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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 inter-relationships 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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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

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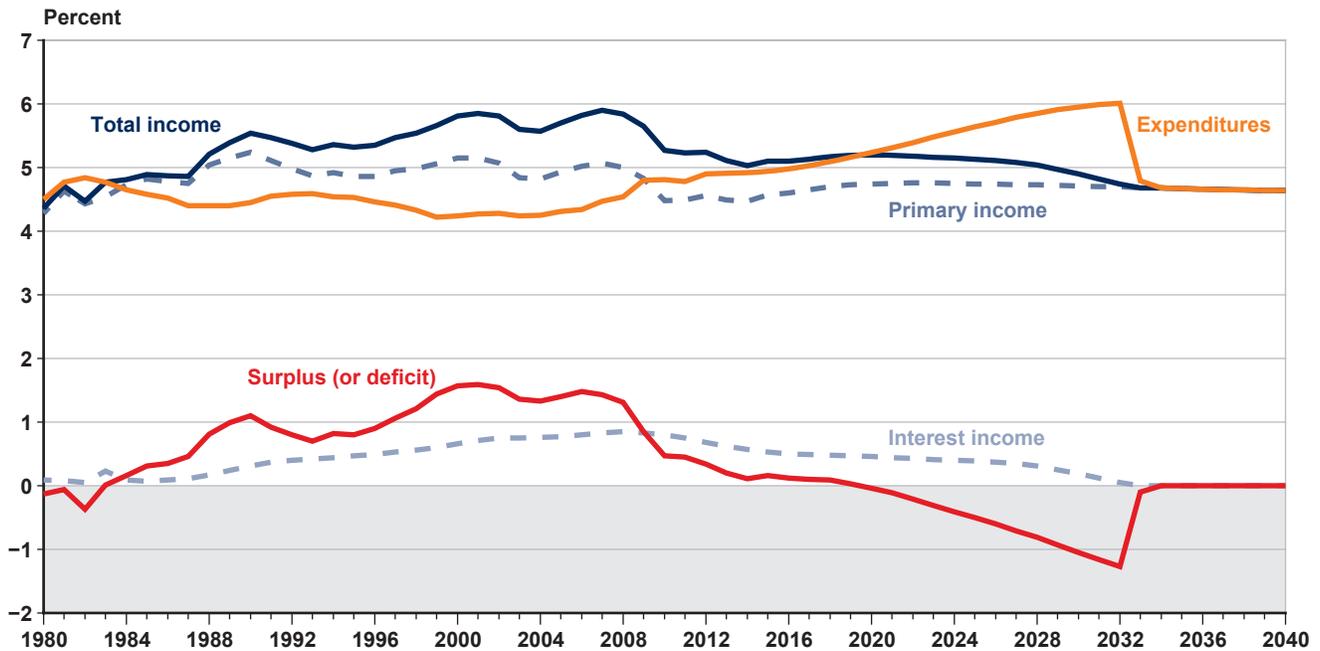
SOURCE: Author's calculations based on SSA (2013, Table 4.A1) and Board of Trustees (2014).

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

Panel A: In nominal dollars

Panel D: As percentages of GDP

Panel B: In wage-adjusted dollars

Panel E: As percentages of taxable payroll

Panel C: In present-value dollars

Panel F: As percentages of trust fund expenditures
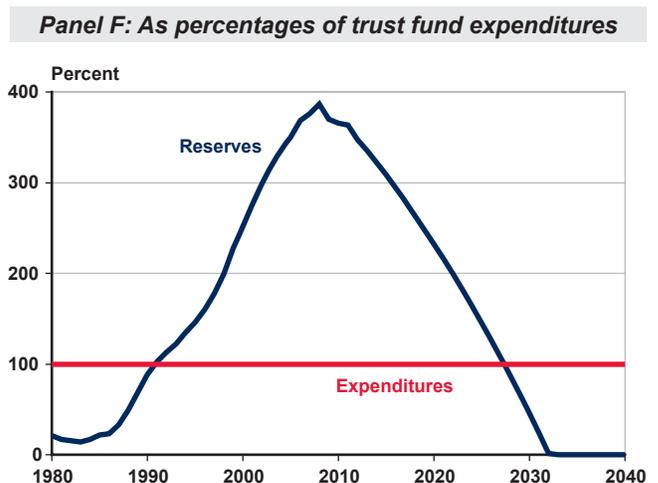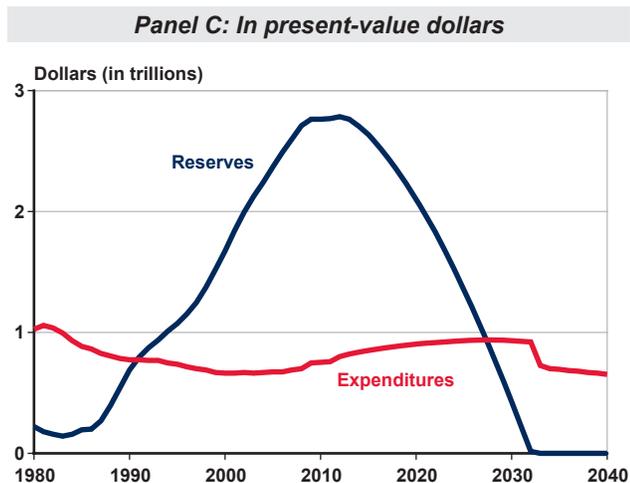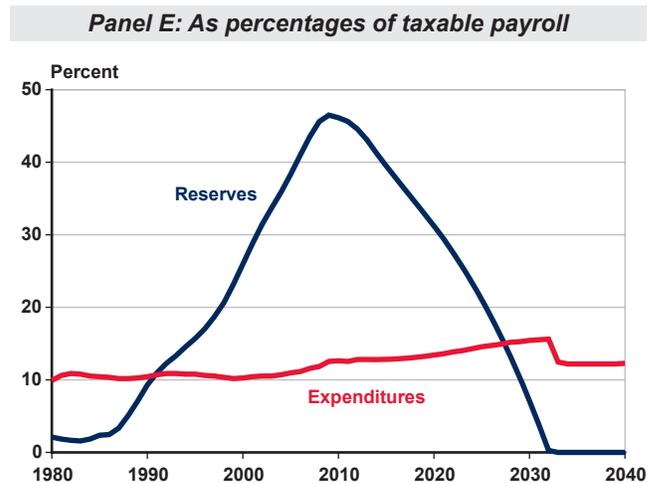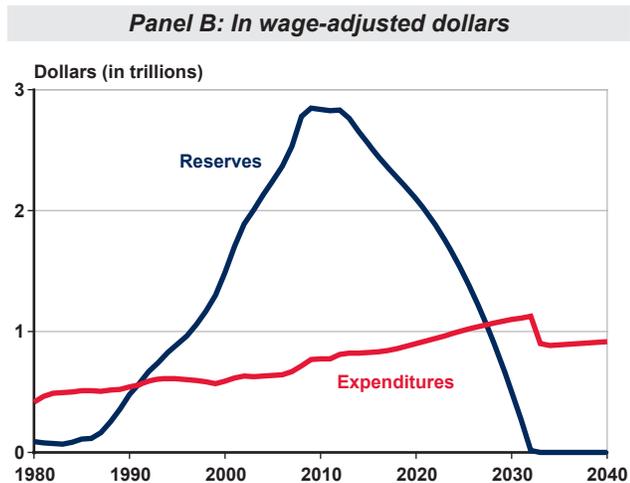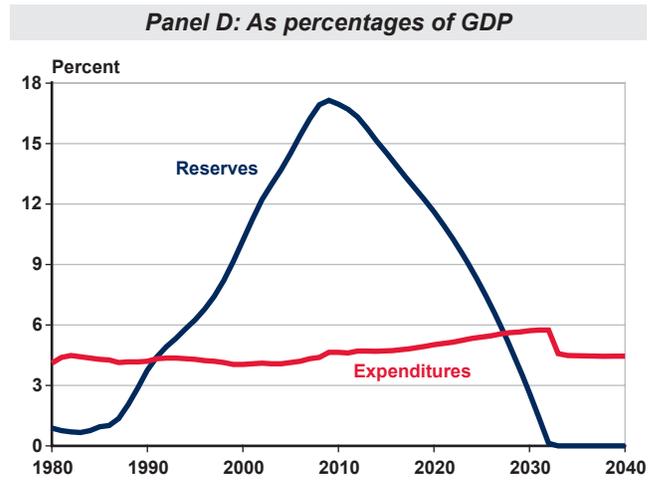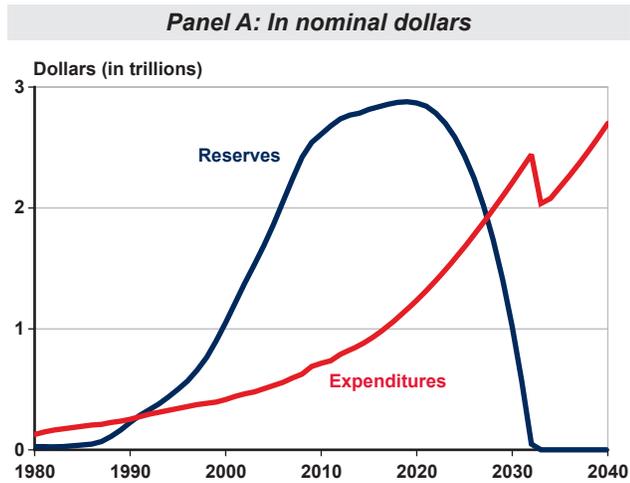
SOURCE: Author's calculations based on SSA (2013, Table 4.A1) and Board of Trustees (2014).

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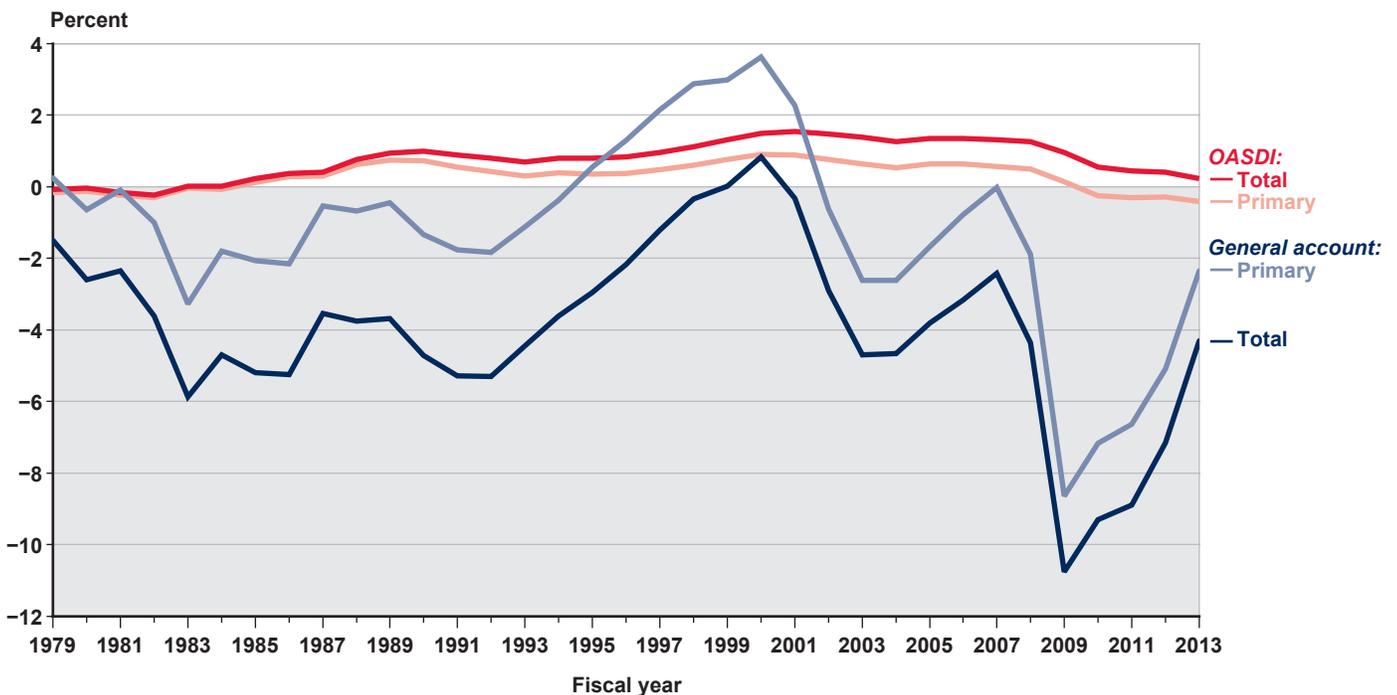
SOURCE: Author's calculations based on OMB 2014(b).

http://www.socialsecurity.gov/policy/docs/ssb/

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, intra-month 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)

Month	Cash flows					Securities transactions					
	Income			Surplus		Acquisitions		Redemptions		Net	Invested
	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)
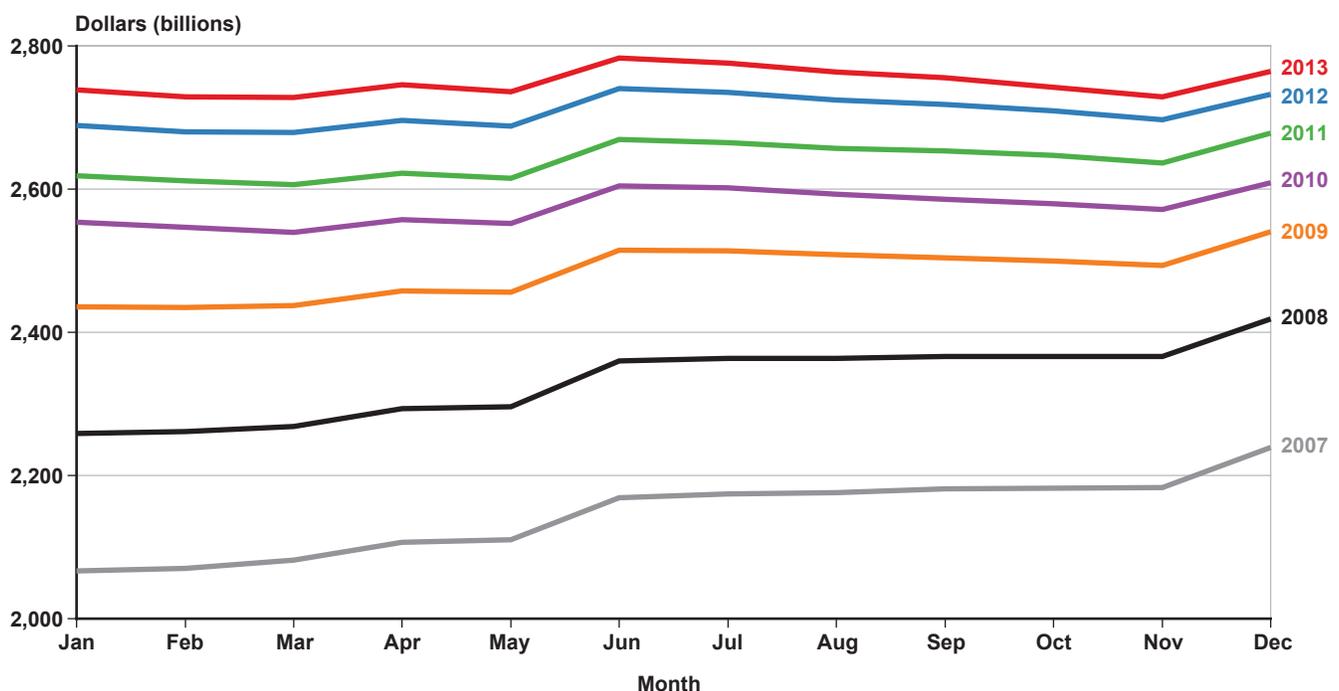
SOURCE: SSA (n.d. b).

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

[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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Longitudinal Patterns of Disability Program Participation and Mortality Across Childhood SSI Award Cohorts

by Kalman Rupp, Jeffrey Hemmeter, and Paul S. Davies*

We follow six cohorts of childhood Supplemental Security Income (SSI) disability awardees for a time horizon up to 30 years, using program records on demographics, type of impairment, SSI and Disability Insurance (DI) recipiency, and mortality. We use descriptive analysis and multinomial logit regression for repeated cross-sections of the six award cohorts, controlling for years since first award. For all award cohorts, many individuals transition from SSI recipiency to DI or nonbeneficiary status. Others die over time. Accounting for DI program participation is necessary to obtain a full picture of disability program participation in adulthood. SSI-only recipiency substantially diminishes in adulthood. However, DI involvement increases. An increasing proportion of individuals receives both benefit types (SSI and DI) as the cohorts age in adulthood. The trajectories of outcomes across successive award cohorts change in important ways. First, we observe a strong trend of increased transitions to nonbeneficiary status among survivors as we move from early award cohorts to later cohorts, with a sharp upward shift around the time of welfare reform in the mid-1990s. Second, the data show a secular decline in mortality across award cohorts. The data suggest that a substantial portion, but not all, of that decline has been affected by the Supreme Court's Zebley decision. Increased incidence of transitions to nonbeneficiary status and reduced mortality across award cohorts have opposing effects on the duration of disability benefit receipt.

Introduction

The Supplemental Security Income (SSI) program provides cash assistance to people with low income and limited resources who are aged 65 or older, blind, or disabled. Children younger than age 18 and young adults with severe disabilities can qualify if they meet SSA's definition of disability and if they financially qualify based on the SSI income and resources screens. These children and young adults face challenges, including severe health problems, disabilities, and being raised in a family environment of economic hardship. A growing body of empirical literature demonstrates that severe health problems and disabilities in childhood have profound effects on adult outcomes (Emerson and others 2014; Currie 2008b; Smith 2005, 2007). Likewise, growing up in families

affected by poverty results in a variety of challenges in adulthood (Currie 2008a; Newachek and others 1998). Thus, understanding longitudinal patterns of disability program participation of childhood SSI awardees into adulthood is important in assessing the role of the SSI program in addressing the life-cycle challenges facing

Selected Abbreviations	
CDR	continuing disability review
DI	Disability Insurance
PRWORA	Personal Responsibility and Work Opportunity Reconciliation Act
SSA	Social Security Administration
SSI	Supplemental Security Income

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this important target group of the Social Security Administration's (SSA's) cash assistance programs.

Rupp and others (2005/2006) highlighted the importance of the SSI program in providing payments to families of youths with disabilities. For example, the authors showed that about 45 percent of childhood SSI recipients lived in a household where the parents or the guardians did not have earnings. Additionally, Bailey and Hemmeter (2014) showed that about 60 percent of child recipients lived in households receiving Supplemental Nutrition Assistance Program (SNAP) benefits. Further, they found that if the child's SSI benefit was not included as income, 58 percent of childhood SSI recipients would be living in poverty, compared with 32 percent when the SSI benefit was included in the calculation of income.

Because SSA's disability programs target people with severe disabilities, it is not surprising that lifetime duration on the SSI rolls historically has been high, especially when compared with the duration on other means-tested program rolls, such as the Food Stamp program (now SNAP) and Aid to Families with Dependent Children (AFDC)—now Temporary Assistance for Needy Families (TANF). Rupp and Scott (1995) estimated that childhood SSI awardees average 27 years on the rolls during the preretirement ages. Davies, Rupp, and Wittenburg (2009), using more recent data, confirmed the importance of SSI receipt in adulthood among childhood awardees. Thus, in order to assess the role of SSI in the lives of affected children and young adults, the receipt of cash benefits and other outcomes in adulthood should be considered. In this article, we attempt to fill some of the substantial gap in knowledge about the long-term disability program participation of childhood SSI award cohorts spanning up to 30 years—well into adulthood.

From a policy perspective, long duration on SSI is not inherently good or bad. For some childhood SSI awardees, long-term cash assistance is necessary for financial security. Premature discontinuation of benefits for this vulnerable group would be contrary to the objectives of SSI as a safety net program. In other cases, recipients may recover over time and return to nonrecipiency status coupled with successful entry or reentry into the labor force on a sustained basis, resulting in improved financial security and quality of life.

The changes in eligibility requirements and the fiscal impacts of childhood SSI benefit receipt have been widely discussed in the literature (for example, Rupp and Stapleton (1998); Rupp and Scott (1998); Burkhauser and Daly (2011); General Accounting Office (1995, 1994); Government Accountability Office (2011); Kubik (2003, 1999); and Schwamm (1996)), but trends in duration of disability benefit receipt covering a time span before and after major legislative changes have received less attention. Major changes in legislation have substantially affected trends in both the characteristics of childhood awardees and exit patterns. Thus, it is paramount to consider the role of various major legislative and regulatory changes in affecting long-term outcomes. Because children are not supposed to work, but are expected to perform other important life activities according to prevailing social norms—such as successfully participating in the education system—it is not surprising that the SSI program as it applies to children has gone through major legislative and regulatory changes.

From 1974 to 1990, children were allowed SSI benefits only if they had a medically determinable physical or mental impairment of comparable severity to that required for adults (Public Law (PL) 92-603). Before 1990, the core of the disability screen for nonworking children was the Listing of Impairments. The focus of the test was to distinguish whether or not a child had a condition that met or medically equaled the Listing of Impairments for adults or a supplemental set of Listings of Impairments for children. Two important modifications in 1990 resulted in the dramatic expansion of the childhood SSI program. First, SSA modified the section of the Listing of Impairments dealing with childhood mental disorders, moving toward a more functionally based assessment of a child's categorical eligibility. Second, the 1990 Supreme Court decision on *Sullivan v. Zebley* resulted in a more fundamental change. As stated by Erkulwater (2006), the ruling began as a little-noticed denial of benefits, and then *Sullivan v. Zebley* evolved into a major class action lawsuit, representing more than 300,000 children. Because of *Sullivan v. Zebley,* the programmatic definition of disability for children was broadened, and it introduced individual functional assessments (IFAs) to determine SSI eligibility for some children. Together, these developments served to relax the definition of childhood disability somewhat.

The increase in the childhood SSI caseload following *Sullivan v. Zebley* led Congress to pass the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996 (PL 104-193, or welfare reform), which eliminated the IFA (although the act retained functional evaluations for children), eliminated "maladaptive behaviors" from the Listing of Impairments, and required continuing disability

reviews (CDRs) every 3 years for children who were expected to medically improve. Importantly for our study, the PRWORA also required the redetermination of categorical eligibility after the child's 18th birthday, based on the adult disability criteria. Rogowski and others (2002) estimated that about 100,000 (42 percent) of the children who underwent the initial post-PRWORA CDRs mandated for those expected to medically improve had their benefits ceased. An additional 28,000 (45 percent) of the first round of youths undergoing an age-18 redetermination lost benefits. Awards dropped following these tightening measures, but quickly began to increase again.

In this article, we focus on trends in program participation among childhood SSI award cohorts from 1980 to 2000 for up to 30 follow-up years and assess the role of various factors affecting those trends. Davies, Rupp, and Wittenburg (2009) provided a foundation for our analysis. Those authors focused on comparing trends in SSI participation among the 1980 and 1997 cohorts of childhood awardees, and they concluded that there was some evidence of reduced duration in program participation for the 1997 cohort compared with the 1980 cohort of awardees. However, their study did not include data on transitions from the SSI program to the Disability Insurance (DI) program[1] or on concurrent SSI and DI benefit recipiency. That study also did not separate surviving nonparticipants from those persons who died, nor did it include a systematic analysis of factors affecting differences in outcomes across award cohorts.

To our knowledge, there has been little research on the connection between SSI and DI in the context of the eventual possibility of childhood SSI awardees transitioning to the DI program during adulthood.[2] Burkhauser and Daly (2010) and Armour and others (2011) highlighted the fact that the structure of the DI benefit has been increasingly generous relative to SSI, providing a stronger incentive for recent award cohorts of children to acquire DI-insured status. Therefore, duration on the SSI rolls may decrease as young adults work long enough to qualify for DI, but overall disability program participation may not decline by as much, or may even increase because of differences in the way nondisability eligibility rules affect the probability of exits from the DI and SSI programs.[3] Recent research on SSA's Youth Transition Demonstration (Bucks Camacho and Hemmeter 2013; Hemmeter 2014) and the Marriott Foundation for People with Disabilities Bridges program (Hemmeter and others 2015) showed that, at least for the voluntary

participants targeted by those programs, a substantial proportion of young SSI recipients had transitioned into the DI program.

This article advances that recent research in several policy-relevant ways. First, rather than focusing on SSI only, we look at disability program participation in a more comprehensive way, by considering adult participation of childhood awardees in both the SSI and DI programs. This allows policymakers to obtain a better understanding of the way SSA's disability programs enhance financial security during the working-age portion of the life cycle. Second, the SSI program has changed substantially since its inception, and in this study, we assess how trajectories of program participation and exits that were due to death and other factors have changed over time, thus providing a useful starting point from which to study changes in future program participation. Third, we estimate individual-level models, controlling for various determinants of differences in trajectories across award cohorts, which allows us to assess the role of changes in selected awardee characteristics and other factors affecting outcomes. A greater understanding of factors affecting outcomes for various award cohorts could contribute to refinement of projections of program growth, might improve the understanding of the role of policy in shaping those outcomes, and should provide useful data on the reliance on disability benefits among childhood awardees as they age into adulthood. In this article, we do not judge program changes, but rather provide a description of the consequences of those changes.

This study also provides a foundation for future research on the ways in which the disability benefits and work activity of beneficiaries and former beneficiaries combine to enhance the financial security of childhood awardees in adulthood.

Research Objectives

Our research focuses on two fundamental issues. First, we are interested in providing a refined picture of individual outcomes over various time horizons well into adulthood among childhood SSI awardees. The outcomes of interest include the following mutually exclusive categories: SSI only, DI only, concurrent SSI/DI status, off the disability rolls and alive, or deceased. For some analyses, we collapse the groups into broader categories (on the disability rolls, off the disability rolls and alive, or deceased).[4]

Second, we are interested in assessing the presence and nature of differences in program-status

trajectories across multiple award cohorts (1980, 1985, 1990, 1995, 1997, and 2000). Specifically, we question whether the reliance on disability benefits increases or decreases across the cohorts over the period under study. We look at outcomes for time horizons up to 30 years after first award, a time frame that allows us to examine adult outcomes for almost all of the childhood awardees in our sample. We also explain the differences in longer-term outcomes across award cohorts (which are profound, as shown in the next section), controlling for observable awardee characteristics (specifically—age, sex, and type of impairment). We attempt to discern whether the raw differences in outcomes across award cohorts are explained by the mix of awardees as represented by our independent variables and to what extent those differences are attributable to other unmeasured differences associated with award cohort and calendar year of the given outcome.

