Social Security Trust Fund Cash Flows and Reserves

by David Pattison*

The Social Security trust fund cash flows and their effects on the budget of the federal government have received considerable attention in recent years. This article examines the trust fund reserves and cash flows and their interrelationships with the Treasury's cash management operations and the budget of the rest of the federal government. Although some observers view the trust fund reserves and interest income as accounting fictions, a careful tracing of the cash flows reveals that the reserves and their interest earnings are, for all practical purposes, as real as those of any bank account. In addition, an examination of the long-term constraints facing the trust funds and the federal budget clarifies that under the Social Security system's self-financing framework, an improvement in trust fund finances will not relieve the accumulated debt commitments of the rest of the federal government.

Introduction

Social Security benefits are paid from the reserves of the Old-Age, Survivors, and Disability Insurance (OASDI) trust fund. The reserves are funded from dedicated tax revenues and interest on accumulated reserve holdings, which are invested in Treasury securities. These cash flows—the tax income, the investment (and redemption) of the securities, the interest on the invested reserves, and the payment of benefits—become critically important when reserves are low relative to benefit payments, as occurred in 1983. In 2015, reserves are large enough that cash flow will not be a problem for the trust fund for almost 20 years. In recent years, attention has focused on the cash flows' effects on the rest of the federal budget. This article examines the cash flows and reserves from the perspective of not just the trust fund itself but also from that of the rest of the budget.

The Social Security trust funds date back to the "Old-Age Reserve Account," established under the 1935 Social Security Act. The act authorized Congress to appropriate funds to the reserve account and separately established a new payroll tax sufficient to provide those funds. However, because a recent Supreme Court decision (unrelated to Social Security) had raised questions about the constitutionality of appropriating the tax revenues directly to the reserve account, the act did not explicitly earmark those revenues to the account. Nevertheless, it was understood that Congress would simply appropriate the tax revenues for that purpose even without a statutory requirement to do so. By the time the act was first amended in 1939, the constitutional questions had been resolved, and the 1939 amendments provided for automatic appropriation of the payroll taxes to the reserve account. Under both the 1935 act and the 1939 amendments, the accumulated reserves were invested in interest-bearing Treasury securities, with the interest accruing to the reserves.[1]

The 1939 amendments brought other changes to the reserve account, more to clarify the existing arrangement than to modify it. Those changes were recommended by the 1938 Social Security Advisory Council, which had proposed that the reserve account be made more specifically "a trust fund, with

Selected Abbreviations

DI	Disability Insurance
DTS	Daily Treasury Statement
FICA	Federal Income Contributions Act
FY	fiscal year
GDP	gross domestic product

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Selected Abbreviations—*Continued*

HI	Hospital Insurance
OASDI	Old-Age, Survivors, and Disability Insurance
OASI	Old-Age and Survivors Insurance
OCACT	Office of the Chief Actuary
OMB	Office of Management and Budget
SECA	Self-Employment Contributions Act
SSA	Social Security Administration

designated trustees acting on behalf of the prospective beneficiaries of the program. The trust fund should be dedicated exclusively to the payment of the benefits provided under the program and, in limited part, to the costs necessary to the administration of the program" (Social Security Administration [SSA] n.d. a). Following those recommendations, Congress converted the Old-Age Reserve Account into the Old-Age and Survivors Insurance (OASI) Trust Fund and established a Board of Trustees whose primary task was to "Hold the Trust Fund" and report on it annually. The amendments clarified that administrative costs as well as benefits were to be paid out of the reserves. That arrangement continues today with very little change, other than the addition in 1957 of the Disability Insurance (DI) Trust Fund—with the same trustees and investment rules as the OASI fund. Although the OASI and DI funds are maintained separately, they are managed under parallel procedures. Therefore, to simplify the discussion, this analysis combines the two and refers to a single OASDI fund. Similarly, "cash flows" and "reserves" in this article refer to combined amounts of those two funds, unless otherwise noted.[2]

As a reserve fund, revenues earmarked for Social Security benefits can be collected in advance of the actual expenditure. Interest on the invested reserves can be an important component of the fund income, particularly when—as has occurred in the past several decades—a large reserve is built up in advance of a demographic wave of retirements.

The Social Security Act provides that the funds are maintained "on the books of the Treasury." The Treasury manages the Social Security accounts in much the same way that a bank manages a checking account: Accurate accounts are kept of the cash deposits and the accruing interest; cash (plus interest) withdrawals are allowed whenever needed; and in the meantime, the bank can put the cash to other uses. Thus, the Treasury uses procedures that fully and accurately account for the cash from trust fund tax income deposited with the Treasury and the interest that accrues on those deposits. Until the invested amounts are needed to pay benefits, the cash is intermingled with the Treasury's cash operations for the rest of the government. The size of the accumulated reserves is tracked by special Treasury securities. Those securities are issued to the trust funds both when cash from tax income is deposited and when interest is paid on the invested reserves. When Social Security benefits are paid, trust fund securities are redeemed for the cash to pay beneficiaries.

Although these procedures do not affect the budget accounts of the rest of the government, they do affect the Treasury's cash operations. When the trust fund tax income is deposited with the Treasury, the amount of cash that the Treasury must borrow from the public for its other operations is reduced. During the period in which the trust funds hold the Treasury securities, the cash that the Treasury must borrow from the public to make interest payments is reduced as well.[3]

Because the surplus OASDI funds are essentially loaned to the rest of the government, a full understanding of the effects of OASDI financing requires consideration of its effects on the Treasury's general account cash flows. In discussing these effects, it is important to distinguish clearly between the consolidated governmentwide accounting (which includes the OASDI trust fund) and the nontrust fund accounting that includes *only* the accounts of the rest of the government.

It is also important to identify certain assumptions about future Social Security financing. Throughout this article it is assumed, unless otherwise noted, that OASDI will continue to be financed through its own dedicated receipts. That assumption implies that adjustments to currently scheduled OASDI taxes and benefits will at some point be enacted. This article focuses less on the well-recognized changes that are needed to maintain Social Security solvency and more on the possible effects of such changes on the *rest* of the federal budget as the reserves are built up and drawn down. The assumption that Social Security will remain self-financing has implications that are often overlooked in discussions of federal budget pressures, where the need to adjust Social Security finances is not always adequately distinguished from pressures on other parts of the budget.

This article is arranged in nine sections. The first section gives an overview of the historical and projected trust fund flows and reserves. The three

sections that follow describe the monthly flows, the process by which the Treasury manages them, and their treatment in the Federal budget accounts. The next three sections discuss aspects of the interaction between the trust fund accounts and the general account, including the issue of whether the trust fund reserves can be considered assets of the government as a whole and whether trust fund interest income is actual income. The final two sections return to the narrower trust fund perspective, discussing the cash-flow crisis of 1983 and the rise and fall of reserves associated with the partial advance funding of the baby boomers' retirement wave. A concluding section summarizes, and appendices provide technical information (and sometimes, detail on the data sources) for each of the first seven sections.

In this article, "trust funds" refers to the two Social Security funds (and the singular "trust fund" refers to the combined OASDI fund) unless otherwise noted. The "general account" or "general fund" refers to the rest of the federal government, which includes the Medicare trust funds[4] and smaller funds such as the Highway Trust Fund. Technically, the General Fund of the Treasury excludes those other funds as well, but the present analysis is not affected by including them in a broadly defined general fund that combines the entire federal government apart from the OASDI fund.[5] "The recession" refers broadly to the period 2008–2013, except where subperiods are specified. "OASDI taxes" refers to the Federal Income Contributions Act (FICA) and Self-Employment Contributions Act (SECA) payroll tax collections, plus the revenues from the income taxation of benefits, that are deposited into the trust fund. "OASDI benefits" refers to the amounts withdrawn from the trust fund to pay Social Security benefits.

Trust Fund Cash Flows and Reserves, 1980–2040

In 1980, the OASDI trust fund reserves were low and declining. Congress enacted changes in 1983 (discussed later) that enabled reserves to begin to accumulate. In the 2014 edition of the *Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds* (henceforth, the *Trustees Report*), reserves are projected to peak around 2020 and to be depleted around 2033 if no changes are made to the tax or benefit provisions before then.[6] (Once the reserves are depleted, an estimated 77 percent of scheduled benefits would continue to be payable from tax receipts alone.) Chart 1 shows the annual cash flows underlying this rise and fall relative to gross domestic product (GDP). Chart 2 shows the reserve levels under six alternative measures. The overall patterns, if not the exact depletion date, have changed little over the years: For example, charts showing similar projections that appear in Hambor (1987) closely resemble Chart 2, panels A and D.

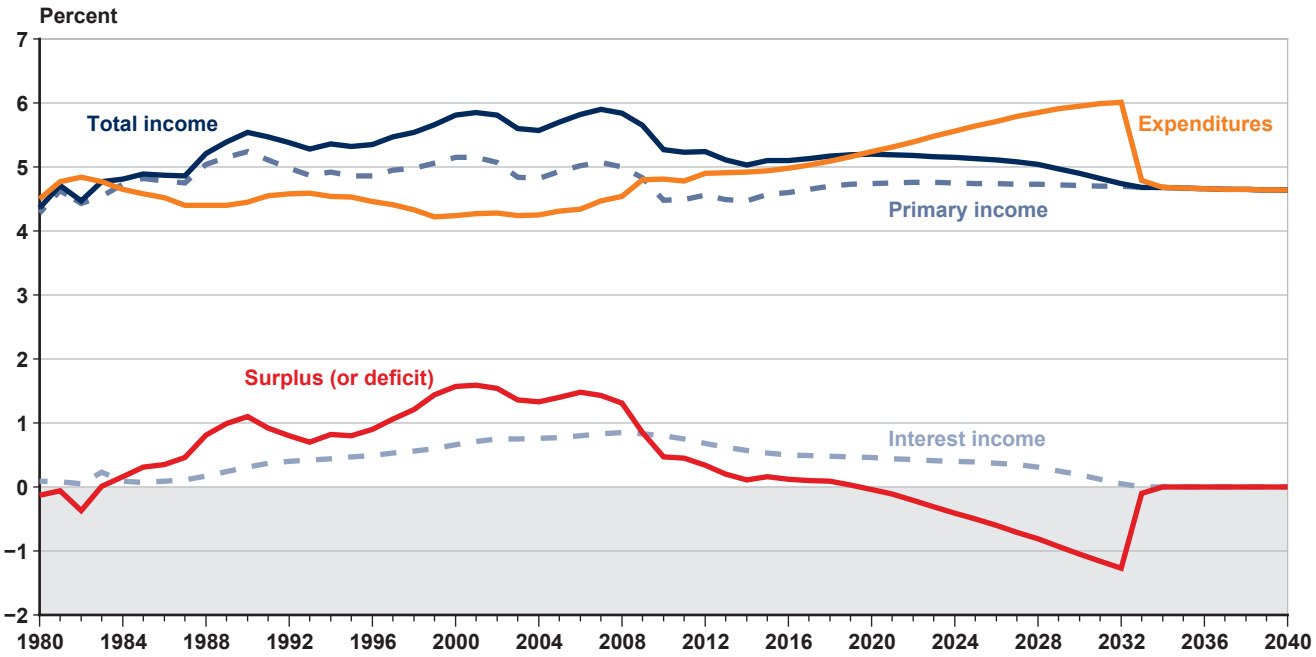
Chart 1 shows trust fund total income exceeding trust fund expenditures from 1984 through 2019, generating annual surpluses. Beginning in 2020, total income is projected to be less than expenditures, generating annual deficits (shown as negative surpluses). The point at which the surplus changes to a deficit in 2019–2020 corresponds with the nominal-dollar peak in reserves shown in Chart 2, panel A.[7] An annual deficit means only that the trust funds are redeeming their assets: There is no borrowing and there is no debt.

Chart 1 shows that expenditures generally fell relative to GDP during 1980–2000. Since 2000, expenditures have been rising relative to GDP, and they are projected to continue rising until the reserves are depleted in 2033. Thereafter, the expenditures shown in Chart 1 reflect "payable benefits," which are limited to projected tax income. Actual income and expenditures (before and after depletion) will differ from the projections shown here, as Congress changes tax or benefit provisions to maintain solvency.

Chart 1 tracks primary income and interest income separately. Primary (or noninterest) income is that which does not come from invested reserves.[8] Taxes provide nearly all of the primary income for the OASDI funds. Tax income, which varies with the business cycle, declined sharply in 2010 because of the recession. Postrecession tax income is projected to decline slightly as taxable earnings decline relative to GDP.[9]

The interest income line rises and falls according to trust fund reserve levels and changes in the interest rate earned on those reserves. Relative to GDP, it reaches a broad, flat peak around 2010 that coincides with the peak in reserves seen in Chart 2, panel D. Interest income is projected to decline as the reserves themselves decline, reaching zero in 2033. During the recession, interest rates on the invested reserves declined slightly as securities newly purchased at low interest rates replaced older securities with higher rates. The direct effect of the recession on current interest payments was small relative to the effect on tax income. However, the reduction in trust fund primary income, by reducing the reserves, will have

Chart 1.
OASDI trust fund cash flows as percentages of GDP, 1980–2040



SOURCE: Author's calculations based on SSA (2013, Table 4.A1) and Board of Trustees (2014).

the persistent effect—not apparent in the chart—of reducing future interest income.

Total income is the sum of primary income and interest income. Total income minus expenditures equals the surplus. Even during the recession, the surplus was positive, and it is projected to remain positive—adding to reserves—until 2020. After that, rising expenditures will exceed total income, and reserves will begin to be drawn down.

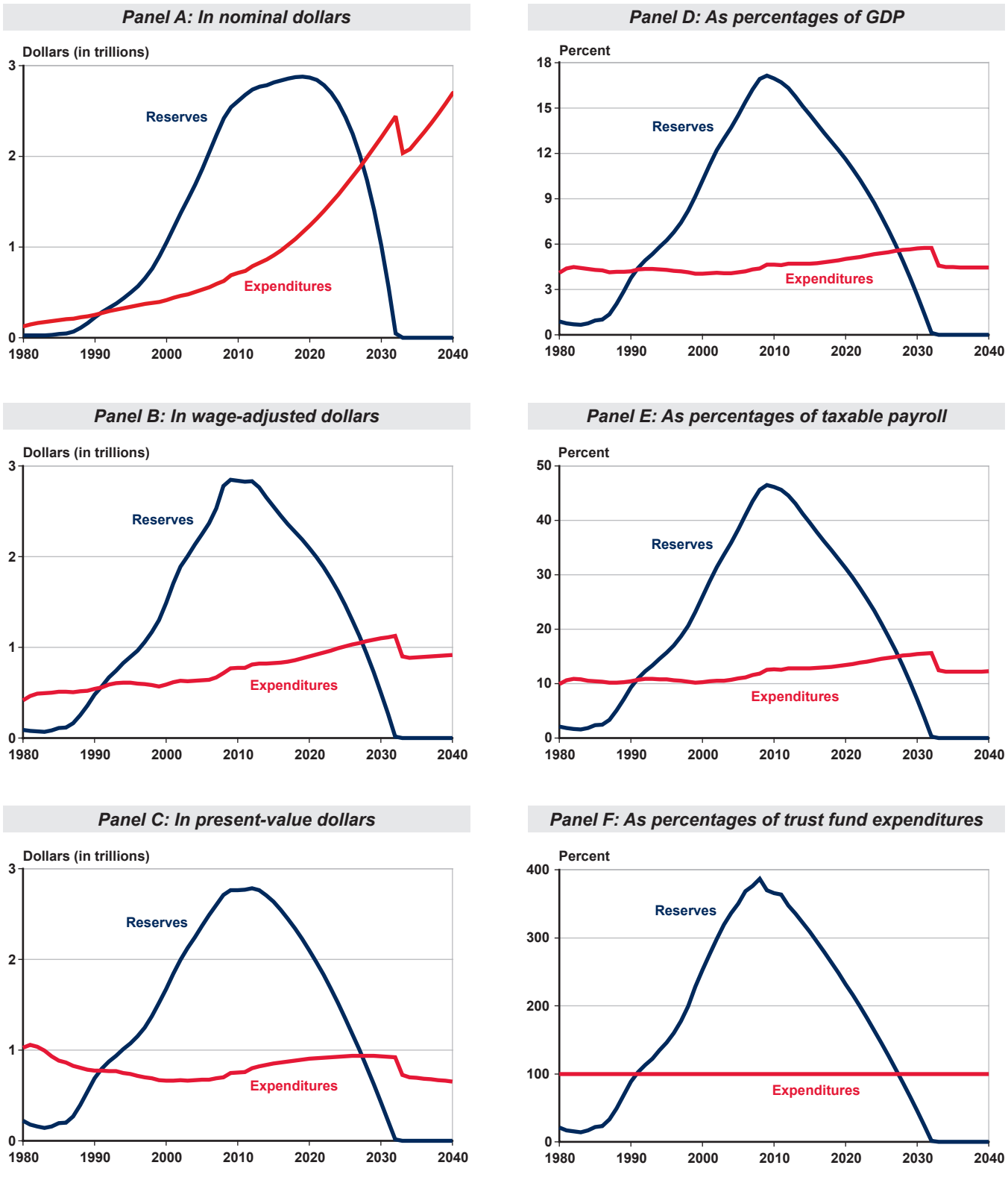
The primary surplus (not depicted in Chart 1) is equal to the difference between primary income and expenditures (or to the difference between the surplus and interest income). Because of the recession, primary income fell below expenditures starting in 2010. The recession-induced primary deficit is projected to continue even as the recession passes and to merge into a more permanent primary deficit that would have started around 2016 even without the recession.

