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QUANTIFYING THE CURRENT U.S.
FISCAL IMBALANCE

Alan J. Auerbach

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ABSTRACT

This paper considers the magnitude of the U.S. fiscal imbalance, as measured by the permanent changes needed to stabilize the national debt as a share of GDP. At present, even after recent improvements in forecast deficits, this imbalance stands at 5.3 percent of GDP -- several times the magnitude of the current official deficit. The imbalance is due primarily to the growth of Medicare, Medicaid, and Social Security.

Addressing an imbalance of this size will require significant policy changes. Even if current projected reductions in other government spending occur, and policies are adopted to eliminate the estimated OASDI imbalance and balance the federal budget in 2002, an *additional* and immediate reduction in the primary deficit of 2.7 percent of GDP will be required to establish a feasible fiscal policy. Waiting to adopt policy changes will increase the size of the required annual primary deficit reduction.

Alan J. Auerbach
Department of Economics
University of California
549 Evans Hall
Berkeley, CA 94720-3880
and NBER
auerbach@econ.berkeley.edu

Introduction

Over the past few years, government agencies have begun taking a longer term view when evaluating the federal budget. The Congressional Budget Office (CBO) now regularly provides ten-year, rather than five-year, budget forecasts; for the past two years, the CBO has also provided budget forecasts extending to the year 2050 (CBO 1996, 1997b). In this year's federal budget presentation, the Office of Management and Budget (OMB) also provided projections out to 2050 (OMB 1997), and both agencies (CBO 1995, OMB 1992, 1993, 1994) have experimented with the use of generational accounting, a tool aimed at measuring the long-run consequences of policy through its impact on future generations.[1] Such long-term analysis has also been evident in recent Economic Reports of the President. Thus, long-term analysis now extends well beyond the long-range projections of the annual reports of the trustees of the Social Security system, although the more extensive projections still depend heavily on the trustees' projections.

Motivating this added focus on the long term is the growing understanding that short-run budget numbers provide a very inaccurate picture of underlying fiscal balance. While this is always a problem, in theory, it is a very real problem for the U.S. at present, because of the interaction of population aging and the growth of age-based transfer programs as a share of the federal budget. The short-run cash-flow surpluses and long-run deficits of the OASDI program are perhaps the most-cited example of why a long-run focus is needed, but the exploding costs of the Medicare and Medicaid programs are even more significant. Together, the budget implications of these programs can not be comprehended without a look at long-term forecasts.

Even with these recent advances, the commitment to long-term analysis is by no means complete, particularly among policy-makers themselves. Much recent political rhetoric has consisted of self-congratulation over short-term deficit declines which, although more marked than originally predicted, have for some time been projected to occur as the baby-boom generation moves through its peak taxpaying years. This year's renewed efforts and apparent agreement to balance the federal budget again concentrate on achieving this end in fiscal year 2002, but not necessarily thereafter, when much more serious fiscal pressures must be confronted.

In this environment, one might get the sense that fiscal balance is now nearly at hand, and that one last, small push will finish the job. But long-term projections continue to tell a very different story. Indeed, there is relatively little disagreement among those who have made long-term projections that the underlying imbalance is large; the main issue is how large. While solutions to the U.S. fiscal imbalance require adjustments in specific taxes and/or expenditure programs, a necessary first step that this paper seeks to address is understanding just how serious the problem is and how large the adjustments must be, in the aggregate.

The methodology I use here follows that developed in Auerbach (1994). Considering long-range projections, primarily those provided by CBO (1997b), I solve for the permanent increase in taxes or reduction in expenditures (as a constant share of GDP) necessary to satisfy the government's long-run budget constraint that the current national debt, B_{1997}, equal the present value of future primary surpluses. This change, denoted Δ, satisfies the equation:

(1)
$$B_{1997} = \sum_{s=1997}^{\infty}(1+r)^{-(s+1-1997)}(S_s^p + \Delta \cdot GDP_s)$$

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where r is the government's nominal discount rate, GDP_s is the level of nominal GDP in year s, and S_s^p is the primary surplus in year s absent the change in policy.[2] The government constraint in (1) is implied by the assumption that the debt-GDP ratio cannot grow forever without bound. It would also follow from the assumption that the debt-GDP ratio eventually (i.e., as time s approaches infinity) converges to its current value.

