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## The Fiscal Gap and Retirement Saving Revisited

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### I. Introduction

The United States faces a substantial long-term fiscal gap. Under a wide variety of plausible assumptions, projected federal receipts fall far short of projected outlays.<sup>1</sup> Long-term federal budget projections are notoriously uncertain, however, and are based on a series of simplifying assumptions. As a result, the presence of a substantial fiscal gap has sparked an understandable search for hidden underlying assumptions in the calculations that may be biasing the results. The search has often focused on the revenue projections.

The standard approach to estimating the fiscal gap assumes that in each year after the first 10 years of the projection period, aggregate federal revenues remain the same share of GDP as they are expected to be in the 10th year of the projection. But as many commentators have noted, receipts from the taxation of withdrawals from retirement accounts are expected to rise over time (see Sabelhaus 2000, Boskin 2003). Holding other factors constant, rising revenues from retirement account withdrawals should lead to rising federal revenues over time. The effect of incorporating any such increases on the standard estimated fiscal gap, however, depends on how much revenue increases as a share of GDP relative to its share in the 10th year of the projection period. Of course,

<sup>1</sup>For recent assessments of the long-term budget outlook, see Auerbach, Gale, and Orszag (2004), Congressional Budget Office (2003), and Gokhale and Smetters (2003).

other sources of revenue may change over time as well, which might offset or accentuate the changes in retirement accounts, but we focus our attention here on the effect of revenue associated with retirement accounts.

This article addresses the extent to which alternative projections of activity in, and revenues from, tax-preferred retirement accounts quantitatively affect estimates of the long-term fiscal gap. In our previous work on this topic (Auerbach, Gale, and Orszag 2003), we demonstrated that the fiscal gap estimated under a set of retirement account projections developed by Boskin (2003) was only slightly smaller than the fiscal gap estimated under standard revenue assumptions. In the current article, we extend that analysis by examining the implications of a new Congressional Budget Office report (CBO 2004a) on projected revenues from retirement accounts.

Our principle conclusion is that using the CBO (2004a) projections for retirement accounts has little impact on the estimated fiscal gap, relative to the gap estimated using either Boskin's projections or the standard revenue assumptions. A second, somewhat surprising conclusion is that, despite the fact that the CBO estimates rising revenues (as a share of GDP) from retirement account withdrawals over time, using the CBO projections in place of the standard revenue assumptions actually *increases* the estimated fiscal gap slightly, at least over a 75-year horizon. The reason is that the standard fiscal gap assumptions assume even steeper increases in revenue associated with retirement accounts between 2003 and 2014 than CBO (2004a).

Section II describes the calculation of the fiscal gap under standard assumptions about future revenue growth. Section III discusses how we adjust the standard revenue assumptions to incorporate the Boskin (2003) and CBO (2004a) projections, and reports the estimated fiscal gap with these alternative projections. Section IV is a short conclusion.

### II. The Fiscal Gap: Method and Standard Estimates

Given a set of projected tax and spending policies, the fiscal gap measures the size of the immediate and permanent increase in taxes and/or reductions in noninterest expenditures that would be required to establish the same debt-GDP ratio in the long run as holds currently (Auerbach 1994).<sup>2</sup> Avoiding problems arising from omissions of deferred taxes and liabilities beyond any given

<sup>2</sup>Equivalently, the required tax and outlay change would set the present value of all future primary surpluses equal to the current value of the national debt, where the primary surplus is the difference between revenues and noninterest expenditures.

**Table 1**  
**Measures of the Fiscal Gap**

Starting Year	Specification Regarding Long-Term Retirement Saving	Fiscal Gap (Percent of GDP)			Source
		Infinite Horizon	Through 2075	Through 2080	
2003	Standard	7.55	4.55		AGO (2003)
2003	Boskin	7.38	4.38		AGO (2003)
2004	Standard	10.47		7.20	AGO (2004)
2004	CBO	10.44		7.28	Authors' calculations

1. All estimates are based on the adjusted 10-year baseline, which is described in the text.
2. The standard assumption is that aggregate federal revenue stays constant as a share of GDP after the 10th year of the budget projection. We interpret this assumption as implying that revenues from retirement saving stay constant as a share of GDP after the 10th year. The "Boskin" assumptions use withdrawal projections from Boskin (2003) coupled with a 20 percent marginal tax rate, as described in the text. The "CBO" assumptions use data on contributions, inside build up, withdrawals, and the associated marginal tax rates from CBO (2004, Figure 7).

year requires that the fiscal gap be measured over an infinite horizon. Nevertheless, to permit comparison with other estimates, the fiscal gap can also be measured over a finite period. For example, the fiscal gap through 2075 measures the increase in taxes or cuts in noninterest spending that would be needed each year between now and 2075 to restore the 2075 ratio of marketable public debt to GDP to the current level.