Chart 2 shows the rise and projected decline of the combined OASDI trust fund reserves over the period 1980–2040.[10] In each panel, the reserves are currently near their peak and will decline (under current provisions and projections) toward depletion in 2033. The fact that reserves are currently near their peak is not widely understood. For that reason, showing the reserves under six alternative measures may help to answer the question of whether any one measure grossly misrepresents the level or timing of peak reserves. Although the projected year of depletion (2033) is the same under every measure, the shape of the rise and fall of reserves does vary.

Each panel includes a correspondingly adjusted measure of trust fund expenditures, which assumes a reduction in payable benefits in 2033 when the reserves are depleted. The conventional test of the adequacy of the reserves against unexpected near-term fluctuations in income and costs is that they equal at least 100 percent of projected annual costs. Like the reserve depletion date, the date on which reserves are projected to cross under the adequacy threshold will be the same under all measures. As shown by the points of intersection in each panel, the reserves have been above the 100 percent level since 1991 and are projected to remain above that level until 2028. If Congress enacts no changes to scheduled taxes or benefits before then, the ability to pay scheduled benefits out of revenues and reserves will become problematic shortly before the projected 2033 depletion.

Panels A–C measure the reserves in dollars—nominal, wage-adjusted, and present value, respectively. The measures are constructed to have the same value

Chart 2.
OASDI trust fund reserves and expenditures under six alternative measures, 1980–2040



SOURCE: Author's calculations based on SSA (2013, Table 4.A1) and Board of Trustees (2014).

NOTE: See Appendix A for additional information on data sources and adjustments.

for the reserves at the end of 2013 (about $2.8 trillion), but they apply different adjustments to the reserves in earlier and later years. The most straightforward measure is nominal dollars (panel A), under which reserves rise to a peak of almost $2.9 trillion at the end of 2019. This peak coincides with the transition from surplus to deficit in 2020 in Chart 1: The first annual deficit marks a high point, not a crisis, and would occur even if the program were sustainably solvent.

The other two dollar-based measures adjust past and future dollars for growth in average wages (panel B) and the interest rate (panel C). Under these two measures, reserves peak well before the net change shifts from surplus to deficit.[11] Again, the changeover to primary deficits marks a peak, not a crisis.

These dollar measures (as well as others not shown here, such as dollars adjusted for growth in the consumer price index or in a GDP price deflator) share the problem of simply being too vast to interpret easily. It is hard enough to comprehend the current reserves of over $2.8 trillion. Reserves a decade or more away are yet more difficult to grasp, even after adjusting for price or wage growth or applying interest rate discounting. Measures expressed as ratios are more interpretable.

Chart 2 panel D shows the reserves as a percentage of GDP, consistent with Chart 1's presentation of cash flows relative to GDP. Reserves reached a year-end peak of close to 18 percent of GDP in 2009, and since then have been moving downward. Reserves as a percentage of taxable payroll (Chart 2, panel E) show a very similar pattern. The shape (although not the level) would be exactly the same as that in panel D if taxable payroll were a constant fraction of GDP. However, because taxable payroll is projected to decline relative to GDP, the decline in the ratio after 2009 is slightly slower than that for GDP—although the difference is not readily perceptible in the panel. Reserves as a percentage of expenditures on benefits and administration (panel F) is closely related to the "trust fund ratio," defined in the annual *Trustees Reports* as the ratio of reserves at the beginning of a year to expenditures during that year.[12] By definition, expenditures appear in this panel as a horizontal line at 100 percent.

All three ratio measures peak at about the same time. This occurs because the three denominators (GDP, taxable payroll, and expenditures) happen to be growing at about the same rate during that period.

Which measure is most useful for indicating the status of the reserves? All of them indicate that reserves—for the combined fund, anyway—are more than adequate for the near term; on that basis, no single measure emerges as clearly superior. However, the three ratio measures provide a more interpretable context than do the dollar measures; and for policy proposals (such as changes to the maximum taxable earnings threshold or to benefit provisions), the GDP-ratio measure provides the most stable denominator.

Given a system in which the baby boom generation's surge in retirement has been partially advance-funded, a peak in reserves followed by a decline is a natural feature and is not in itself evidence of an unsustainable system or of a potential cash flow crisis. Additionally, in considering trust fund solvency and cash flows, the exact timing of the peak is not in itself particularly noteworthy.

Cash Flows During The Year

The description of annual cash flows and year-end reserves in the previous section may give a misleadingly simple picture of Social Security (OASDI) trust fund financing. There is not a smooth and gradually slowing acquisition of securities as the reserves approach their peak, changing over to a slow and then accelerating redemption of the accumulated securities after the peak. Instead, securities are acquired and redeemed daily to meet the fluctuating income and expenditure flows at cumulative volumes that far exceed the net annual changes shown in Chart 1.

During fiscal year (FY) 2013 (October 2012–September 2013),[13] the combined OASDI trust fund had gross income (including interest) of $851 billion and gross expenditures of $813 billion, producing a net surplus of $38 billion. The OASDI trust fund holdings of Treasury securities increased by $37 billion that year, on purchases of $1,065 billion and redemptions of $1,027 billion (rounded values).[14]

Most of this investment and redemption activity was necessitated by the way the trust funds handle their daily cash income and outgo. Each day's estimated tax and interest income is immediately converted into a purchase of that amount of Treasury securities. In a separate operation, securities from the funds' investment holdings are redeemed in amounts sufficient to pay that day's estimated benefits. If, for example, a fund on a particular day has $2 billion in estimated tax income and $3 billion in estimated benefits, the fund will purchase $2 billion in Treasury securities in one operation and redeem $3 billion in another. The net effect is approximately the same as if the fund had redeemed only $1 billion in existing

securities and used that cash, plus the $2 billion in tax income, to pay the benefits.[15]

The acquisition and redemption of securities thus follow the funds' daily income and expenses quite closely, and the funds' invested reserves closely follow the cumulative surplus of income over expense.[16] This leads to a notable semiannual pattern in the investment holdings because of the large payment of interest on the security holdings in June and December. Before 2008, net change in the OASDI fund tended to be positive in all months, and the investment holdings accordingly rose, with especially large jumps from the interest payments in June and December. Since 2008, with the shift to primary (noninterest) deficits, holdings have tended to drift downward in most months, but the interest payments in June and December are large enough that the reserves still rise from one year to the next.

By design, these procedures keep the trust funds' surplus income continuously and completely invested in interest-earning securities, allowing the reserves to be built up and spent down as if they were cash, while at the same time earning market-based interest rates. Some observers worry that because the general account of the Treasury has borrowed the trust funds' surplus income and spent it, the money will not be there when the time comes to redeem the funds. In fact, the trust funds have been redeeming securities all along. The annual gross acquisition and redemption flows are far larger than either the net acquisition flows that have been seen in the past or the net redemption flows that will be seen once the reserves start declining, and the Treasury's annual combined operations for all the government accounts are larger still.

Social Security and the Treasury

Perhaps the most confusing aspect of Social Security financing is the management of the trust fund cash flows on the books of the Treasury. The methods of managing the funds can create the impression that the interest income and even the investment holdings are mere accounting conventions. However, if one looks past the cash flow transactions to the impact on actual payments to and from the public, it becomes clear that an increase in trust fund reserves will be associated with a decrease in publicly held Treasury securities. That decrease in turn reduces the Treasury's current cash needs for interest payments to the public and its need to borrow to make those cash payments.

The financing operations described in the preceding section—the purchase of Treasury securities from OASDI tax or interest income and the redemption of Treasury securities to meet OASDI expenses—are actually handled by the Treasury Department, whose secretary is the managing trustee of the trust funds. (The Treasury is reimbursed from the trust funds for the management costs.) In addition to maintaining the trust fund investment holdings on the Treasury Department books—verifying that the purchases and redemptions are properly accounted for and that interest income is regularly credited—the Treasury also handles the trust fund cash operations. Most of those operations use the Treasury's operating cash accounts, which are held at the Federal Reserve Bank of New York and several commercial banks around the country. The previous section described how trust fund tax income is essentially borrowed by the general account as soon as it is received, in exchange for a security issued to the trust funds. In practice, employers deposit workers' payroll tax contributions directly into the operating cash accounts, and a parallel bookkeeping operation credits the trust funds with the appropriate securities. Similarly, when beneficiaries receive their benefit checks, the checks are cashed from one of these operating cash accounts, and a parallel operation redeems the appropriate trust fund securities.

Operating cash plays a central role in the financing transactions described in this section. The operating cash accounts are maintained at very low levels of cash relative to the volume that flows through them each year—the general fund of the Treasury keeps very little actual cash on hand. To maintain the operating cash balances at such low levels, the Treasury must continually adjust its borrowing from the public to offset any persisting discrepancy between flows of cash into and out of the operating cash account. During the year, in periods when cash withdrawals outpace deposits, the Treasury will soon make up the difference by upwardly adjusting its schedule of borrowing from the public.[17] Conversely, when deposits outpace withdrawals, the Treasury will adjust the borrowing schedule downward. These adjustments in borrowing are an important part of the link between the trust fund cash flows (including the noncash interest payments) and the public.

Table 1 broadly summarizes the Treasury's operating cash account operations in FY 2013. The account began the year with $85 billion in operating cash and ended the year with $88 billion, an increase of $3 billion. That increase is the net result of $11,746 billion in withdrawals and $11,749 billion in deposits.

Most of the withdrawals and deposits, each totaling $8,273 billion, are in offsetting security rollover transactions. Publicly held Treasury securities are

Table 1.
Summary transactions of the Treasury operating cash account, FY 2013 (in billions of dollars)

Operating cash at beginning of year	85
Withdrawals	
Maturing publicly held securities (rolled over)	8,273
Nonoffsetting withdrawals	
General account primary (noninterest) expenditures	2,420
OASDI benefit payments and administrative expenses	813
Net cash payment for interest on publicly held debt	221
Needed for other means of financing	19
Total nonoffsetting withdrawals	3,473
Total withdrawals	11,746
Deposits	
New publicly held securities (rolled over) [b]	8,273
Nonoffsetting deposits	
General account receipts	2,029
OASDI tax income	745
Net new borrowing from public [c]	702
Total nonoffsetting deposits	3,476
Total deposits	11,749
Net deposit	3
Operating cash at end of year	88

Inset A

Total interest on Treasury debt	*327*
OASDI portion of interest on Treasury debt [a]	*-106*

Inset B

Total new Treasury borrowing	*808*
Borrowing back of interest paid to OASDI	*-106*

SOURCES: Author's calculations based on SSA (n.d. b); Department of the Treasury 2013a, 2013b.

a. Paid in securities rather than cash.

b. Issued to replace rolled over maturing securities.

c. New securities issued net of rollovers.

continually maturing and being rolled over into newly issued securities, an operation that requires cash payment to the owners of maturing securities and cash receipt from the purchasers of newly issued securities. If the government were running a surplus, only some of the maturing securities would be rolled over into newly issued securities, and the table would also include a "net redemptions" entry among the withdrawals.[18]

Some may think that the Treasury's financing of OASDI when the government is running a surplus differs from that when the government is running a deficit. Because of the continual stream of maturing securities, however, the mechanics of the financing are similar in both cases. For example, Table 1 indicates that in FY 2013, $8,273 billion in publicly held securities matured. Government expenditures exceeded tax receipts, requiring another $702 billion to replenish the cash balance, for a total of $8,975 billion (not shown) in new securities issued to the public. Had there been a federal surplus, new securities still would have been issued, although the total would have been less than $8,273 billion (and Table 1 would show net redemptions rather than net new borrowing from the public). Regardless of the federal budget status, the amounts of maturing securities relative to the expected deficits or surpluses tend to require the Treasury to issue new securities. OASDI tax receipts reduce the need for these new issues, and OASDI benefit payments increase the need for new issues, whether the budget is in surplus or deficit.

For most of this analysis, we can ignore the offsetting $8,273 billion rollover transactions and focus instead on the nonrollover transactions—$3,473 billion in withdrawals and $3,476 billion in deposits, netting,

like the total transactions, to $3 billion in deposits. Unlike the rollover transactions, these amounts can be tied to annual amounts in the budget accounts.

The largest component of the $3,473 billion in nonrollover operating cash withdrawals was the $2,420 billion in primary expenditures from the general account. Smaller amounts of cash covered OASDI expenses ($813 billion) and interest on the publicly held debt ($221 billion).[19]

In addition to the $221 billion in interest paid to public holders of the debt, the general account also paid $106 billion in interest to the OASDI funds for their holdings of Treasury securities; but because the Treasury simultaneously borrowed those interest payments back, a separate operating cash transaction was not necessary. This does not mean that the OASDI holdings have no effect on the operating cash payments. If the trust funds had not held the Treasury securities, equivalent amounts of additional Treasury securities would have been held by the public, and the cash interest payments to the public would have been the full $327 billion in interest on the public debt. However, with the trust funds holding some of the Treasury securities, only $221 billion in cash was needed for interest payments to the public. The cash outflow for interest payments was thus reduced by $106 billion from what it would have been if the trust funds had not held the securities. This change in the interest payment cash flow is indicated in Table 1, inset A.[20]

Among the deposits listed in Table 1, the largest component of the $3,476 billion in nonrollover deposits was $2,029 billion in general account receipts. OASDI taxes provided an additional $745 billion. The remaining deposits, needed to bring the operating cash balance up to the targeted year-end level, came from $702 billion in new borrowing from the public.

In an important sense, net new borrowing from the public is a residual value because if any of the legislatively controlled primary amounts changes, net new borrowing must also change to maintain the operating cash level. Each additional dollar of tax revenue requires one less dollar to be borrowed from the public. Each additional dollar of general account or OASDI benefit expenditure requires one more dollar to be borrowed from the public. In either case, borrowing from the public is adjusted to maintain the operating cash level. Thus, any changes to the OASDI transaction amounts would affect the residual net new publicly held debt (new securities issued net of rollovers) as well.