A different measure of fiscal imbalance, used in CBO (1997b), is the increase in the primary surplus, say Δ', needed from now through 2070 to cause the debt-GDP ratio to equal its current level at the end of that year. It is defined implicitly by the expression:

$$(2) \qquad B_{1997} = \sum_{s=1997}^{2070} (1+r)^{-(s+1-1997)} (S_s^p + \Delta' \cdot GDP_s) + (1+r)^{-(2071-1997)} (B_{1997} / GDP_{1997}) \cdot GDP_{2071}$$

This second approach also corresponds to that used by the Social Security trustees in measuring the imbalance of the OASDI system, with minus the trust fund in place of national debt[3] and system income (excluding interest) less benefits in place of primary surpluses. As illustrated in Auerbach (1994), Δ will be larger than Δ'. This is because the primary deficits in years after 2070 -- included in the calculation of Δ but not of Δ' -- are projected to be larger than those of the typical year between now and 2070. Thus, including such years, which provides a more accurate and complete picture of the situation, also makes this situation appear worse. This is true whether we are considering the Social Security system or the budget overall.

Estimates based on (1) or (2) take macroeconomic projections as given. They do not account for the macroeconomic effects of policy changes, although policy changes of the magnitude being considered could have a major impact. On the other hand, the underlying

macroeconomic projections of economic growth, interest rates, and other variables are not

consistent with the explosive growth in the national debt implied by the baseline fiscal

projections.[4] Thus, the macroeconomic projections presume that the budget imbalance will be

solved, but they do not incorporate any of the potential disincentive effects of the policy changes,

for example the impact of potentially high marginal tax rates. Thus, the estimates given below

may well understate the difficulty of achieving intertemporal budget balance.

Data and Basic Results

Except where otherwise noted, I use the projections developed by CBO (1997b), which

provides estimates of NIPA-basis expenditures and revenues from now through 2070. Long-

term projections require assumptions about the path of policy. The baseline CBO projections

start with the standard ten-year CBO forecast. For years beyond 2007, the CBO baseline

assumes that discretionary spending grows with GDP, and basically follows the intermediate

projections of the Medicare and OASDI trustees for spending on these programs, making small

adjustments for differences in underlying economic assumptions. Medicaid is projected using

the same basic approach as that used for Medicare, incorporating a key assumption that aggregate

medical spending per enrollee grows more slowly after 2007, converging to the growth rate of

hourly wages after 2020. Remaining programs are assumed to grow with inflation plus labor

productivity, and to respond to changes in population structure. Revenues are assumed to grow

with the economy, with the exception of Supplementary Medical Insurance (SMI) premiums

collected for Medicare Part B, which grow as a share of GDP, and taxes on the national debt.[5]

To make deficit projections more comparable to those of typical budget documents, I measure government purchases in the traditional way (consumption plus investment) rather than adopting the method now used in the national accounts, which treats only the service flows from investment as a measure of current expenditures.[6]

Figure 1 presents these projections, as a share of GDP, for four exhaustive expenditure categories: Medicare (parts A and B), Social Security (OASDI), government purchases of consumption and investment goods, and all other government expenditures, along with the associated primary deficits. The figure shows just how uninformative the next few years are with respect to long-run fiscal conditions. The projected fall in government purchases and other expenditures as a share of GDP over the next decade tempers the rise in Social Security and government medical care costs, causing a relatively small increase in the primary deficit, which remains below zero for the whole decade. In the period immediately after, though, rapid increases in both health care spending and Social Security benefits (associated with the retirement of the baby-boom generation) cause a rapid growth in the primary deficit, which reaches 3.4 percent of GDP by the year 2020. The primary deficit's growth eventually slows, as the baby boom cohort passes out of the population and the population structure stabilizes. Also contributing to the stabilization of the projected primary deficits is the assumption that medical spending per enrollee stops growing faster than the economy. That is, the continued growth in Medicare and Medicaid spending after 2020 is attributable solely to increases in the shares of the population covered by these programs.