#### A. 2003 Estimates

Our analysis using 2003 assumptions and projections is identical to Auerbach, Gale, and Orszag (2003). Following a dichotomy employed in most previous estimates of the fiscal gap, we project future policies and economic growth using somewhat different, but linked, methods for the first 10 years of the forecast period and for subsequent years.<sup>3</sup> Between 2004 and 2013, we begin with the CBO baseline figures for taxes and spending. These figures are developed according to a variety of rules and customs and are not intended to reflect current policy in any but the most mechanical manner. We adjust tax revenues to allow all expiring provisions to be made permanent. We also raise the AMT exemption so that approximately 3 percent of taxpayers remain on the AMT in each year in the future. We adjust discretionary spending so that it grows with inflation and the population. As a result, the adjusted baseline has lower revenues and higher outlays than the CBO baseline.

After the first decade, we set the economy on autopilot. Most importantly for the current analysis, we assume that aggregate federal tax revenue remains a constant share of GDP at its 2013 level. We use CBO projections of nominal GDP. Discretionary spending remains constant as a share of GDP at its 2013 level. Social Security, Medicare, and Medicaid expenditures through 2076 are obtained from unpublished CBO projections, which for Social Security and Medicare are based on the

2003 intermediate projections of the Social Security and Medicare actuaries. After 2076, spending in these three categories is assumed constant as a share of GDP at 2076 levels. Interest payments are determined by debt accrual and interest rates.

The first line of Table 1 reports results using this method. The fiscal gap using 2003 data, the adjusted baseline for the first 10 years, and the standard revenue assumptions after the first 10 years amounts to 7.55 percent of GDP on a permanent basis and 4.55 percent of GDP through 2075. The permanent gap is larger than the gap through 2075 because the federal budget is projected to be running large primary deficits in the years approaching and beyond 2075.

#### B. 2004 Estimates

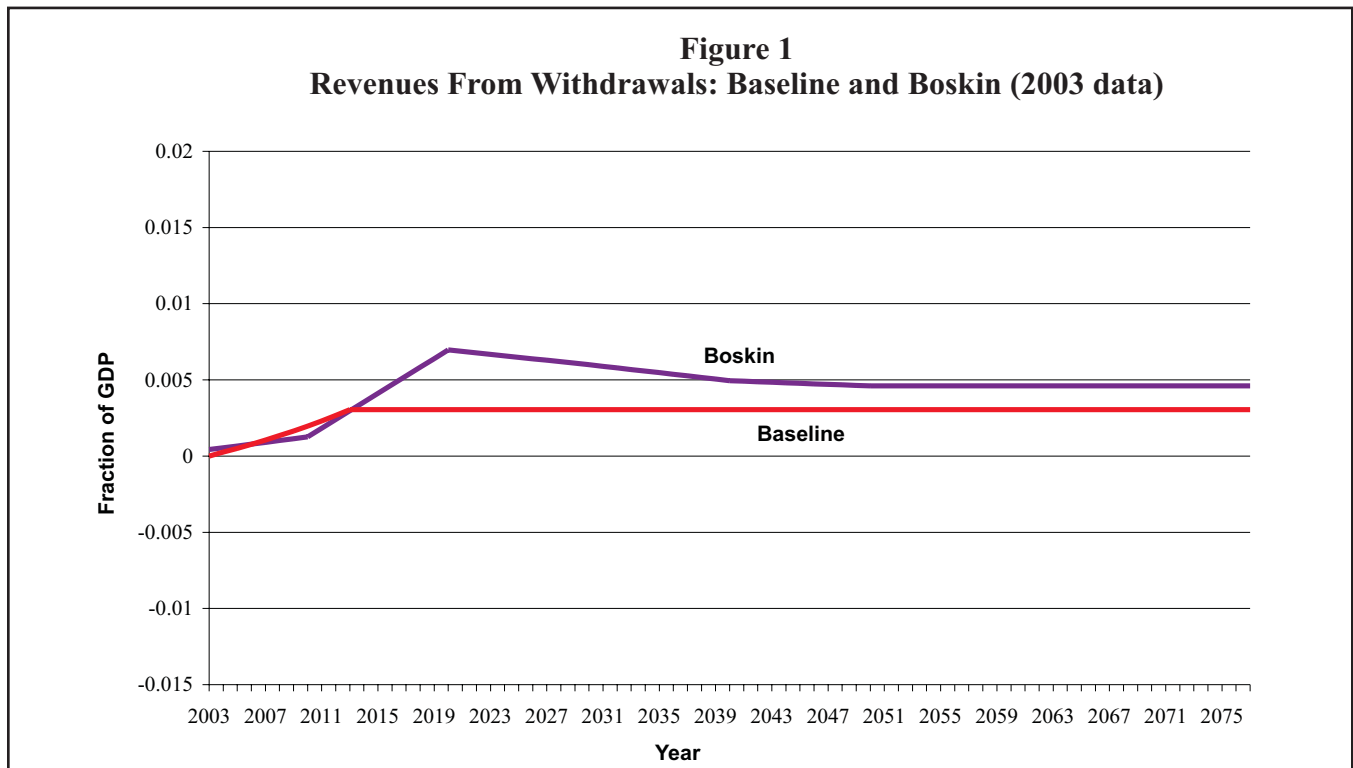
Our methodology for 2004, described in more detail in Auerbach, Gale, and Orszag (2004), is similar to that used in 2003. We take Social Security and Medicare spending projections directly from the 2004 Trustees Reports' intermediate projections, and base Medicaid spending projections on those from Scenario 2 from CBO's most recent long-term projections (CBO 2003).<sup>4</sup>