The trust fund operations affect this new borrowing requirement through two channels: the trust fund primary surplus or deficit and the trust fund interest income. In the absence of these two effects, the new borrowing requirement would have been $740 billion rather than $702 billion.[21] The trust fund primary deficit of $68 billion would have brought this borrowing requirement up to $808 billion.[22] This $68 billion increase in the borrowing requirement is associated with the net redemption of that amount of Treasury securities held by the trust fund. Replenishing the operating cash for the redemption of these securities requires borrowing that much more cash from the public. The general account debt does not increase, but that amount of the debt is once again held by the public.

The second channel is the payment of the trust fund interest income. The Treasury owes $106 billion in interest on the securities held by the trust funds. If those securities had been held by the public, the interest payments to the holders of the securities would have been cash payments, and the total borrowing requirement would have been $808 billion (see Table 1, inset B). Because the Treasury pays the trust funds in new securities rather than cash, the cash borrowing requirement is reduced by the same amount—$106 billion—as are the cash interest payments. Again, total general account debt is the same either way. Rather than borrowing from the public, the general account has in effect borrowed the interest payments back from the trust funds.

The $68 billion in additional borrowing attributable to the OASDI primary deficit and the $106 billion reduction in borrowing because of the reduced cash interest payments combined to produce a $38 billion net reduction in borrowing from the public. That amount corresponds to the OASDI surplus for that period and the amount by which OASDI reduced the consolidated budget deficit in FY 2013 (discussed in the next section).

Not much would change in Table 1 if we imagined that operating cash was actually paid to the trust funds for the interest on their security holdings and that this cash was then redeposited with the Treasury in exchange for more securities. There would be no change in the end result (because the current arrangement credits the trust funds with the securities anyway), but $106 billion would be added to withdrawals for the OASDI interest payments and to deposits for the cash newly borrowed from the trust funds.

Another interesting mental experiment is to imagine that the trust funds managed their own cash, buying Treasury securities on the open market. That scenario would remove from Table 1 the entries showing $813 billion in cash withdrawals for OASDI expenditures and $745 billion in cash deposits for OASDI tax income, and would thereby reduce the borrowing requirement associated with the OASDI primary deficit by $68 billion. However, the Treasury's cash interest payments would increase by $106 billion. As a result, the net borrowing requirement to maintain the cash balance would be $38 billion higher.[23]

General account debt is the accumulated excess of general fund expenditures over general fund tax income. (Except for some accounting details, it corresponds closely to the total or "gross" public debt.) Although OASDI taxes reduce borrowing from the public and OASDI benefit payments increase it, the total public debt is not affected. The securities that are issued to the trust funds replace securities issued to the public, and public debt—total Treasury securities—remains unchanged. The same holds in reverse for OASDI expenditures: Securities redeemed to cover program expenditures are replaced by securities issued to the public. When trust fund reserves grow each year, as they are doing now, increasing amounts of general account debt are shifted to trust fund holdings. When reserves are drawn down toward their longer-term levels, as will begin to occur in a few years, the general account debt held by the trust fund will once again be shifted to debt held by the public. Total general account debt—the gross public debt—is not affected by these transactions.

Social Security in the Federal Budget

The federal budget looks both backward and forward. It looks backward to account for all receipts and expenditures of public money. It looks forward to provide a framework for allocating resources over the next few years across the agencies and functions of the federal government. The "unified budget" framework provides a set of definitions and conventions that apply governmentwide, supporting detailed Congressional appropriations at the agency level. That framework also allows the tabulation of annual receipts and expenditures (and the surplus or deficit) for the entire federal government.

The budget framework allows the receipts and expenditures tabulated for OASDI to be compared with corresponding amounts for the rest of the federal government or with the consolidated totals for OASDI and the rest of the government combined.[24] However, accommodating OASDI under this unified framework presents some challenges. The accumulation and spending down of the trust fund reserves is oriented toward future expenditures well beyond the budget process' short-term window. In particular, trust fund interest income, which is important to the provision of future trust fund expenditures, fits only clumsily into the concepts developed for the budget framework. This section examines how the OASDI cash flows fit into the backward-looking aspects of the budgets, such as the *Historical Tables* (Office of Management and Budget [OMB] 2014b). The next section examines the baselines and budget constraints in the forward-looking budget aspects.

Each year's *Trustees Report* includes a summarized accounting for the past fiscal year.[25] Table 2 presents a simplified version of that accounting for FY 2013. Trust fund income comprises FICA and SECA payroll tax receipts,[26] collections of personal income tax on certain taxable benefits, and interest on the invested reserves. Outlays comprise benefit payments, administrative expenses, and other expenditures.

Table 2.
OASDI trust fund receipts and disbursements, FY 2013 (in billions of dollars): *Trustees Report* accounting

Component	Amount
Receipts	
Payroll tax (FICA/SECA) contributions	721
Income taxes on benefits	24
Interest on invested reserves	106
Total receipts	851
Disbursements	
Benefits	803
Administrative expenses	6
Other	4
Total disbursements	813
Net increase in asset reserves (surplus)	38

SOURCE: SSA (n.d. b).

Table 3 presents OMB's version of Table 2. OMB reclassifies some of the Trustees' income components. For instance, OMB's social insurance and retirement receipts category is largely the same as the Trustees' payroll tax contributions, but OMB excludes the employer portion of the payroll taxes for federal employees and some of the reimbursements for the 2009–2011 payroll tax adjustments. Those amounts are instead included in cash income under "intragovernmental receipts," along with trust fund interest

income and income from the taxation of benefits. Although the OMB source table gives slightly different totals and breakdowns, the overall surplus is almost identical to that shown in the *Trustees Report* source table.[27]

Table 3.
OASDI cash income and outgo, FY 2013 (in billions of dollars): OMB accounting

Component	Amount
Cash income	
Social insurance and retirement receipts	673
Intragovernmental receipts	178
Total income	851
Cash outgo	
Social Security benefits	803
Administrative expenses	6
Other	5
Total outgo	814
Surplus	38

SOURCE: OMB (2014b, Table 13.1).

Other OMB tables present a more striking reshuffling of components. Although the OASDI budget is not listed by that name in these other tables, the amount listed in the "off-budget" category is identical to that for the OASDI budget after allowing for a relatively small Postal Service expenditure. (In FY 2013, for example, OMB listed the OASDI surplus as $38 billion and the off-budget surplus as $40 billion. The $2 billion difference is entirely attributable to the inclusion of Postal Service expenditures in the off-budget outlays.) Table 4 summarizes the off-budget amounts, omitting the Postal Service expenditures.

Table 4.
Off-budget receipts and outlays, FY 2013 (in billions of dollars): OMB accounting

Component	Amount
Off-budget receipts	
Social insurance and retirement receipts	673
Off-budget outlays (excluding postal outlays)	
Social Security outlays	758
Net interest outlays	-106
Undistributed offsetting receipts	-16
Total outlays	636
Net off-budget change (surplus)	38

SOURCE: OMB (2014b, Tables 1.1, 2.1, and 3.1).

Although the off-budget surplus is equivalent to the OASDI surplus (apart from the Postal Service expenditure), the off-budget receipts and outlays are substantially lower than Table 3's OASDI cash income and outgo. The difference results from a reclassification of a portion of OASDI cash income in Table 3 as reductions to outlays in Table 4. In particular, off-budget income is restricted to the "social insurance and retirement receipts" category mentioned earlier. The remaining trust fund income, labeled "intragovernmental receipts" in Table 3, appears in Table 4 as a *reduction* in outlays.[28] Thus, three large components of OASDI income—interest on investments, income from the taxation of benefits, and federal employer contributions to employee payroll taxes—augment the off-budget surplus; but they do so as reductions in outlays, rather than as increases in income.

Although these reclassifications do not affect the surplus, the division of income and outlays is difficult to interpret. Most notably, Table 4's off-budget Social Security outlays, $758 billion, are smaller than their most important component, the $803 billion of OASDI benefits shown in Table 3; and total off-budget outlays, $636 billion (Table 4), are smaller still.

Listing OASDI trust fund interest income as part of a governmentwide offsetting-receipts category reflects a budget convention that holds that certain components of income or outlays should not be attributed to specific agencies or functions. This convention was not developed with the OASDI trust fund in mind, but rather reflects a general approach toward the budget: "This special treatment is necessary because the amounts are so large they would distort measures of the agency's activities if they were attributed to the agency" (OMB 2014a, 127).

That budget convention should be kept in mind when interpreting the place of OASDI interest income in the budget. When an agency has a small amount of interest income from a fund under its jurisdiction, it might be quite appropriate to treat that interest as income (or a reduction in outlays) of the government at large, rather than of the agency. However, that convention is less satisfactory for the OASDI trust fund. The Social Security Act expressly authorizes the payment of benefits from trust fund reserves composed of accumulated tax and interest income without needing annual reauthorization, and the interest income is an important component of the long-term financing.

The consolidation of the federal accounts into a single summary account often parallels the consolidation

of the operating cash flows described in the previous section. Tax income in the consolidated budget includes both the trust fund's payroll tax receipts and the tax receipts of the rest of the government, corresponding to deposits of tax income into the operating cash accounts. Similarly, noninterest outlays in the budget totals include both trust fund expenditures and rest-of-government noninterest expenditures, both of which are withdrawn from the operating cash accounts.

With the Treasury managing the trust fund cash flows, this parallel holds for interest payments as well. In the budget summaries, federal net interest outlays are reduced because general fund interest expenses are offset by trust fund interest income. In the operating cash transactions, cash interest payments are reduced because interest payments to the trust funds displace cash interest payments to the public.[29]

Because "federal budget deficit" is an ambiguous term, discussing the effect of Social Security on the budget deficit requires special care. Under the 1990 Budget Enforcement Act, OASDI income and outgo are not included in the federal totals for the budget proposals of the president or Congress. (OASDI is therefore said to be off-budget, with "on-budget" understood to refer to all other items.) Under this definition of the budget, OASDI does not contribute to the annual budget deficit. Often, however, budget presentations focus on the consolidated budget total, which subtracts the OASDI surplus from the general account deficit. Under this concept, the OASDI surplus is reducing the consolidated budget annual deficit and, under current projections, will continue to do so until 2020. After 2020, an OASDI deficit is projected to emerge that will add to the *consolidated* budget annual deficit, even though it does not affect the *on-budget* annual deficit.

Similar care is needed with discussing the federal debt. Each year's deficit adds to the debt, so for each definition of the annual deficit, there is a corresponding amount of accumulated debt. Closely corresponding to the on-budget annual deficit is the general account debt, or the "gross public debt." The annual OASDI surplus or deficit does not affect the gross public debt. Corresponding to the consolidated budget annual deficit is the "debt held by the public." The accumulated OASDI reserves reduce the debt held by the public and will continue to do so (under current projections) until the reserves are depleted in 2033.[30]

Ambiguities are resolved by clearly distinguishing between general account (on-budget) and consolidated ("unified budget") annual deficits, and between general account debt (gross public debt) and general account debt minus OASDI assets (debt held by the public[31]). For two budget issues, however, the distinction is less clear. One involves the possibility that some of the general account debt accumulation in the past might have been induced by OASDI surpluses, in which case some of the interest payments on general account debt should perhaps be attributed to OASDI. That issue will be discussed later, in the section examining whether the reserve assets and interest income are real. The other issue involves the role of long-term OASDI projections in the budget process and is discussed in the next section.

Budget Baselines and Long-term Budget Constraints

Neither the trust funds nor the general account have to meet strict annual budget constraints. The trust funds cannot borrow or go into debt, but they can build up reserves through a series of annual surpluses and, once the reserves have been accumulated, they can be drawn back down through a series of annual deficits. This flexibility in annual budgeting makes it possible to provide either a small contingency reserve to protect against sudden economic downturns or a much larger (but temporary) buildup of reserves, as was done to partially prefund the baby boom retirement wave.

By contrast, the general account may borrow, and does so; it has been in debt since the American Revolution. Such annual flexibility allows deficit financing of wartime and economic emergencies and, even in peacetime, the political process of settling on the best levels of taxing and spending can lead to extended periods of annual imbalances and an accumulated building up or drawing down of debt.

To analyze tax and spending levels and proposed adjustments, the federal budget process includes calculating "baseline" projections for the budget forecast period. Baseline projections assume that tax and spending provisions are held at their currently enacted levels. Incorporating some reasonable assumptions about the growth of the economy, they estimate surpluses or deficits and the growth in assets or debt through the forecast period. These projections, together with the projected effects of particular tax or spending provisions under consideration, help inform the development of new tax or spending policies.[32]

Separate baseline calculations can be done for OASDI and for the rest of the budget. The annual *Trustees Reports* calculate 75-year projections under

three alternative assumptions about future economic conditions, and the projection under the intermediate economic assumption is in effect a baseline projection for OASDI, although it is not referred to as such. Similar OASDI 75-year projections, often in conjunction with general account projections and sometimes incorporating the *Trustees Report* assumptions or projections, are provided by various federal agencies (for example, Department of the Treasury 2013c; OMB 2014a; Congressional Budget Office 2013; Government Accountability Office 2014).

The budget's baseline projection for OASDI, sometimes called the "scheduled-benefits" projection, assumes the continuation of already-enacted OASDI tax and benefit provisions. Thus, it can be considered a "current-law" projection, but only until the point at which the reserves are depleted. The Social Security Act authorizes benefits to be paid only out of the accumulated reserves and does not address what would be done if the reserves were depleted. In the absence of any changes to current law, depletion would bring about the reduction or delay of benefits, which would be paid only in amounts that could be funded by ongoing taxes received in the reserve account. The annual *Trustees Report* in fact provides a "payable-benefits" projection assuming that scenario.

Nevertheless, for policy development, the scheduled-benefits projection is more useful than the current-law, payable-benefits projection. Alternative paths to solvency would avoid a sudden reduction in benefits at reserve depletion, and the long-term balance calculated under the scheduled-benefits scenario helps to measure progress toward those alternative paths. The summarized actuarial balance under the scheduled-benefits projection indicates the magnitude of the OASDI tax and benefit policy changes needed over the projection period to avert depletion.[33]

Baseline scoring procedures for the OASDI trust fund require the use of scheduled taxes and benefits, but do not specify the source of the extra funding that would be needed once the reserves and scheduled taxes are no longer sufficient to pay the full scheduled benefits. Implicitly, the extra funding could only be borrowed, but the additional borrowing and the resulting OASDI scoring debt cannot actually materialize.[34] Even if Congress did not take steps in time to keep the reserves from fully depleting, benefits would have to be reduced to the payable level because current law does not allow benefits to be paid by borrowing. The OASDI scoring debt contrasts sharply with general account scoring debt. Any general account scoring debt would materialize as real debt if Congress did nothing.

We can now augment the statements in the preceding section about the effects of the Social Security trust funds on government debt. OASDI reserves will reduce publicly held debt, at least until the date at which the reserves are projected to be depleted, and will continue to do so beyond that date if OASDI taxes and benefits have by then been adjusted to forestall depletion. Until those adjustments are made, however, the baseline budget will show—but only after the projected depletion date and only for budget scoring purposes—a hypothetical addition to the consolidated government debt that cannot actually materialize.