Even with its less rapid growth during that latter part of the period, the primary deficit still reaches a projected level of just over 7 percent of GDP by the year 2070. In terms of simple

arithmetic, the growth in the primary deficit over this period is roughly equal to the growth of

Medicare and Medicaid, from 4.0 percent to 12.1 percent of GDP. Put another way (as revenues

as a share of GDP are roughly constant), the growth in the Social Security system, from 4.6

percent to 6.7 percent of GDP, is nearly offset by the fall in government purchases and other

expenditures. Thus, the figure suggests two conclusions. First, the budget is on an unsustainable

course, even with the projected declines in government spending excluding Medicare, Medicaid

and OASDI. Second, health care is a much larger part of the story than is Social Security. This

means that any reform of the Social Security system, however desirable it might be, would be

only a small part of a solution to the overall deficit problem.

How big an imbalance do the projections in Figure 1 represent? Table 1 presents

calculations of Δ, based on equation (1) above. These calculations also require an assumption

about the interest rate. For the base case, I assume that the interest rate exceeds the rate of

nominal GDP growth by 1.5 percentage points, consistent with the assumptions underlying the

OASDI projections.[7] For purposes of comparison, I also present estimates for the cases where

the interest rate exceeds the growth rate by 0.5 and 2.5 percentage points. The table also presents

estimates of Δ, under each interest rate assumption, for the cases in which the change occurs in

2002 or 2017, rather than immediately.

The results indicate that a permanent rise in the primary surplus of 5.3 percent of GDP,

accomplished through some combination of tax increases or expenditure reductions, is needed

under the baseline assumptions to establish long-run fiscal balance. This is considerably higher

than CBO's estimate of 4.1 percent, which corresponds to the measure Δ' rather than Δ. As

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explained above, we should expect $\Delta'<\Delta$, given all other assumptions the same. As a check that there are not other major differences between my approach and that taken by CBO, I also calculated Δ' for the base case assumptions, and arrived at a value of 4.0, virtually the same as the CBO value. Thus, including the years after 2070 has a considerable impact on the size of the estimated fiscal imbalance.

Though this imbalance is lower than would have been projected a year ago (when CBO's measure of Δ' was 5.4 percent of GDP, as opposed to 4.1 percent), it is still enormous, representing an *annual* budget cut (*before* accounting for debt-service savings) of about 425 billion dollars at the current level of GDP.[8] Waiting to a later date clearly makes the needed annual changes larger. The assumption of a higher interest rate does not have an unambiguous effect. It reduces the needed change under immediate action, but raises the amount if policy is delayed. The intuition for this pattern is that there are two offsetting factors at work. On the one hand, a higher interest rate means higher costs of servicing the existing national debt. On the other hand, because much of the short-run surpluses would go the finance the longer-run explosion of entitlements, a higher interest rate would reduce the amount necessary to set aside for funding these entitlements. If policy is delayed, the first factor matters more, because much of the serious growth in entitlements will already have occurred before action is taken.

Another way of expressing the current fiscal imbalance is in terms of individual programs. That is, we can measure it as a share of particular expenditures or taxes, rather than as a share of GDP. Table 2 presents are variety of such calculations, which indicate in another way just how large the required change is in total. Even under immediate adoption, fiscal balance

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would require a permanent 54 percent reduction in Medicare and Medicaid, relative to baseline; a 58 percent reduction in all government spending other than Medicare, Medicaid and Social Security; or a 47 percent increase in collections from the individual and corporate income taxes. To get a sense of the underlying policies implied, the income tax increase, if accomplished by uniform increases in marginal tax rates, would require a top individual rate of 58 percent and a top corporate rate of 51 percent, ignoring any adverse behavioral responses associated with these marginal rate increases.