As shown in Table 1, when using 2004 data, the adjusted baseline for the first 10 years and standard revenue assumptions after the first 10 years, the estimated fiscal gap rises to 10.47 percent on a permanent basis and 7.20 percent through 2080. The increase over the past year is due largely to the Medicare prescription drug bill passed in the fall of 2003, declining revenue projections, and increases in projected discretionary spending (Auerbach, Gale, and Orszag 2004).

<sup>4</sup>Scenario 2 assumes that medical costs per beneficiary increase at 1 percent per year faster than per capita GDP growth, which is the same long-term assumption made in the Medicare trustees' projections. The CBO projections end in 2050. After 2050, we assume that Medicaid spending grows at the same rate as Medicare. CBO (2004b) provides a different set of Social Security projections. Incorporating these projections would have little effect on the main results presented here.

<sup>3</sup>Previous studies using this method include CBO (2000, 2003), GAO (2004), Auerbach (1994, 1997), Auerbach and Gale (1999, 2000, 2001), and Auerbach, Gale, and Orszag (2002, 2003, 2004).

**Figure 1**  
**Revenues From Withdrawals: Baseline and Boskin (2003 data)**



### III. Alternative Retirement Account Projections

Our goal is to understand how alternative assumptions and projections about tax-deferred retirement accounts affect estimates of the long-term fiscal gap. The revenue effects of tax-deferred retirement accounts come from three flows. The contribution itself is tax-deductible. The buildup of assets inside the account is not subject to taxation. Withdrawals are taxed as ordinary income.<sup>5</sup> The magnitude of the revenue effect from each of these sources depends on the size of the flow and the effective marginal tax rate.

In the standard set of assumptions used above, aggregate federal revenues are assumed to be constant as a share of GDP in every year after the first 10 years. This does not require any specific assumptions about components of the revenue stream. But, consistent with the overarching assumption, we assume the revenue gain or loss from each component of retirement saving flow — contributions, inside buildup, and withdrawals — is the same share of GDP in years after the 10th year of the projection period as it is in the 10th year.

During the first 10 years of the forecast, the treatment of retirement flows in the baseline is somewhat different. Estimates of the tax loss from contributions, for example, may change as a share of GDP over time because of scheduled changes in contribution limits over time. Like-

<sup>5</sup>For backloaded accounts, like Roth IRAs and the Roth 401(k)s slated to come into existence in 2006, inside buildup is still untaxed, but the additional untaxed flow is the withdrawals rather than the contributions.

wise, estimates of the tax gain from withdrawals may change as population ages or imputed retirement account balances rise.