Before the reserves are depleted, any increase in OASDI taxes or any decrease in OASDI benefits will, in addition to postponing the reserve depletion date, reduce both the consolidated budget deficit and publicly held debt. Such an improvement in the consolidated budget could be misinterpreted as a relaxation of constraints on the general account budget because higher general account spending or lower general account taxes would be possible without pushing the consolidated deficit beyond the level it would have reached in the absence of OASDI tax or benefit adjustments. But such a relaxation would not be cost-free. The larger general account deficits would add to the general account debt, which would be held for a time by the trust funds but, once those reserves are depleted, would again have to be held by the public. In the end, the general account is no better off than it would have been if it increased its deficits without the larger trust fund reserves.

Therefore, an improvement in the trust fund annual surplus (or reserves) does not relax any constraints for the general account in the long run. This point is fairly easy to understand when the trust funds build up reserves only temporarily, as with the current buildup and projected drawdown of the OASDI reserves. But it is also true under more general conditions, the most important of which are that the general account debt should not be allowed to exceed a certain fraction of GDP, and that trust fund reserves are not simply transferred to the general account. This means that even if the trust funds were already sustainably solvent, with no projected depletion of the reserves, any additional improvement in the trust fund annual surpluses—bringing with it still lower consolidated budget deficits, larger reserves, and lower publicly held debt—would not ultimately relax constraints for the general account.

This long-term constraint on government deficits and debt, known as the "intertemporal budget constraint" (Blanchard and Fisher 1989), implies that if the government has current debt, its primary deficits and surpluses over the indefinite future must add up to a net surplus equal in present value to that starting debt. The operation of this long-term constraint is easiest to see if one assumes that eventually the government pays off all its debt. However, it applies under a much broader range of scenarios—even those in which, for example, the government runs an unending series of deficits small enough that debt does not grow unsustainably large relative to GDP.

The long-term budget constraint implies an important restriction when the government includes self-financing funds such as the OASDI trust funds among its accounts. Such self-financing funds must meet a long-term budget constraint of its own, with no direct transfers to or from the rest of the government. For as long as that remains true, the account for the rest of the government will also have to meet its own long-term constraint, separate from that of the OASDI funds.

To put the intertemporal constraint into more concrete terms, consider an OASDI sustainable-solvency policy reform that would reduce the predepletion OASDI deficits as the reserves are drawn down to more normal levels. By reducing the trust fund deficits, the reform would also reduce the deficit of the government as a whole and thereby reduce the accumulation of publicly held debt. Yet it would do nothing to help ease the actions that must ultimately be taken on the general account. Improving the asset position of the OASDI funds will not help the general account meet the obligations it has accrued.

In fact, when the government includes a self-financed fund among its accounts, three budget constraints are actually operating. First, the general account must meet the intertemporal constraint imposed by its initial debt on its future tax receipts and expenditures. Second, the self-financed trust fund account must meet the intertemporal constraint imposed by its initial asset levels on its future tax receipts and expenditures. Third, the government as a whole must meet the constraint imposed by the initial governmentwide debt—that is, the general account debt minus the trust fund assets—on future consolidated tax receipts and expenditures. However, this third constraint merely overlays the other two; it does not pose an additional constraint. As long as the general account and trust fund constraints are separately satisfied, the consolidated budget constraint will be satisfied as well.

Analysis that focuses only on the consolidated budget constraint is incomplete because any potential solution will not necessarily satisfy the underlying general account and trust fund constraints. The consolidated budget constraint means that an increase in the consolidated budget deficit this year will require larger consolidated budget taxes (or smaller consolidated budget outlays) in the future. But not any tax increase will do. The separate budget constraints tell us that if this year's increased deficit comes on the general account side, then the future tax increases (or spending reductions) must also come from the general account side.

Similarly, the consolidated budget constraint tells us that a reduction in the consolidated budget deficit this year will allow smaller consolidated budget taxes (or larger consolidated budget outlays) in the future. But the separate constraints tell us that if the reduction in this year's deficit comes from the trust fund side, then the future reductions in taxes must apply to the trust fund taxes.

Separate general account and trust fund intertemporal constraints are the logical outcome of a key characteristic of the U.S. Social Security system: It features a trust fund financed solely from earmarked taxes. The program's designers seem to have decided that a self-financed system is the most secure way to provide lifetime earnings insurance to retired workers.[35] Economic analysis that ignores this institutional arrangement and takes a more abstract approach—viewing fiscal policy through a lens that sees only the consolidated budget, or optimizing taxes and transfers under the consolidated budget constraint without any subconstraints and without regard to the political considerations that led to a self-financed system—will miss important aspects of long-term budgeting.

Interactions Between the Trust Fund and the General Account

As discussed earlier, the trust fund cash flows and the buildup of reserves do not necessarily affect the budget of the rest of the federal government. As the trust fund reserves are built up and then drawn down, Congress can set general account taxes and spending at the levels they would have had without the reserve buildup, and general account debt and interest payments will be unaffected.

Although there are no rigid linkages between the trust fund and the rest of the federal government, the trust fund budget may nevertheless sway the general

account budget through indirect means. In addition, an apparent effect may emerge even when no real effect exists. This section discusses several such effects.

Apparent Effects

Although trust fund cash flows have no direct effect on the general account deficit or debt, at least two features contribute to the appearance of an effect. The first is the Treasury's management of trust fund cash and financing operations. The second is the consolidation of the trust fund budget and the general account budget in governmentwide summary amounts under the unified budget framework. Both of these factors were discussed earlier. Although the Treasury may temporarily replace funds borrowed from the public with funds borrowed from the trust funds until the trust funds need them back, neither transaction changes the debt that the general account had already incurred.

Interactions Within a Common Environment

The trust fund and the general account operate in a common economic environment. Trust fund and general account tax receipts both draw from overlapping pools of taxable income. Likewise, trust fund surpluses add to (and general account deficits subtract from) the same pool of loanable funds. Even without a consolidated budget, general account budgeting would need to keep an eye on not just private economic activity but also trust fund financing, to plan for long-term growth as well as business-cycle contingencies.

Much of the countercyclical impact of the federal budget is automatic, with tax revenues falling during recessions (and some expenditures rising) without requiring any explicit policy steps. Although most of the automatic counterrecession effect comes through general fund payments, the trust fund's tax income—which also falls during recessions—reinforces the general fund effect. These mutual movements, however, cannot be considered the impact of one fund on the other. To the extent that economic policy becomes more proactive, a finely tuned fiscal policy must account for the taxes and expenditures of both the general account and the trust fund, as well as other components of the economy; and in that sense, the general fund and the trust fund can be said to affect each other. The simplest measures of the fiscal impact of federal policy will combine the two funds into a consolidated budget deficit; and if countercyclical policy sets a consolidated budget target for each quarter, then any unpredicted change in the trust fund surplus will require an offsetting change in the general account deficit.

This possible mutual dependency through proactive economic policy is unlikely to persist for longer than one business cycle. Any long-range changes in the trust fund surplus are not part of the changing tides that monetary and fiscal policy attempt to smooth out. Furthermore, active countercyclical policy is likely in practice to be a crude instrument that does not even take short-term fluctuations in trust fund payments into account.

Beyond the horizon of the typical business cycle, both the general account and the trust fund might contribute to (or subtract from) national saving. Again, if some predetermined national saving target were being met, any change in the trust fund surplus would require an offsetting change in the general account deficit. As with countercyclical economic policy, one can doubt whether the long-term saving goal is so fully predetermined. However, if legislators feel that a trust fund surplus is contributing in some measure to national saving, they may feel less need to prevent general account deficits from subtracting unduly from national saving.

Interactions like these differ from those that usually arise in discussions of the impact of trust fund cash flows on the general account. These interactions could occur even if the trust fund were managed independently of the general account, investing in corporate bonds as reserves were built up and then disinvesting as they were drawn down. If the baby boom generation's retirement had been financed entirely through individual saving and personal accounts—rather than in part through a trust fund buildup—then there would have been a corresponding buildup and withdrawal of funds from national saving. That in turn might have influenced Congress to allow more general account debt during the buildup period, which would have competed with the Treasury for loanable funds during the period the baby boomers withdrew their retirement funds. In that sense, these interactions are similar to those between private economic activity and the general account budget process.

Perhaps the most relevant interaction between the trust fund and the general account involves the long-term strategy for dealing with the federal government debt. The general account in the last 15 years has been accumulating large levels of debt relative to GDP. At some point, unless interest rates remain unusually low, the general account must begin to run primary surpluses, which will require higher general account taxes or lower general account spending relative to current levels. This general account adjustment may

occur during the period in which trust fund spending is reduced or taxes are increased to maintain solvency. Even if Congress keeps the two budget processes entirely separate, each account's tax increases or spending reductions would fall on the same national economy and, though nominally independent, adjustments to one fund might best be undertaken with an eye toward the magnitude and timing of adjustments needed for the other fund.

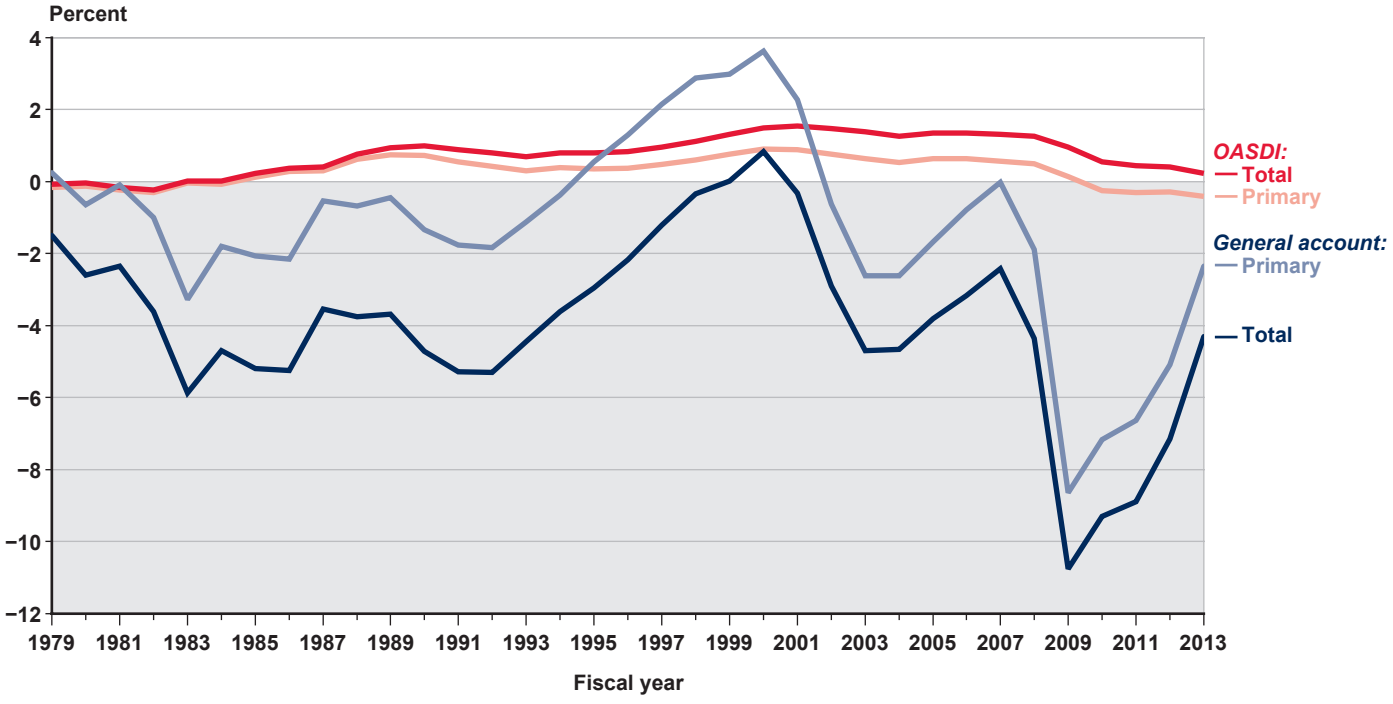
Trust Fund and General Account Effects Induced by Consolidated Budget Balancing

Policymakers occasionally propose raising the trust fund surplus—with either a benefit reduction or a tax increase—as a means of balancing the consolidated budget. Early in the Clinton administration, for example, officials considered reducing the cost-of-living adjustment to OASDI benefits as one of several measures to improve the consolidated budget balance. In the long run, however, such changes would only help maintain trust fund solvency while effectively delaying balance in the general account budget. To the extent that they help postpone general account balance, measures such as these can exacerbate a budget imbalance.

More generally, an induced general account deficit could take place mechanically if Congress, before any trust fund surpluses were expected, set a consolidated budget target for periods longer than the business-cycle span of fiscal policy, then continually met the target even after the trust fund surpluses were enacted and realized. For example, if Congress balanced the consolidated budget each year, any increase in the trust fund surplus would need to be met with a corresponding general account deficit, and the increase in trust fund reserves would require an increase in general account debt. However, Congress is not constrained to follow a prescribed path for the consolidated budget deficit, so this arithmetical relationship does not reflect the impacts of the trust fund on the general account.[36]

Chart 3 shows the primary and overall general account and trust fund deficits or surpluses relative to GDP during FYs 1979–2013, the period of the trust fund reserve buildup. The general account deficit or surplus, with or without interest payments, shows no sign of meeting some predetermined target. Neither would the corresponding consolidated budget amounts, calculated by combining the general account amounts with the much smaller and smoother trust fund surpluses.

Chart 3.
OASDI trust fund and general account of the Treasury: Total and primary annual surplus or deficit as a percentage of GDP, FYs 1979–2013



SOURCE: Author's calculations based on OMB 2014(b).

Even without explicit consolidated budget targeting, a general account deficit could be induced if the trust fund surpluses, by masking the extent of the general account deficit, made it easier for lawmakers to vote for spending increases or tax reductions than would otherwise be the case. On the other hand, members of Congress might be well aware of the possibility that they should set targets with an eye not only toward the consolidated budget deficit but also toward the general account apart from Social Security. Although the consolidated budget amounts are the most widely known figures, Congress has often voted to separate the Social Security budget process from the general account budget process, perhaps reflecting an understanding that the OASDI trust fund has a longer planning horizon and faces different budget constraints than does the general account budget.[37]

The trust fund surpluses, by making consolidated budget balance more attainable, might have strengthened Congress's ability to reduce the deficit in some circumstances. The trust fund surpluses, in other words, might have induced *smaller* general account deficits (Kotlikoff 1990). When the consolidated budget is far from balanced, however, the possibility that relatively small trust fund surpluses are affecting the general account deficit in either direction diminishes.

Ultimately, the question of whether trust fund surpluses have induced greater general account debt is empirical, and probably unanswerable. The general account deficit has been subject to wide swings from varying causes. Without any rigid and clearly defined consolidated budget target, any effect of the trust fund surpluses on general account deficits is likely to be variable and not necessarily contemporaneous, reducing the likelihood that an effect will be detectable or precisely measurable even if it does exist.

Nevertheless, econometric studies have attempted to measure the relationship, and some claim to have detected an effect in some periods (for example, Smetters 2004; Nataraj and Shoven 2004). The evidence, however, is inconclusive. Those studies remove the common business-cycle effects that influence both general account deficits and trust fund surpluses, and they remove slow-moving secular trends as well. (Note that these adjustments undercut the simple presumption that Congress targets the commonly presented budget summaries. Instead, one would have to suppose that Congress is adjusting the general account deficits to meet a much more subtle target.) Statistical analysis, after these adjustments, finds some correlation over some but not all periods between the fluctuations in the adjusted general account deficits and the fluctuations in the adjusted trust fund surpluses. One explanation for this correlation, more plausible than Congressional targeting behavior, is that the statistical adjustment that seeks to remove common influences (such as business-cycle effects) has not fully succeeded, and the analysis finds a correlation between some unremoved effects.[38]

The possibility that trust fund surpluses have induced a larger general account debt, therefore, remains an unanswered question. Although it is implausible that any offsetting deficits have been mechanically induced, some effect in some time periods is possible. Nevertheless, a possible effect of unknown size operating over periods of unknown duration cannot be converted into an assumption that there always has been and always will be a dollar-for-dollar effect.[39]

Are the Trust Fund Reserves Assets? Is Interest on Trust Fund Reserves Income?