Social Security Reform and Short-Term Budget Balance

Most recent focus on federal budget problems has been on the short term, considering policies to achieve a balanced budget in fiscal year 2002. The one major exception has been the discussion surrounding the recent report of the Social Security Administration's Advisory Panel (SSA 1997a), which offered three visions of reform aimed at closing the long-term OASDI imbalance. Thus, the current debate offers a choice between a comprehensive short-term approach and a narrow long-term one. Still, as reform may occur first through these channels, it is useful to consider how large a piece of the overall puzzle such changes may represent. Table 3 presents the results for a variety of experiments, with the baseline results from Table 1 presented in the first column.

The 1997 Trustees' Report (SSA 1997b) estimates a long-run OASDI imbalance of 2.23 percent of payroll, meaning that the objective of keeping the trust fund at its current level through 2070, relative to annual benefits, could be achieved by a policy that cut benefits or increased income by 2.23 percent of payroll. To consider the impact of such a reform on overall

long-run balance, I consider the immediate enactment of a policy that permanently reduces the primary deficit by 2.23 percent of payroll, which SSA (1997b) also calculates to be .84 percent of GDP, and assume that such a policy stays in effect forever. As the second column of Table 3 shows, Social Security reform as currently envisioned, however politically sensitive it might be, actually is a small part of the picture – it would eliminate only about 15 percent of the total imbalance.

However, as discussed above, this measure of the Social Security imbalance based on stabilization of the trust fund through 2070 understates the underlying imbalance in the system: the trustees project annual deficits (excluding interest on the trust fund) of over 2 percent of GDP in the years around 2070 and, presumably, thereafter. Assuming that these deficits will continue after 2070, I estimate that long-run OASDI balance (corresponding to the measure Δ rather than Δ') will require a permanent increase in the primary surplus of 1.23 of GDP, rather than .84 percent, or 3.25 percent of payroll, rather than 2.23 percent. Still, even this "full" solution to the OASDI imbalance would eliminate less than one-quarter of the overall budget imbalance.

Balancing the budget in fiscal year 2002, the other "solution" being presented, has a somewhat larger impact. To simulate this policy, I take from CBO (1997a, p. 60) a particular pattern of primary-surplus reductions that it projects would close the deficit in fiscal year 2002, and assume that the final year's reduction (171 billion dollars) remains in place permanently thereafter, growing with GDP[9]. However, even this policy eliminates only about one-third of the total imbalance. Indeed, the two policy changes *combined* still leaves a gap of 2.7 percent of GDP, if that gap is closed immediately.[10] Under an alternative scenario that, having "fixed"

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Social Security and the deficit, policy makers wait until the baby-boom's retirement makes more evident the remaining fiscal imbalance (i.e., by waiting until 2017), the gap remaining to be closed would have risen to 2.9 percent of GDP.

It is important to stress that this additional 2.7-2.9 percent of GDP that must be cut from the annual primary deficit must come on top of cuts needed close the Social Security gap and balance the budget in 2002. Moreover, all of these calculations start from a baseline that already incorporates substantial budget cuts in some areas. For example, in the CBO baseline all government spending excluding Social Security, Medicare and Medicaid is projected to fall from 11.3 percent of GDP in 1996 to 9.4 percent in 2007, with a further drop to 8.9 percent occurring slowly thereafter. This drop occurs despite the projected growth as a share of GDP of some programs included in the total (such as Supplementary Security Income), and follows several years of spending reductions that already have occurred. Thus, cuts in government spending from the baseline represent much larger cuts relative to current levels, and even larger cuts relative to levels of just a few years ago. Starting not from the baseline, but from the estimated 1997 GDP-share of 10.6 percent for this category of spending, it would be necessary to reduce spending by 56 percent immediately to close the long-run budget gap, even if Social Security reform also took place simultaneously -- a reduction that could not be met even if all government purchases of goods and services were immediately eliminated!