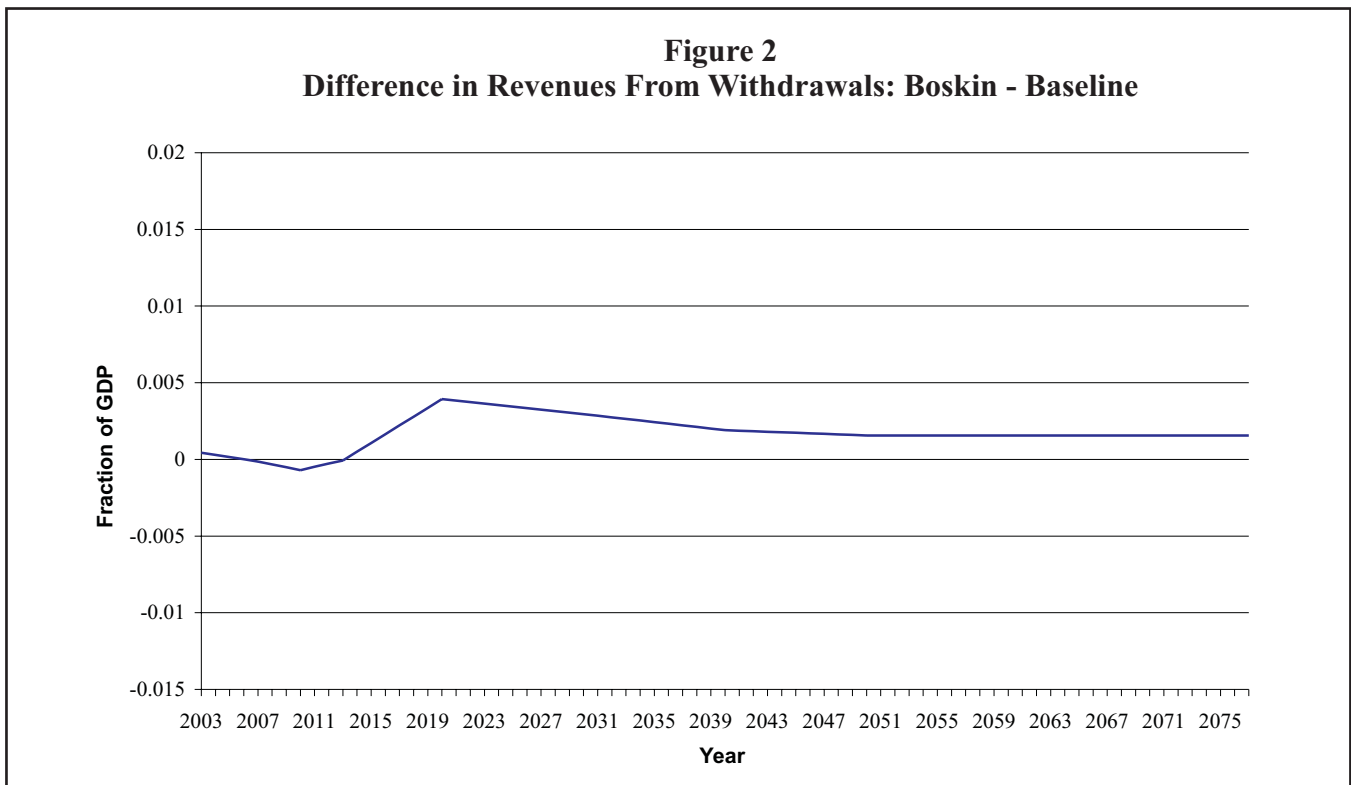
#### A. Boskin's Projections

To adjust the fiscal gap estimates for Boskin's projections, we need to (a) add his revenues from retirement accounts to the revenues in the fiscal gap calculations, and (b) subtract revenues from retirement accounts that are already implicitly in the baseline.

Boskin projects that withdrawals will rise sharply from 2003 to 2013 and continue to rise through the mid-2020s before falling somewhat. He assumes the tax rate on withdrawals is constant over time. For reasons described below, we apply a 20 percent tax rate to this stream of withdrawals. The resulting projected revenue stream from taxation of withdrawals is shown as the "Boskin" line in Figure 1.

To estimate baseline revenues from withdrawals (as revenues associated with retirement accounts are not explicitly broken out by CBO), we use the Tax Policy Center microsimulation model. In each year from 2003 to 2013, we multiply projected taxable withdrawals from retirement accounts by 20 percent, which is close to the average marginal tax rate that applies to the withdrawals. For years after 2013, we assume that revenue from withdrawals is the same share of GDP as in 2013. This generates the line called "Baseline" in Figure 1.

