invalid. For example, the

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recent reform plan by Peter Diamond and Peter Orszag (2004) appears to be sustainable under this ad-hoc approach. In particular, that reform plan is projected to achieve 75-year solvency and the trust fund is projected to begin increasing toward the end of the 75th year. However, in order to prevent the trust fund from decreasing at some point of time after 75 years, payroll tax rates must continue to increase after the 75th year in order to pay present-law projected benefits. If payroll taxes were not increased after year 75, that reform plan would appear to be sustainable under the ad-hoc approach but the trust fund would eventually be exhausted.¹¹

Conversely, a reform might not appear to be sustainable under the ad-hoc measure even though it fully eliminates the current \$11.1 trillion present value imbalance. For example, Model 2 of the President's Commission to Strengthen Social Security (2001) is not projected to achieve 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 maintained beyond the 75th year, Model 2 would more-than eliminate the existing \$11.1 trillion imbalance even without general revenue transfers. That is, Model 2's cost savings after the 75th year would more-than offset, in present value, the shortfalls projected during the first 75 years.

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 reduce Social Security's \$11.1 trillion imbalance – and improve 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.” This reform is very similar to the recent plan being advocated by President Bush to augment traditional Social Security with personal accounts that would be owned by participants, much like 401(k)'s and IRA's.¹² 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

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“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 \$11.1 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 measures traditionally used to judge Social Security’s viability: The trust fund exhaustion date; the crossover date when costs exceed income; and, the 75-year imbalance indicating the present value of the shortfalls over the next 75 years. 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 much of the lost tax revenue would show up inside the 75-year window while a larger portion of the future reduction in benefits would fall beyond the 75-year window.

Now 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 ownership and control over his or her retirement resources.

Now, the \$11.1 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.¹³ 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

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could reduce Social Security's \$11.1 trillion imbalance. In addition, the traditional measures can influence the design of reform plans. For example, in Model 2 of the President's 2001 Commission to Strengthen Social Security, participants are allowed to carve out 4 percent of payroll, up to a maximum of \$1,000 per year (wage indexed over time). The Commission imposed the \$1000 contribution ceiling to prevent the Social Security system from "losing" too much money over the 75-year projection horizon. That feature of Model 2 was required because the Commission, being restricted to a 75-year projection horizon, could not count the large cost savings accruing after the 75th year. Model 2, would more easily eliminate the entire \$11.1 trillion imbalance if it could adopted even larger personal accounts.

NEW ACCOUNTING MEASURES

Beginning with the 2003 Social Security Trustees' Report the Trustees now report two important measures of Social Security's finances. Beginning with their 2004 Report, the Medicare Trustees also include these measures for the Medicare program. These measures provide greater insight into the financial status of both programs. The new measures have recently been endorsed by the Social Security Advisory Board's Technical Panel on Assumptions and Methods, which is composed of leading economists and actuaries outside of the Social Security Administration.¹⁴ Indeed, these new measures correspond to the way that economists have thought about these Social Security's finances for many years.¹⁵

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 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 all projected future Social Security benefits minus the present value of all projected payroll taxes and minus the current value of the trust fund.

The open group unfunded obligation indicates the extent to which 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 \$11.1 trillion in present value. In other words, in order to make Social Security sustainable, scheduled benefits

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must be reduced and/or taxes increased so that the sum of these cost savings plus new revenues total \$11.1 trillion in present value.

The second measure is sometimes called the “closed group unfunded obligation.” It shows the amount of Social Security’s \$11.1 trillion imbalance from providing benefits to past and present generations (those aged 15 and older plus those who are dead as of 2005) 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 \$12.0 trillion more in benefits in present value than they will pay in taxes. In contrast, future generations (those aged 14 and younger in 2005 as well as the unborn) are projected to receive \$0.9 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 \$12.0 trillion they are projected to inherit from current and past generations under current law. Either future generations will have to pay an additional \$11.1 trillion in present value or generations alive today will have to make this sacrifice, or a combination of both must be implemented.

The open-group and closed-group measures are robust to the criticisms that apply to traditional measures of Social Security’s finances—as noted 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, thereby incorrectly suggesting a deterioration of Social Security’s finances.

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.

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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).¹⁶ 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 this increase were financed on a strict pay-as-you-go basis by increasing payroll taxes. This policy change would 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.¹⁷ 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.¹⁸

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.¹⁹ Nonetheless, as 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

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on the capital stock and national output probably deserves more attention in the debate over Social Security reform.

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 \$11.1 trillion imbalance.