Clearly, these calculations show that, even with Social Security reform aimed at addressing that system's long-run imbalance, fiscal balance will require either major changes in spending on Medicare and Medicaid, major tax increases, or both.

Understanding the Magnitude of Required Changes

Reductions in government spending do not occur through arbitrary percentage reductions, but through specific policy changes. It is helpful, therefore, to determine how large an impact on program expenditures would result from a variety of policies presently under consideration.

Consider first changes to the Social Security system. Recall that elimination of the OASDI imbalance (its own value of Δ') is estimated to require a permanent reduction in expenses net of income equal to 2.23 percent of payroll. How does this compare to various changes being proposed? Table 4 presents a variety of such potential changes, taken from the Advisory Council report (SSA 1997a, Appendix 3).

As seen in the table, a permanent reduction in the annual cost-of-living adjustment of 1.0 percent, just below the value of 1.1 percent recently recommended by Boskin et al (1996), would reduce the system's imbalance by 1.4 percent of payroll, or about two-thirds of the adjustment deemed necessary. Half of this adjustment would deliver a saving of .72 percent of payroll. Eliminating the income tax thresholds for benefits would contribute .16 percent of payroll. Covering all new state and local workers under OASDI would add .22 percent. Increasing the number of years included in the calculation of benefits from 35 to 38 would add .28 percent. Increasing the normal retirement age by two months per year, starting in 2000, until reaching age 68 for those attaining age 62 in 2017 (with a corresponding rise in the age of earliest eligibility) would add .71 percent. Increasing the normal and early retirement ages by three months per year from 2000 until 2015, i.e., until reaching age 69, and indexing these ages at the rate of one month every two years thereafter would generate a savings of 1.56 percent of payroll.

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These estimates make clear that there are a variety of feasible approaches to eliminating the OASDI imbalance, even the full long-run imbalance of 3.25 percent of payroll, without any change in payroll taxes or the portfolio of the OASDI trust fund or a more significant shift to a private system of mandatory pensions.[11] This has two important implications. First, the Social Security "problem" can be addressed quite readily. Second, doing so has very little to do with whether or not there should be fundamental changes to the Social Security system, except perhaps from the political perspective that fundamental changes are easier to introduce at a time of perceived crisis.

Given that most of the overall budget gap is due not to OASDI, but to Medicare and Medicaid, it is much more difficult to construct plausible policy changes in these areas to eliminate the remaining budget imbalance. For example, CBO (1997b, p 51) estimates that raising the age of Medicare eligibility gradually to 70 in 2029, and indexing this age to longevity thereafter, would reduce its measure of Δ' by .7 percent of GDP -- a magnitude comparable to the saving from raising the Social Security retirement age, but only a small fraction of the needed reduction. Indeed, the only explicit Medicare options listed by CBO that would have a significant effect on the overall fiscal imbalance (leading to a reduction in Δ' of 2.5-2.6 percent of GDP) are an increase in premiums to 50 percent of total costs or a cap on government contributions. Both of these options are simply very large reductions in the transfers to Medicare recipients; CBO estimates that they eventually would cause Medicare premiums to increase to over 30 percent of enrollee income. While these changes may be of the necessary magnitude, it is hard to believe that they are politically feasible (even if they are desirable), given the current

debate over much smaller changes to Social Security. In short, we are still quite far away from knowing what to do about this enormous problem that is at the very center of the budget imbalance.

Uncertainty and Its Effects

To date, a significant problem in motivating policy-makers to do anything about the budget problem has been the fact that current budget deficits give little indication of how serious the problem is. The state of OASDI and HI trust fund balances has provided some sense of urgency, but not a full appreciation that the underlying problems are much more serious. As the problem's magnitude depends very much on long-term projections, there is also a tendency to discount it, because the problems lie in the future and we really have so little idea of what will really happen. There are basically two arguments here. First, we can deal with the problem "when it occurs." Second, the problem may not occur, so let's wait and see.