In Boskin's projections, the revenue loss from tax-deductible contributions is assumed to be a constant share of GDP over time. The revenue loss from inside buildup evolves only very slowly over time relative to GDP and for simplification purposes we assume it is



constant over time.<sup>6</sup> Under that assumption, both of these flows are consistent with standard revenue assumptions — that is, constant as a share of GDP — for years after 2013. For years before 2013, we explicitly assume that the baseline is based on the same contribution and inside buildup figures as Boskin’s projections. The assumption we make is buttressed by the similarity of the withdrawal estimates shown in Figure 1.

Based on these assumptions, we incorporate Boskin’s projections of retirement account activity into the standard fiscal gap estimate by adding to the standard revenue assumptions the difference between the revenues implied by the Boskin and Baseline trends in Figure 1.<sup>7</sup> This difference is shown in Figure 2 and is well below 0.5 percent of GDP in every year and close to 0.2 percent of GDP in 2040 and subsequent years. As a result,

the second line of Table 1 shows the estimated fiscal gap using Boskin’s retirement account projections is just 0.17 percent of GDP smaller than under the standard assumptions under either the permanent horizon or through 2075.

**B. CBO Projections**

CBO (2004a) provides a different set of assumptions for retirement income flows, with separate projections for defined benefit (DB) and defined contribution (DC) type accounts. In CBO’s model, contributions and withdrawals for DB plans fall over time as a share of GDP, while the inside buildup grows slightly. For DC plans, on the other hand, contributions are roughly constant over time as a share of GDP, and the revenue loss from inside buildup grows, but the revenue gain from withdrawals grows even faster. CBO also provides an explicit set of marginal tax rate assumptions: 20 percent on contributions and withdrawals, and about 11 percent on inside buildup.<sup>8</sup> The CBO (2004a) projections assume constant tax rates after 2003. This implicitly assumes no structural changes, no real bracket creep, and no expansion of the alternative minimum tax over time. As a result, these

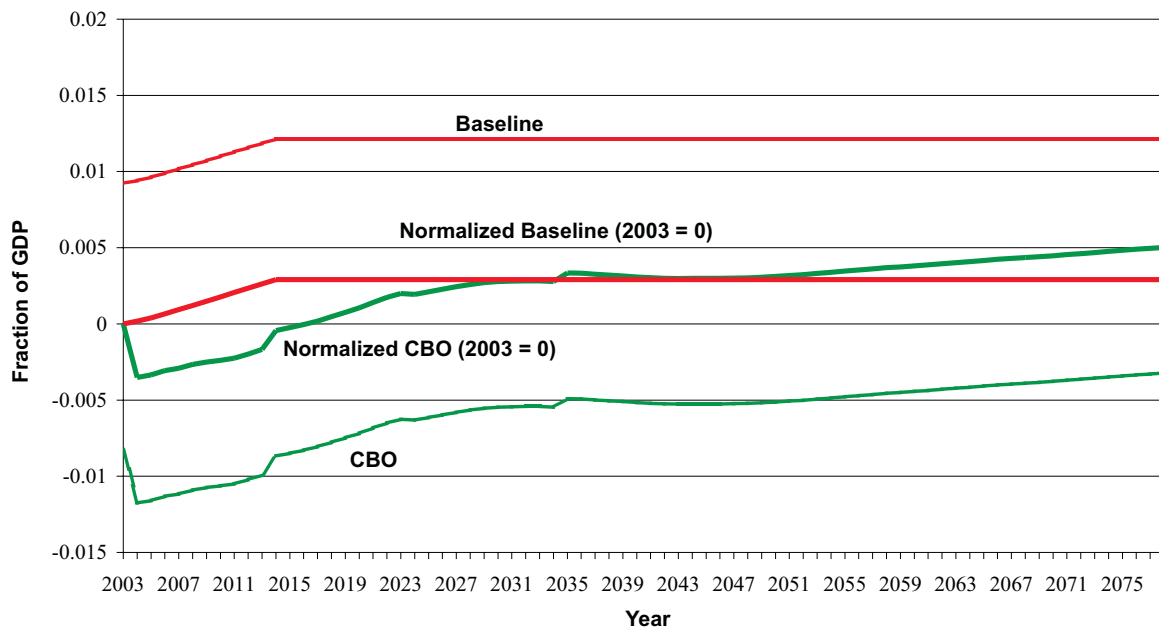
<sup>6</sup>Boskin (2003, Table 1) estimates that forgone revenue on diverted saving is 0.22 percent of GDP in 2010 and rises to 0.26 percent of GDP by 2050.