Our fundamental goal is to provide a better understanding of how policies affect outcomes. In particular, SSI-to-DI transitions are relevant for several reasons. First, access to DI enhances financial well-being in several ways. DI benefits can be substantially higher than SSI benefits; in 2013, the average monthly DI benefit for workers was $1,130, compared with a maximum federal SSI benefit of $710.[5] DI beneficiaries with earnings up to the substantial gainful activity (SGA) level can continue to receive benefits without any reduction. During a 9-month initial trial work period, even earnings above the SGA level do not affect benefit receipt and monthly amount. Second, DI benefits, after a 24-month waiting period,[6] are supplemented by Medicare coverage, which provides a different bundle of health care services than does Medicaid coverage (for which most SSI recipients are automatically eligible for). The Medicare waiting period is waived under certain circumstances. Medicare coverage may continue for many years after the cessation of disability cash benefits for work-related reasons.[7] Concurrent beneficiaries are eligible for both Medicare and Medicaid, which provides better health care coverage than either source alone.

Policies may affect outcomes through the characteristics of applicants who are awarded benefits under the allowance policy regime that is applicable at the time of the award and through policies affecting exits between the time of award and the outcome year of interest. For example, the case mix of awardees can affect outcomes for several reasons. Awardees with impairments with higher mortality risk are more likely to die and thus less likely to stay on the SSI rolls, transition to concurrent or DI-only status, or transition off the rolls while alive. Awardees with impairments with lower mortality risk may be more likely to medically recover or to successfully transition from school to work as adults, and therefore they may be more likely to transition to DI-only or concurrent benefit status or exit the rolls (while alive). Thus, outcomes even many years after initial award can be profoundly affected by policies that affect the characteristics of awardees and policies implemented between the time of initial award and the relevant follow-up observation point. The award cohorts that are separated by substantive changes in the definition of disability, such as those in the early 1990s, are especially likely to experience different outcomes.

Clearly, awardee characteristics and conditions at the time of award do not provide the whole story. Temporary or longer-term exits from disability beneficiary status are also affected by policies and implementation practices at the time of the follow-up observation point. The extent and targeting of CDRs at follow up; program changes, such as the introduction of the Ticket to Work program (which occurred many years after award for some members of our analysis sample); and the Great Recession (which resulted in diminished employment opportunities) all may affect outcomes among survivors, regardless of the situation at the time of initial award.

Policies directly affecting trends in participation may include those associated with CDRs, age-18 redeterminations, and employment support initiatives. A variety of other factors—such as changes in medical technology that affect mortality trends in general and labor market trends that affect transitions to nonbeneficiary status—may also affect outcomes. Unfortunately, we cannot directly control for the effect of all policy changes on shifts in trajectories over award cohorts. Our analysis is limited to indirect evidence of policy effects. Thus, inferences about policy effects are to be tempered given these limitations.

Data and Methods

We derive our data from administrative/program records maintained by SSA. First, we use the Supplemental Security Record (SSR)—SSA's record system for the SSI program—to identify cohorts of children aged 0 to 17 who were first awarded SSI benefits in 1980, 1985, 1990, 1995, 1997, and 2000 and obtain their SSI benefit eligibility status. We derive other

characteristics, such as sex and type of impairment at the time of award, from the SSR. We then track those awardees' benefit eligibility and mortality status for various time horizons up to 30 years after award, constrained by the last observation point at the time the data were originally extracted, which was in 2010. The Master Beneficiary Record—SSA's record system for the DI program—provides information on receipt of DI benefits. The Numident—a file that includes the Death Master File—provides date of death.

We conduct descriptive analyses of SSI, DI, and mortality outcomes for our sample population using various time horizons and then conduct multinomial logit analyses of the same outcomes, using award cohort, sex, age at award, and broadly defined impairment types as independent variables. We use seven impairment types at award in this analysis:

- intellectual disabilities and other mental impairments;
- neoplasms;
- congenital anomalies;
- diseases of the nervous and sensory systems;
- diseases of the respiratory system;
- other identified diagnoses; and
- all other and unknown diagnoses.[8]

The multinomial logit framework allows us to look at differences across award cohorts in the relative probability of each outcome, holding constant the age, sex, and diagnostic composition of each cohort.

Our time horizon allows us to observe some awardees well into adulthood. For example, for youths who were first awarded SSI benefits at age 17 in 1980, 1985, or 1990, we observe program and mortality outcomes from ages 37 to 48. That provides sufficient time for some of those individuals to have worked (if they were able), earned entitlement to DI benefits, and converted to DI-only or concurrent SSI/DI benefit status through the middle of their working-age adult life cycles. Other awardees were young adults at the end of our observation window (for example, individuals aged 10 at award in 1995 were aged 25 in 2010). Some awardees still were children (for example, individuals aged 5 at award in 2000 were aged 15 in 2010). Nonetheless, even for the 2000 award cohort, we observe program transitions and mortality over a 10-year period. For the 1980, 1985 and 1990 award cohorts, we observe adult outcomes even for the youngest of childhood awardees.

Before looking at the long-term outcomes, we present the characteristics of SSI children by year of award. Over time, there have been substantial changes in the characteristics of childhood SSI awardees (Table 1). There was a general increase in the proportion of male awardees that is reasonably consistent across award cohorts. There was also a decline in the proportion of older childhood awardees between 1980 and 2010 and some evidence of reduced average and median age across award cohorts. Between 1985 and 1995, there was a substantial increase in the proportion of awardees with any mental impairment (including both intellectual disabilities and other mental impairments), followed by a 10 percentage point drop between 1995 and 1997, and an upward trend surpassing the 1995 high in 2010.[9]

The statistics by type of mental impairment, while striking, are more difficult to interpret because of secular shifts in diagnostic labeling (for example, from *mental retardation* to *intellectual disabilities*) and in the use of psychiatric labels (for example, *autism spectrum disorders*—Shattuck (2006)). Additionally, when an individual has more than one disabling condition, the disability decision process only records up to two disabilities in our data, one of which is designated as primary and the other as secondary. Because these designations are left to the disability examiner, and we use only the primary disability diagnosis, there may be differences in how disabilities are recorded in the data. Although there is clear evidence of a reduction in the proportion of awardees with physical disabilities in 1995 and later, compared with earlier award-cohort years, that picture is somewhat clouded by fluctuations in the "other/unknown" diagnostic category. Nevertheless, when all nonmental disabilities are combined, there is still a net overall increase over time in the more inclusive "all mental impairments" category, which includes both intellectual disabilities and other mental impairments. We return to the potential role of changes in cohort characteristics in the long-term outcomes of childhood SSI awardees later in the study.

Results

Our focus in this article is on trends in annual award-cohort trajectories. This subject involves complex patterns, as childhood awardees experience events occurring during the remainder of their childhoods and in their working-age adult life cycles. We first present long-term outcomes for members of the 1980 award cohort up to age 48, to gauge the potential importance of our data and our research questions.

Table 1.
Characteristics of children awarded SSI benefits, by award cohort

Characteristic	1980		1985		1990		1995		1997		2000		2010	
	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error
Sex (%)														
Male	57.06	0.23	58.29	0.23	60.69	0.18	63.81	0.12	61.45	0.14	63.25	0.13	65.08	--
Female	42.94	0.23	41.72	0.23	39.31	0.18	36.19	0.12	38.55	0.14	36.76	0.13	34.92	--
Age (%)														
0–5	36.74	0.23	45.38	0.23	43.32	0.18	44.90	0.12	52.54	0.15	48.47	0.13	42.03	--
6–12	34.10	0.22	31.10	0.22	35.51	0.17	36.38	0.12	32.02	0.14	36.13	0.13	42.00	--
13–17	29.16	0.22	23.53	0.20	21.18	0.15	18.72	0.09	15.44	0.11	15.40	0.10	15.97	--
Average age (years)	8.31	0.03	7.23	0.03	7.25	0.02	6.84	0.01	5.98	0.02	6.28	0.01	--	--
Median age (years)	8.00	. . .	6.00	. . .	7.00	. . .	6.00	. . .	5.00	. . .	6.00	. . .	--	--
Diagnosis (%)														
All mental impairments	---	---	47.27	0.24	54.98	0.18	64.21	0.12	54.09	0.15	59.72	0.13	66.06	--
Intellectual disabilities [a]	---	---	40.24	0.23	40.99	0.18	30.87	0.11	25.94	0.13	19.11	0.10	7.81	--
Other mental impairments	---	---	7.03	0.12	13.99	0.13	33.34	0.11	28.16	0.13	40.61	0.13	58.26	--
Neoplasms	---	---	4.08	0.09	2.85	0.06	1.73	0.03	2.16	0.04	1.89	0.04	1.65	--
Nervous system	---	---	20.51	0.19	18.06	0.14	7.90	0.07	8.99	0.08	7.69	0.07	6.23	--
Respiratory system	---	---	2.41	0.07	2.47	0.06	2.59	0.04	3.38	0.05	3.14	0.05	2.11	--
Congenital anomalies	---	---	9.41	0.14	4.48	0.08	3.99	0.05	5.19	0.07	4.78	0.06	4.50	--
Other identified diagnoses	---	---	8.95	0.13	9.08	0.10	4.81	0.05	6.00	0.07	5.23	0.06	5.45	--
Other/unknown	---	---	7.36	0.12	8.09	0.10	14.77	0.09	20.19	0.12	17.56	0.10	13.99	--
N	44,533		45,117		76,453		173,559		116,187		144,068		204,219	

SOURCES: Authors' calculations using SSA administrative records and the *SSI Annual Statistical Report, 2010* (SSA 2011).

NOTES: Diagnostic codes are unreliable before 1983.

SSA = Social Security Administration; SSI = Supplemental Security Income; . . . = not applicable; -- = data not available; --- = data not included.

a. Formerly referred to as mental retardation.

Our first research question focuses on the empirical importance of providing more detail than the simple "on SSI" versus "not on SSI" comparison used in recent work. The second research question provides an overview of gross disability program participation rates over award cohorts, accounting for both SSI and DI in adulthood by time elapsed since first award. The remaining research questions focus on mortality—third question; exits to nonbeneficiary status—fourth question; and receipt of benefits (SSI, DI, or both) among surviving disability program participants in adulthood—fifth question. The latter includes the contribution of disabled-worker and auxiliary benefits in adulthood.

Research Question 1: What is the Empirical Relevance of Including Information on DI-Only Status and Death Outcomes in Adulthood, Versus Exclusively Focusing on SSI-Only Status?

A useful way to explore this issue is to illustrate the experience of two different cohorts of awardees. Charts 1 and 2 summarize the programmatic and mortality experience of the 1980 and 2000 award cohorts of youths aged 17 at the time of award. We focus on those particular groups because they allow us to track the youths relatively late into adulthood for the earliest and latest award years in our analyses; other age-at-award and year-of-award cohorts have different trajectories. Consistent with Davies, Rupp and Wittenburg (2009), who focused on the trajectory of SSI receipt in adulthood, we find considerable decline in the proportion on the SSI rolls up to the end points of our observation period.

When we consider transitions to DI and concurrent SSI/DI benefit-receipt status, a considerably more refined picture emerges, which provides a more realistic view of transitioning off the SSI rolls. Access to DI records allows us to observe transitioning to DI-only status, which means that the former SSI recipient is not simply "off SSI," but continues to receive public disability benefits, albeit in the form of social insurance rather than welfare. For the 1980 cohort, over half of awardees were no longer on SSI at age 48 (Chart 1); but we also observe that a slightly higher proportion received DI benefits (39 percent) compared with those who received SSI benefits (38 percent). There is an overlap between these two categories because some awardees (16 percent of the total) received both types of benefits. This reflects the fact that some former SSI recipients "earned" social insurance benefits, but still

continued to need supplementary cash payments from the SSI program.[10] In fact, about 60 percent received some form of disability benefits at age 48, most of them receiving DI. Only 21 percent of all awardees received SSI-only benefits. A substantial minority (40 percent) no longer received any disability benefits. Seventeen percent were off the rolls and alive, and 23 percent died by age 48. For the 2000 cohort, even over an abbreviated period, we see a substantial change in rates of mortality and program participation (Chart 2). At age 28, only 6 percent had died (relative to 8 percent of the 1980 cohort). More strikingly, for the 1980 cohort, only 17 percent were receiving neither SSI nor DI (and alive) at age 28; for the 2000 cohort, over 30 percent were receiving neither SSI nor DI (and alive) at age 28.

The data also show that death is an important outcome affecting duration on the disability rolls, especially when we consider program participation over longer segments of the life cycle. We find that although the rate of exit because of death is relatively small during the first year or two, attrition because of death becomes much more important throughout adulthood. This supports the notion that the SSA disability determination process is successful in identifying a severely disabled segment of awardees. Although the statutory definition of disability explicitly refers to medical conditions that are expected to result in death, the interesting finding here is that attrition because of death becomes important many years after initial award. This suggests that chronic conditions that are not predictably life threatening nevertheless may result in the shortening of the life span of a nontrivial portion of awardees. Individuals who die may experience financial hardship and high medical expenses during the years prior to death. Although Charts 1 and 2 provide useful illustrations that highlight the importance of considering transitions from SSI to DI and from SSI to concurrent (SSI/DI) status, to surviving nonparticipant status, and death, they reflect only two of our award cohorts (1980 and 2000) and are limited to childhood awardees 17 years of age at award. Table 2 provides a more comprehensive picture, by presenting detailed outcomes for all six of our award cohorts at various points from 1 to 30 years after first award. For all award cohorts, we observe outcomes for 10 years after award; available information for longer time horizons is sparser because of right-censoring of the data.

We highlight two salient observations. First, accounting for DI participation is important because it raises the observed rate of participation in either or

Chart 1.

SSI and/or DI program participation and mortality experience of the 1980 cohort of SSI childhood awardees aged 17 at award
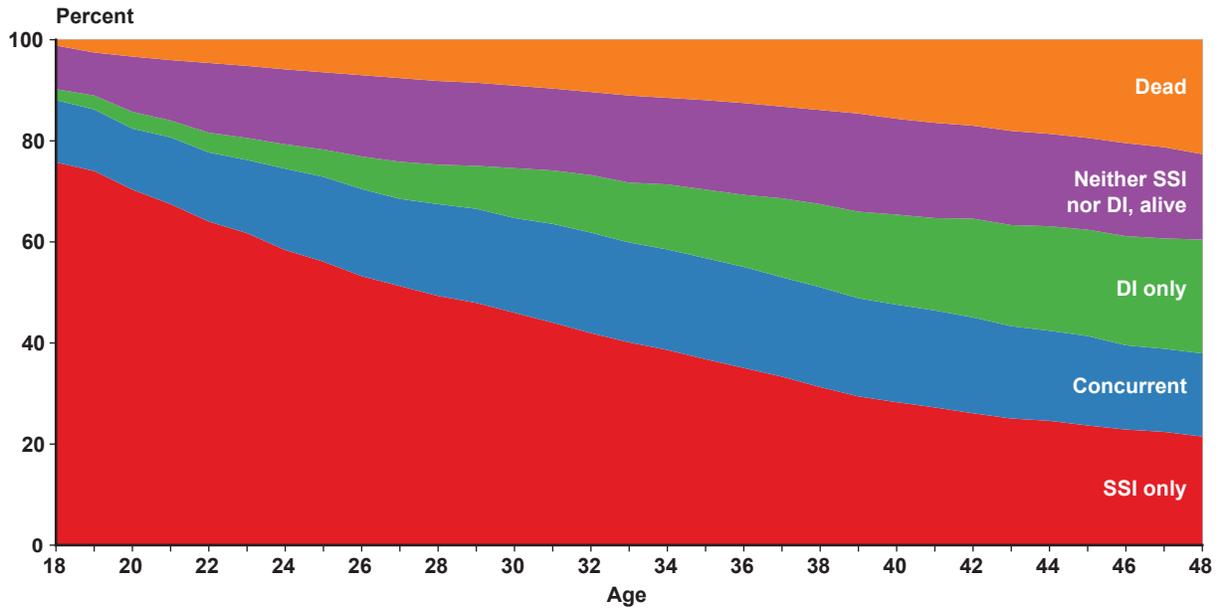
SOURCE: Authors' calculations using SSA administrative records.

NOTES: DI = Disability Insurance; SSA = Social Security Administration; SSI = Supplemental Security Income.

Chart 2.

SSI and/or DI program participation and mortality experience of the 2000 cohort of SSI childhood awardees aged 17 at award
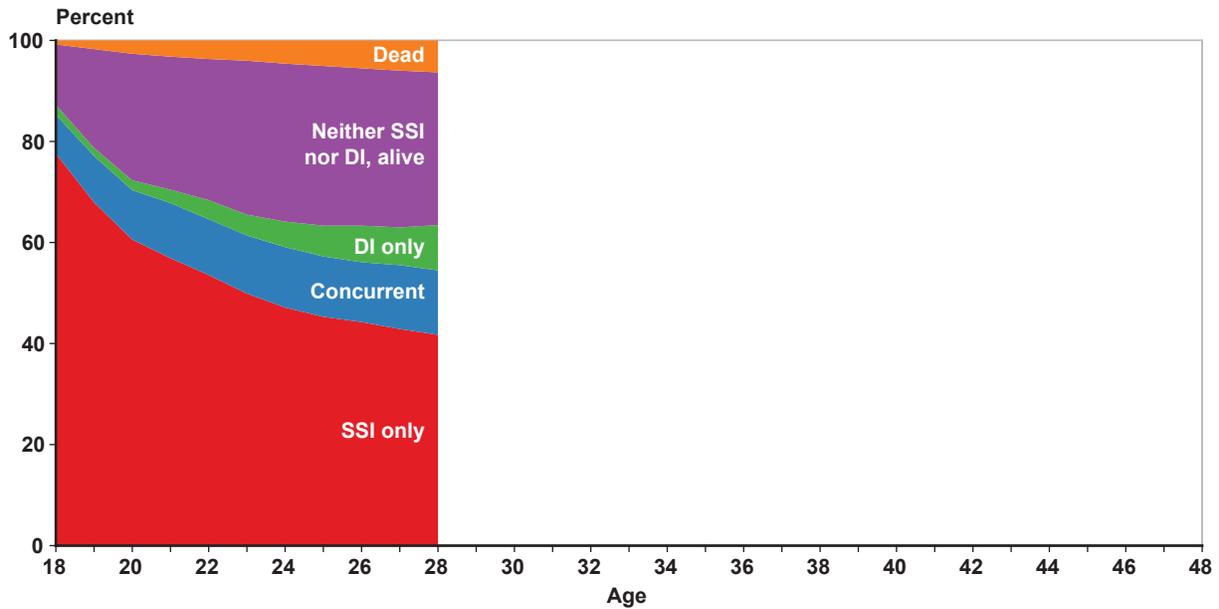
SOURCE: Authors' calculations using SSA administrative records.

NOTES: Data for ages older than 28 are not shown because those ages are reached beyond the last observation point for the 2000 awardee cohort at the time the data were originally extracted (2010).

DI = Disability Insurance; SSA = Social Security Administration; SSI = Supplemental Security Income.

http://www.socialsecurity.gov/policy/docs/ssb/

Table 2.

SSI and/or DI program participation and mortality experience of SSI children aged 0–17 at award, by award cohort and years after initial award: Percentage distribution of awardees by outcome

Award cohort	SSI only		DI only		Concurrent (SSI/DI)		Any disability benefit (subtotal)		Neither SSI nor DI, alive		Dead		N
	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error	
1 year after award													
1980	80.73	0.19	0.17	0.02	0.85	0.04	81.76	0.18	15.10	0.17	3.14	0.08	44,533
1985	82.58	0.18	0.06	0.01	0.55	0.03	83.20	0.18	13.71	0.16	3.09	0.08	45,117
1990	86.11	0.13	0.06	0.01	0.48	0.02	86.65	0.12	10.85	0.11	2.50	0.06	76,453
1995	85.71	0.08	0.03	0.00	0.23	0.01	85.97	0.08	12.45	0.08	1.59	0.03	173,559
1997	82.73	0.11	0.03	0.01	0.20	0.01	82.96	0.11	15.09	0.11	1.95	0.04	116,187
2000	84.58	0.10	0.03	0.00	0.21	0.01	84.83	0.09	13.52	0.09	1.65	0.03	144,068
5 years after award													
1980	64.62	0.23	0.90	0.04	2.82	0.08	68.34	0.22	25.09	0.21	6.57	0.12	44,533
1985	67.30	0.22	0.68	0.04	2.36	0.07	70.34	0.22	22.78	0.20	6.88	0.12	45,117
1990	76.71	0.15	0.45	0.02	2.05	0.05	79.21	0.15	15.63	0.13	5.16	0.08	76,453
1995	51.75	0.12	0.38	0.01	1.24	0.03	53.38	0.12	43.82	0.12	2.81	0.04	173,559
1997	54.30	0.15	0.42	0.02	1.11	0.03	55.83	0.15	40.71	0.14	3.46	0.05	116,187
2000	59.86	0.13	0.34	0.02	1.06	0.03	61.26	0.13	35.81	0.13	2.92	0.04	144,068
10 years after award													
1980	56.14	0.24	2.45	0.07	6.64	0.12	65.23	0.23	25.41	0.21	9.35	0.14	44,533
1985	60.59	0.23	1.98	0.07	5.86	0.11	68.43	0.22	22.00	0.20	9.57	0.14	45,117
1990	52.23	0.18	1.67	0.05	4.77	0.08	58.67	0.18	34.26	0.17	7.07	0.09	76,453
1995	37.84	0.12	1.44	0.03	3.07	0.04	42.35	0.12	53.72	0.12	3.93	0.05	173,559
1997	42.42	0.14	1.32	0.03	2.59	0.05	46.34	0.15	49.04	0.15	4.62	0.06	116,187
2000	46.68	0.13	1.36	0.03	2.50	0.04	50.53	0.13	45.47	0.13	4.00	0.05	144,068
13 years after award [a]													
1980	53.25	0.24	3.88	0.09	9.88	0.14	67.02	0.22	21.93	0.20	11.06	0.15	44,533
1985	52.42	0.24	3.12	0.08	7.99	0.13	63.53	0.23	25.39	0.20	11.08	0.15	45,117
1990	44.33	0.18	3.09	0.06	7.11	0.09	54.53	0.18	37.13	0.17	8.34	0.10	76,453
1995	32.98	0.11	2.38	0.04	4.10	0.05	39.46	0.12	55.85	0.12	4.69	0.05	173,559
1997	38.22	0.14	2.41	0.04	3.54	0.05	44.16	0.15	50.49	0.15	5.35	0.07	116,187

Continued

Table 2.
SSI and/or DI program participation and mortality experience of SSI children aged 0–17 at award, by award cohort and years after initial award: Percentage distribution of awardees by outcome—*Continued*

Award cohort	SSI only		DI only		Concurrent (SSI/DI)		Any disability benefit (subtotal)		Neither SSI nor DI, alive		Dead		N
	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error	
15 years after award [b]													
1980	50.48	0.24	4.91	0.10	11.50	0.15	66.89	0.22	21.01	0.19	12.10	0.15	44,533
1985	46.56	0.23	4.33	0.10	9.69	0.14	60.58	0.23	27.29	0.21	12.14	0.15	45,117
1990	41.74	0.18	4.16	0.07	8.18	0.10	54.08	0.18	36.76	0.17	9.16	0.10	76,453
1995	31.50	0.11	3.34	0.04	4.77	0.05	39.61	0.12	55.20	0.12	5.19	0.05	173,559
20 years after award [c]													
1980	40.23	0.23	8.20	0.13	15.02	0.17	63.46	0.23	21.69	0.20	14.85	0.17	44,533
1985	39.23	0.23	8.28	0.13	13.29	0.16	60.80	0.23	24.17	0.20	15.02	0.17	45,117
1990	37.96	0.18	7.74	0.10	10.54	0.11	56.24	0.18	32.33	0.17	11.44	0.12	76,453
25 years after award [d]													
1980	32.06	0.22	12.37	0.16	15.68	0.17	60.11	0.23	21.92	0.20	17.98	0.18	44,533
1985	32.97	0.22	12.53	0.16	13.29	0.16	58.79	0.23	23.20	0.20	18.01	0.18	45,117
30 years after award [e]													
1980	26.48	0.21	16.47	0.18	14.87	0.17	57.82	0.23	20.93	0.19	21.25	0.19	44,533

SOURCE: Authors' calculations using SSA administrative records.

NOTES: Rounded components of percentage distributions do not necessarily sum to 100.
DI = Disability Insurance; SSA = Social Security Administration; SSI = Supplemental Security Income.

a. Data for 2000 are not included because 13 years after award reflects a time horizon beyond the last observation point at the time the data were originally extracted (2010).

b. Data for 1997 and 2000 are not included because 15 years after award reflects a time horizon beyond the last observation point at the time the data were originally extracted (2010).

c. Data for 1995, 1997, and 2000 are not included because 20 years after award reflects a time horizon beyond the last observation point at the time the data were originally extracted (2010).

d. Data for 1990, 1995, 1997, and 2000 are not included because 25 years after award reflects a time horizon beyond the last observation point at the time the data were originally extracted (2010).

e. Data for 1985, 1990, 1995, 1997, and 2000 are not included because 30 years after award reflects a time horizon beyond the last observation point at the time the data were originally extracted (2010).

both of SSA's disability programs, especially as the cohorts age. Thirty years after initial award in 1980, more than half of surviving beneficiaries had some DI benefit receipt. Note, however, that although only less than half of disability awardees alive and receiving disability cash benefits in 2010 were in SSI-only status, about 7 in 10 of that group continued to receive SSI benefits. Second, accounting for death as an outcome is also increasingly important, as the awardee sample ages. More than 20 percent of all 1980 awardees died before 2010 (30 years after initial award), reflecting a level of mortality risk among those childhood awardees that seems very high compared with the mortality experience of the nondisabled population in the United States.[11] This represents more than half of initial awardees who had exited the rolls by 2010. The richness of the data in Table 2 reflects complex dynamics arising from a variety of sources. These data—reflecting variation in year of award, length of time since first award, and calendar year (not shown in the table explicitly)[12]—are important in understanding long-term changes, but the relationships are complex. In addressing the remaining research questions, we dissect this complexity by focusing on the various competing risks that affect the pattern of outcomes.

Research Question 2: What Proportion of Awardees in the 1980–2000 Cohorts Receives Disability Benefits (SSI and/or DI) During Various Time Horizons?