The answer to the first argument is that the problem already *has* occurred. It is simply an artifact of the way we account (or don't account) for accrued liabilities of entitlement programs that our current deficits are not very large. Waiting until measured deficits become large will, as shown in Tables 1-3, require even larger annual deficit reductions which, from both the perspective of both efficiency and distribution, are even less attractive than immediate changes.

As to the second argument, the uncertainty surrounding future projections is indeed considerable. A step forward in the process of making long-term projections is to recognize this through the provision of confidence intervals around these projections, which requires making explicit the stochastic structure of forecasts.[12] However, there is little about the CBO forecasts

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to suggest they are unduly pessimistic. For example, Medicaid projections by OMB (1997) show much more rapid growth after the next two decades. Incorporating those Medicaid forecasts, extended by the Council of Economic Advisors to 2070 (CEA 1997, p. 98), increases the measured budget imbalance Δ from 5.3 percent of GDP to 6.9 percent of GDP! Stochastic population projections by Lee and Tuljapurkar (1997) suggest that the expected adjustment to the OASDI system considerably exceeds the one used here, based on the Trustees' midrange projections. Thus, it seems highly imprudent to choose policy inaction on the assumption that current forecasts are overly pessimistic. Moreover, the addition of uncertainty per se actually reinforces the argument for immediate action. Even if our forecasts are not biased toward optimism, the prospect that things are just as likely to be worse than we project as they are to be better should hasten us to action if we are risk-averse, i.e., if we weigh the negative outcomes more heavily than the positive ones.

There is an opposing argument associated with uncertainty, if the actions we take are at least partially irreversible. Then, taking action today involves relinquishing the "option" of acting in the future. If we expect to gain more information on what action should be taken (for example, how best to restructure Medicare permanently), then we may wish to preserve the option for a time.[13] But this benefit must be weighed against the costs of delay already noted.

Conclusions

The current U.S. fiscal problem may be traced to the rapid projected growth of three programs: Medicare, Medicaid, and Social Security. While the OASDI program has received considerable attention of late, government health care costs are by far the more significant source

of the overall imbalance, and present a much greater challenge to those who would address it.

Even with a Social Security reform and a balanced federal budget in 2002, there will still be a

long-run imbalance that is projected to require permanent reductions in the primary deficit of

nearly 2.7 percent of GDP annually, even if such reductions occur immediately. Waiting to deal

with this problem may provide us with more information, but will also magnify the changes

needed and require them to be approved by an electorate increasingly composed of the

beneficiaries of these unsustainable entitlement programs.