<sup>7</sup>More formally, the net change in the revenue projection is  $(WB + CB + IB) - (WS + CS + IS)$ , where  $WB$  is the gross revenue gain from withdrawals in Boskin’s projections,  $CB$  is the gross revenue gain from contributions in Boskin’s projections, and  $IB$  is the gross revenue gain from inside buildup in Boskin’s projections, and  $WS$ ,  $CS$ , and  $IS$  are analogous items in the standard revenue assumptions. We assume that  $CB = CS$  and  $IB = IS$ , so the net change in the revenue projection is  $WB - WS$ , which is shown in Figure 2.

<sup>8</sup>We thank Paul Burnham for this information and the additional information provided by CBO described later in the text.



**Figure 3**  
**Revenues From Retirement Accounts: Baseline and CBO (2004 data)**



assumptions are somewhat similar to those underlying the revenue side of our adjusted baseline, described above.<sup>9</sup>

CBO combines these estimates to generate the net effects of these flows on revenue in Figure 7 of CBO (2004a), which is replicated as the line labeled “CBO” in Figure 3. Following CBO’s practice, the line labeled “Normalized CBO” subtracts the 2003 value from the value in each subsequent year.

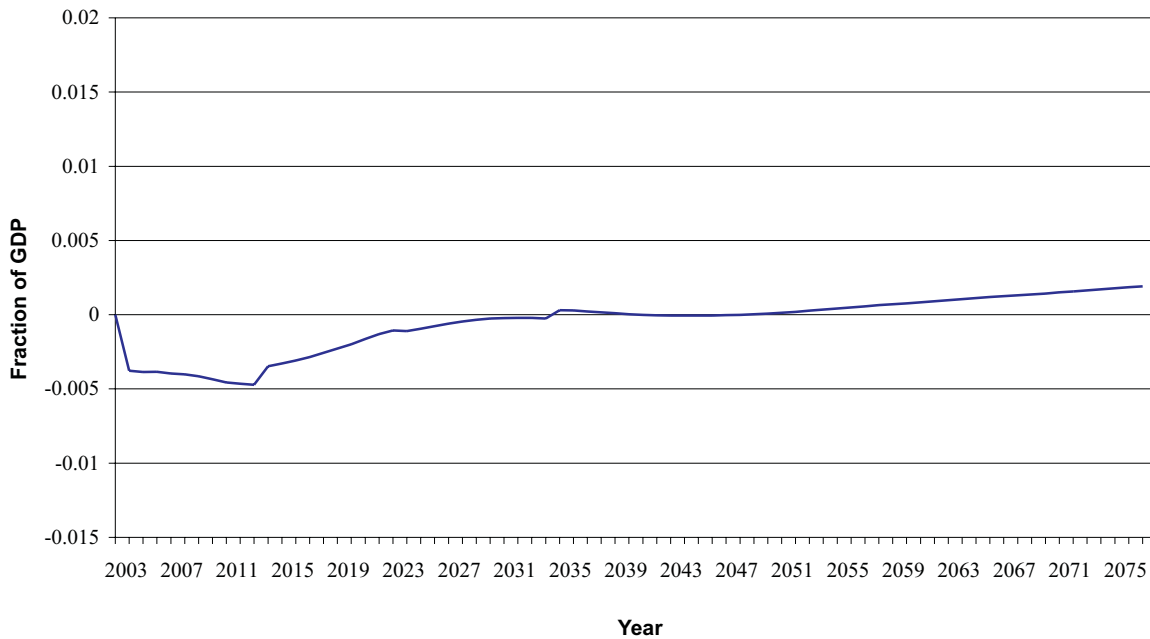
To develop an estimate of the revenue effects of retirement accounts in the baseline, we use information provided by CBO on the projected level of withdrawals and assume the average marginal tax rate on withdraw-

als is 21 percent, the average marginal tax rate on withdrawals in the CBO baseline for 2003. This provides an estimate of revenue from withdrawals for each year through 2014 (the 10th year of the forecast horizon for the 2004 budget projections). Following our standard approach to extending the baseline, we assume that revenue in future years is the same share of GDP as in 2014. The resulting time series is reported as “Baseline” in Figure 3.