Chart 3 shows the percentages of child awardees of all ages in disability benefit status at various time points (1 year to at least 10 years, and up to 30 years from initial SSI award in childhood).[13] Those rates include awardee participation in the SSI and/or DI programs (disabled-worker and/or auxiliary benefits). There is substantial variability here, but some differences are striking. First, the proportion of awardees receiving disability benefits generally declined in the years after first award for all cohorts. Second, for the earliest three cohorts (1980, 1985, 1990) well over half of awardees still received SSI and/or DI 10 years after the initial award, and 56–59 percent received some disability benefit 20–30 years after first award. Third, there is a clear drop—roughly 15 percentage points— between the 1990 and 1995 cohorts in the percentage of awardees receiving benefits 5–15 years from first award. Although there is a tendency for an increase between the 1995 and later cohorts in the percentage of awardees receiving benefits, the 1997 and 2000 cohorts still had much lower rates of benefit receipt

Chart 3.
Percentage of childhood SSI awardees receiving SSI and/or DI benefits, by award cohort and years after initial award
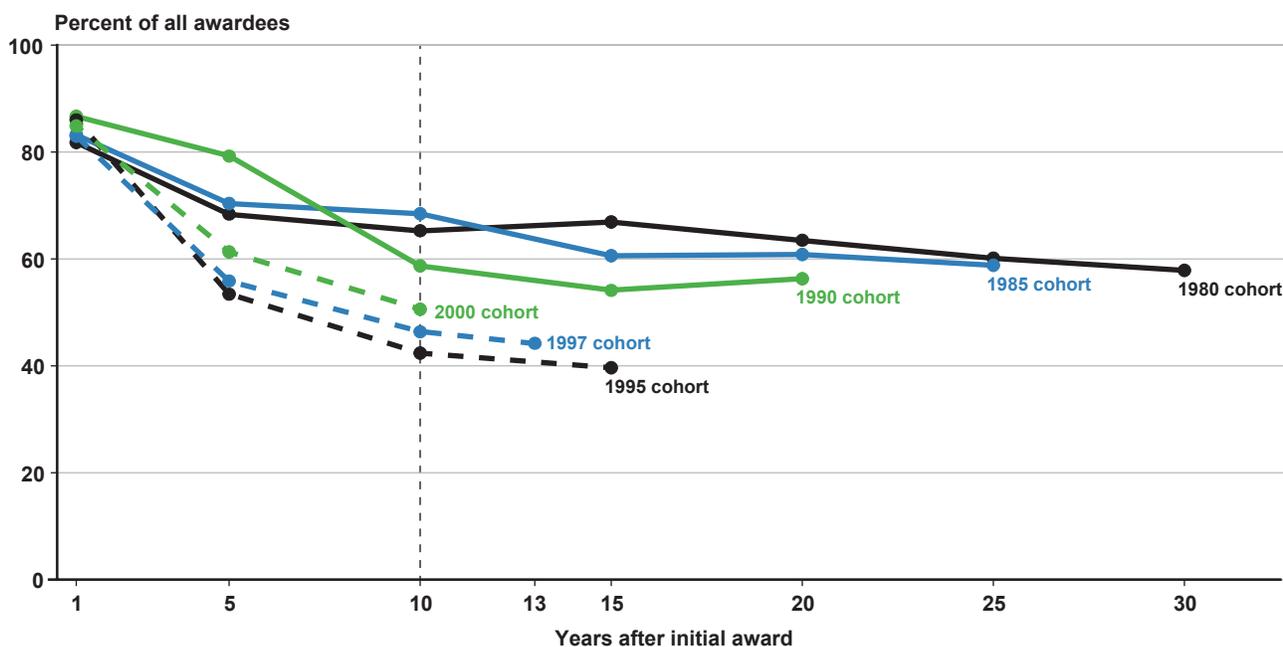
SOURCE: Authors' calculations using SSA administrative records.

NOTES: DI = Disability Insurance; SSA = Social Security Administration; SSI = Supplemental Security Income.

10 years after initial award, compared with the early cohorts (1980, 1985, 1990). The chart shows a dotted vertical line at 10 years from initial award to indicate the relative position of the various award cohorts. This keeps the time horizon comparable. There is a clear clustering of the observations, with earlier award cohorts (1980, 1985, and 1990) displaying a higher degree of benefit receipt at the 10-year mark roughly in the 60–70 percent range, while the 1995, 1997, and 2000 award cohorts display rates in the 40–50 percent range. In the next sections, we examine the role of various factors in affecting these trends.

Research Question 3: What Are the Trends in Survival Trajectories Across the Six Award Cohorts?

Because the risk of death and other factors suggesting the presence of severe and persistent medical conditions are important determinants of disability awards, it is not surprising that the mortality rate of child awardees was relatively high and increased as the cohorts aged. Chart 4 shows the mortality experience of the six award cohorts between 1980 and 2000 for up to 30 years after initial award. A useful way to compare those trajectories is based on cohort differences in the proportion of awardees that had died at comparable points after the year of first award. Again, we included a dotted vertical line at year 10 to facilitate comparisons across award cohorts. The mortality trajectories show a widening gap as the cohorts age. Thus, the chart shows an unambiguous decline in mortality risk across the award cohorts, from the highs of the 1980 and 1985 award cohorts to substantial drops occurring between the 1985 and 1990 cohorts and between the 1990 and 1995 cohorts. The 1980 and 1985 cohorts' mortality rates are roughly identical 10 years after award, followed by a clear decline for the 1990 cohort, and further drops for the 1995, 1997, and 2000 cohorts. As a result, the proportion of awardees that died within 10 years of award dropped from about 9–10 percent for the 1980 and 1985 cohorts, to roughly 4–5 percent for the 1995, 1997, and 2000 award cohorts, a decline of roughly 50 percent. Other things equal, a decline in mortality should be associated with an increase in benefit receipt; but in Charts 3 and 4, we observe the opposite pattern. A major conclusion from the charts is that the decline in mortality across award cohorts does not explain the decrease in the percentage of awardees receiving SSI and/or DI between the earlier and more

Chart 4.
Mortality experience of childhood SSI awardees, by award cohort and years after initial award
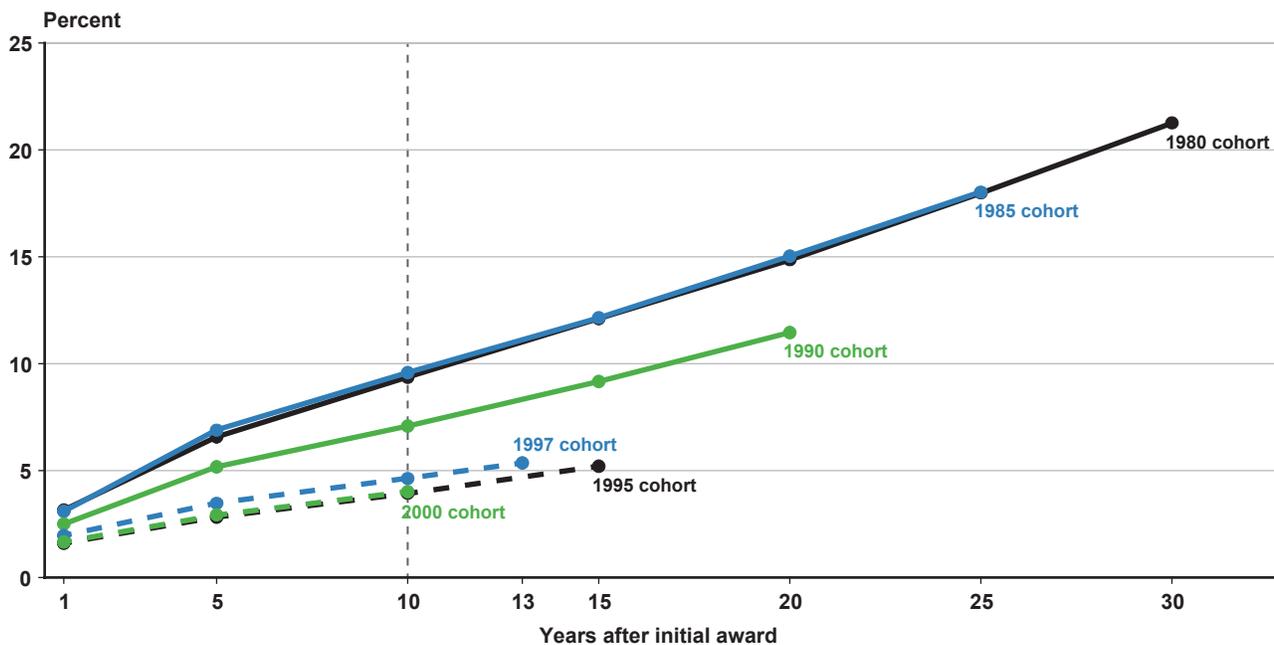
SOURCE: Authors' calculations using SSA administrative records.

NOTE: SSA = Social Security Administration; SSI = Supplemental Security Income.

recent cohorts. Later in our discussion, we explain this seeming contradiction.

This decline in mortality may be the result of changes in the observable characteristics of awardees (such as age, sex, and type of impairment) or of changes in the unobserved variables (such as the nature and severity of disabilities among awardees). We note that the data do not allow the use of a detailed diagnostic classification because of the lack of comparability over time that we encounter at a more disaggregated level, and therefore we observe only diagnostic shifts at a highly aggregated level; a lot of possibly relevant diagnostic detail remains unobserved. (However, as previously mentioned, our results are robust to other diagnostic groupings.) In addition, advances in medical treatments, which are also unobserved in our data set, may have contributed to the secular decline in mortality. We note that the results of our multiple regression analyses (Appendix Tables A-1 and A-2) suggest that changes in age, sex, and our diagnostic classification groupings do not explain the secular downward shift in mortality risk across award cohorts. For example, we observe that the proportion of awardees that died within 5 years of initial award dropped from 6.9 percent to 2.9 percent between the 1985 and 2000 award cohorts (next to last column of Tables A-1 and A-2); this is a huge drop in mortality risk. Holding the observed mix of awardees constant at the levels of the 2000 award cohort, but applying the 1985 model (discussed in detail later), we observe that the projected proportion of awardees that died 5 years after award for the 2000 award cohort was much higher (7.9 percent) than the proportion we actually observe for the 2000 award cohort (2.9 percent). This is not explained by changes in observed awardee characteristics because we held those constant; it is the result of unobserved factors affecting mortality risk between the 1985 and 2000 award cohorts. Indeed, the 7.9 percent death rate for the 2000 award cohort as predicted by the 1985 model is close to the 6.9 percent observed rate of death for the 1985 award cohort. Because the projection for the 2000 award cohort is slightly higher than the observed death rate for the 1985 award cohort, factors other than the observed awardee mix explain the entire observed decline in the probability of death 5 years after award between the 1985 and 2000 award cohorts. Other comparisons (not detailed here) between observed and predicted death rates at various time points after award show a similar pattern. Hence, we conclude that observed changes

in awardee mix by type of impairment do not explain the overall pattern of declining mortality rates at comparable time points after initial award across the six cohorts.

The observed decline in mortality may have been affected by the 1990 modification of the Listing of Impairments and the Supreme Court's *Zebley* decision (also in 1990)—both liberalizing the disability screen and presumably resulting in awards to children with less severe physical and mental impairments. However, the tightening of eligibility under welfare reform, and notably the age-18 redetermination, could have had effects in the opposite direction. Yet, we do not observe clear discontinuities in trajectories, and the secular decline continues for the post-PRWORA cohorts. Therefore, we suggest caution in interpreting the changes and point out that broader secular trends in society are possibly quite important here. Specifically, improvements in the efficacy of medical care may have produced a profound gradual decline in mortality across award cohorts and time. We speculate that innovations may have reduced mortality from causes such as low birth weight, childhood cancers, and severe physical diagnoses such as autoimmune disorders or cystic fibrosis. However, our study was not designed to separate the effect of improvements in medical technology from the many programmatic changes influencing case severity.

Other things equal, a reduction in mortality risk should increase the risk of program participation. However, trends in the proportion of survivors transitioning to nonparticipation status also play a role. The next research question addresses this issue.

Research Question 4: What Are the Trends in the Trajectory of Disability Program Participation and Nonparticipation Among Survivors?

In addition to mortality, the other major determinant of duration on the disability rolls and lifetime program cost is the pattern of participation and nonparticipation among survivors. As previously noted, we do not make a value judgment on the desirability of shifting from participant to nonparticipant status for individual disability beneficiaries; under any circumstances, that would be a daunting task, given the enormous heterogeneity in the nature and severity of disabilities among surviving program participants, their work potential, and labor market opportunities after a period of no or

limited employment. Here, we simply assess whether there are observable trends in the trajectory of disability program participation and nonparticipation among childhood SSI awardees and whether any shifts in awardee characteristics explain those trends.

Chart 5 gives the percentages of *survivors* who were off the disability rolls (both SSI and DI), using a time horizon of up to 30 years across the six award cohorts. This chart maps the percentage of awardees in each cohort receiving neither SSI nor DI benefits over time (conditional on being alive), using the year of award as the anchoring point of comparable time intervals. The chart shows a clear break between the trajectories of the three award cohorts that entered the program rolls between 1980 and 1990 and the three award cohorts entering between 1995 and 2000. Overall, the percentage of survivors receiving neither SSI nor DI 1 year after award has remained relatively level, between 11 percent and 16 percent for each cohort. Chart 5 explains the seeming puzzle noted in the discussion of Charts 3 and 4, where the decline in mortality across award cohorts does not explain the decrease in the percentage receiving SSI and/ or DI benefits between the earlier and more recent cohorts. Clearly, the strong increase in the percentage of surviving awardees not receiving benefits explains the decrease in participation between earlier and later award cohorts presented in Chart 3—*despite* the corresponding, but smaller, downward shift of mortality trajectories reflected in Chart 4, which affects the overall rate of participation among awardees in the opposite direction.

A more refined picture emerges when we analyze disability program nonparticipation by calendar year in the analysis. Chart 6 shows the same information that was included in Chart 5, but uses calendar year on the horizontal axis. For example, when looking at the first panel, we see that 1 year after award for the 1980 cohort is 1981, while the corresponding point is 1986 for the 1985 award cohort. Likewise, in 2010, we observe the 1980 award cohort 30 years after first award, but the corresponding calendar-year point is only 25 years after first award for the 1985 award cohort. The four panels contain the same information, but highlight different award cohorts. Panel 1 shows that after an initial increase in the proportion of awardees not receiving benefits up to 5 years after award, both the 1980 and 1985 cohort trajectories are basically flat and remain under 30 percent for all but one data point.

Chart 5.

Percentage of surviving childhood SSI awardees receiving neither SSI nor DI disability benefits, by award cohort and years after initial award
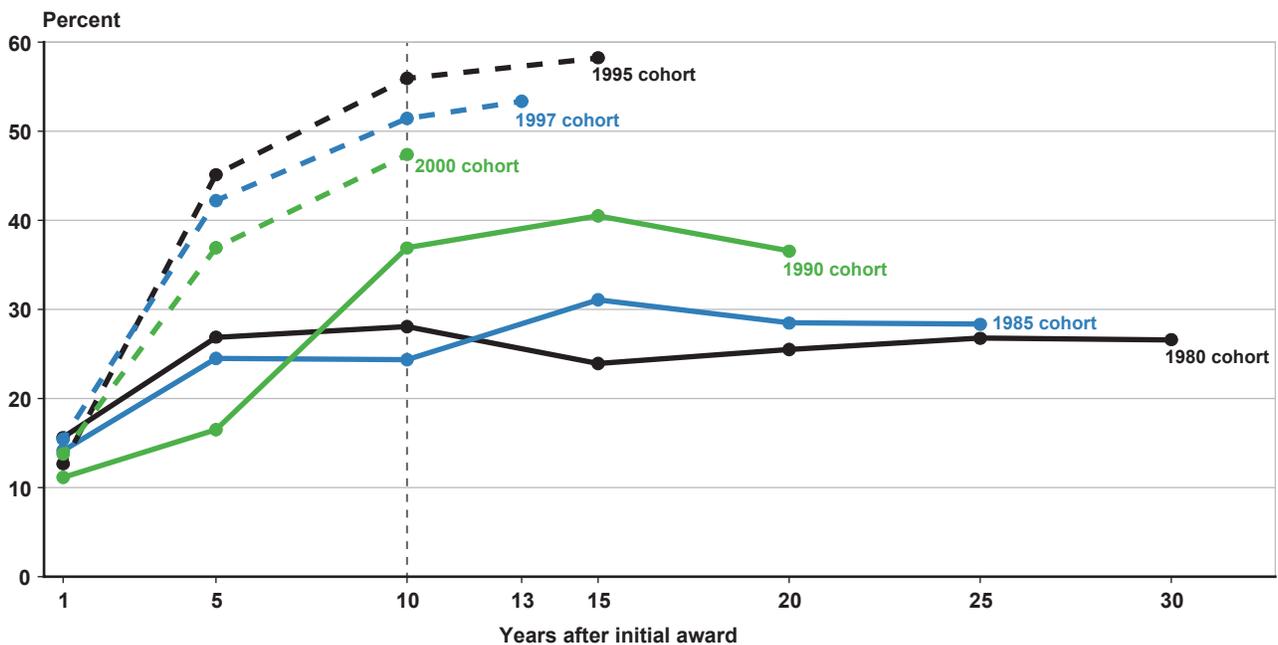
SOURCE: Authors' calculations using SSA administrative records.

NOTES: DI = Disability Insurance; SSA = Social Security Administration; SSI = Supplemental Security Income.

Chart 6.

Percentage of surviving childhood SSI awardees receiving neither SSI nor DI disability benefits, by award cohort and calendar year (CY)

Panel 1: 1980 and 1985 cohorts
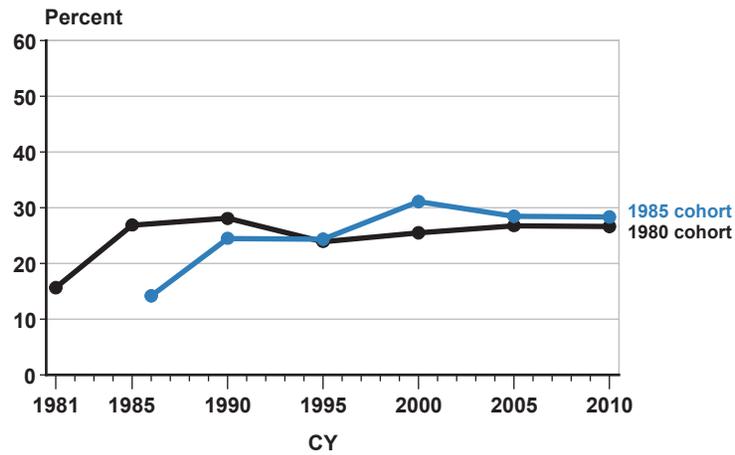
Panel 2: 1990 cohort
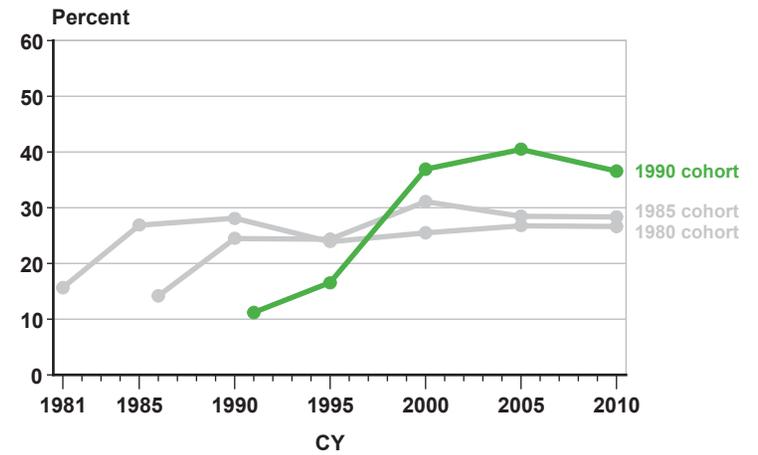
Panel 3: 1995 and 1997 cohorts
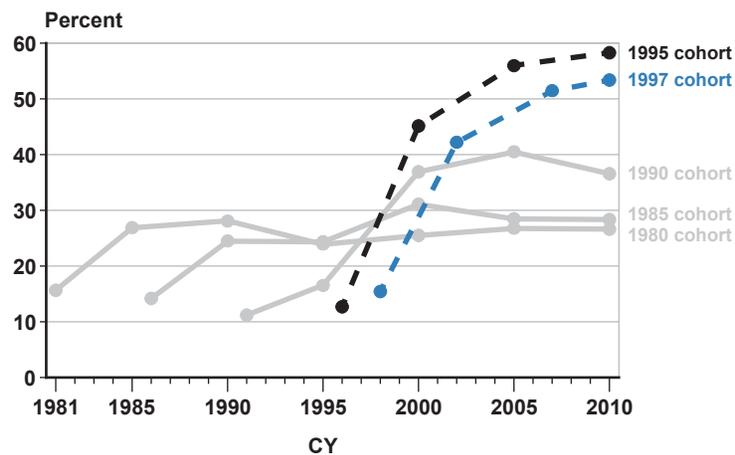

Panel 4: 2000 cohort
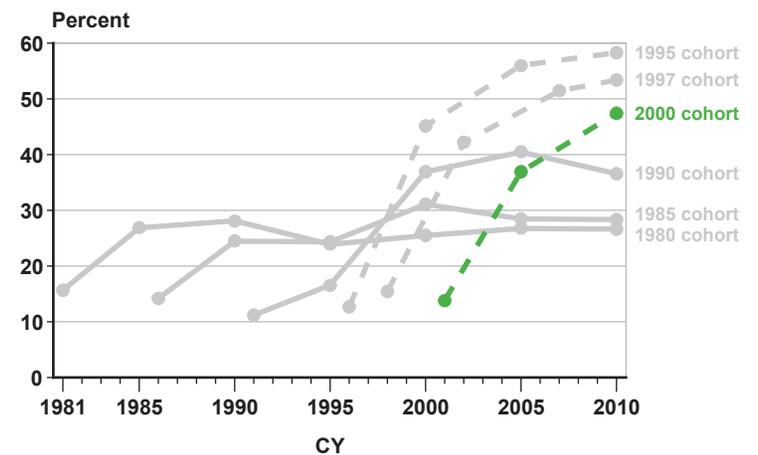
SOURCE: Authors' calculations using SSA administrative records.

NOTES: DI = Disability Insurance; SSA = Social Security Administration; SSI = Supplemental Security Income.

In contrast, panel 2 shows that for the 1990 award cohort, there is a sharp uptick in the trajectory between 5 and 10 years after award—corresponding to the 1995 to 2000 interval. Although because of our sample construction, we do not observe the proportions in 1996 directly, it is clear that individuals who were still in benefit status 6 years after award were exposed to the changed policy regime of the 1996 welfare reform. While some individuals in the 1980 and 1985 award cohorts also survived in benefit status until after 1996, most of those earlier entrants were already in benefit status for 11 to 16 years after award. This is long enough to anticipate essentially no responsiveness to the new policy regime introduced in 1996. Moreover, many members of these earlier cohorts were well into adulthood by 1996, and thus not subject to the mandatory age-18 redetermination required by welfare reform. For the 1990 award cohort, the trajectory reaches a clearly higher level, up to 40 percent, compared with the earlier award cohorts, which hover around 30 percent.

Panel 3 shows the two award cohorts bracketing the year of the welfare reform—1996. Clearly, the vast majority of 1995 awardees were subject to the changed policy regime introduced by the 1996 welfare reform, while all of the 1997 awardees were subject to the policy environment after welfare reform. We see a much stronger upward shift (approaching the 55–60 percent range) in the trajectories of later award cohorts not receiving disability benefits, compared with the trajectories of the 1990 and earlier award cohorts. Finally, panel 4 shows that there is some downward shift in the trajectory for the 2000 award cohort, but that trajectory approaches 50 percent, even for this most truncated follow-up period. We see a modest downward shift from the 1995 to 1997 to 2000 award cohorts, but it is clear that the slope of those three trajectories remains steeper than the trajectories of the earlier three award cohorts.

For the most part, both the time elapsing since first award and the calendar year of the observed participation outcome appear to affect program participation. We observe a sharp upward shift in the slope of trajectories toward increased proportions of survivors off the rolls around the time of the 1996 welfare reform—a trend that appears to be diminishing for the recent cohorts. These observed patterns may be related to changes in SSI policies and implementation practices affecting the trends in the characteristics of awardees and exits. This is unsurprising given the increased likelihood of a cessation that is due to a

CDR or an age-18 redetermination following welfare reform. Although the earlier liberalization of SSI policy in 1990 (particularly *Zebley*) may have also played a role in disability program nonparticipation, we simply do not have the evidence to support that plausible claim. We also note that the observed patterns may also be influenced by other factors such as the business cycle, trends in the use and effectiveness of medical and rehabilitation technologies, and civil rights protections pursuant to the Americans with Disabilities Act of 1990. We cannot directly test those factors and other explanations with our data, but we can explore whether changes in the characteristics of awardees by age, sex, and broad type of impairment explain all or part of the shift in patterns of disability nonparticipation. For these compositional factors to provide any explanation of changes across award cohorts, at a minimum we need to be able to observe changes in awardee characteristics over time and differences in outcomes among subgroups identified by these variables.

As shown in Table 1, we do indeed observe substantial changes in awardee mix in terms of age, sex, and broad impairment type, and therefore we now turn our attention to the question of whether those differences explain the shifts in patterns of disability nonparticipation shown in Chart 5. To identify the influence of those factors, we first run multinomial logit regressions on our five potential outcome statuses—controlling for age (in single-year dummy variables), sex, and type of impairment (see Table 1 for groupings) for 1985 (first year with reliable diagnostic data) and 2000. The results from those regressions are included in supplementary tabulations available for interested readers.[14] Next, using the observed mix of awardees for each cohort and follow-up observation point, we calculate the projected percentage of all awardees alive and in nonprogram status using (a) the 1985 model and (b) the 2000 model. Subsequently, we scale up the projected fractions as a percentage of those awardees who were alive, to make the results of the projections directly comparable to Chart 5 data, which are conditioned on survivor status.[15]

The results given in Chart 7 show that the projected percentage of awardees off the rolls is not sensitive to observed awardee mix for the given cohort. The chart presents two sets of predictions, generated respectively by the 2000 model and the 1985 model. As it happens, the 2000 model predictions are at the top of the chart, while the 1985 model predictions are at the

Chart 7.