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Figure 1

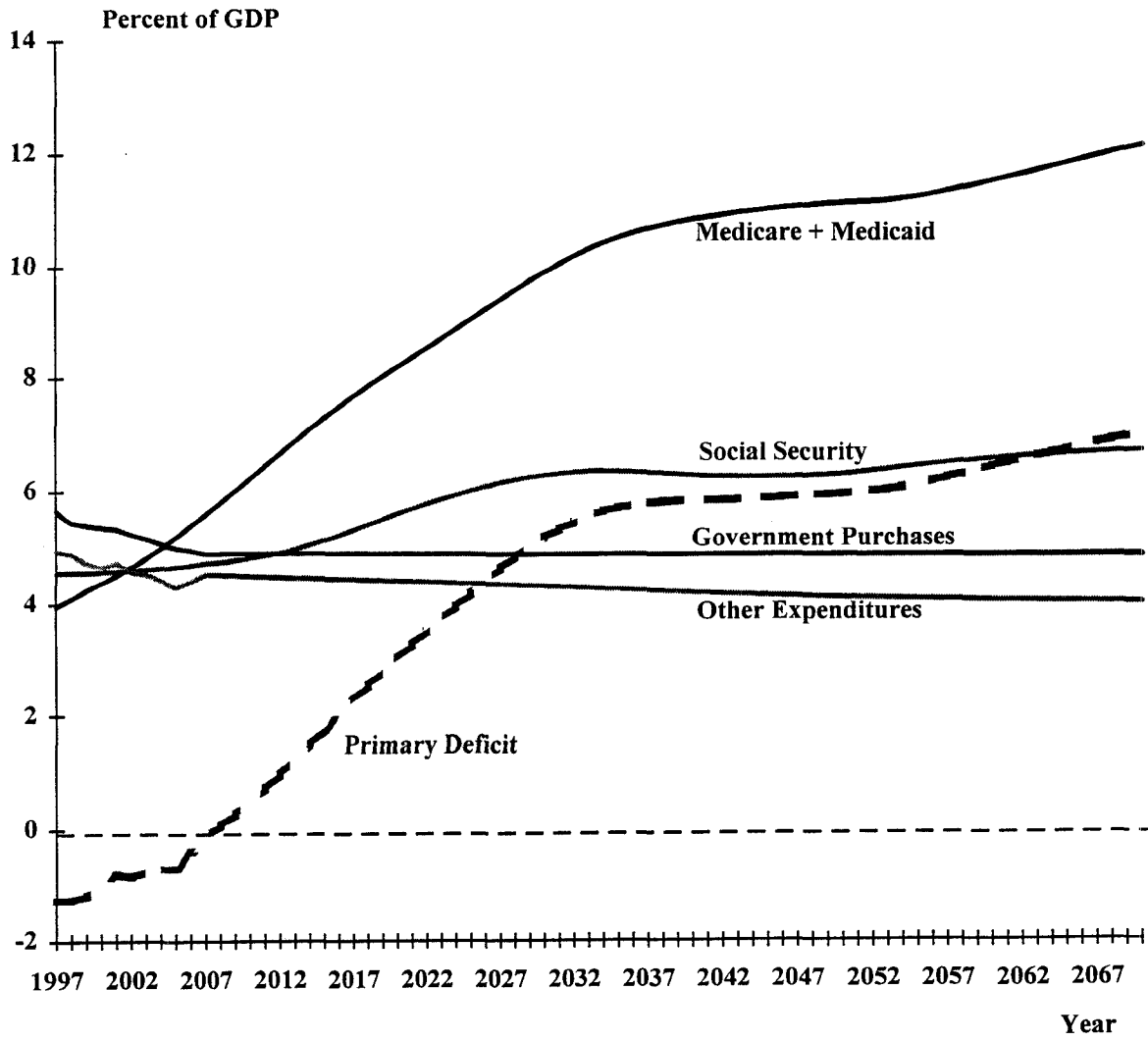## Components of the Government Budget, 1997-2070

Table 1

Increase in Primary Surplus Needed to Establish Fiscal Balance

(Percent of GDP)

Interest Rate Exceeds Growth Rate by

Year of Permanent Change	0.5 percentage points	1.5 percentage points (base case)	2.5 percentage points
1997	6.3	5.3	4.7
2002	6.5	5.7	5.3
2017	7.0	7.1	7.3

Table 2

Program Changes Needed to Establish Fiscal Balance

(Percent of Expenditures or Taxes)

Expenditure Reduction or Tax Increase

Year of Permanent Change	Medicare + Medicaid	Purchases + Other Expenditures	Individual + Corporate Income Taxes
1997	54	58	47
2002	56	63	51
2017	63	78	62

Table 3

Permanent Increase in Primary Surplus Needed to Establish Fiscal Balance

(Percent of GDP)

Year of Permanent Change	Baseline	with Social Security reform	with full Social Security reform	with Balanced Budget in 2002	with Social Security Reform and Balanced Budget in 2002
1997	5.3	4.5	4.1	3.6	2.7
2002	5.7	4.8	4.4	3.6	2.7
2017	7.1	5.9	5.4	4.1	2.9