Based on discussions with CBO (and consistent with Boskin’s projections described earlier), we assume that the revenue effects of contributions and inside buildup of retirement accounts already included in the CBO baseline are constant as a share of GDP during the next 10 years. Under our standard assumption for extending the baseline, they are also held at that share in all subsequent years and therefore are a constant share of GDP over the whole forecast horizon. The net revenue effect of retirement accounts equals the revenue effect of withdrawals, shown in Figure 3, less the effects of contributions and inside buildup. But since the latter two effects are constant over time, changes in the baseline revenue estimates over time due to retirement accounts as a whole are just equal to changes in revenues from withdrawals. Thus, to calculate the change relative to 2003, we simply normalize the revenue from withdrawals series by subtracting its 2003 value, showing the result as the “Normalized Baseline” in Figure 3.

<sup>9</sup>The adjusted baseline does have some structural changes incorporated into it (e.g., the liberalization and then elimination of the estate tax), and also reflects real bracket creep. The official baseline, however, is even more dissimilar to the CBO assumptions in this case. That highlights that CBO’s assumptions for these projections do not necessarily mimic the ones used to develop the CBO baseline budget projections. The differences are justified by the fact that the revenue projections have a different purpose and posit a different underlying scenario than the baseline. CBO’s retirement revenue projections are not intended as predictions of likely outcomes, just as projections that show how the changing flows of contributions, inside buildup, and withdrawals will affect revenues, holding other items constant.

**Figure 4**  
**Difference in Normalized Revenues From Retirement Accounts,**  
**CBO Report – Baseline**



Based on these assumptions, we incorporate CBO’s projections of retirement account activity into the standard fiscal gap estimate by adding to the standard revenue assumptions the difference between the revenues implied by the “Normalized CBO” and the “Normalized Baseline” lines in Figure 3.<sup>10</sup> This difference is shown in Figure 4. Although it is small relative to the fiscal gap, its most notable quality is that it is *negative* for much of the period.

<sup>10</sup>This is a slightly different calculation from what is reported in footnote 7 for incorporating Boskin’s projections. The difference is dictated by the different data available. Specifically, our goal is to estimate {CBO retirement account revenues in year  $t$ } - {baseline retirement account revenues in year  $t$ }. To do this, we subtract year 2003 values from each item. Because 2003 is in the past, the two figures should be the same for that year. Hence, we calculate {normalized CBO retirement account revenues in year  $t$ } - {normalized baseline retirement account revenues in year  $t$ }, which is given by  $\{(CC_t + IC_t + WC_t) - (CC_0 + IC_0 + WC_0)\} - \{(CS_t + IS_t + WS_t) - (CS_0 + IS_0 + WS_0)\}$ , where the first letter in each term ( $C$ ,  $I$ , or  $W$ ) refers to contributions, inside buildup, or withdrawals, the second letter ( $C$  or  $S$ ) refers to the CBO revenue projections or the standard revenue projections, and the subscript ( $t$  or  $0$ ) refers to the year in question or 2003 ( $= 0$ ). As discussed in the text, we assume that  $CS_t = CS_0$  and  $IS_t = IS_0$ , so taking the difference between the normalized CBO retirement account revenue (the first six items) and the normalized baseline withdrawal revenue ( $WS_t - WS_0$ ) yields the difference in projected revenue under the two scenarios.

As shown in Table 1, the fiscal gap using CBO’s revenue projections is 7.28 percent of GDP through 2080. This estimate is very close to, but actually *larger* than the 7.20 percent of the GDP fiscal gap estimated under the standard revenue assumptions. The fact that using CBO’s projections raises the fiscal gap estimate may seem counterintuitive in light of CBO’s (2004, page 1) statement, consistent with Figure 3, that “At the end of 75 years, the effect is to make receipts about 0.5 percent of GDP higher than in 2003.” The reason the fiscal gap rises, in spite of this trend, is that relative to 2003 values, the average increase in baseline revenues from retirement accounts exceeds the average increase in CBO’s retirement revenue projections. This serves to reemphasize a point made by Auerbach, Gale, and Orszag (2003), in their analysis of Boskin’s findings, that the key issue is not the overall size of the revenue effect from retirement accounts, but the revenue effect from retirement accounts relative to what is already incorporated in the standard revenue assumptions.