Model-predicted percentage of surviving childhood SSI awardees receiving neither SSI nor DI disability benefits, by award cohort and years after initial award
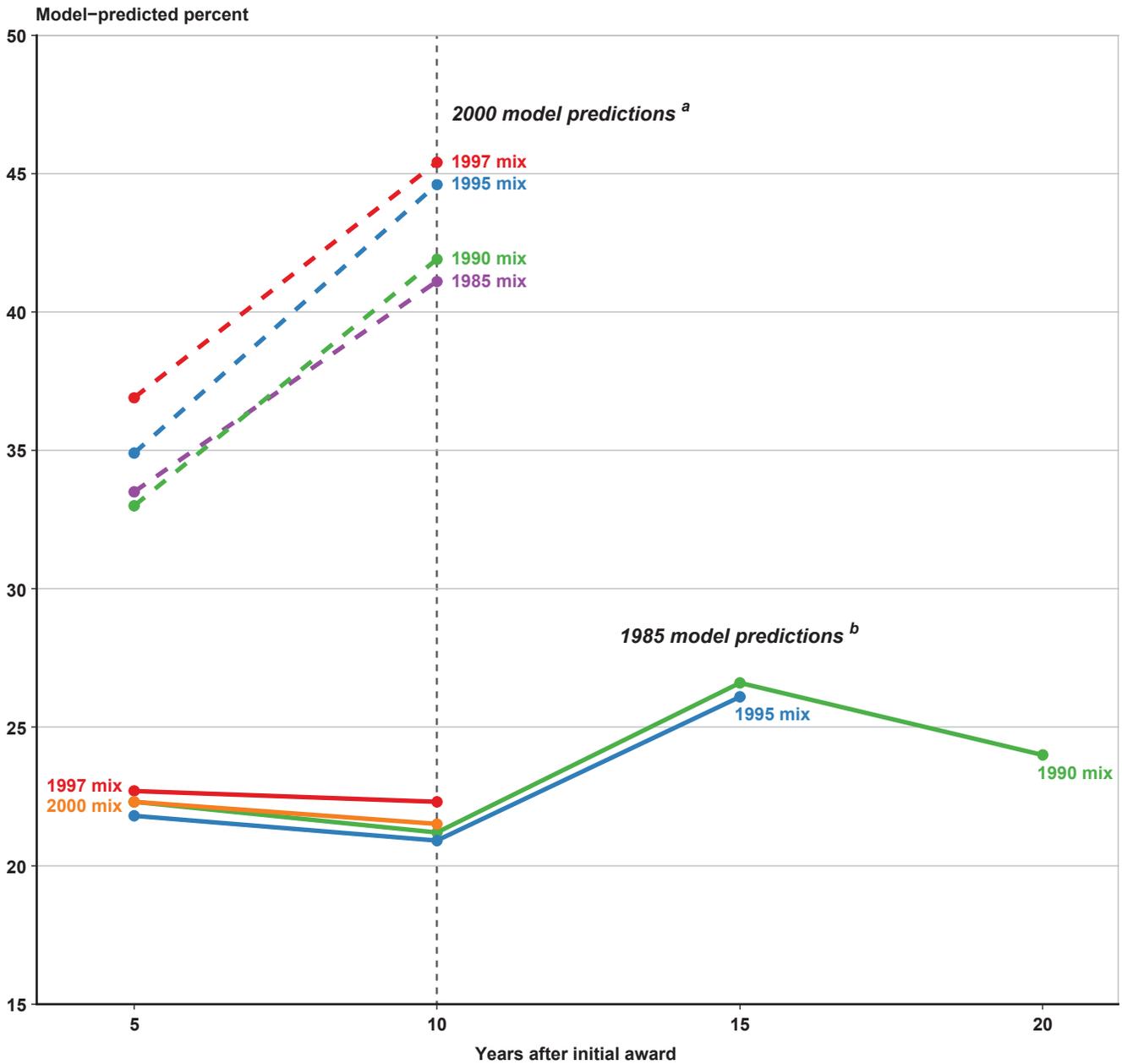
SOURCE: Authors' calculations using SSA administrative records.

NOTES: SSA = Social Security Administration; SSI = Supplemental Security Income.

a. Predictions are based on the estimated coefficients of the 2000 model applied to the characteristics of the 1985, 1990, 1995, and 1997 awardees.

b. Predictions are based on the estimated coefficients of the 1985 model applied to the characteristics of the 1990, 1995, 1997, and 2000 awardees.

bottom. This is not based on an arbitrary decision, but reflects the results of this sensitivity analysis. The top four lines show the predicted outcomes of the 1985, 1990, 1995, and 1997 childhood award cohorts using the 2000 cohort multinomial logit regression weights (that is, the coefficients from the 2000 regression). While there may be a slight upward shift across award cohorts, the overall slope of the lines is fairly parallel, as there is a similar increase in nonreceipt of disability benefits for each cohort. The bottom four lines show the predicted outcomes of the 1990, 1995, 1997, and 2000 childhood award cohorts using the 1985 multinomial logit regression weights (that is, the coefficients from the 1985 regression). While there is some variation, the projections are relatively flat and are clearly bundled. The 2000 model clearly projects a degree of nonparticipation in the SSI and/or DI program well above 30 percent—regardless of the mix of the award cohort on the characteristics measured (age, sex, and overall type of impairment). By contrast, the 1985 model consistently generates predictions well below 30 percent.

We conclude, therefore, that awardee mix on the variables our models account for does not play a substantial role in explaining the observed trajectories in Chart 5. Thus, the observed pattern of discontinuity in trajectories across award cohorts is not explained by differences in age, sex, or type of impairment across the cohorts. Rather, it reflects the nature of the SSI program as it existed in the year of the model (1985 or 2000). Simply stated, the disability programs as they existed in 1985 were conducive to a much higher level of continued participation than the program conditions that prevailed in 2000. Although we still cannot positively identify other reasons that explain the detailed patterns, it is notable that the discontinuity that is displayed in Charts 5 and 6, which roughly coincides with the welfare reform of 1996, is not the result of changes in the observed mix of awardees. We also know that welfare reform included two important provisions designed to increase exits: the newly mandated age-18 redetermination and the 3-year CDR schedule mandated for children who were expected to medically improve. Both of those factors should increase nonparticipation irrespective of changes in awardee mix. In addition, the interpretation that changes in the trajectory of nonparticipation are related to the welfare reform is strengthened by the fact that shifts in nonparticipation trajectories are observed for both new awardees and those already on the rolls at the time of the welfare reform. In sum, our findings are consistent with prior expectations about the effects of the welfare reform.[16] Although we urge caution in interpreting our findings, it should be noted that we are unaware of any other coherent hypotheses that would provide an explanation for our findings.

Research Question 5: What Are the Trends in Shifting to DI or Concurrent Status Among Surviving Disability Beneficiaries and What Is the Contribution of Disabled-Worker and Auxiliary Benefit Receipt in Adulthood?

Transitions to DI benefit status (either as DI-only or concurrent SSI and DI) among surviving disability beneficiaries in adulthood is important because the DI program is generally more generous than SSI because it is not means tested and because of interactions involving Medicaid and Medicare coverage. Burkhauser and Daly (2011) highlighted the potential importance of that transition for beneficiary well-being, but provided no empirical estimates of the magnitude of the receipt of disabled-worker benefits among childhood awardees over the adult life cycle. We fill that gap and also address an additional issue—the possibility of an SSI recipient receiving DI benefits not because of earning DI-insured status and, as a result, disabled-worker benefits, but because of his or her eligibility for auxiliary benefits as a surviving dependent of a Social Security beneficiary.[17]

Chart 8 presents the percentage of surviving childhood SSI awardees receiving DI benefits up to 30 years after their first SSI award. The results show the increasing importance of DI receipt over time for all of the award cohorts as childhood awardees age into adulthood. Well over half of the 1980 award cohort that was still receiving some form of disability benefits 30 years after initial award received DI benefits, including some who received both SSI and DI. The trajectories are roughly parallel across award cohorts, especially for the 1980, 1985, and 1990 award cohorts, suggesting that the experience of the 1980 cohort may be a good approximation for projecting the experience of at least some of the more recent cohorts into the future. However, there is a slight downward trend in the proportion of awardees receiving DI benefits across cohorts. That downward shift across cohorts is fairly apparent 10 years after award, with a high of 14 percent for the 1980 cohort and a low of 8 percent for the 2000 cohort.

Chart 8.
Percentage of surviving childhood SSI awardees receiving DI benefits (DI only or concurrent DI/SSI), by award cohort and years after initial award
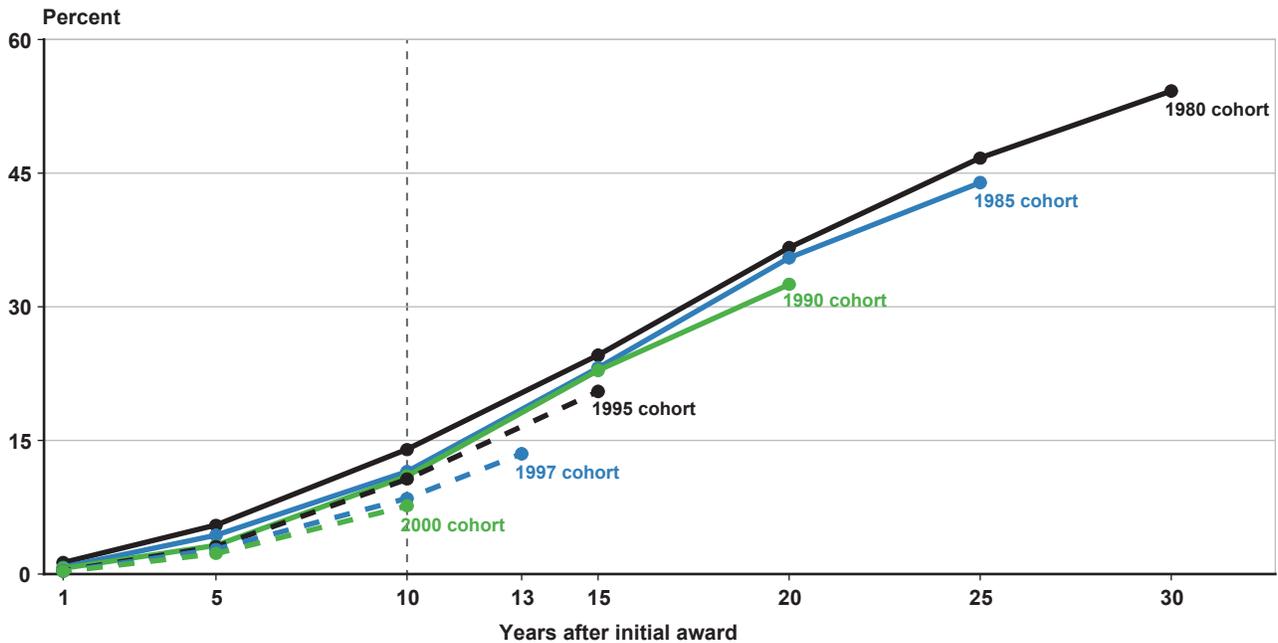
SOURCE: Authors' calculations using SSA administrative records.

NOTES: DI = Disability Insurance; SSA = Social Security Administration; SSI = Supplemental Security Income.

The cohort differences are more muted as we move toward the out-years.

However, the intercohort differences may not be simply generalized to disabled-worker benefits because changes in the mix of disabled-worker and auxiliary benefit receipt greatly complicate the picture. Table 3 highlights the key comparisons. It provides the percentages of childhood SSI awardees receiving disabled-worker and auxiliary benefits among DI-only beneficiaries and awardees receiving concurrent benefits. Estimates for the two types of benefits (disabled-worker and auxiliary) under both categories tend to add to well over 100 percent because some individuals receive both types of benefits. First, we note that auxiliary beneficiaries are a substantial portion of both DI-only and concurrent benefit recipients across all cohorts, especially at the beginning of the adult life cycle (age 20); as people age, however, the proportion of disabled workers substantially increases. Second, keeping age constant, there is a clear trend of increases in the shares of awardees receiving disabled-worker benefits, especially among DI-only beneficiaries.

Table 4, which shows disabled-worker and auxiliary beneficiaries as a percentage of all surviving awardees, refines the picture. The percentage of childhood SSI awardees receiving either or both disabled-worker and auxiliary benefits clearly increases as those youths age. However, holding age constant, there is no discernible trend in the percentage of survivors receiving disabled-worker benefits across award cohorts. Yet, devising strategies to increase this type of transition in the future, as advocated by Burkhauser and Daly (2011), may be a promising direction for future experimentation and policy development.[18]

Finally, we note that there appears to be a decline in the proportion of individuals receiving auxiliary benefits across award cohorts, at any given age. We do not fully understand the reasons for that decline. Part of the decline may result from a reduction of the severity of childhood disabilities in the *Zebley* era (particularly for the 1995 cohort) and a relative increase after the PRWORA. However, whatever the causes may be, the secular decline in the proportion of auxiliary benefit receipt among childhood SSI awardees may be the reason behind the slight downward shift in trajectories across the award cohorts observed in Chart 8.

Table 3.
Percentage of childhood SSI awardees receiving DI disabled-worker or auxiliary benefits among DI-only and concurrent (SSI/DI) beneficiaries, by award cohort and age

| Award cohort | DI-only beneficiaries receiving given benefit [a] | | | | | Concurrent (SSI/DI) beneficiaries receiving given benefit [b] | | | | |
| | Disabled-worker | | Auxiliary | | | Disabled-worker | | Auxiliary | | |
	Estimate	Standard error	Estimate	Standard error	N	Estimate	Standard error	Estimate	Standard error	N
					Age 20					
1980	16.1	1.0	92.0	0.8	1,244	21.9	0.7	84.6	0.6	3,703
1985	21.3	1.2	86.9	1.0	1,231	25.3	0.7	80.5	0.6	3,805
1990	24.3	1.0	85.6	0.8	1,788	26.7	0.6	80.0	0.5	5,464
1995	34.1	1.2	77.3	1.1	1,576	33.1	0.6	72.9	0.6	5,368
1997	32.9	1.6	79.6	1.4	817	34.7	0.9	72.4	0.9	2,684
2000	35.7	1.8	76.0	1.6	672	29.5	0.9	76.6	0.9	2,414
					Age 25					
1980	40.6	1.0	66.8	1.0	2,443	46.5	0.6	59.1	0.6	6,335
1985	48.2	1.0	58.6	0.9	2,758	52.0	0.6	53.1	0.6	6,092
1990	57.9	1.0	49.0	1.0	2,674	55.2	0.6	48.7	0.6	6,232
1995	69.2	0.9	37.9	0.9	2,721	61.3	0.7	42.8	0.7	5,380
1997	67.9	1.3	40.2	1.4	1,294	60.1	1.0	43.7	1.0	2,323
2000	66.2	1.7	42.5	1.8	749	52.9	1.3	51.5	1.3	1,398
					Age 30 [c]					
1980	50.1	0.8	57.1	0.8	3,980	46.3	0.6	59.7	0.6	6,972
1985	56.1	0.9	50.0	1.0	2,768	52.7	0.8	52.6	0.8	4,424
1990	65.9	0.9	39.6	1.0	2,530	55.3	0.8	48.5	0.8	3,786
1995	73.8	1.1	31.8	1.1	1,697	61.0	1.1	42.8	1.1	2,101
					Age 35 [d]					
1980	51.2	0.8	55.3	0.8	4,077	45.3	0.7	61.1	0.7	5,502
1985	56.8	1.0	49.7	1.1	2,231	50.2	0.9	55.5	0.9	2,827
1990	63.0	1.4	42.5	1.4	1,247	48.3	1.3	56.5	1.3	1,543

SOURCE: Authors' calculations using SSA administrative records.

NOTES: DI = Disability Insurance; SSA = Social Security Administration; SSI = Supplemental Security Income.

a. The denominator for the percentage calculations in each row is childhood SSI awardees in the award cohort who had transitioned to DI-only status at the given age.

b. The denominator for the percentage calculations in each row is childhood SSI awardees in the award cohort who had transitioned to concurrent SSI/DI status at the given age.

c. Data for 1997 and 2000 are not included because childhood SSI awardees in those years could not have reached age 30 by the end of our observation period (2010).

d. Data for 1995, 1997, and 2000 are not included because childhood SSI awardees in those years could not have reached age 35 by the end of our observation period (2010).

Table 4.

Percentage of all surviving childhood SSI awardees receiving DI disabled-worker, auxiliary, or both types of benefits, by award cohort and age

| Award cohort | All surviving SSI childhood awardees receiving given benefit [a] | | | | | | N |
| | Disabled-worker | | Auxiliary | | Either or both types | | |
	Estimate	Standard error	Estimate	Standard error	Estimate	Standard error	
			Age 20				
1980	2.5	0.1	10.7	0.2	12.4	0.2	39,975
1985	3.0	0.1	10.3	0.2	12.5	0.2	40,215
1990	2.7	0.1	8.4	0.1	10.3	0.1	70,275
1995	2.1	0.0	4.7	0.1	6.4	0.1	108,480
1997	2.4	0.1	5.1	0.1	6.9	0.1	50,724
2000	2.1	0.1	5.2	0.1	6.7	0.1	45,732
			Age 25				
1980	10.2	0.2	13.9	0.2	22.6	0.2	38,783
1985	11.6	0.2	12.5	0.2	22.8	0.2	38,876
1990	10.8	0.1	9.4	0.1	19.2	0.2	46,378
1995	8.7	0.1	5.6	0.1	13.6	0.1	59,746
1997	9.8	0.2	6.6	0.2	15.6	0.2	23,184
2000	9.3	0.3	7.8	0.2	16.1	0.3	13,302
			Age 30 [b]				
1980	13.9	0.2	17.1	0.2	29.2	0.2	37,534
1985	15.3	0.2	14.6	0.2	28.3	0.3	25,390
1990	14.0	0.2	10.5	0.2	23.5	0.3	26,905
1995	12.6	0.2	7.2	0.2	18.9	0.3	20,103
			Age 35 [c]				
1980	16.8	0.2	20.6	0.2	35.2	0.3	27,227
1985	17.8	0.3	17.7	0.3	33.5	0.4	15,092
1990	15.7	0.4	14.4	0.4	28.7	0.5	9,721

SOURCE: Authors' calculations using SSA administrative records.

NOTES: DI = Disability Insurance; SSA = Social Security Administration; SSI = Supplemental Security Income.

a. The denominator for the percentage calculations in each row is all surviving childhood SSI awardees in the award cohort at the given age, including SSI-only beneficiaries, concurrent SSI/DI beneficiaries, DI-only beneficiaries, and those off the rolls and alive.

b. Data for 1997 and 2000 are not included because childhood SSI awardees in those years could not have reached age 30 by the end of our observation period (2010).

c. Data for 1995, 1997, and 2000 are not included because childhood SSI awardees in those years could not have reached age 35 by the end of our observation period (2010).

Discussion

Based on early studies on the then nascent SSI program, we know that historically—compared with other means-tested programs—the average duration on the SSI rolls is fairly long, especially among childhood awardees (Rupp and Scott 1995). Still, as the more recent study by Davies, Rupp, and Wittenburg (2009) has demonstrated, SSI benefit receipt among childhood awardees substantially drops over time, and that decline continues well into adulthood. Those authors also found some evidence that the participation patterns may change from early cohorts of awardees (1980) to more recent cohorts (1997). In this article, we expand that research in two different directions. First, we look at a much more complex array of outcomes, including DI participation in adulthood, and we distinguish between death and program nonparticipation among survivors. Second, we also compare outcome trajectories for six different cohorts of awardees spanning from 1980 to 2000 and follow them for up to 30 years after first award.

We find that a nontrivial portion of childhood SSI awardees died over longer time horizons, and that mortality has generally decreased for successive cohorts. Mortality, of course, also reduces the duration of SSI participation. A relatively more important factor that also reduces SSI duration is transition to nonbeneficiary status among survivors. By contrast, access to DI benefits increases the overall duration of disability cash benefit receipt. Indeed, 30 years after their initial SSI award, a higher portion of 1980 awardees received DI benefits (both disabled-worker and auxiliary, some concurrently with SSI benefits) than SSI-only benefits.

We also address how these trajectories have changed across award cohorts. Although it is common knowledge that SSI program rules affecting childhood awardees have changed substantially since the start of the SSI program in 1974, there is scant evidence of the changes in the *trajectories* of program participation. In comparing the trajectories of the various award cohorts, we find evidence that these changes have been substantial. In particular, we find that the proportion of childhood awardees that was still receiving any disability benefits (SSI and/or DI) at various years since first award had generally dropped across award cohorts over time, with a particularly strong break between the 1990 and 1995 award cohorts.

We also find suggestive evidence that welfare reform had a lasting effect on benefit receipt. Changes in the trajectories of program participation provide the empirical evidence. First, there is an upward shift in the nonparticipation trajectory for the 1990 cohort around the time of the welfare reform in the mid-1990s. Second, the slope of that trajectory shows a further dramatic upward shift between the 1990 and 1995 award cohorts. There is some reversion for the two most recent cohorts (1997 and 2000), but for the most part, the levels of nonparticipation are still much higher at comparable points for those cohorts than the levels observed for the earliest cohorts. Using multinomial logit regression, we show that awardee mix on observed variables (age, sex, type of impairment) does not explain this major secular change. We do find compelling evidence that is consistent with the hypothesis that the increase in exits stemming from welfare reform is an important source of reduced levels of overall disability program participation across award cohorts. Although transitions involving DI (disabled-worker or auxiliary) benefits are increasingly important over the individual life cycle as survivors age, the evidence suggests that there have been no major differences in disabled-worker benefit receipt across the award cohorts.

In a broader sense, our results are consistent with the notion that the SSI program has gone through substantial changes over time. The SSI program for children as it operates now is more dynamic than the early program was. Well into adulthood, the importance of death as a reason for exits has diminished, and exits to nonparticipation status among adult survivors have become much more common. This raises new policy questions about the financial well-being and labor market participation among childhood awardees in adulthood. One avenue for future research would be to explore more fully the contributors to changes in mortality over time—including medical advances and SSA policy changes—such as changes in the regulation basis identifying the reasons children are awarded SSI benefits.

Thus, our results reinforce the findings of previous analyses of the SSI program as it applies to children. Those analyses were informed by cross-sectional and time-series evidence, but not the kind of longitudinal analysis we present in this article. Some of the transformation in the SSI program has been related to policy changes, such as the Supreme Court's *Zebley*

decision and the 1996 welfare reform. Our results are consistent with the notion that those policy changes may have substantially altered the characteristics of awardees in a more subtle way than can be gleaned from observed changes in diagnostic and demographic characteristics and may have directly affected exits from the program. Of course, broader policy innovations—such as the Americans with Disabilities Act of 1990, improvement in the efficacy in medical treatments and assistive technologies, major changes in the diagnosis and treatment of mental disorders, and changes in the labor market—may have also influenced the observed trajectories.

Our results are consistent with previous research on adult awardees—suggesting the importance of SSI/DI program interactions—and the pattern of transitions from SSI to DI or concurrent status over the adult life cycle (Rupp and Riley 2011). Thus, the prospect of transitions to the DI program in adulthood should inform policies focusing on SSI children and young adults as well. SSA has been actively testing policy interventions to support the transition to adulthood for youth disability beneficiaries (see, for example, Fraker and Rangarajan (2009) for a discussion of the Youth Transition Demonstration Project, and Hemmeter (2014) for more information on short-term DI outcomes for that project). However, the transition to the DI rolls has been only a minor part of these interventions. There is clearly room to consider transition to DI-insured status among childhood SSI awardees as a

potentially important outcome that may be affected by active policy interventions in the future (Burkhauser and Daly 2011).

The increasing empirical importance of transitions to nonparticipant status in adulthood also suggests that the efficacy of employment-support policies and programs targeting transition-age youth is increasingly important as a policy issue. Transitions to both the DI program and nonbeneficiary status, however, raise broader issues about the effects those transitions have on one's overall well-being, which require the use of additional data—particularly data on earnings trajectories and on public health insurance coverage and utilization in adulthood (Rupp and Riley 2012). To fully assess disability program participation and the transition to adulthood, a crucial issue is their effect on one's financial well-being. An example of another perspective on long-term outcomes of SSI children is provided by Weathers and others (2008), who examined the role of postsecondary education for a group of deaf and hard-of-hearing SSI youths. Combining information on SSI and DI benefit amounts with earnings, health insurance coverage, and health services utilization data into adulthood would go a long way toward making comparisons—a much needed shift from a narrower focus on benefit expenditures from the government's perspective toward a broader array of outcomes affecting youth as they transition to adulthood.

Table A-1.

SSI and/or DI program participation and mortality experience of childhood SSI awardees aged 0–17 at award, by award cohort and years after award: Actual and 1985 model-predicted percentage distribution of awardees by outcome

Award cohort, model	SSI only		DI only		Concurrent (SSI/DI)		Neither SSI nor DI, alive		Dead	
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error
5 years after award										
1985 characteristics, actual	67.3	0.2	0.7	0.0	2.4	0.1	22.8	0.2	6.9	0.1
1990 characteristics, actual	76.7	0.2	0.5	0.0	2.1	0.1	15.6	0.1	5.2	0.1
1990 characteristics, 1985 model	68.9	0.2	0.6	0.0	2.1	0.1	22.3	0.2	6.0	0.1
1995 characteristics, actual	51.8	0.1	0.4	0.0	1.2	0.0	43.8	0.1	2.8	0.0
1995 characteristics, 1985 model	69.0	0.3	0.5	0.0	1.9	0.1	21.8	0.2	6.8	0.2
1997 characteristics, actual	54.3	0.1	0.4	0.0	1.1	0.0	40.7	0.1	3.5	0.1
1997 characteristics, 1985 model	66.7	0.3	0.5	0.0	1.6	0.0	22.7	0.3	8.5	0.2
2000 characteristics, actual	59.9	0.1	0.3	0.0	1.1	0.0	35.8	0.1	2.9	0.0
2000 characteristics, 1985 model	67.7	0.3	0.4	0.0	1.6	0.0	22.3	0.2	7.9	0.2
10 years after award										
1985 characteristics, actual	60.6	0.2	2.0	0.1	5.9	0.1	22.0	0.2	9.6	0.1
1990 characteristics, actual	52.2	0.2	1.7	0.0	4.8	0.1	34.3	0.2	7.1	0.1
1990 characteristics, 1985 model	62.3	0.2	2.0	0.1	6.0	0.1	21.2	0.2	8.5	0.1
1995 characteristics, actual	37.8	0.1	1.4	0.0	3.1	0.0	53.7	0.1	3.9	0.0
1995 characteristics, 1985 model	62.4	0.3	1.8	0.1	5.7	0.1	20.9	0.2	9.2	0.2
1997 characteristics, actual	42.4	0.1	1.3	0.0	2.6	0.0	49.0	0.1	4.6	0.1
1997 characteristics, 1985 model	60.3	0.3	1.5	0.1	4.7	0.1	22.3	0.3	11.2	0.2
2000 characteristics, actual	46.7	0.1	1.4	0.0	2.5	0.0	45.5	0.1	4.0	0.1
2000 characteristics, 1985 model	61.3	0.3	1.6	0.1	5.2	0.1	21.5	0.2	10.4	0.2

Continued

Table A-1.