From the trust fund perspective, reserves are assets. They represent the accumulation of past surpluses that can be drawn upon to meet future benefit payments. Even from the perspective of the federal government as a whole—consolidating the trust funds and the general account—the trust fund reserves are still assets, netting against the general account debt to lower the total government debt. As with any calculation of net worth, the fact that total liabilities are larger than total assets does not change the asset status of the individual assets.

In the summary budget accounts, interest appears sometimes as an income item and sometimes as a reduction in outlays (as discussed earlier). In either case, however, the interest income both adds to the trust fund (or off-budget) surplus and reduces the governmentwide deficit, with no effect on the deficit of the rest of the government (the on-budget deficit). From a cash perspective, too, the interest income on the reserves reduces interest outlays to the public. By purchasing some of the debt that otherwise would have been purchased by the public, the cash interest payments that would have gone to the public for that debt are reduced; and because the corresponding cash payment to the trust funds is immediately borrowed back, no actual cash transaction is needed.

The conclusions that the trust fund reserves are assets and that trust fund interest income reduces the

consolidated budget deficit need to be reconciled with popular analyses that claim that the trust fund assets and the interest on them are economic fictions, mere accounting entries. There seem to be two main arguments, conceptually different, behind these analyses. The first, less common, stems from the possibility discussed in the previous section that the trust fund surpluses might have induced larger general account deficits. In that case, it would still be true that the trust fund reserves are assets and the general account liabilities are liabilities. The reconciliation would need only to note that general account liabilities might be larger than they would have been without the trust fund buildup, although to what extent is not known.

Estimating how much of the Treasury liability was induced by the trust fund buildup is problematic, as is labeling that part of the Treasury liability (and the corresponding part of the trust fund reserve accumulation) as "fictional" or "mere accounting." The new Treasury liability was not simply issued to meet the trust fund surplus, but had to arise through some excess of general account expenditures over general account revenues. The liability is real: The interest payments on the Treasury securities, whether they are held by the public or (for the time being) by the trust funds, represent the postponed cost of an earlier general account expenditure or tax reduction.[40] The liability, furthermore, can remain even after the trust fund assets are spent down.

The factors that influence Congress to choose the level and financing of general account expenditures need to be distinguished from the expenditures and financing themselves. Presumably, Congress deems the expenditures to be worth the cost of financing them, regardless of whether the costs are paid immediately (from current taxes) or later (through postponed taxes to pay for debt redemption or for interest on the debt). If Congress chooses to postpone the financing, the liability and the ensuing interest payments are a cost directly attributable to the earlier expenditure, not to whatever factors (economic policy, trust fund surpluses, and so on) might have contributed to the choice of those expenditures and the method of financing them.

The second rationale for declaring the trust fund reserves and interest payments to be fictional is cited more often than the first. Its proponents argue that by investing the trust fund cash in Treasury securities and allowing the general account to spend the cash, the assets seemingly accumulated by the trust funds are offset at the Treasury by an accumulation of equal liability, even if the general account budget itself is not affected.[41] Although some of the analyses recognize that the initial trust fund investment is accompanied by a reduction in the Treasury's borrowing from the public, they miss the fact (as discussed earlier with reference to operating cash flows) that cash interest payments to the public are continually reduced for as long as the trust funds hold the securities. The general account liabilities are unaffected. Although publicly held debt is for a time reduced, general account liabilities for the interest on the debt continue to accrue in the trust fund holdings. When the trust funds redeem their securities and accrued interest, the general account, in borrowing this amount back from the public, holds exactly the same position it would have held without the trust fund reserve accumulation. There is no increase in Treasury liabilities; there is only an increase, for as long as the reserves exist, in trust fund assets.

Neither does the cashless aspect of the trust fund interest payments indicate that they are not real income. Cashless payment is possible because the recipient of the interest payment is the same as the lender who provides the borrowed funds to make the payment. If a mutual fund were created that allowed many small investors' holdings to be combined and used to purchase shares in Treasury bills, and if the Treasury allowed interest on the fund's holdings to be paid with more Treasury bills, the same kind of economizing on cash transactions would occur, except that the transactions would no longer be intragovernmental. Similar cashless results from offsetting transactions are possible entirely outside of government financing. At the simplest level, the same thing happens every time a bank credits a depositor's account with a monthly interest payment.

Other aspects of trust fund interest income might seem to support the view that the interest income is somehow less real than tax income. One example is the usefulness in trust fund analysis of the annual primary (noninterest) surplus. The present value of all future primary surpluses and deficits, a key calculation in long-term trust fund analysis, appears to leave interest payments out of the equation. But the interest payments in fact remain in the calculation in the form of discount factors used to summarize the present value. At any rate, such present-value calculations are also used in evaluating the sustainability of private pension plans or government budgets. Nothing in the arithmetic of interest rates and discounting

indicates that interest payments should be considered an accounting fiction for the trust funds, but not for the rest of the government—or for a private pension plan that compares its present reserves with expected future primary income and expenditures.

One reason sometimes given for viewing trust fund interest payments as a mere accounting transaction is that the trust fund interest rate could be set at any arbitrary level without immediately affecting the consolidated budget. For example, if Congress set the interest rate on the special-issue securities to zero, the trust funds would no longer be credited with interest earnings on their reserves, and they would no longer receive securities in exchange for that interest income; but the consolidated budget deficit that year would not be affected (Blinder 1989, 138).

However, that argument does not account for all of the changes in government cash flows associated with the borrowed trust fund reserves for which the interest payment is made. Even if Congress were to set the trust fund interest rate to zero, the general account would still hold funds borrowed from the trust funds rather than from the public, and the general account would still benefit from reduced cash interest payments to the public even when it no longer compensated the trust funds for the borrowed amounts.

An interest rate on trust fund securities that is arbitrarily fixed rather than set by the market should really be considered a combination of the market rate and a transfer to or subsidy from the general account. An interest rate set at zero, for example, would cause the regular interest payment from the general fund to the trust fund to be offset by a subsidy of equal amount from the trust fund to the general fund. As already discussed, the interest payment itself does not create any new obligations for the general account. Those amounts would be paid anyway—to the public rather than to the trust fund. The other part of the transaction, the subsidy to the general account, would allow that account to reduce its other debt, allowing later tax decreases or expenditure increases of the same present value. Those subsidies would therefore require real changes in general account tax or spending levels that are in no sense mere accounting fictions.[42]

Since 1939, the interest rate on trust fund securities has not been set arbitrarily but has been tied to the interest rate on Treasury securities, which is determined in the market. The slight variations between the trust fund interest rate and the rates that would have been paid on market-purchased securities are negligible for the effects considered here.

Reserve Depletion and Cash Flow Crises

The 1977 Social Security amendments enacted a series of tax increases beginning in 1978 that instituted level-tax trust fund financing during the baby boom generations' working years, entailing a large buildup of reserves before baby boomers reached retirement. (The buildup is discussed in the next section.) It would take time, however, for the tax increases to affect reserves, which at the time were projected to decline to a very low level in the early 1980s (a trust fund ratio of 21 percent) before beginning to rise. Projections soon worsened. By 1979, near-term monthly cash flow problems for the OASI fund were projected to begin in 1983 under the most pessimistic of the Trustees' three scenarios, and by 1980, problems were projected to begin in late 1981 under the intermediate scenario and in 1982 under the optimistic scenario (Board of Trustees 1979, 1980).

Before 1997, benefits were paid at the beginning of each month. Because tax receipts arrived daily, cash-flow problems during the month were likely whenever the trust fund reserves fell below about 8 percent of annual expenditures. To pay the benefits due at the beginning of January, for example, the trust funds needed to have about one-twelfth, or 8.3 percent, of annual benefits on hand. Although tax receipts sufficient to pay those benefits would arrive during January, and the trust fund could remain solvent on an annual basis, the cash would not yet be available at the beginning of the month when the payments were due.

In 1982, Congress enacted a provision that allowed the trust funds to borrow, under strict limits, additional reserves from the Medicare Hospital Insurance (HI) fund, which was then in surplus. Although those borrowings (with their offsetting liability) did not add to the net Social Security trust fund assets, they did supply cash reserves to the funds, alleviating (but not eliminating) the potential cash flow problem.

Resolving the cash-flow crisis was the immediate aim of further reforms in 1983, and two provisions directly targeted the cash-flow problem. The first, introduced in May 1983, allowed the trust funds to be credited at the beginning of the month for revenues that were expected to be received later in the month. (This provision would be eliminated in 1990, when it was no longer needed.) By effectively allowing the funds to borrow an upcoming month's taxes in advance, intramonth cash flow problems were forestalled.

The second of the 1983 cash-flow provisions augmented the temporary arrangement that allowed

the OASDI funds to borrow reserves from the HI fund. At the time, projected surpluses indicated that the loans could be repaid by 1990. As it turned out, additional loans allowed under the 1983 provision were not needed, and the 1982 loan was repaid in 1985 and 1986.

The 1983 legislation introduced several other changes that contributed to the short-term recovery of the system. For example, a portion of the payroll tax dedicated to the DI fund was shifted to the OASI fund, a payroll tax adjustment that had been scheduled for 1985 was advanced to 1984, and some government and nonprofit workers were brought into OASDI coverage. In addition, a portion of the Social Security benefits received by certain beneficiaries was made subject to personal income taxes, and the resulting tax receipts were directed to the trust funds. Although trust fund solvency remained fragile for a few years, these changes, plus robust economic growth, soon brought reserves to the level at which short-term solvency was no longer in question.[43]

As currently projected, the decline in reserves toward depletion around 2033 would be too rapid to be remedied by measures similar to those taken in 1983. But if the reserves by then are stronger than they are currently projected to be, either because of changes in the legislated provisions or because the projection assumptions turned out to be too pessimistic, the same sort of touch-and-go insolvency could recur, with revenues that are sufficient to cover expenditures in the longer term but not in the short term. Intramonth borrowing, as enabled during 1983–1990, could be reintroduced.[44] However, such an arrangement would be considerably less useful because benefit payments have been spaced out over the month since 1997, making the likelihood of an acute short-term solvency crisis more remote.[45] Presumably, Congress will address the shortfall before 2033, and there will never be a full depletion.

Level-Tax Financing and the Trust Fund Reserve Buildup

The modern era in OASDI trust fund financing began with changes enacted in 1972 and 1977 that minimized the need for frequent adjustments in scheduled taxes and benefits by indexing benefits and the tax base to average wages. With the introduction of indexed benefits, scheduling tax increases far in advance to finance the baby boom's retirement made sense. In 1972, accordingly, a tax increase was scheduled for 2010, when the baby boomers would be starting to retire. In 1977, the tax increase was advanced 20 years, so as to start in 1990. The level of the increase was raised as well, to 12.4 percent, which remains in effect today.

The 1977 tax schedule reflects an intended "level-tax" approach to financing the trust fund to cover the projected retirement benefit costs of the baby boom workers. A purely pay-as-you-go approach would match the tax rate in each period to its cost rate (benefits as a percentage of taxable payroll), with lower tax rates in effect while the baby boomers were working and higher tax rates in effect when they retired. Such an approach would not build up more than a small contingency reserve. A level-tax approach, by contrast, keeps the tax rate constant and builds up a much larger reserve fund that is not drawn down until it is needed, as the baby boomers retire.

The level-tax approach lets the baby boom workers shoulder at least a part of the cost of their retirement. While they are working, baby boomers pay higher taxes than are needed to support the benefits of the smaller cohorts that preceded them. Drawing from the reserves when the boomers are retired allows the subsequent generations of workers to pay taxes at a lower rate than they would have paid under purely pay-as-you-go funding.[46]

Even before the change enacted in 1977, the trust fund reserves were projected to rise to historically high levels; the projected trust fund ratio for 2010 was 279 percent. With the 1977 provision to increase the scheduled tax rates, the projected peak ratio rose to 335 percent. However, the deterioration in projected trust fund solvency that led to the short-term cash flow crisis in 1983 also affected the longer-term picture. By 1982, the trust fund ratio was projected to rise to only 177 percent during 2010–2015 (Board of Trustees 1978 and 1979, Table 28; 1980, Table 29; 1982, Table 32).

Level-tax financing, with the associated large buildup in reserves, was not the only financing option available in 1983. For example, a more complete advance-funding regime would have set taxes high enough to pay retired baby boomers entirely from their accumulated fund, and the payroll taxes of younger workers at that point would accumulate entirely toward their own retirement. A still more complete "endowment-funding" approach would set taxes high enough for a period long enough to accumulate a fund that could pay all benefits without any further need of payroll taxes. Feldstein (1975, 1976) argued for large trust fund reserves as a vehicle for increasing national savings and promoted the possibilities of full funding and even endowment funding.[47] Although Feldstein

was head of the President's Council of Economic Advisors at the time, these more complete funding alternatives do not appear to have received serious consideration during the 1983 crisis.

Another proposed alternative to level-tax financing was a return to pay-as-you-go financing with a small contingency fund. The 1979 Advisory Council on Social Security unanimously recommended targeting a contingency fund of about 75 percent of annual benefits (1979). In 1981, the National Commission on Social Security chose a larger fund target, 100 percent of annual benefits. It also recommended scheduling payroll tax rates to meet the fund target by raising OASDI taxes during 1983–1989 (until the cash-flow problem had passed), then reducing them below the level-tax rates during 1990–2019, and raising them again thereafter only when required by the rising costs of the retiring baby boomers (National Commission 1981, 58).

Alan Greenspan chaired a subsequent Social Security reform commission in 1982. The Greenspan Commission rejected the pay-as-you-go approach. Although the 1981 National Commission had suggested avoiding a buildup of the trust fund ratio (projected in 1982 to reach about 180 percent), the Greenspan Commission instead recommended a number of changes that would augment the buildup (1983, 27–28). On the Greenspan Commission's recommendations, tax rate changes that had been legislated in 1977 were accelerated: An increase originally scheduled for 1985 was moved forward to 1984 and, although a further increase to 12.4 percent remained scheduled for 1990, a partial increase toward that level began in 1988. Several other changes affected other sources of income and costs, including subjecting a portion of benefits to income taxation and delaying cost-of-living adjustments. Although the Greenspan Commission's primary focus was to clear the near-term trust fund financing hurdle, its recommendations also contributed to building up the reserves in the longer term.

The Greenspan Commission did not target full 75-year solvency, but Congress, in implementing the Commission's proposed changes, added a gradual increase in the age of eligibility for full retirement benefits, raising it incrementally from 65 to 67. This change has the effect of reducing benefits relative to lifetime earnings for nondisabled workers and has been augmenting trust fund surpluses since 2000.

The long-term result of these changes was a substantial increase in the projected trust fund buildup. After Congress enacted the Greenspan Commission recommendations, the trust fund ratio was projected to peak at 544 percent (Board of Trustees 1983, 80). The 1983 *Trustees Report* was the first to express the reserves as a percentage of GDP, projecting them to reach 25 percent of GDP in the early 2020s.

The changes implemented during the 1983 crisis, including those with short-term objectives, had other lasting effects. For instance, OASDI's status as a self-financed system was retained, solidifying the notion that the trust funds should continue to be self-financed in the future.