Table 4

Reductions in the Social Security Imbalance

Policy Change	Percent of Payroll
Reduce the annual cost-of-living adjustment (COLA) by 1.0 percentage points, starting in 1998.	1.39
Reduce the annual COLA by 0.5 percentage points, starting in 1998.	.72
Gradually eliminate the income tax threshold for benefits between 1998 and 2007.	.16
Cover all new state and local workers under OASDI after 1997.	.22
Increase the number of years included in the calculation of benefits from 35 to 38.	.28
Increase the normal retirement age by two months per year, starting in 2000, until reaching age 68 for those attaining age 62 in 2017 (with a corresponding rise in the age of earliest eligibility).	.71
Increase the normal and early retirement ages by three months per year from 2000 until 2015, until reaching age 69, and index these ages at the rate of one month every two years thereafter.	1.56

Source:
Social Security Administration (1997a), Appendix III

Endnotes

* I am grateful to John Sturrock of CBO for making CBO's long-range forecasts available to me and explaining how to interpret them, and to Mark Mazur of the CEA for providing his agency's Medicaid projections. Any remaining misinterpretations are my own responsibility.

[1] See Auerbach, Gokhale and Kotlikoff (1994) for an overview of generational accounting.

[2] This equation and the next take the nominal interest rate r as fixed, although the actual calculations presented below are based on more general versions of the equations that allow the interest rate to vary from year to year.

[3] The SSA methodology also differs slightly in seeking stabilize the trust fund at one-year's benefits, rather than its current level.

[4] CBO (1997b) presents alternative projections that incorporate the effects of fiscal imbalances.

[5] For further details, see CBO (1997b), page 7.

[6] Because it affects primarily the timing, rather than the present value, of government expenditures, this choice should have little impact on the estimate of Δ in (1). There will be some small impact because the service flows currently imputed to government capital include depreciation but not a net rate of return. Thus, for a positive real discount rate, the stream of service flows associated with a dollar of government investment will be less than one dollar.

[7] The economic assumptions underlying the intermediate projections in the 1996 Trustees Report (SSA 1997b, Table III.B1) include a cumulative nominal interest-rate factor between 1997 and 2070 consistent with a constant nominal interest rate of 6.4 percent and cumulative GDP growth through 2070 consistent with a constant nominal growth rate of 4.9 percent.

[8] Very recent CBO forecast revisions through fiscal-year 2002, used in crafting the pending budget agreement, suggest some further decline in the long-run imbalance, although corresponding long-run projections are not yet available.

[9] The CBO calculation incorporates feedback effects, and therefore assumes that smaller direct reductions in the primary deficit are needed to achieve a balanced budget in 2002. Because my calculations do not incorporate such "fiscal dividends," I add together the path of direct reductions in the primary deficit and the further reductions that CBO projects from feedback effects. The resulting annual primary deficit reductions (in billions of dollars) for fiscal years 1998-2002 are 15, 53, 88, 135, and 171, respectively.

The recent budget agreement incorporates smaller reductions by taking advantage of a further downward revision in projected deficits in the CBO baseline (see the previous note). This is likely to leave the *post*-agreement long-run imbalance as high as is estimated here, with the lower pre-agreement baseline being offset by smaller deficit reductions.

[10] I assume here that Social Security reform would cover only the gap through 2070, rather than the full gap, because that is the focus of most current policy discussion.

[11] While an evaluation of Social Security reform proposals is beyond the scope of this paper, one should be skeptical of "solutions" that involve a shift in trust fund portfolios to higher-return investments, such as equity. Such shifts cannot be evaluated properly without taking account of the higher risk involved and the allocation of this risk. It is not immediately evident how the government can improve social welfare simply by altering its portfolio in this manner, given that it will not be altering the underlying mix of investments in the economy as a whole.

[12] For initial work in this direction, see CBO (1997b) and Lee and Tuljapurkar (1997).

[13] Note that this argument cuts both ways, suggesting also that we should be hesitant to incur permanent liabilities to provide entitlement benefits of uncertain magnitude.