SSI and/or DI program participation and mortality experience of childhood SSI awardees aged 0–17 at award, by award cohort and years after award: Actual and 1985 model-predicted percentage distribution of awardees by outcome—*Continued*

Award cohort, model	SSI only		DI only		Concurrent (SSI/DI)		Neither SSI nor DI, alive		Dead	
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error
15 years after award [a]										
1985 characteristics, actual	46.6	0.2	4.3	0.1	9.7	0.1	27.3	0.2	12.1	0.2
1990 characteristics, actual	41.7	0.2	4.2	0.1	8.2	0.1	36.8	0.2	9.2	0.1
1990 characteristics, 1985 model	47.7	0.2	4.4	0.1	10.2	0.1	26.6	0.2	11.1	0.1
1995 characteristics, actual	31.5	0.1	3.3	0.0	4.8	0.1	55.2	0.1	5.2	0.1
1995 characteristics, 1985 model	47.8	0.3	4.2	0.1	10.5	0.2	26.1	0.2	11.4	0.2
20 years after award [b]										
1985 characteristics, actual	39.2	0.2	8.3	0.1	13.3	0.2	24.2	0.2	15.0	0.2
1990 characteristics, actual	38.0	0.2	7.7	0.1	10.5	0.1	32.3	0.2	11.4	0.1
1990 characteristics, 1985 model	40.0	0.2	8.3	0.1	13.7	0.2	24.0	0.2	13.9	0.2

SOURCE: Authors' calculations using SSA administrative records.

NOTES: DI = Disability Insurance; SSA = Social Security Administration; SSI = Supplemental Security Income.

a. Data for 1997 and 2000 are not included because 15 years after award reflects a time horizon beyond the last observation point at the time the data were originally extracted (2010).

b. Data for 1995, 1997, and 2000 are not included because 20 years after award reflects a time horizon beyond the last observation point at the time the data were originally extracted (2010).

Table A-2.

SSI and/or DI program participation and mortality experience of childhood SSI awardees aged 0–17 at award, by award cohort and years after award: Actual and 2000 model-predicted percentage distribution of awardees by outcome

Award cohort, model	SSI only		DI only		Concurrent (SSI/DI)		Neither SSI nor DI, alive		Dead	
	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error	Percent	Standard error
5 years after award										
1985 characteristics, actual	67.3	0.2	0.7	0.0	2.4	0.1	22.8	0.2	6.9	0.1
1985 characteristics, 2000 model	60.6	0.2	0.6	0.0	1.8	0.0	33.5	0.2	3.6	0.1
1990 characteristics, actual	76.7	0.2	0.5	0.0	2.1	0.1	15.6	0.1	5.2	0.1
1990 characteristics, 2000 model	62.1	0.1	0.5	0.0	1.6	0.0	33.0	0.1	2.9	0.1
1995 characteristics, actual	51.8	0.1	0.4	0.0	1.2	0.0	43.8	0.1	2.8	0.0
1995 characteristics, 2000 model	60.8	0.1	0.4	0.0	1.3	0.0	34.9	0.1	2.6	0.0
1997 characteristics, actual	54.3	0.1	0.4	0.0	1.1	0.0	40.7	0.1	3.5	0.1
1997 characteristics, 2000 model	58.5	0.1	0.3	0.0	1.1	0.0	36.9	0.1	3.2	0.0
2000 characteristics, actual	59.9	0.1	0.3	0.0	1.1	0.0	35.8	0.1	2.9	0.0
10 years after award										
1985 characteristics, actual	60.6	0.2	2.0	0.1	5.9	0.1	22.0	0.2	9.6	0.1
1985 characteristics, 2000 model	48.6	0.2	1.9	0.0	3.2	0.1	41.1	0.2	5.1	0.1
1990 characteristics, actual	52.2	0.2	1.7	0.0	4.8	0.1	34.3	0.2	7.1	0.1
1990 characteristics, 2000 model	48.9	0.1	1.8	0.0	3.1	0.1	41.9	0.1	4.3	0.1
1995 characteristics, actual	37.8	0.1	1.4	0.0	3.1	0.0	53.7	0.1	3.9	0.0
1995 characteristics, 2000 model	47.4	0.1	1.5	0.0	2.8	0.0	44.6	0.1	3.7	0.0
1997 characteristics, actual	42.4	0.1	1.3	0.0	2.6	0.0	49.0	0.1	4.6	0.1
1997 characteristics, 2000 model	46.6	0.1	1.3	0.0	2.4	0.0	45.4	0.1	4.3	0.1
2000 characteristics, actual	46.7	0.1	1.4	0.0	2.5	0.0	45.5	0.1	4.0	0.1

SOURCE: Authors' calculations using SSA administrative records.

NOTES: Data for 15 and 20 years after award are not included because those years reflect a time horizon beyond the last observation point at the time the data were originally extracted (2010).

DI = Disability Insurance; SSA = Social Security Administration; SSI = Supplemental Security Income.

Notes

[1] In contrast to the means-tested SSI program, DI is a social insurance program with no means testing. To receive DI benefits, an individual must either become insured by acquiring a sufficient work history or be the dependent or survivor of someone who is insured. The definition of disability, however, is the same for adults in both programs.

[2] For adults, Rupp and Riley (2011) conducted a comprehensive analysis of SSI/DI interactions and established that SSI is often front-loaded, with SSI awardees transitioning to DI or concurrent status over time.

[3] Both programs use the same definition of categorical eligibility as disabled, but differ in other rules affecting exits and reentries. Most importantly, because of means testing, SSI benefits may be suspended as a result of fluctuations in family income and assets without change in categorical eligibility as disabled. Means testing also explains frequent returns to benefit eligibility status after a spell in nonreceipt status. In contrast, DI is conditioned on DI-insured status, which cannot be lost while categorically disabled. See Rupp and Riley (2011) for recent empirical differences in caseload dynamics of DI and SSI disability awardees among adults.

[4] Because our primary interest is in disability program participation that is due to an individual's own disability, we ignore DI receipt of youths younger than age 18. Childhood receipt of DI on another person's record does not require a disability determination; however, at age 18 (or by 19½ if still in school), a child receiving DI auxiliary benefits is required to undergo a medical determination for benefits. Additionally, although policy does not preclude children from receiving DI benefits as disabled workers before reaching age 18, the number who do so is very small. Also, for the majority of our analyses, we do not differentiate between DI benefits as a worker (based on the individual's own record) and DI benefits as a dependent (based on another person's record). See Research Question 5 in our Results section for more detail on disabled-worker and auxiliary DI benefit status of our sample members.

[5] The substantially higher average DI benefit is indicative of the potential to increase monthly benefits through transitioning to DI. Whether the transition to that program results only in a minor or more substantial increase in the monthly benefit stream is an important empirical issue for further study of SSI and DI benefit amounts of surviving childhood awardees during the working-age portion of the life cycle.

[6] Among adult DI awardees, the effective Medicare waiting period is 29 months; this is the result of the 5-month DI waiting period and the subsequent 24-month Medicare waiting period. Note that for former childhood SSI recipients transitioning from SSI to DI or to concurrent status, the 5-month DI waiting period for the vast majority of cases is irrelevant because those youths have accumulated well over 5 months as categorically disabled in the SSI program. The 24-month Medicare waiting period still applies, but of course those young adults are typically covered by Medicaid during that period.

[7] Exceptions to the 24-month Medicare waiting period include certain conditions, such as amyotrophic lateral sclerosis and end-stage renal disease, in addition to some instances of prior entitlement. Periodic suspension of cash benefits does count against the 24-month waiting period. Medicare coverage continues under periods of suspension of cash benefits for at least 93 months after the completion of a trial work period for persons whose disability benefits ceased because of SGA, but who continue to have a disabling impairment. Medicare rules for persons entitled to coverage because of disability are identical to the rules that apply to the elderly, including premium-free hospital insurance.

[8] Our results are generally robust to alternate groupings of impairments. For example, we experimented with using 3 broad impairment groups (mental, physical, and other), expanding the 7 impairment types used in this article into 9 groups (specifically separating out low birth weight and speech and language impediments into independent groups), and using the 18 impairment-type classification scheme that is applied in tabulations that appear in several SSA publications. None of these results were qualitatively different from those presented in this article.

[9] Diagnostic data before 1983 are generally unreliable, precluding regression modeling using the 1980 data. We do not include the 2010 award cohort in our regression analyses that use diagnostic mix, but provide that information in Table 1 and in the descriptive analyses that use aggregate time series.

[10] We hypothesize that in most cases, this arises when wage income is sufficiently sustained to earn DI-insured status, but generates relatively low DI benefits. Even assuming that these recipients continue to work at low wages on a sustained basis, their DI benefits plus earnings are sufficiently low to qualify them for SSI under the means test in these cases.

[11] Among the 17-year-old childhood SSI award cohort in 1980, about 24 percent died by age 48. By comparison, as of 2008, only about 4 percent of 17-year-olds in the United States were expected to die by age 48 (Arias 2012). For more information, see http://www.cdc.gov/nchs/data/nvsr/nvsr61/nvsr61_03.pdf.

[12] For each observation point in the table, calendar year can be calculated by adding "award-cohort year" and "X," which denotes year after award. X can take up the values of 1, 5, 10, 13, 20, 25 and 30 in the table depending on the number of year(s) after award listed in the spanners of each section. For example, for the 1980 award cohort in the top bank of the table under "1 year after award," all observations refer to 1981 (=1980+1).

[13] In the chart, we distinguish the 1980, 1985, and 1990 award cohorts; all members from those cohorts entered the SSI program well before the 1996 welfare reform. The 1995 award cohort members entered the program right before the welfare reform, but their characteristics may have been affected by anticipatory effects of the welfare reform. More importantly, all award cohorts contain members who were subject to altered exit policies mandated by the welfare reform, albeit many from the 1980 and 1985 award cohorts exited the program rolls prior to 1996.

[14] The multivariate results confirm that age, sex, and diagnosis are all related to the percentage of individuals not participating in the disability programs in predictable ways for both years.

[15] The observed and predicted percentages in Appendix Tables A-1 and A-2 include both survivors and individuals who had died by the follow-up observation point. To express the percentages of awardees receiving neither SSI nor DI but who were alive among survivors, the numbers in the next-to-last column in both tables are multiplied by $1/(1–\text{proportion dead})$. For example, in the first row of both tables, nonparticipant survivors represented 22.8 percent of the award cohort. The proportion dead represented 6.9 percent of the award cohort. We calculate as follows: $0.228/(1–0.069) = .245$ or 24.5 percent. Therefore, nonparticipants represented 24.5 percent of survivors 5 years after award for the 1985 award cohort. This method was used to derive the percentages presented in Chart 5.

[16] The intent of the legislation and the resulting regulations was to tighten the disability criteria. However, the implementation process also might have played some role. This would be consistent with a noticeable downward shift in nonparticipation trajectories as we move further from the era of welfare reform, when the sentiments for tightening the disability criteria were relatively strong.

[17] Auxiliary beneficiaries are individuals who receive DI benefits based on another person's earnings record, such as a parent or spouse. Disabled auxiliaries can be either disabled widow(er)s (including disabled surviving divorced spouses), who must be aged 50 to the full retirement age, or disabled adult children, who must be aged 18 or older and have become disabled before reaching age 22 (in addition to other requirements). The definition of disability is the same for disabled auxiliary beneficiaries and disabled workers. There are also nondisabled auxiliary beneficiaries whom we do not consider in this analysis. Those include children younger than age 18 and certain spouses.

[18] Weathers and Bailey (2014) illustrate that employment and benefits counseling appear to play an important role in improving employment outcomes. Thus, explaining work incentives to beneficiaries, as advocated by Burkhauser and Daly (2011), also could be a promising component of potential future demonstrations that are designed to improve financial well-being through work. On the other hand, if the incentives do not affect beneficiary behavior under the status quo, as we argue, the cause could be a lack of knowledge or understanding resulting from the absence of targeted benefits counseling. Note that survey data suggest that the majority of youths aged 14–17 have never heard of SSA's work incentives (Loprest and Wittenburg 2005).

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CASE STUDIES FROM THE BENEFIT OFFSET NATIONAL DEMONSTRATION

by Molly Costanzo and Debra Goetz Engler*

Social Security Disability Insurance beneficiaries who return to work and earn above a substantial gainful activity level can lose their cash benefits, which is often considered a disincentive to employment. The Benefit Offset National Demonstration (BOND) project tests a policy that removes this sudden loss by gradually reducing cash benefits through an offset and by offering varying levels of benefits counseling. These case studies share the experiences of three individuals who are successfully reaching their return-to-work goals as they participate in the BOND project.

Introduction

As the Social Security Administration (SSA) faces growing budget challenges and an increasing number of Social Security Disability Insurance (DI) beneficiaries, policymakers are testing changes to the DI program to determine whether those changes lead to an increase in work and earnings among DI beneficiaries, and therefore a decrease in their reliance on DI benefits. The Benefit Offset National Demonstration (BOND) is a project that tests the use of a benefit offset and benefits counseling in the DI program. While DI beneficiaries normally stop receiving benefits because of their work and earnings, those participating in the BOND project receive an offset—a gradual decline in their benefits depending on their level of work and earnings.

We present three case studies of BOND participants to examine their participation in the project and the ways in which the BOND intervention has assisted them in the process of returning to work. These case studies represent the unique experiences of the participants who were interviewed and should not be generalized to the entire DI beneficiary population. As part of the BOND project, we are conducting an evaluation that will provide nationally representative estimates of the impact of the benefit offset. We begin by providing

background information on DI, work incentives, and returning to work. We introduce the BOND project and then present the three case studies. To close, we discuss the ways in which the components of BOND have influenced these beneficiaries' return to the labor market.

Background

In order to qualify for DI benefits, an individual must meet SSA's definition of disability and have enough employment and earnings history to be covered under the program. SSA defines disability as a medically determinable physical or mental impairment that prevents an individual from performing substantial gainful activity (SGA) and that has lasted or is expected to last at least 1 year, or that is expected to

Selected Abbreviations	
BOND	Benefit Offset National Demonstration
DI	Disability Insurance
EPE	extended period of eligibility
EWIC	enhanced work incentives counseling
SGA	substantial gainful activity
SSA	Social Security Administration

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result in death. SSA defines SGA in terms of monthly earnings; in 2014, the monthly SGA earnings level was $1,070 for nonblind individuals and $1,800 for blind individuals.

Once individuals are determined eligible for DI benefits and they are receiving them, the DI program offers some provisions to support those beneficiaries in their efforts to return to work. The trial work period (TWP) allows a beneficiary who wants to attempt reentry into the workforce to test working for 9 months (not necessarily consecutive) within a rolling 60-month period and still be considered disabled. During those months, the beneficiary continues to receive his or her benefits, regardless of the level of earnings. If the beneficiary completes the TWP, the 3-month grace period, and continues to work above the SGA level, he or she could lose DI benefits. SSA conducts work continuing disability reviews to determine whether the beneficiary's work is at the SGA level. If the beneficiary is engaging in SGA, DI benefits cease. The beneficiary then enters a 36-month extended period of eligibility (EPE), during which benefits will resume in months when he or she is not engaged in SGA. After the EPE, benefits will terminate when the beneficiary resumes work at the SGA level.

The loss of benefits, also known as the "cash cliff," is considered a disincentive to DI beneficiaries returning to work. One commonly cited statistic is that just one-half of 1 percent of beneficiaries have their benefits terminated because of work each year (SSA 2013). However, one study looked at work activity longitudinally for a cohort of beneficiaries who were first awarded benefits in 1996. In that study, 6.5 percent of beneficiaries had their benefits suspended because of work activity at some point between 1996 and 2006, and 28 percent were employed at some point during that period (Liu and Stapleton 2010). According to Livermore (2009), approximately 40 percent of respondents in the 2004 National Beneficiary Survey (NBS) reported having work-related goals or expectations. DI beneficiaries may want to return to work, but they may also face

multiple barriers to employment. Along with the fear of losing benefits, other barriers include poor health status, lack of information about employment supports, and a lack of information about the impact of earnings on benefits (Livermore 2011).

Health status is often a challenge for beneficiaries who want to or attempt to return to the labor market. Livermore and Roche (2011) reported that health conditions preventing work was the most commonly cited barrier in their study of Ticket to Work participants. Beneficiaries may not have the health supports and resources they need, or they may experience fluctuations in their health status and changes in their capacity to work, which pose challenges for remaining in the labor market.

In addition to the uncertainty of their health status, many beneficiaries live in a household in which financial stability may depend on their benefit checks. In 2010, just 29 percent of DI beneficiaries lived in households with earnings higher than 300 percent of the federal poverty level (Bailey and Hemmeter 2014). Beneficiaries may also be concerned about earnings jeopardizing their continued eligibility for public benefits, including health insurance coverage. DI beneficiaries are eligible for Medicare benefits after 24 months of DI eligibility. Although provisions allow beneficiaries to keep their health coverage after returning to work,[1] 11 percent of respondents in the 2004 NBS cited the fear of losing health insurance coverage as a barrier to returning to work (Livermore, Goodman, and Wright 2007). Additionally, beneficiaries often lack the necessary information regarding how earnings may affect their benefits. Testing interventions designed to address these barriers may help policymakers determine how to support beneficiaries in their attempts to return to work. BOND is testing interventions that address the cash cliff, a commonly noted disincentive to returning to work.

The BOND Project

BOND is a congressionally mandated demonstration project included in the Ticket to Work and Work Incentives Improvement Act of 1999. BOND tests whether a $1-for-$2 benefit offset impacts employment and earnings among DI beneficiaries. Under current rules, beneficiaries lose their benefits when they complete their TWP and continue to work and earn above the SGA level. Under BOND rules, beneficiaries receive the benefit offset rather than losing all of their benefits when they exhaust their

TWP and continue to work and earn above the BOND yearly amount, which is equivalent to the annualized monthly SGA amount (for 2014, the BOND yearly amount was $12,840— equal to the monthly SGA amount of $1,070 * 12). SSA calculates the benefit offset based on the beneficiary's annual earnings. Beneficiaries are encouraged to submit annual earnings estimates at the beginning of each calendar year. If a beneficiary does not provide an estimate or if his or her estimate is incorrect, an adjustment is made through a reconciliation process conducted in the following year.

Table 1 provides an example of the benefit offset calculation. In that example, the beneficiary completed the TWP, ceased benefit receipt because of SGA, provided an annual earnings estimate for 2014, and had no noncountable earnings.[2] In the calculation, the amount deducted from the BOND participant's monthly DI benefit is $250. If the beneficiary receives a $750 monthly DI benefit, the benefit offset reduces that amount to a $500 monthly DI benefit. Under current DI rules, the beneficiary in the example would receive no DI benefit.

BOND's design includes a two-stage random assignment process for selecting participants. Stage 1 represents the part of the demonstration project where beneficiaries were randomly assigned to either a benefit-offset-only treatment group (T1) or a control group. Stage-1 beneficiaries did not volunteer for the demonstration project, and after random assignment, the treatment group participants were automatically eligible to receive the benefit offset for their earnings. In addition to the opportunity to use the benefit offset, stage-1 treatment group beneficiaries receive work incentives counseling (WIC), which provides information on how BOND participation and earnings could affect their benefits. WIC is comparable to the benefits counseling available to all DI beneficiaries through the Work Incentives Planning and Assistance program, but it provides information specific to BOND. WIC services are demand responsive; thus, counselors do not conduct outreach to individual beneficiaries. Once beneficiaries engage their counselors, activities can include assessments of benefits and work incentives in addition to development of related work-incentive plans that describe employment goals and include action items and referrals to other providers. WIC staff members do not provide direct employment services, but refer individuals to organizations such as state vocational rehabilitation (VR) agencies, employment networks, or other agencies that provide employment services and support.

Stage 2 was designed to test the impacts of the benefit offset and enhanced work incentives counseling (EWIC). Stage-2 beneficiaries volunteered to participate in the demonstration project. They were then randomly assigned into one of the following three groups: a benefit offset group that also receives WIC services (T21), a benefit offset group that also receives EWIC services (T22), or a control group. Beneficiaries in the offset-plus-EWIC group receive more intensive, BOND-specific benefits counseling with follow-up services. EWIC differs from WIC, in that EWIC providers conduct outreach to individuals, and counselors follow up with beneficiaries and monitor those participants' progress. EWIC services include those available in WIC, in addition to activities such as psychosocial needs assessments and vocational assessments. Similar to WIC, EWIC does not include direct employment services, but providers do refer beneficiaries to other organizations that provide direct employment services. Unlike WIC, EWIC providers coordinate and monitor those referrals as part of their follow-up services.

Table 1.
Benefit offset calculation: Hypothetical BOND participant case

Step	Process	Amount ($)
1	DI beneficiary (and BOND participant) provides his or her annual earnings estimate	18,840
2	SSA uses (for calculation purposes) the BOND yearly amount for 2014	12,840
3	SSA determines the beneficiary's annual earnings that exceed the BOND yearly amount limit	6,000
4	SSA deducts $1 for every $2 above the BOND yearly amount limit	3,000
5	SSA determines the beneficiary's monthly benefit offset amount	250

SOURCE: Authors' example.

NOTES: BOND = Benefit Offset National Demonstration; DI = Disability Insurance; SSA = Social Security Administration.

In 2009, SSA awarded a contract to Abt Associates Inc. (Abt) to implement BOND. Implementation began in 2011 in 10 sites across the United States.[3] Abt initially informed the stage-1 treatment beneficiaries (n=79,440) of their status as project participants by mailing two letters between May and October 2011. The letters introduced the BOND project and supplied resources for beneficiaries to access further information. For the stage-1 treatment group beneficiaries who had not participated in the project during the first 2 years after implementation began, Abt also conducted follow-up outreach that included a letter and two phone calls. Abt recruited and enrolled stage-2 treatment group beneficiaries (n=8,024)[4] in the project from March 2011 through September 2012. Beneficiaries who were eligible

for participation in BOND had to be at least age 20 and younger than age 60 and residing in 1 of the 10 BOND sites. They had to be entitled to DI benefits, currently receiving benefits, and not be current or former participants in any other SSA demonstration projects. Treatment group participants have until September 2017 to complete the TWP, and they can receive the benefit offset for up to 5 years once they are eligible to use it.

Table 2 provides demographic characteristics of treatment group participants at the time of random assignment. We include this table to provide context about the population of BOND treatment group participants before presenting a focused look at the three BOND participants in the Case Studies section.

Table 2.
Demographic characteristics of BOND participants at random assignment (in percent)

Characteristic	T1	T21	T22
Total	79,440	4,935	3,089
Sex			
Men	51.6	48.8	49.6
Women	48.4	51.2	50.4
Diagnosis			
Mental disorders	30.0	32.1	29.6
Nervous system	7.1	6.3	7.0
Musculoskeletal system	24.5	25.4	26.1
Circulatory system	6.6	6.2	6.8
All other [a]	31.8	30.0	30.5
Age group at randomization			
20–29	7.7	5.9	6.0
30–39	13.2	14.9	13.8
40–49	26.9	27.5	27.6
50–59	52.2	51.8	52.6
Site			
Alabama	14.2	10.1	10.1
Arizona/Southeastern California	9.8	12.7	12.3
Colorado/Wyoming	7.0	8.0	8.0
District of Columbia Metro Area	5.3	7.9	8.0
Greater Detroit	10.0	9.0	9.1
Greater Houston	8.7	8.5	8.5
Northern New England	9.8	9.4	9.4
Southern Florida	15.4	13.2	13.4
Western New York	9.9	9.4	9.5
Wisconsin	9.9	11.7	11.7

SOURCE: Authors' calculations based on BOND project administrative records.

NOTES: BOND = Benefit Offset National Demonstration; T1 = stage-1 benefit offset plus work incentives counseling (WIC); T21 = stage-2 benefit offset plus WIC; T22 = stage-2 benefit offset plus enhanced work incentives counseling (EWIC).

Rounded components of percentage distributions do not necessarily sum to 100.0.

a. Includes diseases of the digestive, genitourinary, and respiratory systems; injuries; neoplasms; severe visual impairments; and other conditions/impairments. All diagnoses except for "other conditions/impairments" were less than 5 percent.

Case Studies

We solicited the project's WIC and EWIC providers for individual stories that demonstrate how BOND participants interact with project providers and utilize the services available. We interviewed three BOND participants and the WIC or EWIC providers that work directly with them. We use fictitious names for the participant beneficiaries to protect their identities. These case studies highlight how the selected beneficiaries initially learned about BOND, how they were impacted by the project, and how they took advantage of certain opportunities the project offered. These case studies represent three unique stories of individuals successfully returning to work, and thus are not representative of all BOND participants.

Dolly from the District of Columbia

Dolly is a 51-year-old wife and mother who has been a DI beneficiary since 2001. Dolly continues to struggle with a variety of medical issues more than a decade after her entitlement. She suffers from constant headaches—some of which are severe enough to require hospitalization—because of a neurological condition.

Despite her health barriers, Dolly considered returning to work for about a year before she actually tried it. She first tested her ability to return to work more than 3 years ago by assisting with the census. She was hired on a temporary, part-time basis and did so well that she was asked to stay on for a few more months to perform quality control. Dolly stated that with this opportunity, "I proved to myself that I could return to work."

Dolly is a stage-2 BOND participant. She first heard about BOND through the initial outreach letter that encouraged potential participants to enroll. She was interested in learning more about the project because she continued to want to return to work. In May 2011, she completed an enrollment appointment and was excited to find out that she was randomly assigned to the treatment group that offered the benefit offset and EWIC services. Dolly said that she looked forward to having extra assistance because she did not think that she was making much progress returning to work on her own. Dolly and her EWIC provider at ServiceSource in Virginia have been working closely together since the first time the provider contacted her.

Dolly has a degree in political science and wanted to find a job in which she could use her skills; she specifically wanted a federal job because she lives in the District of Columbia metropolitan area. Her EWIC provider referred her to resume workshops, including a workshop focused on applying for federal jobs. Dolly and her EWIC provider formulated a plan, set goals, and were in contact on a regular basis regarding return-to-work progress. In 2012, Dolly got a job at a federal agency. She worked part-time at that agency for over a year and eventually began full-time status. She takes advantage of any opportunities the job offers, such as taking training courses to improve her marketability. Dolly does not particularly enjoy this job, but has remained with the agency because she enjoys working. Her current position is very labor intensive, and she does not think that she is working at her full potential. Prior to her DI entitlement, she spent time working in a law library and would ultimately like to pursue further library work. She also thinks that it is beneficial to build time as a federal employee, in hopes that this will help her find more fitting and rewarding employment.

Dolly continues to apply for other positions, but has not yet found another job. She stays in regular contact with her EWIC provider about her job status, but also relies on that provider for other services. Before Dolly returned to work, she and her provider reviewed the BOND rules so that she would fully understand the benefit offset and how working as a BOND participant would affect her DI benefits. Dolly noted that her EWIC provider has been invaluable in explaining benefit rules, and she would probably not have been able to figure them out without the help of her provider. She also noted that receiving EWIC services has been the most valuable part of the BOND experience so far and wished that all DI beneficiaries could have the assistance of an EWIC provider.

Dolly and her EWIC provider submitted her work and earnings status to SSA in April 2013 to determine whether she had completed her TWP and would be eligible for the benefit offset. In November 2013, SSA reviewed Dolly's work and earnings levels and determined retroactively that Dolly had completed her TWP in February 2013, and her benefits had ceased because of SGA in March 2013. Under normal DI program rules, her benefits would cease after her 3-month grace period, but under BOND rules, Dolly was eligible for the benefit offset at the completion of her grace period in June 2013. Dolly's wait for a cessation decision and thus for eligibility for the benefit offset is not uncommon; SSA retroactively adjusts benefits for beneficiaries such as Dolly. As of November 2014, Dolly continues to receive the benefit offset.