Whether by design or not, the 1983 changes also solidified the level-tax approach to financing the baby boomer retirement costs. The wisdom and practicality of building up a large temporary reserve fund was soon debated,[48] and some Greenspan Commission members, most notably Senator Daniel Moynihan (D–NY), would later support a shift away from the reserve buildup and back toward a pay-as-you-go approach. Nevertheless, the level tax set in place in 1978 was never removed. The 1991 Advisory Council on Social Security (1990) recommended taking no action to reduce revenue to the funds. The buildup of the reserves is now historical fact, although they did not grow quite as large as originally projected, ultimately reaching 18 percent of GDP rather than 25 percent.

The 1983 reforms resulted in 75-year projections that foresaw positive trust fund reserves despite annual deficits toward the end of the projection period. Thus, the primary goal—positive reserves throughout the projection period—was met, but the reserves would be declining at the end of the period and exhausted soon after. Because the 75-year projection period is a moving window, subsequent annual reports would eventually project a depletion of reserves even if the underlying assumptions did not change. The 1983 reform, in other words, did not achieve what today is called a "sustainable solvency," which aims for steady, rather than declining, reserves at the end of the projection period.[49] Because the cost rate almost levels off once the baby boomers retire, a sustainable solvency in the 1983 projections could have been achieved with slightly higher taxes or lower benefits.[50]

Implicit in the level-tax financing of the baby boom retirement is a period of deficits as reserves are drawn down. The change from surplus to deficit occurs at the nominal-dollar peak in trust fund reserves (2019–2020 in the 2014 projection). The change from primary surplus to primary deficit occurs even earlier. That changeover necessarily occurs before the reserves

reach their nominal peak. For large reserve buildups with large interest payments, the changeover in the primary surplus will occur many years before the peak nominal reserves. For the OASDI funds, the first year of primary deficits was 2010.

When the interest rate tends to be higher than the growth rate, a primary deficit (benefit expenditures exceeding tax income) will be normal even for a fund that maintains only small contingency reserves under a primarily pay-as-you-go arrangement. Over a long period of buildup to a larger fund, primary deficits will temporarily be replaced by primary surpluses, but primary deficits will eventually resume as the buildup slows down.

When there is only a temporary buildup of reserves, primary deficits will be especially large as the reserves are drawn down. I stressed earlier that the peak in reserves is just a peak and not a crisis. The same is true of the earlier changeover from primary surplus to primary deficit. Large deficits are to be expected as the reserves are drawn down. When they are enacted, solvency adjustments will not necessarily eliminate the eventual primary deficits, but they might aim for an orderly winding down to primary deficit levels associated with sustainable reserves.

The shift in 2010 from primary surpluses to primary deficits was notable because it marked the year in which taxes under pure pay-as-you-go financing would have risen above currently scheduled tax rates. In the era of primary surpluses that has now ended, the baby boom generation paid higher taxes than it would have paid under pure pay-as-you-go financing. In the era of primary deficits that has now begun, workers (including many born after the baby boom) will pay lower payroll taxes than they would have paid under pure pay-as-you-go financing of the same benefits.

Conclusion

The OASDI reserves are an account on the books at the Department of Treasury, and the OASDI cash transactions (revenues dedicated to the OASDI trust funds and benefit payments drawn from the funds) are merged with the Treasury's cash transactions for the rest of the government. The reserves are in effect borrowed for a time by the rest of the government, and then repaid with interest when the trust funds need them back. The results, in the end, are essentially the same as they would be if the trust funds were maintained entirely independently of the rest of the government, investing the surplus revenues on the open market. The trust funds do not gain or lose by the arrangement, and the management of the cash flows is simplified considerably.

The arrangement also has little direct effect on the rest of the government. The publicly held debt is reduced during the period the reserves have been borrowed, and the cash interest payments to the public are reduced as well. However, the total general account debt, taking into account both the amounts owed to the public and the amounts owed to the trust funds, is unaffected, as is the total interest paid. Although some analysts have argued that there might be an indirect effect—if trust fund surpluses mask and thereby encourage larger general account deficits—the evidence for such an effect is inconclusive. Even if such an induced increase in general account debt and interest payments exists, those increases would be directly attributable to the postponed financing of general account expenditures, not to the OASDI surpluses themselves.

When the general account budget and the OASDI trust fund budget are consolidated under the unified budget framework, any trust fund surplus reduces the consolidated budget deficit to a level below that of the general account deficit, just as the borrowed trust fund reserves reduce publicly held debt below the level of general account debt. An important implication of the self-financing status of the OASDI trust funds is that this reduction in the consolidated budget deficit does not ultimately ease the financing of the general account debt. Any addition to the trust fund surplus (and any reduction in future trust fund deficits) adds only to the trust fund reserves. The financing of the general account debt must ultimately come from changes in general account revenues and expenditures.

The large buildup of trust fund reserves resulted from financing changes in 1978 and 1983 that instituted level-tax financing of the baby boom retirement costs. That buildup has now reached its peak. By design, the reserves will decline toward levels more compatible with much smaller contingency-level financing of benefits, although adjustments are needed to achieve an orderly transition to sustainable solvency. Trust fund financing has crossed over from primary (noninterest) surplus to primary deficit. That transition not only marked the present-value peak in the reserves, but also the beginning of the era in which current workers are paying less in taxes to support the retiring baby boomers than they would have if there had been no reserve accumulation.

Appendix A. Trust Fund Cash Flows and Reserves

The historical data for this section are from SSA (2013, Table 4.A1). Projected amounts are from Board of Trustees (2014). The portion of interest income in 1983 that was associated with a retroactive adjustment of military credits is categorized as tax income.

In Chart 1 and panel D of Chart 2, flows and reserves shown as percentages of GDP use a GDP series that irons out short-term cycles. This smoothing allows a sharp dip in payroll tax revenues, such as occurred during the recession in 2009 and 2010, to show up as a sharp dip in the revenue line. If the GDP in the denominator of this ratio were not smoothed, the revenue line would dip only if taxable payroll fell more than GDP during the recession. The calculations use the annual calendar-year series smoothed with the R function `smooth.spline (spar=0.65)` (R Core Team 2014). In Chart 2, panel E, taxable payroll is smoothed using the same parameter as that used for GDP. However, the expenditure series used as the denominator in panel F is not smoothed.

The timing of the recessionary dip in trust fund tax income does not exactly match the dip in taxable earnings. OASDI tax receipt flows are estimates, and discrepancies between the estimated transfers and the actual receipts are adjusted in subsequent years. Because actual tax payments in 2009 and 2010 declined more sharply than had been estimated, some of the reduction of tax revenues transferred in 2010 and 2011 is attributable to adjustments for the decline in 2009 and 2010.

In Chart 2, reserve values do not include the amounts borrowed from the HI fund during 1982–1985. Annual *Trustees Reports* and *Statistical Supplements to the Social Security Bulletin*, by contrast, include the borrowed amounts in the end-of-year reserves for 1982–1985 to indicate reserves on hand to meet short-term cash needs. True net assets in 1982–1985 can be calculated by subtracting the borrowed amounts. These corrected end-of-year assets are more consistent with interest income reported for 1982–1985, which is net of the interest on the loans.

The nominal-dollar measurements in Chart 2, panel A are problematic in part because fluctuating inflation rates change the timing of peak reserves and the shape of their buildup and decline. The fluctuations only add to the difficulty of interpreting dollar amounts so large as to be almost meaningless. Reserves are projected to approach $2.9 trillion by 2020; however, much of the rise is attributable to inflation, which would vary under different inflation rate assumptions. Dollars could also be adjusted for growth in prices using either the consumer price index or a GDP price deflator. Price inflation is currently lower than wage inflation and is projected to remain so. Reserves in price-adjusted dollars would therefore fall more sharply at first than the wage-adjusted reserves shown in Chart 2, panel B.

In panel B, the wage adjustment uses the national average wage index series. In panel C, the present-value adjustment uses the interest rate series in Board of Trustees (2014, Table VI.G6). Peak reserves measured in adjusted dollars do not closely coincide with the changeover from surplus to deficit status, as the nominal-dollar measure does. However, calculating an adjusted surplus using an adjusted interest income can yield a crossover from (adjusted) surpluses to (adjusted) deficits at the same time the adjusted reserves peak. Taking the wage-adjusted measure as an example, if the growth rate of average wages is w percent, then the reserves will need to grow by w percent to keep up with wages. Part of the interest on the reserves will go toward keeping the reserves growing at the wage-growth rate, and the remainder (plus any primary surplus) will enable the reserves to grow relative to wages. If the interest rate is r percent, then the difference between the interest rate and the rate of growth of wages, r-w, constitutes an adjusted interest rate with which adjusted interest income for the trust fund reserves can be calculated. If the portion of the trust fund surplus contributed by interest income is restricted to this adjusted figure, then the adjusted surplus will change to a deficit when reserves as a percentage of average wages reach their peak.

Both of the adjusted-dollar measures incorporate corresponding interest rate and interest income adjustments, using other growth rates in place of the wage growth rate w. If the reserve levels were adjusted to price growth using either the consumer price index or a GDP price deflator, the corresponding interest rate would then be the "real" interest rate, or the nominal interest rate after subtracting the inflation rate. In Chart 2, panel C, the appropriate growth rate is the interest rate itself, and the adjusted interest rate (after subtracting itself) is zero, so the corresponding surplus is the primary surplus, leaving out all interest payments. Aside from this one convenient characteristic, however, the present value of reserves shares the same problem as nominal or inflation-adjusted dollar reserves: It provides no standard with which to put the large dollar numbers into an interpretable context.

Appendix B. Cash Flows During the Year

SSA's Office of the Chief Actuary (OCACT) provides data on trust fund income, outgo, and financing on its website (http://www.socialsecurity.gov/oact/progdata/fundsQuery.html). Users can select annual (calendar or fiscal year), quarterly, or monthly data for the OASI and DI funds separately or combined. Most data are available for 1990 and later, with some series available for 1987 and later.

Table B-1 summarizes monthly trust fund cash flows for FY 2013. Although income is divided into primary and interest components, only total outgo is presented. (The OCACT website provides additional detail by component for both income and outgo.) The table also divides securities acquisitions and redemptions into two parts, primary and residual. For acquisitions, the primary amount equals the primary income for the month (plus, in June and December, the semiannual interest payment). Similarly, primary redemptions match monthly outgo. Except for a paired acquisition and redemption in June of about $203 billion, the residual transactions are relatively small. Most of the residuals occur in offsetting pairs in the same or adjacent months.[51]

Each day, payroll taxes sent by employers are used immediately to acquire Treasury securities.[52] Two other sources of trust fund income are immediately converted into securities: the large semiannual interest payments on the trust fund holdings (paid in December and June), and the quarterly payments of proceeds from the income-taxable portion of benefits for high-income taxpayers. Month by month and week by week, the issuing of new trust fund securities tracks the trust fund primary income plus, in December and June, the large semiannual interest payments on the security holdings.

The interest rate on these special-issue securities is determined automatically by the spectrum of interest rates on Treasury securities currently available on the market.[53] This procedure allows securities to be issued to the trust funds daily (or more frequently) at an interest rate closely approximating the rate that the trust funds would have paid for those securities on the open market.[54]

Although the source data distinguish between two types of securities (certificates and bonds), Table B-1 combines them. Certificates are issued daily during the year to mature on June 30th. Bonds are issued only

Table B-1.
Monthly OASDI trust fund cash flows and special-issue securities transactions, FY 2013 (in billions of dollars)

	Cash flows					Securities transactions					
	Income			Surplus		Acquisitions		Redemptions		Net	Invested
Month	Primary	Interest	Outgo	or deficit	Assets	Primary	Residual	Primary	Residual	change	holdings
End of FY 2012	. . .	. . .	. . .	. . .	2,717.9	. . .	. . .	. . .	. . .	. . .	2,719.0
2012											
October	55.9	0.1	65.1	-9.1	2,708.8	55.9	0.0	65.1	1.1	-10.2	2,708.8
November	53.0	0.1	65.5	-12.3	2,696.5	53.0	0.0	65.5	-1.0	-11.5	2,697.3
December	49.9	52.6	66.7	35.9	2,732.3	102.5	5.8	66.7	5.9	35.7	2,733.1
2013											
January	73.3	0.0	66.9	6.4	2,738.7	73.3	0.3	66.9	0.4	6.2	2,739.3
February	56.7	0.1	67.2	-10.4	2,728.3	56.7	0.0	67.2	-0.4	-10.1	2,729.2
March	67.8	0.1	68.2	-0.3	2,728.0	67.8	0.0	68.2	0.0	-0.3	2,728.9
April	84.2	0.1	67.1	17.1	2,745.1	84.2	0.0	67.1	0.8	16.3	2,745.1
May	58.9	0.1	68.2	-9.2	2,735.9	58.9	0.0	68.2	-0.8	-8.5	2,736.7
June	67.3	52.3	73.0	46.6	2,782.5	119.6	203.6	73.0	203.4	46.8	2,783.5
July	61.7	0.0	68.2	-6.6	2,775.9	61.7	0.0	68.2	0.2	-6.8	2,776.7
August	56.3	0.1	68.6	-12.3	2,763.6	56.3	0.0	68.6	0.0	-12.3	2,764.3
September	60.4	0.1	68.6	-8.1	2,755.5	60.4	4.8	68.6	4.6	-7.9	2,756.4
Total, FY 2013	745.3	105.7	813.3	37.6	. . .	850.2	214.6	813.3	214.1	37.3	. . .

SOURCE: SSA (n.d. b).

NOTES: Totals do not necessarily equal the sum of rounded components.

. . . = not applicable.

on June 30th and mature on that date 1 to 15 years later. The securities pay interest in December and June. If redeemed before maturity, the security pays any accrued interest upon redemption.

When securities are redeemed to meet daily expenses, the automatic procedures also determine the choice of securities to be redeemed. Currently, redemptions tend to be from securities acquired earlier that same month or in the 1–2 preceding months.

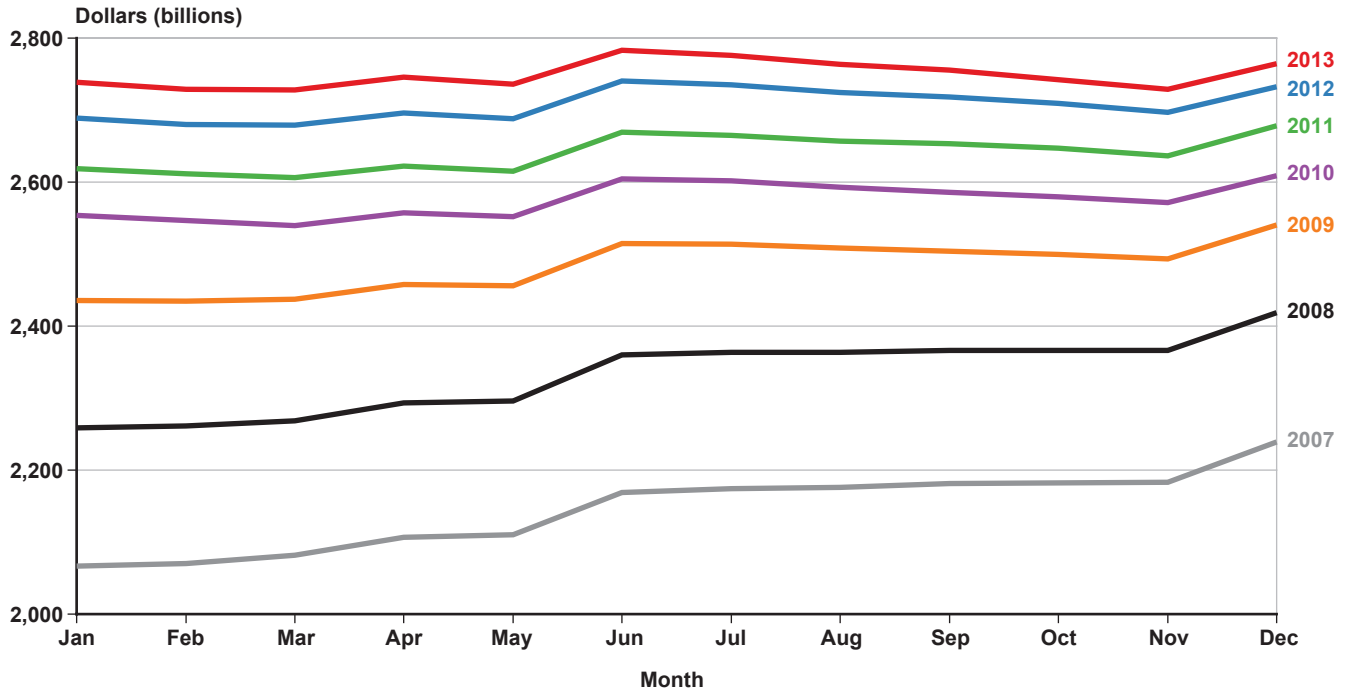
Securities are redeemed only in the face amount (plus accrued interest) needed to meet payments due. Therefore, redemptions tend to be slightly lower than actual expenses. This effect is small because the payments in December and June account for almost all of the annual interest income.