CBO does not provide information on retirement accounts over the permanent horizon, but if it is assumed that the 2076 values as a share of GDP are maintained over time, the estimated permanent fiscal gap is 10.44 percent of GDP, very slightly lower than the estimate

using the standard assumptions.<sup>11</sup> Because the CBO projection of net revenues from retirement accounts rises as a share of GDP through the end of their projection period (2080), as shown in Figure 3, it might be desirable to allow a continuation of that increase over time. Making this change in isolation would reduce the estimated permanent fiscal gap. Medicare and Medicaid spending, however, also rise as a share of GDP through the projection period and are then set to be a constant share of GDP thereafter. If retirement account revenues and Medicare and Medicaid spending were allowed to continue to grow relative to GDP after 2076 at the rates projected before then, the net effect would be to raise the estimated permanent fiscal gap. Projected growth in outlays for Medicare and Medicaid would add more to the fiscal gap than projected growth in retirement accounts would subtract, so our assumption that both series remain constant shares of GDP after 2076 understates the permanent fiscal gap.

#### IV. Conclusion

Alternative methods of projecting retirement account contributions, inside buildup, and withdrawals appear to have little effect on the estimated long-term fiscal gap. Results using the simple, standard assumptions, Boskin's (2003) somewhat more detailed projections, and CBO's elaborate (2004) projections yield very similar results for the estimated shortfall of revenues relative to outlays. None of the projections changes the conclusion that the United States faces a substantial fiscal gap.

#### References

Auerbach, Alan J. 1994. "The U.S. Fiscal Problem: Where We Are, How We Got Here, and Where We're Going." In Stanley Fischer and Julio Rotemberg, eds., *NBER Macroeconomics Annual*. Cambridge, Mass.: National Bureau of Economic Research.

<sup>11</sup>Under the infinite horizon, the slightly positive contributions to revenue associated with the correction for deferred taxes in the distant future (see Figure 4) are accorded more weight than in the calculation of the gap through 2080. Hence, the correction through 2080 contributes to the fiscal gap over that period, while it reduces the fiscal gap calculated over the infinite horizon. Both of these corrections, though, are extremely small in magnitude.

- Auerbach, Alan J. 1997. "Quantifying the Current U.S. Fiscal Imbalance." *National Tax Journal* 50: \_\_. September. 387-398.
- Auerbach, Alan J., and William G. Gale. 1999. "Does the Budget Surplus Justify a Large-Scale Tax Cut?" *Tax Notes* 82:12. March 22. 1827-1850.
- Auerbach, Alan J., and William G. Gale. 2000. "Perspectives on the Budget Surplus." *National Tax Journal* 53:3. September. 459-473.
- Auerbach, Alan J., and William G. Gale. 2001. "Tax Cuts and the Budget." *Tax Notes* 90:13. March 26. 1869-1882.
- Auerbach, Alan J., William G. Gale, and Peter R. Orszag. 2002. "The Budget Outlook and Options for Fiscal Policy." *Tax Notes* 95:11. June 10. 1639-1662.
- Auerbach, Alan J., William G. Gale, and Peter R. Orszag. 2003. "Reassessing the Fiscal Gap: Why Tax-Deferred Saving Will Not Solve the Problem." *Tax Notes* 100:4. July 28. 567-584.
- Auerbach, Alan J., William G. Gale, and Peter R. Orszag. 2004. "Sources of the Long-Term Fiscal Gap." *Tax Notes* 103:8. May 24. 1049-1059.
- Boskin, Michael J. 2003. "Deferred Taxes in the Public Finances." Hoover Institution, July.
- Congressional Budget Office. 2000. "The Long-Term Budget Outlook." October. Washington, D.C.: United States Government Printing Office.
- Congressional Budget Office. 2003. "The Long-Term Budget Outlook." December. Washington, D.C.: United States Government Printing Office.
- Congressional Budget Office. 2004a. "Tax Deferred Retirement Savings in Long-Term Revenue Projections." May. Washington, D.C.: United States Government Printing Office.
- Congressional Budget Office. 2004b. "The Outlook for Social Security." June. Washington, D.C.: United States Government Printing Office.
- Gokhale, Jagadeesh and Kent Smetters. 2003. *Fiscal and Generational Imbalances: New Budget Measures for New Budget Priorities*. Washington, D.C.: The AEI Press.
- Sabelhaus, John. 2000. "Modeling IRA Accumulation and Withdrawals." *National Tax Journal* 53:4 (Part 1). December. 865-876.
- United States General Accounting Office. 2004. "The Nation's Growing Fiscal Imbalance." Presented by David Walker, Syracuse, New York. March 31.