Julie from Arizona

Julie is another DI beneficiary who was randomly assigned to the stage-2 treatment group, which offers the benefit offset and EWIC. Julie was also excited to learn of her assignment to that group because she had been afraid of working and earning too much and losing her benefits. She was most concerned about losing her health insurance coverage because she is reliant on her doctors and the medication they prescribe.

Julie started receiving DI benefits in 2009 for her anxiety issues. Julie noted that for many years, she was unable to work for more than 15 or 20 hours a week because of her anxiety; she would become too overwhelmed. After her initial entitlement, Julie took steps to improve her health. Once she was feeling more stable, she wanted to start working again and found a part-time merchandising position. That job required a lot of manual labor and travel, but did offer her earnings flexibility; the job allowed her to stop working whenever she was close to earning SGA during a given month. Some policymakers refer to Julie's efforts to ensure her earnings remained below SGA in order to avoid losing her benefits as "parking," yet there are few studies about that concept. Impact estimates based on a 1999 SGA level change suggest that in an average month from 2002 through 2006, 0.2 to 0.4 percent of all DI beneficiaries were parked below the SGA level (Schimmel, Stapleton, and Song 2011).

When Julie began working with her EWIC provider, her first goal was to find a better-fitting job. They developed a resume, and her EWIC provider referred her to outside resources for interview clothing and computer classes. Julie described working with her EWIC provider closely through all aspects of the job search and making small steps toward her goals. Each time she took another step, she built confidence. She and her EWIC provider thoroughly discussed work incentives and the BOND rules.

In December 2012, Julie found a new job in the behavioral health field that was a better fit for her interests and health needs. In her first 9 months on the job, she was promoted to a supervisory role and received a salary increase. Because of her anxiety, the more social aspect of the new job was overwhelming at first, and that is something she has discussed with her EWIC provider. Julie is much happier in her new career and stated, "I found my passion."

Julie's goal is to be working full-time by the end of the BOND project. She said that because of her experience with BOND, she knows that she can handle the full-time hours. Without BOND, Julie said that she would be making less money in a job that she did not particularly like. She is now able to better manage her personal life, including her health needs. She believes the progress in her career has also made her a more confident person.

Julie completed her TWP in February 2011, prior to her enrollment in BOND. Once she began working with her EWIC provider, they submitted documentation for a work continuing disability review, and SSA determined retroactively that her benefits had ceased because of SGA in January 2012. She began to receive the benefit offset in January 2013, once she began earning more than the BOND yearly amount. She continues to work closely with her EWIC provider on a variety of issues, including submitting her paystubs on a monthly basis and other reporting requirements. As of November 2014, Julie continues to receive the benefit offset.

Barbara from Maine

The third case study focuses on Barbara, who was randomly assigned to the stage-1 treatment group for BOND. Stage-1 participants were automatically enrolled and sent a notification letter indicating their placement in the BOND project. Unlike Dolly and Julie who receive EWIC services under BOND, Barbara receives WIC services that are specific to BOND but similar to benefits counseling available to all DI beneficiaries under current DI rules. Barbara received the initial BOND letter but did not think much of it at the time. She was unable to work because of a congenital hip defect. Prior to her DI entitlement, Barbara had worked for almost 30 years as an insurance agent, while managing the physical effects of her disability. Her health deteriorated, and she began to receive DI benefits in 2007. She eventually had two hip replacements and was in the midst of postsurgery rehabilitation when she received her introduction letter to the BOND project. Barbara knew little about the project, or the opportunity it would present, at that time.

In the fall of 2011, Barbara knew that she eventually wanted to try to work again and contacted her VR agency, which put her in touch with her BOND WIC provider at the Maine Medical Center. Barbara wanted to know about and fully understand her options to ensure she was taking the right steps, especially because she was unsure about her ability to work and to what degree she would be able to work. One of Barbara's main concerns was losing her medical insurance coverage. She worked with her WIC provider to understand what would happen to her benefits

and medical insurance if she returned to work under BOND rules. Barbara was surprised about the opportunity she would have participating in BOND.

As Barbara's health improved, she worked with VR service providers to assess her work interests and participated in work-readiness training. Barbara met with a VR counselor, established a relationship with a job coach, and—almost a year after initially meeting with her WIC provider—she underwent a 2-week, part-time work assessment to test whether or not she could work 20 hours per week. She performed so well, the company offered her a job. Barbara emphasized that attempting to return to work was an involved process and required a lot of communication with her VR counselor and her WIC provider.

Barbara lives in a rural part of Maine, where she noted that finding a job and transportation is very challenging. Once she became employed, she was determined to stick with it. She started as a part-time office support employee, was promoted to full-time status, and then received a promotion to a full-time bookkeeper. Barbara reported that she loves her job and has been employed for over a year.

Barbara began receiving the BOND benefit offset in August 2013. Before the offset went into effect, she met with her WIC provider to review the new benefit offset calculations. Barbara reported that she was surprised that she would still be able to receive some benefits, especially after paying her Medicare deductible. As of November 2014, Barbara continues to receive the benefit offset.

Discussion

The case studies demonstrate three individual experiences with the BOND project, but they also share some similarities. Each beneficiary expressed a desire to work, but also the fear of losing cash benefits or health insurance coverage. Their fears partly stem from the uncertainty surrounding their health status and their capacities to work. The beneficiaries have health issues that may vary in severity over time. Their concerns were eased by the opportunity to attempt a return to work without losing all of their DI benefits. With this flexibility, these individuals were able to test their abilities to reenter the workforce, for example, by first working part-time hours and then testing their ability to handle full-time employment.

In our interviews, Barbara and Julie both noted the financial instability they experience while they receive DI benefits. Prior to participating in the BOND

project, Julie would ensure that her earnings were below the SGA level to mitigate the risks involved in losing benefits. The BOND offset eliminates the fear of the cash cliff by ensuring a gradual reduction in benefits as earnings increase. Under BOND, as a beneficiary's monthly earnings increase, generally his or her monthly income also increases, which is not the case under current DI program rules. Because these individuals were able to keep some of their DI benefits under BOND, all three beneficiaries were eager to return to work and to attempt to work more hours and earn more money. Additionally, Julie and Barbara discussed how the fear of losing Medicare and health insurance coverage contributed to their uncertainty about returning to work. Although they would be eligible for Medicare benefits under current DI rules, the continuation of benefits provided under BOND seemed to provide them with an additional layer of financial security as they attempted to reenter the workforce.

All three beneficiaries emphasized the importance of the benefits counseling provided by BOND. The counselors' assistance in understanding aspects of the DI program, work incentives, and how work and earnings under BOND would affect their clients' benefits was important to these project participants. Each of our case study beneficiaries noted an increased level of comfort in pursuing their employment goals after working with their BOND counselors.

Although some benefits counseling is available to all DI beneficiaries, none of the beneficiaries we interviewed were aware of those resources prior to their involvement in the BOND project. To ensure that BOND participants are aware of all available resources and support services, EWIC providers proactively contact beneficiaries upon enrollment in the demonstration project and then conduct follow ups. Julie and Dolly described working closely with their EWIC providers through various steps in the return-to-work process. The EWIC providers offer ongoing support; conduct barrier, needs, and skills assessments; and provide access to resources through key referrals. These activities allow those providers and beneficiaries to work together to create long-term personalized employment-support plans to aid those beneficiaries in reaching their employment goals. As our case studies highlight, the support and service needs of each beneficiary is unique, and EWIC services respond to individual needs.

As a stage-1 BOND participant, Barbara's employment support comes in the form of WIC services, intended to mirror current employment supports available to all DI beneficiaries. Barbara contacted the VR

agency when she was ready to attempt work and was directed to her WIC provider. She also received and continues to receive support and services that respond to her individual needs.

Conclusion

The selected case studies in this piece illustrate the major intervention components of the BOND project—specifically, the benefit offset and work-incentives counseling. For the three participants interviewed, those interventions eased some of the barriers they faced in returning to work. However, these case descriptions cannot be generalized, and the interviews were collected relatively early in the BOND timeline. The BOND evaluation will continue through 2017, and it may provide evidence as to whether these intervention components would have an impact on a larger pool of beneficiaries. This evidence will help guide policymakers in determining how to best encourage and support DI beneficiaries in their return to work.

Notes

[1] If a beneficiary already has Medicare coverage and is working at or above the SGA level, he or she will continue to be eligible for continuation of Medicare coverage for up to 93 months (SSA 2014). For more information, see the *Red Book, 2014,* http://www.socialsecurity.gov/redbook /index.html.

[2] Noncountable earnings under the BOND project include items such as impairment-related work expenses or subsidies earned during the offset period. For further information on noncountable earnings under BOND or benefit offset calculations, see SSA's Program Operations Manual System, section DI 60099.040, https://secure.ssa.gov/poms .nsf/lnx/0460099040.

[3] The 10 randomly selected BOND sites are (1) Alabama; (2) Arizona/Southeastern California; (3) Colorado and Wyoming; (4) the District of Columbia Metro Area; (5) Greater Detroit; (6) Greater Houston; (7) Northern New England (Maine, New Hampshire, Vermont, and Northern Massachusetts); (8) Southern Florida; (9) Western New York; and (10) Wisconsin.

[4] Because we intend this article to focus on beneficiaries in the BOND treatment groups, we include numbers and demographic information exclusively for the treatment groups. Stage 1 also includes a control group of 891,598 beneficiaries; the stage-2 control group includes 4,930 beneficiaries.

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Long-Term Work Activity and Use of Employment Supports Among New Supplemental Security Income Recipients

by Yonatan Ben-Shalom and David C. Stapleton*

We present long-term cumulative statistics on the extent to which individuals who began receiving Supplemental Security Income (SSI) disability payments from 1996 through 2006 found work and used SSI work incentives. Among the 2001 award cohort, for which the richest data are available, 18.6 percent had worked by December 2007; 8.4 percent had had their SSI payments suspended because of work, but qualified for eligibility extensions under SSI's Section 1619(b) work incentive in at least 1 month; and 9.8 percent had had their payments suspended or terminated because of work regardless of their 1619(b) status. The corresponding percentages are much higher for those who were younger than 40 when they entered the SSI program for the first time as adults. In a substantial share of the months in which SSI payments were suspended or terminated because of work income, however, these individuals received Social Security Disability Insurance benefits.

Introduction

The Social Security Administration (SSA) oversees two programs that together provide income support to nearly 13 million working-age people with disabilities—Social Security Disability Insurance (DI) and Supplemental Security Income (SSI) (SSA 2014b). To qualify for either DI or SSI, an applicant must demonstrate inability to work at substantial levels because of a long-term, medically determinable impairment. The Ticket to Work and Work Incentives Improvement Act of 1999 (Ticket Act) sought to encourage and facilitate the work-seeking efforts of disability program participants and reduce their reliance on benefits. Ticket Act initiatives were implemented gradually and they changed the disability programs in several ways. First, they provided beneficiaries with information about how work affects their benefits. Second, they offered beneficiaries more options for obtaining SSA-financed employment services. Third, they allowed beneficiaries to return more easily to the disability rolls after unsuccessful work attempts. Fourth, they

facilitated the processing of earnings information by SSA staff. Fifth, they established the Medicaid Buy-in program, which allows states to expand access to Medicaid for workers with disabilities who meet the SSI and DI medical eligibility criteria but do not receive cash benefits from either program because of their earnings.

Assessing the work efforts of SSI recipients and DI beneficiaries—and the effectiveness of work incentives such as the Ticket Act's signature initiative, the Ticket to Work (TTW)—poses a challenge because the

Selected Abbreviations	
DAF	Disability Analysis File
DI	Disability Insurance
IRS	Internal Revenue Service
MEF	Master Earnings File
NSTW	nonpayment status following suspension or termination for work

most widely available and commonly used statistics on participant work efforts provide only cross-sectional monthly or annual perspectives. For instance, according to SSA (2008), 2.2 percent of working-age SSI recipients had their payments suspended for work under the Section 1619(b) work incentive (described later) in December 2007. Such cross-sectional statistics may be confused with cumulative statistics; for example, some observers might believe that only 2.2 percent of SSI entrants will *ever* forgo cash payments for work (at least temporarily), although the percentage of participants who actually do so is several times higher. Such misinterpretation could have a substantial bearing on policy or other decisions.

In this study, we use administrative data to examine, from a long-term cumulative perspective, the extent to which SSI recipients work and eventually stop receiving SSI payments because of work. We follow award-year cohorts of working-age SSI recipients (that is, new SSI recipients aged 18–64) for up to 11 years after they enter the rolls, and we produce cumulative statistics on their employment experience and use of work incentives. Because many recipients are on the rolls for many years, long-term cumulative data on their outcomes provide a more complete picture of their work-seeking efforts and how those efforts may be impacted by changes in policy and the economy. By following recipients for several years after award, we are able to (1) record the extensive longitudinal interaction between SSI and DI participation, (2) provide information on the length of time between SSI award and the achievement of important milestones, and (3) examine the extent to which awardees forgo cash payments for work for at least part of the study period.

We follow annual SSI award cohorts from 1996 through 2006, and track all cohorts through 2007. Because the period we analyze spans years before and after passage of the Ticket Act, it reflects the

experiences of recipients under both the pre-TTW rules and the initiative's original rules. More recent TTW regulations, implemented in July 2008, are not reflected in this analysis; however, our results will serve as a useful baseline for future analyses of their effects.[1]

Much of the analysis focuses on the 2001 cohort because useful changes in the administrative data were first implemented in that year. The statistics for earlier cohorts, although more limited, still provide some insights about the effects of provisions of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA), which tightened SSI eligibility in several ways. For example, PRWORA instituted a more restrictive SSI medical eligibility standard for children, in part to offset the expansion of eligibility that resulted from the Supreme Court's 1990 *Sullivan v. Zebley* decision, and required all SSI child recipients to undergo eligibility redetermination under the adult standard upon reaching age 18 (Hemmeter and Gilby 2009). PRWORA also eliminated SSI and DI eligibility for persons whose drug abuse or alcoholism is material to eligibility and, with some exceptions, made citizenship a requirement for SSI eligibility.[2]

The methodology used in this article is similar to that used in Liu and Stapleton (2011), a study of DI awardees, except that we substitute SSI programmatic incentives for DI incentives. For example, instead of tracking the completion of a trial work period (applicable only to DI), we track qualification for Section 1619(a) and 1619(b) exemptions from restrictions on program eligibility because of work earnings (applicable only to SSI).

We find that 9.8 percent of the 2001 SSI awardees had given up their SSI payments for work in at least 1 month by December 2007. That figure is about 4.5 times the 2.2 percent cross-sectional 1619(b) qualification rate observed for December 2007. The fact that we follow recipients over a long period accounts for part of that difference, but two other factors also apply. First, because we track only SSI recipients with initial awards during the study period, we do not include those who have stayed in current-pay status for many years, as the cross-sectional statistics do. Second, we find that a substantial minority of SSI recipients did not qualify for 1619(b) status when they gave up SSI payments for work, and their SSI eligibility was terminated. If we exclude from our counts persons whose SSI payments were terminated, the percentage of 2001 awardees who were in nonpayment status because of work in at least 1 month by December 2007

is only 8.4 percent, compared with 9.8 percent if they are included. Thus, statistics on 1619(b) qualification understate the extent to which recipients ever forgo SSI payments for work for two reasons: they do not track recipients over a long period, and they do not count persons who gave up their SSI eligibility entirely.

We also find, however, that nearly half of SSI participants who gave up SSI payments for work still received DI benefits. That is, the percentage of SSI awardees who eventually gave up benefits from both programs because of work was only about half the percentage of those who gave up only SSI payments. For instance, although 9.8 percent of the 2001 cohort gave up their SSI payments for work by December 2007, that figure drops to 5.5 percent when we exclude those who received DI benefits in months with no SSI payments.

Other statistics provide information on employment milestones achieved prior to suspension or termination of payments. For example, by December 2007, 19.4 percent of the 2001 SSI award cohort achieved positive countable earnings (PCE) in at least 1 month; and 10.4 percent attained at least 1619(a) status, which allows recipients to retain SSI eligibility while earning at or above the substantial gainful activity (SGA) level. Close to 11 percent of recipients in the 2001 cohort had enrolled in employment services from providers that were eligible for payment from SSA. However, a large majority of recipients who had their SSI payments suspended or terminated for work did not enroll in such services.

Young recipients were much more likely than older awardees to forgo their SSI payments for work. In the 2001 award cohort, 19.2 percent of awardees aged 18–19 and 14.9 percent of those aged 20–39 at the time of award achieved that status, compared with only 6.3 percent, 3.7 percent, and 1.8 percent of those aged 40–49, 50–61, and 62–64, respectively. Finally, analysis of the 1996 SSI award cohort, which we follow for 11 years, indicates that a large majority of those awardees who found work and earned enough to give up all of their SSI payments did so within 5 years of award.

Background

In this section, we briefly describe the SSI program, the work incentives available to SSI recipients, and the DI program and its interactions with SSI. We also highlight the findings of earlier studies.

SSI Eligibility and Benefits

To qualify for adult SSI disability benefits, an applicant aged 18 or older must demonstrate that he or she is unable to engage in SGA because of a medically determinable impairment that is expected to last at least 12 months or result in death. SSI's medical eligibility criteria are identical to those for DI. In 2014, SSA considered SGA to be the equivalent of the work required to have unsubsidized earnings above $1,070 per month for nonblind applicants.[3]

SSI is a means-tested program, with federally set limits on income and assets. To receive any federal SSI payments, countable income and assets must be below those limits. In 2014, the countable monthly income limits were $721 for an individual and $1,082 for a couple. Countable asset limits, which have not changed since 1989, are $2,000 for an individual and $3,000 for a couple. The federal SSI payment is the difference between countable income and an annually adjusted amount called the federal payment rate. (Some states supplement the federal SSI payment for certain categories of recipients.) Countable income includes all monthly income above $20 from sources other than work, plus half of earnings in excess of $65 or any other earnings disregards, such as allowed impairment-related work expenses.[4] Most SSI recipients also qualify for Medicaid coverage.[5] This is true even if their labor earnings are high enough to reduce their SSI cash payment to zero but are still beneath a higher variable limit set under the Section 1619(b) work incentive (described below).

SSI Work Incentives

The incentives relevant to this analysis include the earned-income exclusion, Sections 1619(a) and 1619(b) of the 1987 Social Security Act, and TTW. The earned-income exclusion removes from countable income the first $65 of earned income, plus half of all additional earnings. Section 1619(a) allows SSI recipients to receive some cash payments even when their earned income is at or above the SGA level, and Section 1619(b) extends their SSI eligibility (including Medicaid coverage) indefinitely—even if their labor earnings are so high that their SSI cash payment is zero—as long as their earnings remain below a state-determined threshold.[6] These provisions encourage work by reducing the risk of losing cash assistance and essential medical coverage when earnings increase.

SSI recipients may also receive employment services (for which SSA pays) if the recipient subsequently attains sufficient earnings levels over a

specified period. TTW, a performance-based voucher program that was implemented during 2002–2004, is the most recent version of this work incentive. At the time of SSI award, the recipient receives a "ticket" that he or she may present to any employment network to obtain services. Employment networks include all state vocational rehabilitation (VR) agencies and other private and public entities that meet SSA criteria and agree to participate. Although the Rehabilitation Act of 1973 requires the state VR agencies to serve recipients, other employment networks may decline recipient requests for services. Payments to employment networks are based on clients' monthly earnings milestones and months with no SSI payments because of work. Before the rollout of TTW (including the 1996–2001 portion of our study period), SSA in essence paid only for services provided by state VR agencies under a system with a less stringent performance requirement.[7] Since the TTW rollout, state VR agencies have retained the option to serve recipients under the earlier payment system on a case-by-case basis, rather than under either of TTW's new payment systems.

DI Eligibility, Benefits, and Beneficiary Interactions with SSI

In contrast with SSI, eligibility for DI is not means-tested; instead, eligibility for disabled-worker benefits requires the individual to have worked and contributed to the DI trust fund via payroll taxes for a sufficient period to attain "disability-insured" status.[8] The benefit amount is based on past earnings—the higher the lifetime earnings of the beneficiary (or other relevant individual), the higher the benefit. DI benefits begin only after a 5-month waiting period that starts with the first month for which SSA determines the DI beneficiary was unable to engage in SGA (the "disability-onset" month). Twenty-four months after DI benefits begin, beneficiaries are automatically eligible for Medicare. DI beneficiaries with sufficiently low assets and income (including their DI benefits) also are eligible for SSI payments. SSI-only recipients may eventually become eligible for DI if they earn enough to become disability insured.

The interactions between SSI and DI eligibility are particularly relevant to the cumulative statistics presented in this study. The DI benefits of individuals initially determined to be eligible for both programs are included in SSI countable income. Because the 5-month DI waiting period does not apply to SSI, an individual who qualifies for both SSI and DI may

initially receive only SSI payments, and then have his or her SSI payments reduced by the amount of the DI benefit (minus $20) when DI benefits start. Following Rupp, Davies, and Strand (2008), we distinguish between persons for whom the SSI payment is reduced to zero when they become eligible for DI ("serial beneficiaries") and those who continue to receive cash benefits from both programs ("joint beneficiaries").[9] Our award cohorts exclude serial beneficiaries because we do not expect the existence of SSI to affect their behavior once they start to receive DI benefits. However, we include many others who receive DI benefits.

Previous Findings

The value of long-term cumulative statistics on SSI recipients has long been recognized. Past studies have addressed the length of time spent on the SSI disability rolls among children and working-age adults (Rupp and Scott 1995); the differences between long-term cumulative statistics and point-in-time statistics on SSI applications, caseloads, and awards (Pickett and Scott 1996); the effects of the age and diagnostic composition of cohorts of new DI and SSI awardees on their length of stay on the rolls (Rupp and Scott 1996); and the reinstatement rates for SSI recipients who had their cases closed and payments stopped (Kochhar and Scott 1998).

Few studies have focused specifically on the long-term cumulative work-related experiences of SSI recipients, however. The studies most similar to this one are two by Scott (1989, 1992). The 1989 study produced statistics on recipients who were newly awarded SSI disability payments in the last quarter of 1981, using a 1 percent sample file.[10] Scott estimated that 7.5 percent of those awardees became ineligible for SSI payments because of excess income (other than Social Security benefits) within 4 years. However, excess income was not necessarily the recipient's earnings from work; for example, it might have represented a spouse's income.

Scott's 1992 study examined the postapplication work experience of all recipients on the SSI disability rolls in December 1988, again using a 1 percent sample file. He estimated that 22 percent of SSI disability recipients had had some postapplication work experience as of that month, including 4.3 percent with postapplication work experience of 5 years or more. Years on the rolls varied by recipient, however, and the percentage that achieved earnings high enough to lower cash payments to zero was not reported.

Two recent studies are particularly relevant to this one, even though they do not specifically focus on employment outcomes or the use of work incentives. Rupp and Riley (2011) analyzed longitudinal patterns of disability program participation and the interactions between SSI and DI program rules. The authors followed working-age disability awardees for 60 months after award and found substantial program interactions, with about a quarter of first-time awardees participating in both SSI and DI over the study period. Rupp and Riley (2012) examined how longitudinal patterns of SSI and DI program participation were associated with Medicare and Medicaid public health insurance coverage. Following new working-age disability awardees from 12 months prior to award through 72 months after award, the authors documented complex interactions between SSI and DI participation and the timing of Medicare and Medicaid coverage. Throughout the rest of this article, we discuss how interactions between the SSI and DI programs affect some of the central long-term statistics our analysis produced.

Data Sources

The SSI award cohorts used in this study, as well as most of the statistics presented for those cohorts, were developed from analytic administrative data files constructed for the TTW evaluation. The 2008 version of the files used here, collectively called the 2008 Disability Analysis File (DAF), contains extensive information on the more than 20 million individuals who received DI benefits, SSI payments, or both in at least 1 month from January 1996 through December 2008 (Hildebrand and others 2010).[11]

To obtain information on enrollment for VR employment services, we also merge DAF records with state data on closed VR cases from Rehabilitation Services Administration Case Service Report (RSA-911) files for fiscal years 1998 through 2008 made available under an interagency agreement between SSA and the Department of Education. For the purpose of this analysis, we include only cases that were closed after eligibility for services was determined.[12]

Earnings are only recorded in SSI administrative data when the cohort member is actually on the SSI rolls, and some earnings might not be reported. Therefore, some of the statistics we report here also required access to SSA's Master Earnings File (MEF), which includes annual earnings data derived from tax reports under rules established by the Internal Revenue Service (IRS). SSA maintains an extract of earnings

records for SSI and DI beneficiaries represented in the DAF. To comply with security requirements for the earnings data, qualified SSA staff produced the statistics based on those records and verified that they do not disclose personal information.

Although the 2008 DAF includes data through 2008, we have analyzed data only through 2007 because we expect SSA to revise many of the 2008 values for key variables at a later date. These revisions occur because of delays in the reporting of earnings and the processing time required for determining work-incentive status. In addition, although we report service enrollment statistics through 2007, the more recent years are subject to substantial revisions because of the nature of the RSA-911 data: Enrollment for a case is not captured in the file until the case is closed. For example, enrollment by an SSI recipient in 2007 is recognized only if the recipient's VR case closed before September 2007 or the recipient assigned his or her ticket to the state VR agency. Hence, we describe the service enrollment estimates for 2005 through 2007 as preliminary.[13]

The data have additional limitations that stem, like those described above, from having been collected for administrative rather than research purposes. The statistics we report are all based on data that have an important administrative purpose and are generally reliable but are subject to errors reflecting the processing of postentitlement work, as well as alterations because of changes in the postentitlement processes. If such errors occurred consistently over time, they would not affect trends in statistics across award cohorts. However, SSA's focus on reducing the backlog of postentitlement work, especially between 1999 and 2002, might mean that some observed trends reflect changes in administrative processing rather than changes in policy or the economic environment, and the size of any effect from such changes is potentially substantial.

Our findings also suggest another way in which a changing backlog might affect cross-cohort comparisons. For example, the downward trend in the percentages of former SSI child recipients who received their first SSI payment as adults at ages 18 and 19 instead of at age 20 or older (see Ben-Shalom and others 2012, Exhibit III.1) could be consistent with an increasing backlog in age-18 redeterminations. Such a backlog would mean that former SSI child recipients make up a decreasing share of our SSI award cohorts—a change not accounted for in our cross-cohort comparisons.

Finally, studies conducted by SSA in 1999, 2002, and 2004 identified about 466,000 cases of SSI-only recipients who had earnings histories and were potentially disability insured (SSA 2006). Many of those recipients, known as special disability workload cases, were awarded DI benefits retroactively. Our statistics do not capture retroactive benefits; instead, they only pick up the DI participation of those cases at the time of their first special disability workload payment.