Therefore, aside from this small adjustment for accrued interest, securities redemptions during the year tend to track the trust fund expenses during the year, as shown in Table B-1. The main exception, again, is the annual redemption of maturing securities. Each June 30th, any yet-unredeemed certificates mature, as do many of the special-issue bonds acquired during the June 30th rollovers in the preceding 15 years. These maturing securities are rolled over into newly issued bonds, with June 30th maturity dates distributed over the next 15 years.[55]

The adjustment in redemptions (to reflect accrued interest) and the simultaneous acquisition and redemption of securities (in the June 30th rollover) affect gross acquisitions and redemptions, but do not affect net change in securities. The net change in securities, therefore, tracks the monthly difference between income (including interest) and expenditures more closely than the separate income and expenditures track the separate acquisitions and redemptions. In Table B-1, this can be seen by comparing either the surplus (or deficit) in cash flows with the net change in securities, or the assets (the cumulative surplus) with the invested holdings (the cumulative net securities acquisitions).

Chart B-1 shows monthly reserve levels for the combined OASDI fund over 7 years (2007–2013). Overall fund growth during that period is indicated by the rise in the fund levels in each successive year. The repeating pattern of semiannual interest payments in June and December appear for each year. Other regularly occurring events—such as quarterly remittances of taxes on self-employment earnings and quarterly payments from the Treasury for estimated proceeds from income taxes on benefits—contribute to the annual patterns, most notably an increase each April. The reserves tended to rise from month to month through 2008, and then shifted to a decline from

Chart B-1.
Monthly OASDI trust fund reserve levels, 2007–2013 (in billions of dollars)



SOURCE: SSA (n.d. b).

month to month (except for the months with semiannual interest payments) beginning in 2009, reflecting the transition from primary surpluses to primary deficits. Through 2013, interest income still offset the primary deficits over the year, so that the combined funds were still rising from one year to the next, but that annual increase will not continue for long.

Appendix C. Social Security and the Treasury

The Treasury Department's Daily Treasury Statement (DTS) details daily cash flows (see http://www.fms.treas.gov/dts/index.html). Each year, the September 30th edition also provides summed amounts for the entire preceding fiscal year. However, the DTS does not provide all the detail needed to follow the Social Security flows. For example, the DTS does not separate OASDI tax income from other daily tax deposits. Furthermore, although the DTS tracks the portion of benefit payments made through electronic fund deposits, the rest of the benefit payments (and the OASDI administrative costs) are not separated from other government expenses. Likewise, the DTS does not separate the issuance and redemption of Treasury securities held by the OASDI fund from those of other government accounts.

For those reasons, only the starting and ending cash balances and the total withdrawal and deposit amounts in Table 1 are the actual amounts from the September 30th DTS; the other amounts are reconstructed approximations. Because the DTS does not fully separate the OASDI operating cash payments from other payments, Table 1 shows OASDI tax income, interest income, and expense amounts derived from those given in Table B-1. Actual operating cash payments for OASDI tax receipts and expenditures might differ from the budget amounts in Table B-1 for several reasons, including accounting-entry timing differences or the exclusion of Medicare premiums from the cash payments.

General account interest payments to the public ("net cash payment for interest on publicly held debt" in Table 1) are those given in the budget documents (for example, OMB 2014a, Table 3-1) as "net interest." The DTS reports a slightly larger net interest expense ($224.7 billion).

The transactions summarized in Table 1 conceal a good deal of activity from non-OASDI trust fund accounts that are included in the general account. The gross issuance and redemption flows to these other accounts were quite large, but the net flows were small.

Appendix D. Social Security in the Federal Budget

The annual *Trustees Reports* present relatively detailed trust fund budgets each year. However, I obtained the FY 2013 data from the SSA OCACT website, cited in Appendix B.

The OASDI payroll tax contributions are the FICA/SECA contribution amounts listed on the OCACT website. These amounts include various payroll tax reimbursements, the most important of which are the payroll-tax reductions introduced as temporary antirecession measures in 2009–2011. In the *Trustees Reports,* those reductions are itemized under trust fund revenues. In the OMB tables, one provision is listed under "social insurance income" (and therefore included in off-budget receipts), but another is listed under "intragovernmental revenues" (and therefore included as an offset to outlays). The off-budget surplus was not affected by these reimbursements.

Entries in Table 4 echo the treatment of OASDI components in many of the detailed OMB tables. For instance, OMB's "Receipts by Source" (2014b, Table 2.1) includes a "social insurance and retirement receipts" category that combines the OASI and DI payroll tax receipts from OMB (2014b, Table 13.1) and is identical to the off-budget receipts shown in Table 4. The OMB tables do not list trust fund income from taxation of benefits separately, instead including it in the individual income taxes amount. Trust fund interest income is not included in the OMB tables on off-budget receipts at all, showing up instead as reductions in outlays.

In the detailed outlays tables (OMB 2014b, Tables 3.1, 3.2, and 4.1), Social Security outlays are offset by receipts from the taxation of benefits and other reimbursements, as shown in this article's Table 4. Outlays by *agency*—that is, for SSA (OMB Table 4.1)—are notably larger than outlays by *function* for Social Security (OMB Tables 3.1 and 3.2), because the agency administers the Supplemental Security Income program as well as OASDI. Supplemental Security Income program payments (and some of the administrative costs) are paid from the general fund rather than from the OASDI trust funds, but are included in SSA's agency outlays. (By contrast, the costs to the Treasury of managing the trust funds are included in OASDI administrative expenses and are paid from the trust funds, not from outlays for SSA.)

The offsetting receipts that are missing from OMB's detailed income tables (and not included in the Social Security agency or function outlays) are collected into a governmentwide offsetting receipts category that appears in the detailed outlay tables. They are combined there with similarly reclassified components from other parts of the federal government.[56]

Appendix E. Budget Baselines and Long-term Budget Constraints

Blanchard and Fisher (1989, 55 and 127) express the intertemporal budget constraint as an integral, but for this article a verbal formulation is enough: The present value of future primary surpluses will equal the initial debt. The debt need not ultimately be repaid for the constraint to apply. If the GDP growth rate is ultimately less than the interest rate, and the debt growth rate is ultimately less than or equal to the GDP growth rate, the constraint is in effect.

For example, an intertemporal budget constraint with the debt not paid off would occur if the debt were held at a constant exact fraction of GDP, such that it would move with GDP at a rate (g) that is lower than the interest rate. Let r represent the rate at which the debt would grow if there were no primary surplus. To cap the debt growth at the required lower rate g, a primary surplus would be needed to cover the difference, each year amounting to r-g times the debt. A primary surplus equal to r-g times a debt growing at the rate g has a present value equal to the starting debt. Note that even though such a budget would always have a primary surplus, the total budget (including interest) would be in deficit. That is true because a primary surplus of r-g times the debt, minus interest of r times the debt, equals a deficit of g times the debt. Therefore, unending debt and deficits are compatible with unending primary surpluses.

The constraint does not imply any particular upper bound on the ratio of debt to GDP, although other factors—such as confidence in the government's ability to meet its debt payments—may impose such a bound. The price of allowing the debt to grow to reach a higher percentage of GDP, apart from these other factors, is the subsequent need for higher primary surpluses.

A similar constraint applies to a fund with assets. For assets ultimately to grow at less than the interest rate, the fund must have primary deficits over the future summing in present value to that of the starting assets. This constraint applies to the trust funds. Additional constraints might guide policy choices. The OASDI funds, for example, cannot borrow, yet must aim for sustainable solvency by the end of the 75-year horizon. Only a subset of the budget paths that meet the intertemporal budget constraint will also meet this narrower constraint.

For both the general fund and the trust fund, the intertemporal constraint applies not only to the total of future primary surpluses or deficits but also to any variations between feasible budget paths. Currently enacted policies set the boundaries within which the set of feasible future budget paths exist. If Congress were to raise spending or reduce taxes this year, doing so would force a shift to a new set of budget paths with expenditure reductions or tax increases in present-value amounts that sum to, and offset, this year's change. For example, in order to change the set of paths that adjust the personal income tax to offset any incremental general fund changes, a deficit-financed expenditure on improvements to the national highway system this year will have to be paid with the same (present-value) amount of additional income taxes in the future.[57]

The intertemporal budget constraint does not restrict any particular year's budget. In practice, it serves mainly to remind that any increase in today's borrowing has a cost in some tomorrow. For each dollar of debt issued today, a dollar plus interest of additional future taxes will need to be raised, or future expenditures will need to be reduced. The present value of the future tax increases (or expenditure reductions) is the same as the value of this year's postponed taxes, although the postponement can also bring some gains.[58]

Appendix F. Interactions Between the Trust Fund and the General Account

Regressions relating general account deficits to trust fund surpluses may reflect insufficiently controlled-for correlations arising from same-direction adjustments to business-cycle conditions. A regression coefficient is the product of a correlation and a ratio of variations. The typical variations in general account deficits are many times larger than those in trust fund surpluses (Chart 3), and those large differences generate large regression coefficients from any remaining correlation. For example, consider a correlation of 0.30 between trust fund surpluses and general account surpluses (that is, -0.30 percent between trust fund surpluses and general account *deficits*) and fluctuations in

general account deficits that tend to be 6 times larger than those in trust fund surpluses. In that scenario, the regression coefficient of general account deficits on trust fund surpluses is 6 times -0.30, or -1.80. Researchers have attempted to control for common business-cycle effects in the two accounts, but those effects are difficult to control for precisely, particularly if they vary over time and experience different lags. Until we can adequately control for them, the unmeasured common factors remain the simplest explanation for any residual correlation.

Appendix G. Are Reserves Assets? Is Interest on Trust Fund Reserves Income?

The buildup of OASDI reserves peaked at almost 18 percent of GDP. Although that asset accumulation may have been partly offset by some induced accumulation of general account debt, it is worth considering the effect of the asset accumulation on national incomes assuming no offsetting effects. Using very round numbers: If the trust fund reserves increased national saving by about 15 percent of GDP, that infusion of national capital might, by some estimates, in turn provide an additional increase of about 1.5 percent of GDP.[59] In a fully closed economy under Cobb-Douglas assumptions, labor and capital income would share the increase, with each rising by 1.5 percent. If labor supply is fixed, wages themselves would rise by 1.5 percent. The capital income increase of 1.5 percent would have two components. The first is an increase in domestic capital of 5 to 6 percent (if reserves rise by 15 percent of income and if domestic capital is 2.5 to 3 times GDP, using the estimation procedures mentioned in note 59). The second is a drop in the return to capital of about 4 percent (1.5 percent minus 5 to 6 percent). Four percent of a rate of return around 10 percent would be a little less than 0.5 percent, and the less risky interest rates paid on bonds would see a somewhat similar percentage reduction. Gradual wage and interest rate changes of this size would be difficult to distinguish from those arising from other causes. These calculations will overestimate the wage and interest rate effects if the economy is not fully closed. The U.S. economy cannot be considered fully closed, especially within the time horizons considered. If the economy were fully open to the rest of the world, the increase in GDP would take the form of an increase in income from nationally owned capital at unchanged wage and interest rates.

Notes

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[1] There were no questions even in 1935 about the constitutionality of automatically crediting the reserves with the interest income, which therefore became, in a sense, the first "earmarked revenue" for the trust funds.

[2] Although the depletion of the DI fund, currently projected for 2016, is an important and timely topic, this article focuses on longer-term issues more easily discussed by considering the combined OASDI fund. Goss (2010) provides an introduction to the separate treatment of the OASI and DI funds, along with some of the topics covered in this article. Although this article focuses in detail on OASDI payments as part of the federal budget, Goss also discusses many other aspects of Social Security financing, such as the demographic factors (most notably changes in fertility rates) that underlie the growth in program costs.

[3] Some of the puzzling aspects of trust fund interest payments were deliberated at great length in Social Security's early years; see Robinson (1944) as an example. Eventually, key participants in the early discussions arrived at common ground, as reported by the 1957–59 Advisory Council on Social Security Financing (1958).

[4] For a discussion of the Medicare funds, see Foster and Clemens (2009). The Medicare funds, particularly the Supplemental Medical Insurance Fund, differ from the two Social Security trust funds in that they receive substantial revenues from the general fund.

[5] In both business and government, cash accounting is distinguished from accrual accounting, which lists accruing noncash items such as depreciation or accounts payable and receivable. That distinction exists in Social Security accounting as well, but is not important for this article, which focuses on cash flows.

[6] The OASI reserves would last until 2034 under current projections, but the DI reserves only until 2016. To illustrate the relative sizes of the two programs, consider that a reallocation of the OASDI payroll tax to realign the separate depletion dates to the same year, 2033, would push the DI depletion back 17 years but bring the OASI depletion forward only 1 year.

[7] Because panel A shows end-of-year values, the peak in reserves appears at the end of 2019. Although the actual peak could occur in either 2019 or 2020, projected year-end 2020 reserves are lower than those for year-end 2019.

[8] In this article, "primary" refers to any trust fund or general account income or outlays that do not involve interest on existing assets or debts. The *primary* surplus'

components—tax income, transfers, and noninterest expenditures—are under direct legislative control. By contrast, interest payments are determined by the size of the accumulated debt or reserves—a legacy of past decisions—and by the interest rates on the debt or invested reserves, which are determined in the market. The "primary" terminology does not mean that the "nonprimary" interest payments are unimportant. Although the primary components are the only instruments with which to adjust the system, lawmakers' budgeting must factor in the interest payments.

This use of the term "primary" is common in budget analysis but not in a Social Security context. One exception is Myers (1965, 62), who used "primary" for tax income and "secondary" for interest income. (The author retained that terminology in Myers 1993.) In the economic literature on sustainable budgets, this use of "primary" dates at least to Blanchard and Fischer (1989) and, in European analyses, slightly earlier.

[9] Taxable earnings have fallen relative to GDP in part because some employee compensation has shifted from taxable take-home wages to nontaxable health insurance and other benefits. Another factor has been the increasing proportion of aggregate earnings that exceeds the taxable maximum.

[10] All six panels show end-of-year values.

[11] However, adjusted surpluses can be calculated for which the changeover from surplus to deficit corresponds with the peak adjusted-dollar measure. In particular, the adjusted peak for present-value reserves coincides with the change from primary surplus to primary deficit.