This potential criticism, however, is misplaced since it forgets the fact that the \$11.1 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 \$11.1 open-group obligations by only 4.7 cents today.²⁰ 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.

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 that indicates the amount of projected overspending on generations alive today and in the past. 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 \$11.1 trillion are almost three times as large as its imbalance over the next 75-years,

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despite the fact that shortfalls after the 75th year are heavily discounted in the present value calculation, as discussed above.

Robert Myers, who was Chief Actuary of the Social Security Administration from 1947 – 1979, points out that before 1965 the Social Security actuaries routinely relied on measures looking beyond 75 years. A change was made in 1965 to begin focusing on 75-year shortfalls because, unlike today, it made very little difference in the financial outlook to look beyond 75 years at that time. However, Myers notes that he always thought that truncating at 75 years was never right in theory due to the moving-window problem: “I’m still an ‘infinity’ guy, because even if you have a 75 year period, every year you do a new valuation, you have some slippage.” (Myers, 1995). This slippage is especially acute today, with over two-thirds of the \$11.1 trillion shortfall driven by deficits outside of the 75-year window.

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.²¹ Of course, uncertainty should only enhance the desire to take remedies rather than to ignore the expected problem.²²

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 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.

CONCLUSION

The Social Security program provides an important source of income for most of the nation’s retirees, but the program’s long-term viability is in serious doubt unless a fundamental reform is undertaken – either an increases in taxes or a reduction in the growth rate of benefits. Unfortunately, the traditional accounting measures focused upon by policymakers and the media tell us very little about the true fiscal problems facing the

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Social Security system. These measures are also biased against reforms that could reduce Social Security's imbalance.

Fortunately, the Social Security Trustees have begun to include new measures of Social Security's financial outlook, beginning with the 2003 Trustees' Report and continuing with the 2004 and 2005 Reports, which deal effectively with both of these problems. These measures have been endorsed by an independent panel of experts appointed by the Social Security Advisory Board. Unfortunately, these new measures are buried in the Report and are not gaining enough attention of policymakers and the media. This paper argues that they deserve much more careful consideration.

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- 1 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, the Cato Institute, TIAA-CREF or the TIAA-CREF Institute. The authors thank Felicitie Bell of the Social Security Administration for providing demographic projections and related underlying assumptions, and Howell Jackson, James Lockhart, William Niskanen, Peter Orzag, and Peter VanDoren for useful comments.
- 2 A notable exception includes state workers who are covered by state pension programs.
- 3 See the U.S. Supreme Court case, *Nestor vs. Flemming*, 1960 (363 U.S. 603).
- 4 One major difference is that a person's Social Security benefit is based on many more years of earnings throughout his or her lifetime than benefits paid by most private-sector DB plans.
- 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.
- 6 See Diamond (2003), Nataraj and Shoven (2004) and Smetters (2004).
- 7 Social Security's projected shortfalls could also be represented as a share of the present value of future projected GDP. But we think that representation is quite misleading since the government taxes only between 50% and 60% of GDP (the payroll tax applies to an even smaller portion) and will likely continue to do so in the future. An even more misleading statistic is to state only the 75-year present shortfall relative to GDP.
- 8 The 2005 Social Security Trustees' Report, Section IV.B.5.a.
- 9 See Gokhale and Smetters (2006, forthcoming).

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- 10 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)
- 11 Diamond and Orszag (2004), however, advocate continuing to increase payroll tax rates after year 75.
- 12 Technically, President Bush's plan is not quite actuarially fair because his benefit offset rate does not adjust for pre-retirement mortality; it is also tied to expected Treasury yields instead of actual yields. The first issue is of second-order importance as pre-retirement mortality will be low in the future. The second issue is easily correctable.
- 13 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.
- 14 See "The 2003 Technical Panel on Assumptions and Methods Report" [<http://www.ssab.gov/NEW/documents/2003TechnicalPanelRept.pdf>].
- 15 See, for example, Auerbach (1994), Gokhale and Smetters (2003), Auerbach, Gale and Orszag (2004), and Gramlich (2004), Rettenmaier and Saving (2004).
- 16 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.
- 17 The impact of Social Security financing on private saving is an empirical issue first analyzed by Feldstein (1974).
- 18 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.

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- 19 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.
- 20 This calculation uses an inflation-adjusted interest rate of 3.1 percent, the rate used by the Trustees to calculate the \$11.1 trillion unfunded obligations.
- 21 See, for example, CBO (2004).
- 22 This fact holds under any standard preference toward risk that exhibits a prudence motive.

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