Study Population

All of the statistics presented in this article represent 100 percent of the relevant SSI population (which includes individuals concurrently receiving both SSI and DI benefits); that is, they are population statistics rather than estimates. We develop annual cohort files from 1996 through 2006 based on the month in which the recipient was first paid an SSI payment *as an adult* according to information in the DAF. Although it is possible for an individual to have multiple periods of payment receipt, he or she is assigned to just one cohort based on the year that corresponds to the individual's *first* payment as an adult.

We count those who initially become eligible for SSI before age 18 as SSI adults starting in the month in which SSA determines that they are eligible as an adult. In the majority of such cases, adult eligibility results from an age-18 redetermination, but the former SSI child recipient is often older than 18 when the decision is made. In the case of denial at the age-18 redetermination or a lapse in SSI eligibility before an age-18 redetermination occurs, the former SSI child recipient is counted as an SSI adult from the month in which payments are awarded as the result of a new application as an adult.[14]

As mentioned earlier, we exclude serial beneficiaries (those who entered SSI during the DI waiting period, but became ineligible for SSI payments when DI benefits started) from our cohorts. Some serial beneficiaries later returned to the SSI rolls, however. We include those who did, and assign them to a cohort based on the first month in which an SSI payment was received after they had been in nonpayment status for at least 13 months. Apart from serial beneficiaries, many other SSI recipients who also received DI benefits are included in our cohorts. Some of them were awarded DI first and later became eligible for SSI, some were nonserial beneficiaries who were awarded SSI and DI at the same time, and others entered the DI rolls only after a longer period following SSI award.

Even if work-seeking behavior does not change across cohorts, employment outcomes are likely to change simply because of changes in distribution by age and sex, thus reflecting the differing employment outcomes across the age-and-sex groups. To control for those demographic differences, we adjust all of the cross-cohort statistics presented in this study for age and sex using the 2001 cohort (the last year before TTW) as the index cohort.[15] We develop outcome measures for each age-sex group, and the cross-cohort statistics presented are weighted averages of these group-specific measures. We adjust state series using the same weights so that cross-state comparisons are not influenced by differences in age-sex composition. Table 1 presents the size and age-sex composition of the cohorts.

Outcome Measures

For each cohort, we develop two types of outcome measures: monthly statistics on employment and the use of work incentives, based on program data; and annual statistics on employment and earnings, based on IRS data (Table 2). One key statistic can be constructed only for 2001 and later award cohorts: SSI nonpayment status following suspension or termination for work (NSTW).[16] We designate NSTW if the individual's SSI payments are known to have been suspended for work in a given month or in a previous month and the individual had not yet returned to SSI current-pay status, attained age 65, or died. We cannot confirm that the individual was engaged in SGA, or even working, in each such month. For all cohorts, we can uniformly identify the subset of NSTW months in which the beneficiary was in 1619(b) status. Differences between the 1619(b) and NSTW statistics thus reflect months in which the beneficiary was ineligible for SSI, for reasons that are generally unknown.[17]

We produce statistics on months in NSTW and 1619(b) status for all SSI recipients as well as for the subset of SSI recipients who did not also receive DI benefits. Differences between the DI and SSI work incentives enable some SSI recipients in NSTW or 1619(b) status to remain eligible for and receive a DI benefit. The most obvious example is when the beneficiary is in the trial work period. Another such situation is when countable income from all sources, including DI benefits and labor earnings, is sufficient to reduce the SSI payment to zero when labor earnings (after disregards) are lower than the SGA amount.[18]

Table 1.
Percentage distribution of SSI recipient population, by age and sex, 1996–2006 award cohorts

Age and sex	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Number	397,917	337,668	364,334	366,057	354,860	358,187	375,123	365,129	371,475	371,179	347,887
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Age											
18–19	14.9	13.9	14.0	15.0	16.2	16.5	17.3	17.4	18.0	17.9	14.6
20–39	30.8	30.3	28.6	27.9	27.2	26.9	26.5	26.5	25.8	25.1	25.4
40–49	21.1	21.5	22.0	22.2	22.0	22.1	22.1	22.1	21.9	21.5	22.2
50–61	28.9	30.2	30.6	30.1	29.9	29.9	29.9	29.8	30.3	31.4	33.5
62–64	4.3	4.1	4.9	4.8	4.7	4.5	4.3	4.1	4.1	4.1	4.2
Sex											
Men	44.4	43.1	43.0	43.1	44.1	44.6	45.0	45.5	46.1	47.0	47.0
Women	54.0	55.6	55.9	55.9	55.0	54.7	54.3	53.9	53.6	52.7	52.8
Age and sex											
18–19											
Men	59.1	57.0	56.8	56.7	57.0	57.4	58.1	57.8	58.1	58.4	58.7
Women	40.3	42.4	42.6	42.7	42.4	42.1	41.3	41.6	41.4	41.1	40.9
20–39											
Men	46.8	44.8	44.0	43.6	44.2	44.3	44.8	45.2	45.6	46.6	47.2
Women	51.9	54.3	55.2	55.7	55.2	55.3	54.9	54.5	54.2	53.3	52.7
40–49											
Men	39.8	38.8	39.3	39.6	41.1	41.1	40.9	41.6	41.8	43.0	42.7
Women	57.8	59.5	59.2	59.0	57.7	58.1	58.3	57.9	57.9	56.8	57.1
50–61											
Men	38.6	38.9	39.3	39.5	40.5	41.4	41.7	42.4	43.4	44.5	45.2
Women	59.4	59.6	59.4	59.3	58.2	57.7	57.4	56.8	56.2	55.2	54.6
62–64											
Men	37.2	37.7	37.4	37.1	36.7	38.3	38.1	39.1	39.8	40.8	42.2
Women	62.0	61.6	61.8	62.2	62.7	61.4	61.6	60.6	60.0	59.0	57.7

SOURCE: Authors' calculations based on the 2008 DAF.

NOTES: Populations include individuals receiving concurrent SSI and DI benefits, but exclude "serial" beneficiaries whose eligibility transferred from SSI-only to DI-only and who did not return to the SSI rolls after qualifying for DI benefits.

Percentage distributions by sex do not sum to 100.0 because the DAF records for some recipients do not identify their sex. Other percentage distributions may not sum precisely to 100.0 because of rounding.

Monthly earnings data would be ideal for our analysis because SSI payment amounts are based on monthly earnings levels. However, SSA has no administrative reason to collect earnings data for all working recipients in every month. Instead, our employment and earnings statistics are based on the most reliable earnings records available: annual IRS data from the MEF. These data have two substantial limitations in addition to their comparative infrequency. First, for new awardees, we cannot distinguish between earnings for preaward and postaward work; hence, we do not report employment and earnings statistics for the award year and the first postaward year.[19] Second, not all earnings are reported to the IRS. An important exception for SSI recipients is sheltered workshop earnings, which are not subject to payroll taxes; thus, our annual employment and earnings statistics reflect competitive employment only, and miss any other earnings not reported to the IRS.

Many of the statistics we report are cumulative from the award year through the end of a given calendar year (usually 2007). For example, the reported percentage of recipients in the 2001 cohort with an NSTW month *by the end* of 2007 is an unduplicated count of individuals with *at least* 1 NSTW month as of the end of 2007. Cumulative statistics for the employment rate are an exception; the cumulative employment rate is for the period from the beginning of the second calendar year after award through the given calendar year.

Table 2.
Measures of work-incentive use and employment outcomes for SSI recipients

Variable	Award cohorts affected	Criteria
Monthly statistics		
PCE	All	Earnings (after disregards and earned income exclusion) exceed zero
1619(a) status	All	Earnings (after disregards) exceed SGA amount, but SSI payments exceed zero
1619(b) status		
Total	All	High countable earnings preclude SSI payments, but SSI eligibility is retained
Excluding DI beneficiaries	All	Same as above, with current-pay DI beneficiaries excluded
Employment service enrollment	1998 and later	First instance of a recipient either assigning a TTW to a service provider or being determined eligible for state VR services [a]
NSTW		
Total	2001 and later	Recipient is in SSI nonpayment status following suspension or termination for work and has not reached age 65 or died
Excluding DI beneficiaries	2001 and later	Same as above, with current-pay DI beneficiaries excluded
Annual statistics		
Employed	All	Earnings of at least $1,000 (2007 dollars, adjusted using the average wage index)
Mean earnings [b]	All	. . .

SOURCE: Authors' definitions.

NOTES: Monthly statistics are based on data from the DAF, except as noted. Annual statistics are based on data from the MEF.

. . . = not applicable.

a. Statistics on state VR services are from RSA-911 records.

b. Because "mean earnings" is an amount rather than a status, no criteria apply for this variable. Mean earnings are calculated for recipients with positive earnings only. Following the methodology of Muller (1992), earnings data for the award year and the year after award are excluded from the calculations to avoid the unintended inclusion of earnings from preaward jobs.

Major Findings

We begin with findings for the 2001 cohort, the first cohort for which we have complete information on NSTW. Because of the importance of interactions with the DI program to the interpretation of the results, we first discuss the extent to which the 2001 SSI award cohort also received DI benefits, providing detail by age group. We then review the main work-effort milestones achieved by the 2001 cohort as of 2007, after which we compare key statistics across cohorts. That comparison is followed by findings from the MEF data, which contain information on earnings not recorded in SSI administrative data—either because the cohort member is off the SSI rolls or because of differences between MEF data and self-reported earnings.

2001 SSI Award Cohort

Like all SSI award cohorts, the 2001 cohort includes many awardees who also received DI benefits at some point. Such SSI awardees include those who (1) were awarded SSI and DI at the same time and had DI benefits low enough that their SSI payments were not terminated after the DI waiting period; (2) entered DI first but became eligible for SSI after spending down their resources or losing other sources of income; (3) entered SSI first but entered DI after accumulating the work experience necessary to meet the latter program's earnings-history criteria; and (4) were awarded SSI and, at some point, were also awarded either disabled adult child benefits or disabled widow(er) benefits.

More than 30 percent of the 2001 SSI award cohort received DI payments in at least 1 month during their SSI award year (Chart 1). The cumulative statistics show distinctive patterns by age at award. Although DI participation increased rapidly among individuals aged 18–19 at SSI award, it increased relatively little for those in the older age groups.

Chart 1.
Cumulative percentage of SSI recipients in the 2001 award cohort with at least 1 month in DI current-pay status: Total and by age group, 2001–2007
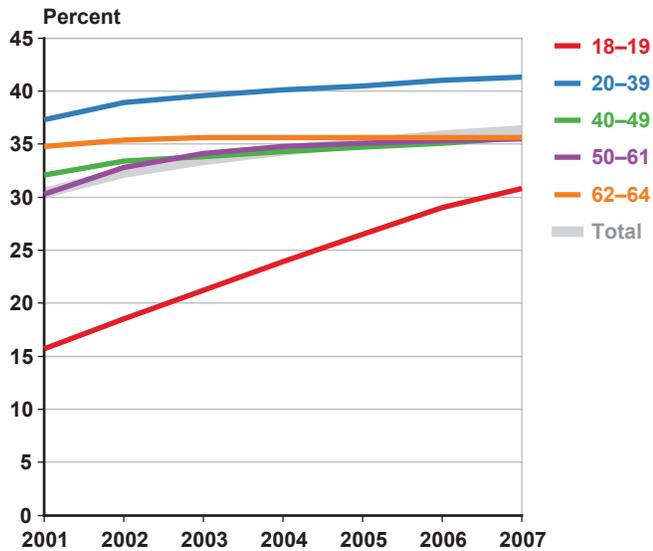
SOURCE: Authors' calculations based on the 2008 DAF.

Chart 2 shows how many members of the 2001 SSI award cohort moved toward NSTW by December 2007. We find that 19.4 percent of the 2001 awardees had at least 1 month with PCE, 10.4 percent had at least 1 month of Section 1619(a) or 1619(b) status, and 8.4 percent had at least 1 month of 1619(b) status specifically. Notably, more recipients had at least 1 NSTW month by 2007 (9.8 percent) than had achieved 1619(b) status during that time.[20] Nearly half of those who reached 1619(b) status or NSTW were receiving DI benefits during those months (46.9 percent and 43.6 percent, respectively).

Chart 3 presents, for the 2001 SSI award cohort, the annual progression of cumulative percentages of recipients with PCE, 1619(b) status, and NSTW, as well as enrollment in employment services. It also shows the cumulative percentages that achieved 1619(b) status and NSTW without also receiving DI benefits. By the end of 2007, 5.5 percent of the 2001 awardees had been in NSTW and 4.5 percent had been in 1619(b) status while not receiving DI benefits in at least 1 month. Over the same period, 10.7 percent of recipients in the 2001 cohort had enrolled in services in at least 1 month. Similar analysis of the 1996 SSI award cohort over a longer period (11 years)

indicates that a large majority of those awardees who found work and earned enough to give up all of their payments did so in the first 5 years after their award (Ben-Shalom and others 2012).

In Chart 4, both panels show the cumulative percentages of 2001 SSI awardees achieving NSTW by age group. The left panel tracks all recipients who attained NSTW in any month, while the right panel excludes recipients who collected DI benefits while in NSTW. Whether or not they received DI benefits, younger SSI awardees were much more likely to have at least 1 NSTW month than were older awardees.

As of December 2007, the total number of months in NSTW accumulated by the 2001 cohort was equivalent to 164 years per thousand recipients (left panel of Chart 5). That amounts to less than 2 months per beneficiary across a span of over 6 years, or 2.5 percent of all possible months. The two youngest age groups accounted for more than 70 percent of cumulative NSTW months, even though they represented less than 45 percent of the 2001 cohort. (The oldest group, ages 62–64, represented 4.5 percent of the 2001 award cohort but accounted for only 0.3 percent of the NSTW months—a proportion too small to be visible in the chart.) The cumulative number of months in NSTW that were not in DI current-pay status was equivalent to 75 years—less than 1 month per beneficiary over that period (right panel of Chart 5). Overall, 54.4 percent of the months in which recipients were in NSTW were months in which they received DI benefits.

Enrollment in Employment Services

Recall that Chart 3 includes cumulative statistics on employment service enrollment for the 2001 cohort. In an earlier study, we similarly analyzed the 1998 cohort—the first cohort with complete data on service enrollment—and found that 10.5 percent of that cohort had enrolled in services by 2007. Close to 60 percent of the 1998 cohort had achieved PCE in at least 1 month; 38.9 percent had attained Section 1619(a) or 1619(b) status, or both; and 31.7 percent had specifically achieved 1619(b) status. Most of the recipients who achieved PCE, 1619(a), or 1619(b) status did so after employment service enrollment, but many enrolled for services only after achieving one or more of those milestones. Moreover, almost 80 percent of the recipients who achieved NSTW by 2007 had not enrolled in employment services, or at least had not done so with providers that would be eligible for payment from SSA.[21]

2001 SSI award cohort

358,157
(100%)

PCE

69,830
(19.4%)

Section 1619(a) or 1619(b) status

37,288
(10.4%)

DI current-pay status?

Yes   No

Section 1619(b) status

30,075
(8.4%)

14,091
(3.9%)

15,984
(4.5%)

NSTW

35,021
(9.8%)

15,279
(4.3%)

19,742
(5.5%)

SOURCE: Authors' calculations based on the 2008 DAF.

Chart 3.
Cumulative percentage of SSI recipients in the 2001 award cohort that ever attained various work-incentive milestones, 2001–2007
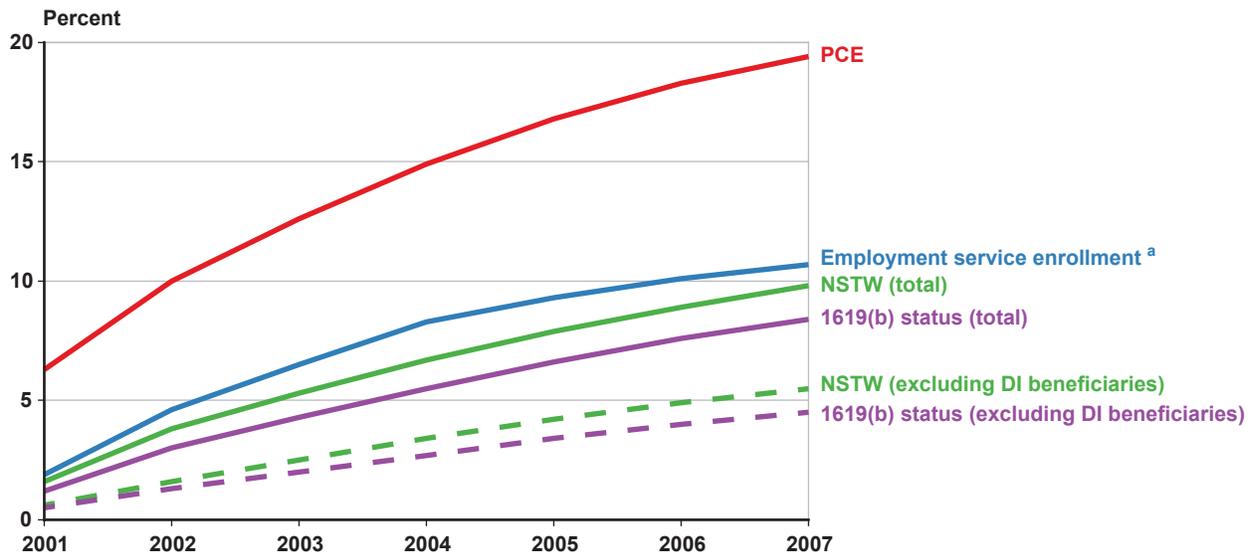
SOURCE: Authors' calculations based on the 2008 DAF.

a.   Data for 2005–2007 are preliminary.

Chart 4.
Cumulative percentage of SSI recipients in the 2001 award cohort that ever attained NSTW, by age at award, 2001–2007
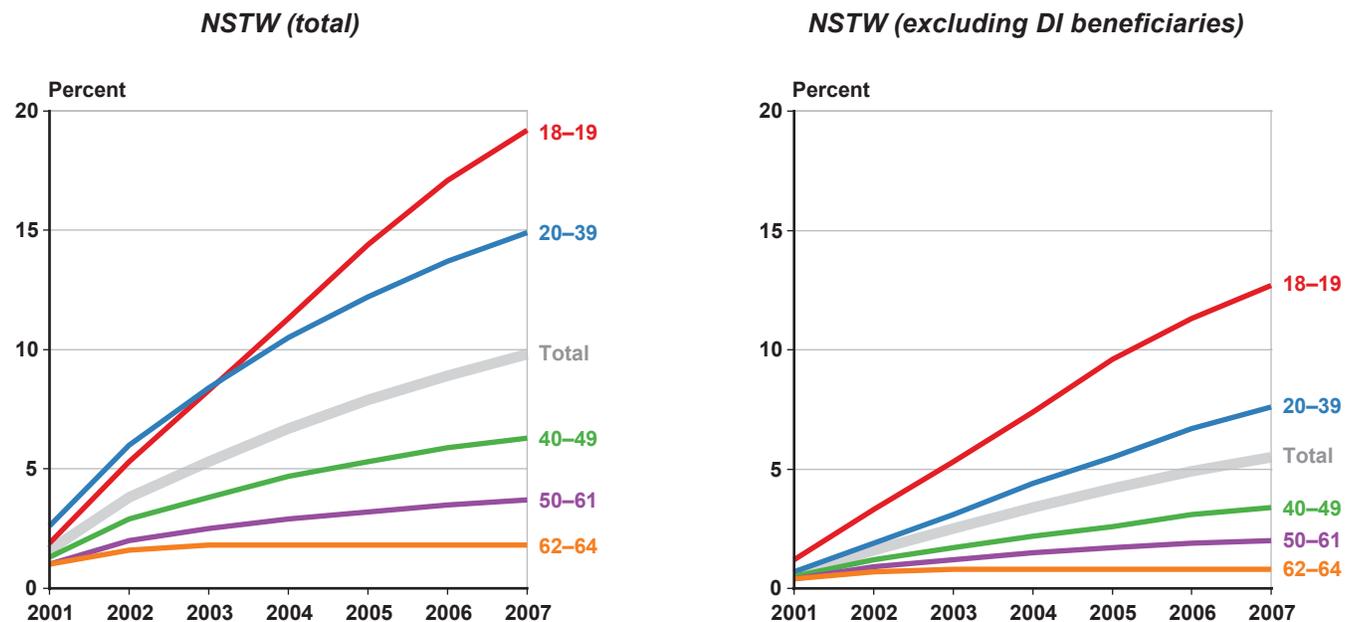
SOURCE: Authors' calculations based on the 2008 DAF.

Chart 5.
Cumulative years in NSTW per 1,000 SSI recipients in the 2001 award cohort, by age at award, 2001–2007
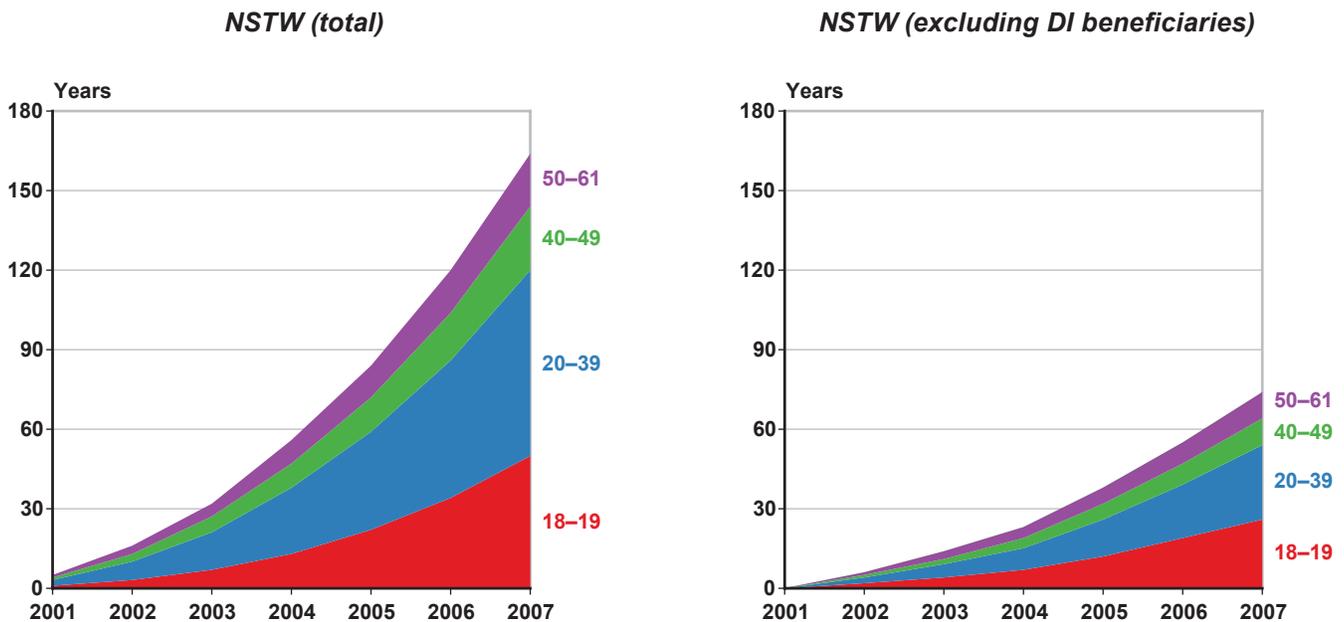
SOURCE: Authors' calculations based on the 2008 DAF.

NOTE: Recipients aged 62–64 cumulatively accounted for less than one-half of 1 NSTW year per 1,000 beneficiaries as of 2007.

Cross-Cohort Comparisons

We now assess how more recent cohorts have fared relative to earlier ones and whether changes in SSA policies, policies external to SSA, or the economic environment might have contributed to any observed cross-cohort differences. Charts 6–10 track and compare the experiences of seven cohorts at each of three intervals: the year of (or after) award, the third year after award, and the fifth year after award. Additionally, the charts track four later cohorts through the intervals that had occurred as of December 2007. (Charts showing employment-service enrollment and NSTW cover fewer cohorts because data on those outcomes are not available for every cohort.) Statistics for all cohorts are weighted to the 2001 cohort's age-sex composition.

In the absence of any change in policies from within or outside of SSA or in the economic environment, we would expect the charted columns and their component segments to be almost identical across cohorts. Besides changes in policy and the economy, changes across cohorts in the distribution of characteristics such as impairment type (but not age and sex, for which we already have adjusted the

series) could cause cross-cohort variations, but such changes seem to occur gradually relative to changes in policy or the economic environment. Adjusting for age also accounts for some of the change seen in impairment types.

Because of the importance of program interaction to the interpretation of the results, Charts 6 and 7 show the extent to which each SSI award cohort also received DI benefits. For all cohorts, the share of SSI recipients who received a DI benefit in at least 1 month during their award year is at least 30 percent (Chart 6). The spike for the 1997 cohort might be due to the previously discussed tightening of SSI eligibility rules that followed the 1996 passage of the PRWORA. Those changes likely had a disproportionately negative effect on SSI-only awards, resulting in a higher percentage of joint SSI-DI awards. The decrease in DI participation during the SSI award year after 1997 and the increase after 2001 might be due to the improving economy in the late 1990s and the worsening economy after 2001, respectively, although other factors also might have played a role. Cumulative results for the third and fifth postaward years largely reflect the same trends.

Chart 6.
Cumulative percentage of SSI recipients with at least 1 month in DI current-pay status by the end of the year of SSI award, the third year after award, and the fifth year after award, by award cohort
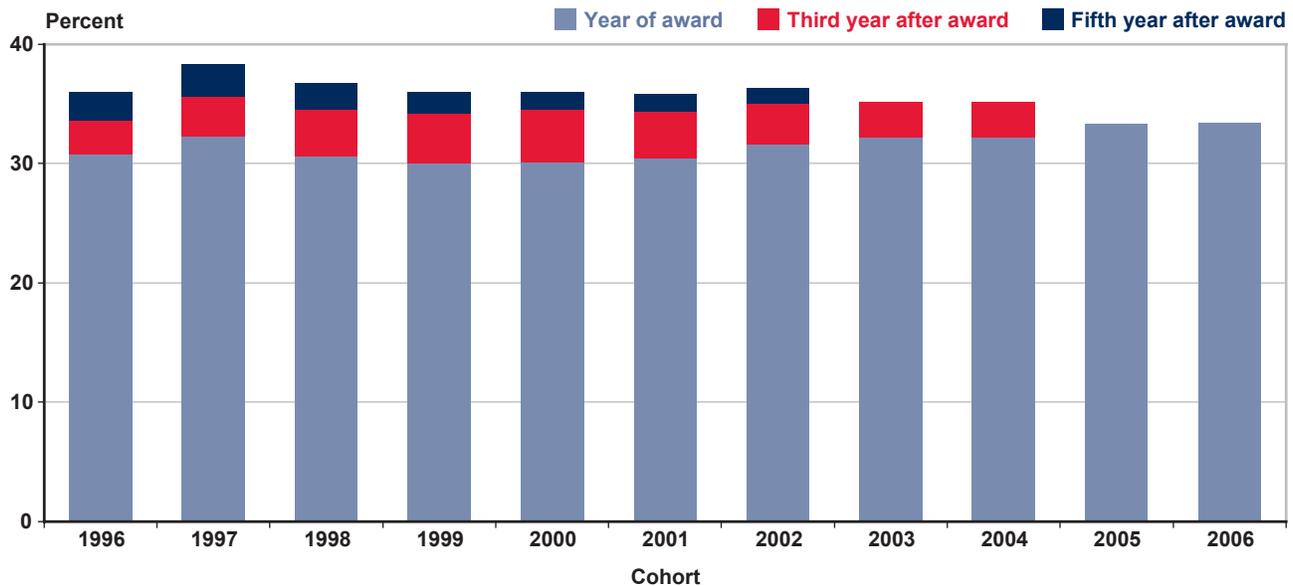
SOURCE: Authors' calculations based on the 2008 DAF.