[12] The ratio used in panel F differs only in that each year's value is reassigned to the preceding year to be consistent with the end-of-year values shown in panels A–E (reserves at the beginning of 2014 are the same as reserves at the end of 2013).

[13] Using fiscal years facilitates comparisons with budget amounts for the rest of the government.

[14] The slight difference between the surplus and the increase in holdings is attributable to timing and accounting differences between the income/expense flows and the investment in securities. See Appendix Table B-1.

[15] Although aggregate current holdings are exactly the same, future payments on those holdings can differ because the mix of maturity dates and interest rates will change if $2 billion in older securities are replaced by $2 billion in newly issued securities.

[16] The combined funds' gross securities acquisitions and redemptions in FY 2013 each exceeded by a little more than $200 billion the investment of the daily income or the redemptions to meet daily expenses. Almost all of this extra $200 billion in securities transactions was due to the annual June 30th rollover (discussed later), in which unredeemed securities that matured in 2013 were redeemed and immediately replaced by securities maturing up to 15 years later. The simultaneous redemption and acquisition does not affect the total investment holdings.

[17] There is an important distinction between the "public debt" and the "publicly held" portion of the public debt. The public debt is the nontrust fund debt of the U.S. government and, ultimately, of present and future U.S. taxpayers. Part of this public debt is held by the OASDI trust fund and some other government accounts such as the Medicare trust funds. (Note that debt *held by* the OASDI trust fund is not debt *of* the OASDI trust fund.) The remainder is the publicly held debt, whose holders include not only private individuals but also the Federal Reserve and any banks, corporations, state and local governments, and foreign governments that hold U.S. securities (OMB 2014a, 63).

[18] The table simplifies operations by accounting for the rollovers at the annual level. Within the year, there might be periods of net new borrowing, offset later by net redemptions. Table 1 counts those as rollovers. It does not account for the June 30th OASDI rollover because that is a noncash transaction.

[19] A relatively small additional amount, $19 billion, was needed to cover other means of financing. The difference between the $702 billion in added publicly held debt and the $680 billion consolidated budget deficit in 2013 is due to this $19 billion deficit in other means of financing and the $3 billion addition to the operating cash balance (Department of the Treasury 2013b, Table 2).

[20] Some observers refer to the trust fund primary surplus as the "trust fund cash flow surplus," perhaps because of this cashless aspect of the OASDI interest payments. "Cash flow surplus" seems to have arisen as a term of art in internal Treasury Department discussions and was not meant to have wider import. The terminology is not used in this article, to avoid confusion with the sense of cash flow used during the 1983 "cash flow crisis" and with standard terminology used in economic analysis, tax analysis, accounting, and OMB (2014b, Table 13.1), in which trust fund interest payments are treated as trust fund cash income. The term is misleading even in the Treasury operating cash context because it obscures the fact that trust fund interest payments reduce the cash requirement for borrowing from the public. Even in the context of OASDI noninterest payments, it is not precise: The operating cash withdrawals for OASDI benefit payments are smaller than actual OASDI benefits because some Medicare premiums are subtracted from individual benefits (and credited to Medicare) when the benefits are paid.

Before 1983, "cash flow" tended to refer in Social Security discussions to the total cash flow, including interest income and cash from the sale of securities. "Cash flow surplus" in the sense of "primary surplus" appears in some table footnotes in the report of the National Commission on Social Security Reform (1983), but does not resurface with that meaning until around 1990.

[21] The $740 billion non-OASDI borrowing requirement is the sum of the $391 billion primary deficit of the rest of the government (the excess of $2,420 in noninterest expenditures over $2,029 billion receipts), $327 in general account interest expenses (shown in inset A), $19 billion needed for other means of financing, and $3 billion for the increase in the operating cash balance.

[22] The $68 billion trust fund primary deficit reflects the excess of $813 billion in withdrawals for OASDI expenditures over $745 billion in deposits of OASDI tax income.

[23] Merging the trust fund cash flows into the Treasury's cash operations considerably simplifies the trust fund interest payments. In December 2012, for example, the trust funds received about $53 billion in interest payments on their holdings of Treasury securities. If the trust funds managed their own cash with open-market transactions, this transaction would be paid by the Treasury out of operating cash, and the trust funds would use that $53 billion to buy additional Treasury securities on the market, leaving the public holding $53 billion less in Treasury securities and $53 billion more in cash. At about the same time, the Treasury, to replenish its operating cash balance, would have to sell $53 billion more Treasury securities to the public, removing that amount of cash from the public while restoring the public's holdings of Treasury securities. This would create a round-trip flow of $53 billion from Treasury operating cash to the trust funds to the public and back to Treasury operating cash, and a reverse flow of Treasury securities marketed to the public and picked up by the trust funds. That round trip is eliminated by simply crediting the trust funds with $53 billion in Treasury securities and borrowing that much less from the public.

[24] This article distinguishes between the unified budget *framework,* which imposes uniform conventions across the government accounts, and the consolidated *budget totals* made possible under the framework. Although the unified framework allows the calculation of not just the consolidated totals but also the detailed breakdowns by agency, the consolidated budget totals are often referred to as the "unified budget" amounts in other literature.

[25] The *2014 Trustees Report* presents the FY 2013 summary in Tables VI.C1 through VI.C3.

[26] In the payroll tax receipts category, I include reimbursements resulting from various tax provisions, the most important of which are the temporary payroll-tax reductions in place during the recession in 2009–2011. Because the authorizing legislation stipulated that the trust funds would receive from the general fund all amounts forgone under the payroll tax provisions during that period, the provisions had no effect on trust fund finances. The *Trustees Report* tables itemize the reimbursements under trust fund revenues. However, OMB tables list one reimbursement under Social Insurance income (classified as off-budget receipts) and another one under intragovernmental revenues (classified as an offset to OMB outlays). The off-budget surplus was not affected, but the general account (on-budget) deficit was: The payroll tax reductions were a mechanism for placing stimulus funds, financed through general account borrowing, into the hands of workers.

[27] Only the "other" disbursement/outgo values appear to differ between the tables because other (smaller) differences are concealed by rounding. The Trustees and OMB tables also include an "other" receipts/income category, but in both cases, the value rounds to zero. Additional differences between the tables arise in some years; one particular example is a military credit that the Trustees list as an adjustment to income and OMB lists as an (opposite) adjustment to outlays.

[28] The $178 billion described as intragovernmental receipts in Table 3 are distributed among three items in Table 4: interest income reduces net interest outlays, the federal employer share of employee payroll contributions is an undistributed offsetting receipt, and the income from taxation of benefits and other reimbursements reduces Social Security outlays.

[29] The correspondence between the operating cash flows and the treatment in the budget summaries is close but not exact. Medicare beneficiaries, for example, pay some of their Medicare premiums through a reduction in their OASDI monthly benefit checks. In the operating cash accounts, this transaction shows as a reduction in cash OASDI benefits paid out. In the budget accounts, however, there is a larger OASDI benefit expense and a separate Medicare income item.

[30] Sometimes the deficit period is extended past 1 year—we can speak of 2-year deficits or 10-year deficits. At its broadest extension, "deficit" becomes synonymous with "debt." In this context—taking into account all payments since 1937—it is sometimes said that Social Security is always in surplus and cannot contribute to the deficit.

[31] Debt held by the public is also reduced by the holdings of certain other government accounts such as the Medicare trust funds.

[32] The baseline for the budget process is defined in Section 257(b) of the Balanced Budget and Emergency Deficit Control Act of 1985, as amended. For longer-term projections, agencies often extend these statutory requirements beyond the budget window.

[33] Similarly, even though the Medicare law explicitly reduces HI benefit payments if the HI fund is depleted, the projection in the Medicare Boards of Trustees' annual report assumes that payments would not be reduced. Otherwise "the report would not serve its essential purpose, which is to inform policy makers and the public about the size of any trust fund deficits that would need to be resolved to avert program insolvency" (Medicare Boards of Trustees 2014, 2).

[34] The statute setting out the scoring procedures says only that funding is to be assumed to be adequate to make

all the payments, but specifies no source for the funding. The hypothetical borrowing needed to provide the funding cannot be considered a general account debt because there is no provision under current law for the general account to pay OASDI benefits. It is simply a hypothetical scoring debt.

[35] Thompson (1983, 1460–1461) gives long-range security as a primary motive for contributory financing through a trust fund: "The economic gains from a retirement income system require that participants be able to rely on the long-run promises the system makes; thus, these gains can be secured only through an institution that itself is relatively stable and predictable over the long run…the trust funds are an integral part of a mechanism through which the objective of long-range stability is pursued."

[36] For the same reason, no conclusions can be drawn from relationships that hold only when publicly held debt is held constant: Publicly held debt fixed at a given level is equivalent to a consolidated budget always balanced at zero. Smetters (2004) notes that economists generally agree that if publicly held debt is fixed, then trust fund surpluses will not increase government assets. This is true, but it applies to *any* budget changes, whether in the trust funds or in the general account. For example, if publicly held debt were held constant, an increase in general account taxes would require either an offsetting increase in general account spending or an offsetting decrease in the trust fund surplus, and would not increase assets. In practice, publicly held debt has never been held constant.

[37] For example, in January 2010, the Senate voted 97-0 to exclude from consideration any changes to Social Security proposed by a deficit commission (U.S. Congress 2010, S220).

[38] Hungerford (2009) presents evidence that the earlier studies did not adequately allow for autocorrelation when estimating the statistical significance of the regressions. The present argument is different: Even if there were no autocorrelation problem, the large size of the general account variations relative to the trust fund variations could yield a spurious effect of the trust fund surplus on the general account deficit.

[39] Diamond (2000) reached a similar conclusion: "My reading of the attempts to grapple with the deficits in the 80's and early 90's is that there was enormous resistance to both increasing taxes and cutting spending, with the deficit the outcome of limits on the attempts to change these two variables. The exact size of the unified budget deficit (and the Social Security surplus was very small compared with the unified deficit) played little or no role in the budgets that actually passed. The fact that political discussion cited the unified deficit is not important; what is important is whether spending would have been less or taxes more if the unified deficit was a little larger because the Social Security surplus was not present. I think not, but one can not be sure."

[40] For the original designers of the trust fund reserves, one purpose of "keeping alive" the Treasury bonds in the reserve account was to make clear that the interest payments, even when they were going to pay benefits, were attributable to a general account liability that had not disappeared (Willcox 1937, 451).

[41] I have found no rigorously argued statements of this view, but a handful of informal statements are cited in President's Commission to Strengthen Social Security (2001). See also Sloan (2009).

[42] Under the original Social Security Act, special securities paid a designated interest rate of 3 percent per year. Those transactions amounted to a subsidy to the trust funds whenever actual interest rates fell below 3 percent and a charge to the funds when they rose above 3 percent, as was recognized at the time (see Willcox [1937, 462]; Hohaus [1937, 124–125]). The 1939 amendments eliminated the fixed interest rate for trust fund securities.

[43] The DI fund (but not the combined OASDI fund) came close to depleting its reserves in 1994, at which point the Social Security Act was amended to shift part of the OASI share of the payroll tax back to the DI share. The ease with which transfers between OASI and DI can be legislated supports the treatment of the two funds as a single combined fund for many purposes.

[44] The 1990 legislation that eliminated intramonth borrowing allows the secretary of the Treasury to reintroduce it whenever reserves might dip to inadequate levels during the month.

[45] Nevertheless, under current projections, a touch-and-go insolvency within a few years could be plausible for the DI fund. See Board of Trustees (2014, 42).

[46] However, some of the apparent burden could be shifted to other generations if offsetting changes occur in the rest of the budget.

[47] However, Feldstein advocated using the reserves as an instrument for accumulating larger national savings, rather than for paying benefits out of earnings. The reserves in Feldstein's simulations were also credited with imputed interest earnings above the amounts payable as interest on government bonds.

[48] Hambor (1987) cites several examples.

[49] For a discussion of sustainable solvency, see Goss (2010).

[50] Meeting an equivalent policy goal today would require significantly higher taxes or lower benefits than would have been required in 1983.

[51] Offsetting pairs occur in adjacent months when benefit payments are due on a holiday weekend at the beginning of the month. For example, consider a year in which January 3rd falls on a Sunday. Benefits due on a weekend or holiday are paid on the first nonholiday weekday before the due date, so benefits due on the 3rd are, in this instance,

paid on the last day of the preceding month (because Friday January 1st is New Year's Day). In the trust fund accounting, the redemption occurs in December, to coincide with the actual benefit payment; but the outgo is debited in January, when the benefit was scheduled. Most recently, that scenario occurred in January 2010, as did similar ones involving Labor Day in September 2007 and 2012.

[52] Daily payroll tax amounts are estimates, which are rectified later as the exact amounts are totaled. Accounting for revenue from other sources, such as self-employment taxes and income taxes on benefits, follows similar procedures.

[53] Specifically, the interest rate for securities issued during a given month is determined by the interest rates on the last day of the preceding month (for a thorough discussion, see Kunkel 1999). These automatic procedures, which govern not only the determination of the interest rate when securities are issued but also the order in which securities with varying maturities and interest rates are redeemed, were designed to preclude active management or arbitrage of the fund investments.

[54] Slight differences can arise at both the time of purchase and at any redemption before maturity. At time of purchase, the interest rate applied to the security—based on the prior month's interest rates averaged over many maturities—might differ from the interest rates in the market on the day of purchase for those particular maturities. If a security is redeemed before maturity to meet cash flow needs, it is redeemed at par, while marketable securities would in that case be redeemed at a value different from their par value. Because the special-issue securities are redeemed at par, they are insulated from fluctuations in value as interest rates change. In general, the arrangement gives the trust funds a gain in the predictability of its redemptions rather than a gain or loss in the average value of the redemptions. Because redemption at par offers the trust funds, on average, little gain, treating the trust fund interest income as though it were determined by securities purchased on the market is reasonably accurate for this analysis.

[55] To achieve the most uniform distribution overall, the maturities of newly issued securities are set with an eye toward balancing the distribution of maturities among existing unredeemed securities. These distributions are done separately for the OASI fund and the DI fund. When a fund is projected to be depleted within 15 years, the distribution of maturities is shortened accordingly. That date has already arrived for the DI fund, which under current projections will be depleted in 2016 if no changes are enacted. The OASI fund is currently projected to be depleted in 2034. In 2019, therefore, if the projections have not changed before then, OASI fund managers will begin to shorten the maturities on newly issued trust fund securities.

[56] The OASDI amounts can be distinguished there because the on-budget and off-budget offsetting receipts are listed separately. In the function tables, the OASDI interest income is listed as the off-budget part of the government-wide reduction in net interest outlays, and the remaining OASDI offsets are listed as the off-budget part of governmentwide "undistributed off-setting receipts." Confusingly, in the agency tables, interest is included in undistributed offsetting receipts, rather than listed separately.

[57] The highway system is a standard example. The pioneering treatment of public debt in Buchanan (1958) stemmed from the discussion of financing the interstate highway system in the 1950s.

[58] As with private investment, if the returns exceed the interest cost, the investment yields positive gains. Returns might also exceed the accumulated borrowing cost in the case of debt-financed expenditure during a recession, in that the spending might stimulate the job market for unemployed workers. Buchanan (1958, 133) refers to this circumstance in observing that "even though they must pay interest in the future, that is, bear the primary debt burden, taxpayers are still likely to be much better off as a result of the combined borrowing-expenditure operation."

[59] That is, the increased national capital adds about 10 percent of 15 percent, or 1.5 percent. The 10 percent estimate approximates the parameters used by Ball and Mankiw (1995) and Elmendorf and Mankiw (1998), who estimate a marginal product of capital between 9.5 percent and 12 percent.

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