NOTES: Cohorts are tracked through December 2007. By then, members of the 2003 and 2004 cohorts had not reached their fifth year after award and members of the 2005 and 2006 cohorts had not reached their third year after award.

Data for all cohorts are weighted to the 2001 cohort's age-sex composition.

The changes that the PRWORA brought about in 1996 appear to have permanently shifted the award-year and cumulative DI percentages upward for recipients aged 18–19 at SSI award (Chart 7). The award-year DI participation percentage for that age group continued to rise gradually through the 2001 cohort and remained fairly stable after that. Compared with that younger age group, recipients aged 20–39 at SSI award were substantially more likely to receive DI benefits in their award year and less likely to work their way onto the DI rolls as years passed. The shift between the 1996 and 1997 cohorts for the 20–39 age group is smaller than that for the 18–19 age group, possibly reflecting differential effects of PRWORA changes. Evidence of a business cycle effect appears for the older age group, as the unemployment rate (not shown) tracks a roughly parallel pattern ranging between about 4 and 6 percent; any such effect for the younger group may have been obscured by the size of the post-PRWORA shift. For the older group, the decrease in the award-year percentage of recipients on the DI rolls between the 1997 and 2000 cohorts is consistent with fewer existing DI beneficiaries receiving SSI awards during that period's economic expansion.

Likewise, the increase in the percentage from the 2000 through 2004 cohorts might reflect increased DI entry during the recession among those who eventually qualified for SSI after spending down their resources.

Chart 8 compares the cumulative percentage of awardees achieving 1619(b) status across the 11 study cohorts. In the first postaward years, the percentages increase from the 1996 cohort through the 1999 cohort, during a period of economic expansion, and decline for subsequent cohorts following the recession of 2001. The series for the third and fifth postaward years indicate that cohorts with higher percentages in the first postaward year did not necessarily continue to outpace other cohorts in the later years. For example, the fifth postaward year percentage is lower for the 1999 cohort (as of 2004) than that of the 1996 cohort (as of 2001), presumably because the 5-year outcomes for the 1999 cohort were more affected by the 2001 recession than were those for the 1996 cohort. A cross-cohort comparison of the cumulative percentage achieving 1619(b) status and receiving no DI benefits reveals similar patterns, although at substantially lower levels.

Chart 7.
Cumulative percentage of SSI recipients with at least 1 month in DI current-pay status by the end of the year of SSI award, the third year after award, and the fifth year after award: Two youngest age-at-award groups, by award cohort

Ages 18–19
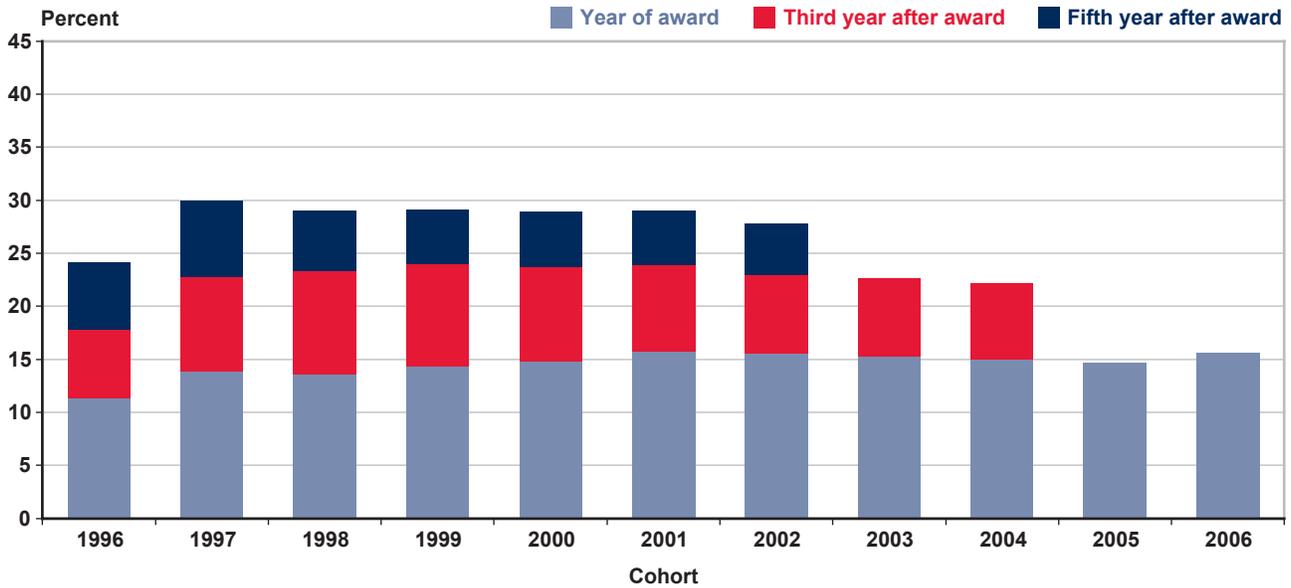
Ages 20–39
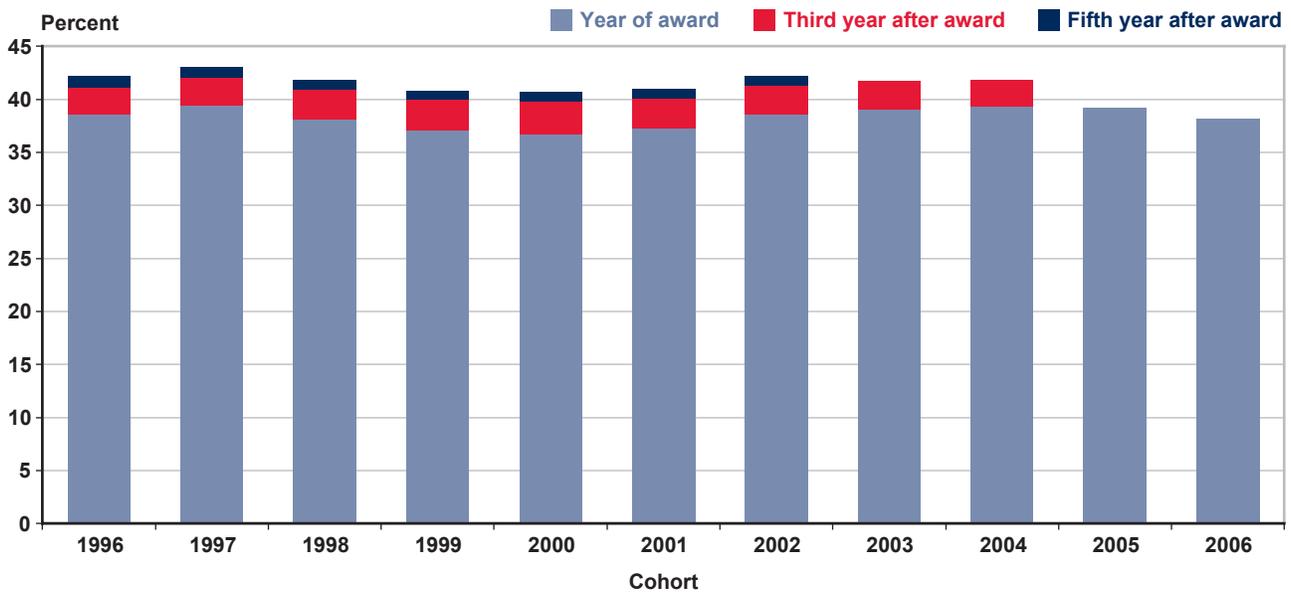
SOURCE: Authors' calculations based on the 2008 DAF.

NOTES: Cohorts are tracked through December 2007. By then, members of the 2003 and 2004 cohorts had not reached their fifth year after award and members of the 2005 and 2006 cohorts had not reached their third year after award.

Data for all cohorts are weighted to the 2001 cohort's age-sex composition.

Chart 8.
Cumulative percentage of SSI recipients with at least 1 month in 1619(b) status by the end of the first, third, and fifth years after SSI award: Total and excluding DI beneficiaries, by award cohort

1619(b) status (total)
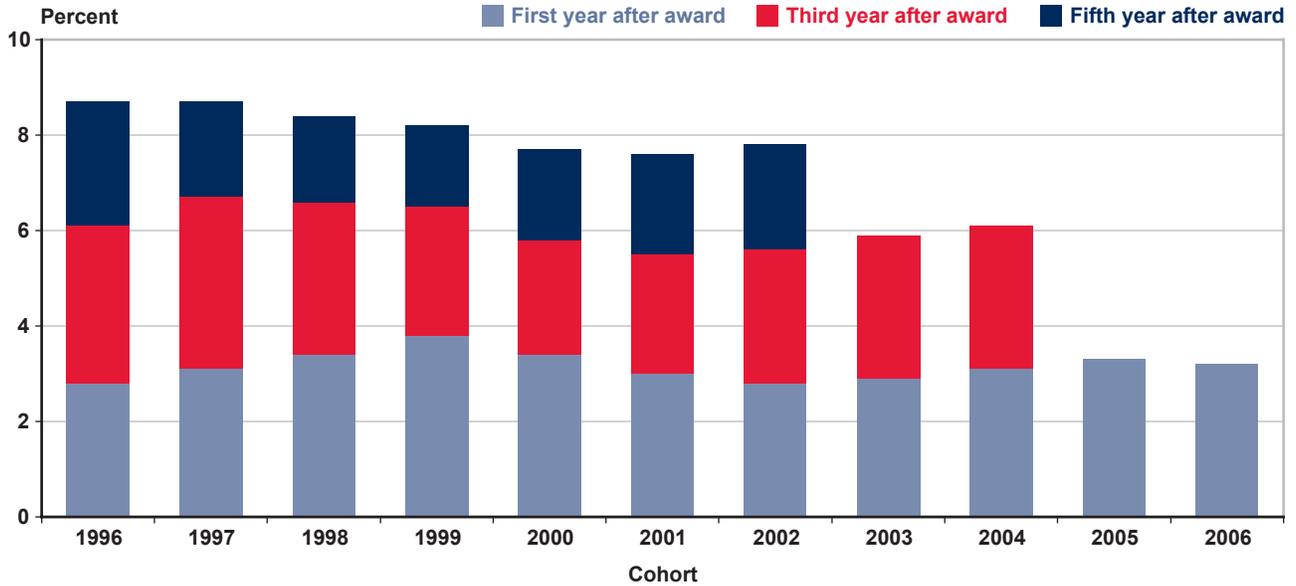
1619(b) status (excluding DI beneficiaries)
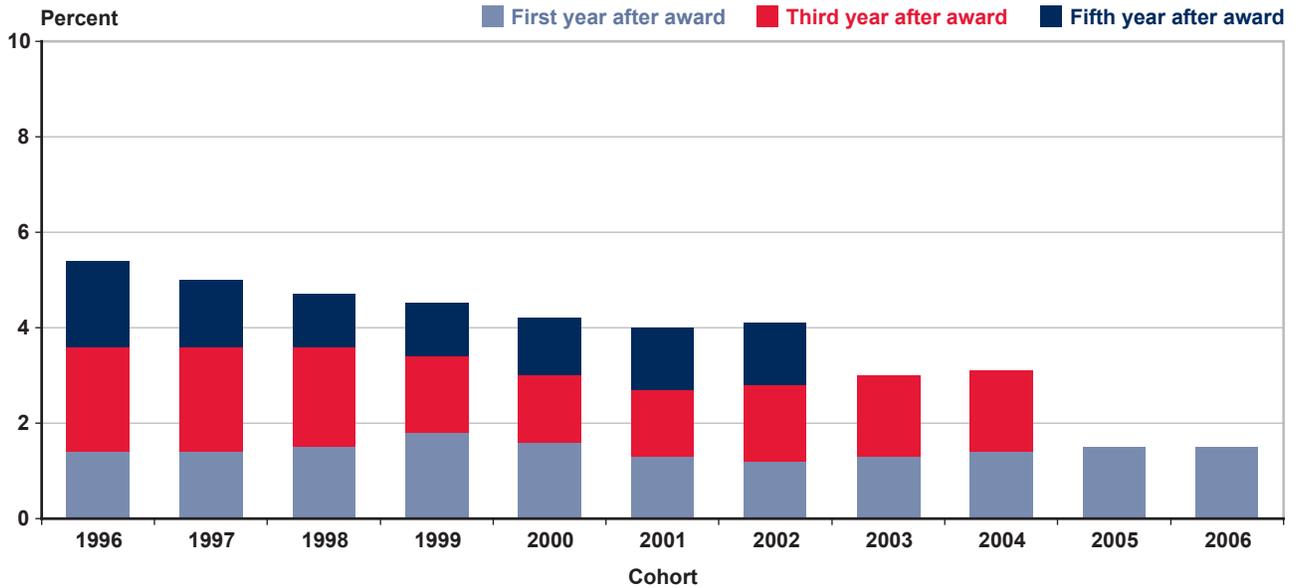
SOURCE: Authors' calculations based on the 2008 DAF.

NOTES: Cohorts are tracked through December 2007. By then, members of the 2003 and 2004 cohorts had not reached their fifth year after award and members of the 2005 and 2006 cohorts had not reached their third year after award.

Data for all cohorts are weighted to the 2001 cohort's age-sex composition.

There is a notable cross-cohort increase in the percentage of recipients achieving NSTW in at least 1 month within a given number of years (Chart 9). For recipients in their first postaward year, that increase between the 2001 and 2002 cohorts is surprising, given the economic recession during that period, and suggests that one or more other factors were involved. Possibly, special disability workload processing increased the number of working SSI recipients in NSTW because of the effect of the DI benefit award on the SSI payment. Cross-cohort differences in the proportion of awardees receiving DI benefits before they were first awarded SSI payments could also be a factor. Following the economic recession of 2001, the number of DI-only beneficiaries who spent their assets down and thus became SSI-eligible may have exceeded that of the prerecession cohorts. Indeed, Chart 6 appears to reflect such a trend. To the extent that these awardees were more likely to achieve

NSTW than those who were awarded SSI before DI (or those who were awarded both simultaneously), any increase in the percentage of awardees in this group would increase the percentage of the cohort achieving NSTW, with other factors constant.

The cross-cohort increase in the percentage of recipients achieving NSTW while not in DI current-pay status was notably weaker than the respective increase among recipients overall. The difference implies that most of the observed cross-cohort increase in NSTW rates was among SSI recipients who received concurrent DI benefits and remained on the DI rolls when SSI payments ceased, or whose SSI payments ceased when they became disability insured and eligible for DI. Whatever the cause of the difference, the percentage of recipients that achieves NSTW without receipt of DI is a more accurate gauge of the extent to which SSI recipients forgo their payments

Chart 9.

Cumulative percentage of SSI recipients with at least 1 month in NSTW by the end of the first, third, and fifth years after SSI award: Total and excluding DI beneficiaries, by award cohort
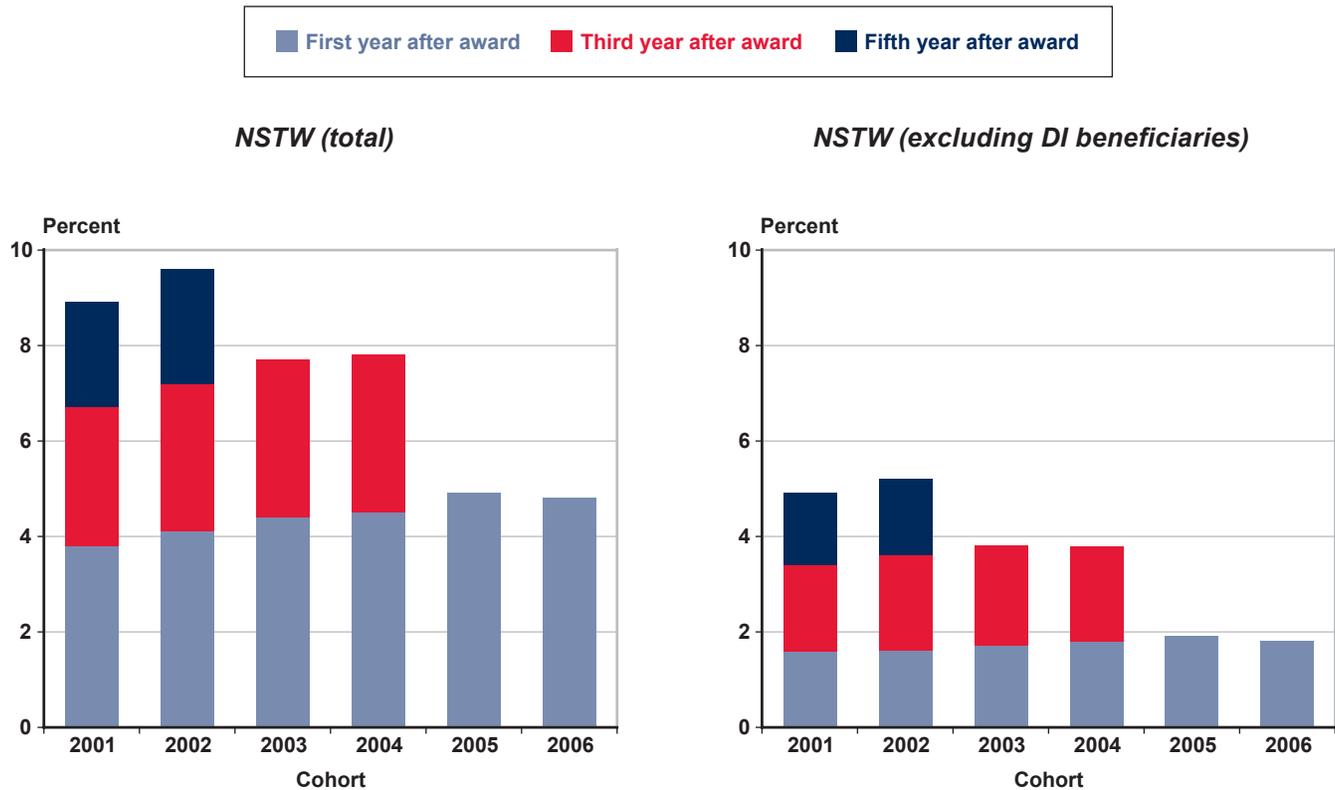
SOURCE: Authors' calculations based on the 2008 DAF.

NOTES: Cohorts are tracked through December 2007. By then, members of the 2003 and 2004 cohorts had not reached their fifth year after award and members of the 2005 and 2006 cohorts had not reached their third year after award.

Data for all cohorts are weighted to the 2001 cohort's age-sex composition.

because of work than is the percentage that achieves NSTW overall.

We also compare cumulative years in NSTW across award cohorts, beginning with the 2001 cohort (Chart 10). Each successive cohort had more NSTW years per 1,000 recipients, holding the years since award constant. This trend is largely consistent with the trend seen in Chart 9 for recipients with at least 1 month of NSTW as of various intervals. Cross-cohort growth in cumulative NSTW years while not in DI current-pay status was lower than cross-cohort growth in all cumulative NSTW years and, again, seems the more accurate gauge of the extent to which awardees completely forgo benefits because of work. For that group, successive cohorts exhibited substantial steady gains as of the third postaward year, from 24 years for the 2001 cohort (in 2004) to 30 for the 2004 cohort (in 2007). Possible explanations for those gains include the economic recovery and the TTW

rollout. Changes in the composition of the cohorts (other than the age-sex distributions) also might contribute to the gains, but we have not examined that possibility further.

Employment and Earnings Statistics

Using data from earnings reported to the IRS and recorded in the MEF, Charts 11 and 12 present further evidence of employment success. Unlike the PCE statistics, MEF data contain information on earnings for awardees who have left the SSI rolls (for any reason) as well as for those who have not. In addition to filling a gap in the NSTW statistics that occurs because some SSI awardees work and eventually leave the SSI rolls entirely, these statistics reflect earnings reported to the IRS that are not contained in SSI records. For reasons described earlier, the employment and earnings statistics presented here start from the second postaward year for each cohort. Hence, the series for the 2001

Chart 10.
Cumulative years per 1,000 awardees in NSTW by the end of the first, third, and fifth years after SSI award: Total and excluding DI beneficiaries, by award cohort
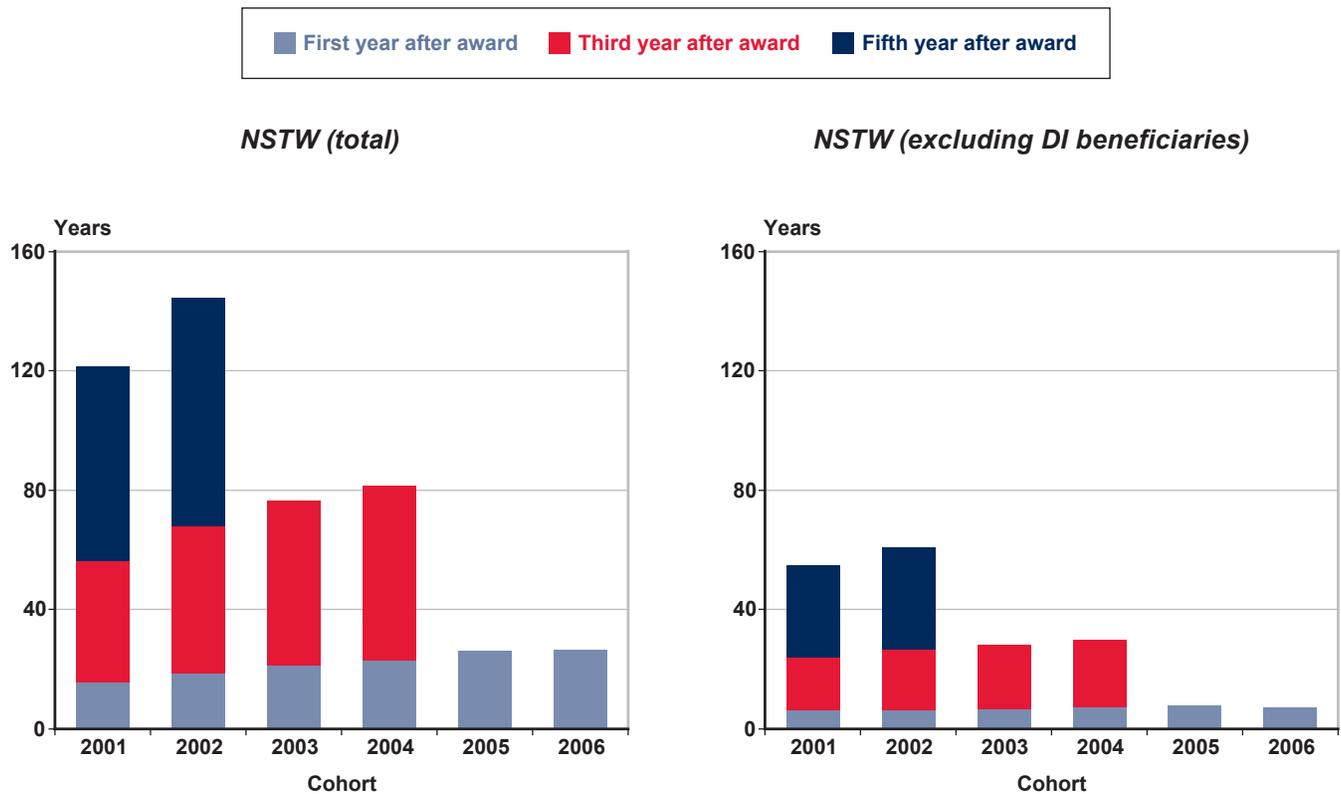
SOURCE: Authors' calculations based on the 2008 DAF.

NOTES: Cohorts are tracked through December 2007. By then, members of the 2003 and 2004 cohorts had not reached their fifth year after award and members of the 2005 and 2006 cohorts had not reached their third year after award.

Data for all cohorts are weighted to the 2001 cohort's age-sex composition.

cohort starts in 2003. We define employment as having annual earnings of at least $1,000 (adjusted to 2007 wage levels).

Chart 11 shows cumulative percentages of the 2001 cohort that obtained any employment, by age group. By 2007, 18.6 percent of all the recipients in that cohort had worked in at least 1 year since the second postaward year. Not surprisingly, cumulative employment percentages for the two youngest groups were much higher than for all older groups: 39.4 percent and 27.1 percent of those aged 18–19 and 20–39 at award, respectively, had worked in at least 1 year by 2007, compared with 12.2 percent, 6.4 percent, and 4.2 percent for those aged 40–49, 50–61, and 62–64 at award, respectively.

Chart 12 presents inflation-adjusted average annual earnings for members of the 2001 SSI award cohort who had any earnings. Average earnings increased rapidly from the second year after award (2003) through 2007 for recipients in the three youngest age groups, but the increase for those in the two older groups was modest. The continued rise in average annual earnings among all recipients with positive earnings was likely due in part to recipients with higher earnings continuing to work longer than did those with lower earnings. Another possible factor is that a worker's earnings generally rise with age, particularly before age 50.

Summary and Conclusions

Our analysis illustrates that cumulative rates of employment and work-incentive use among SSI recipients over a multiyear period substantially exceed the annual or monthly cross-sectional estimates. For instance, we find that 19.4 percent of the 2001 SSI award cohort had had PCE in at least 1 year by the end of 2007. By contrast, only 7.9 percent of working-age SSI recipients had earnings from work in the month of December 2007, according to annual statistics published by SSA (2008). Similarly, we find that 9.8 percent of the 2001 SSI award cohort had attained NSTW in at least 1 month by the end of 2007, including the 8.4 percent who maintained their SSI eligibility under Section 1619(b). The latter figure exceeds the published cross-section figure for 1619(b) participation in December of every year from 2001 through 2007 and almost quadruples the largest single cross-section figure for that period (2.2 percent in December 2007).

Chart 11.
**Cumulative percentage of 2001 SSI awardees attaining paid employment, by age at award, 2003–2007**
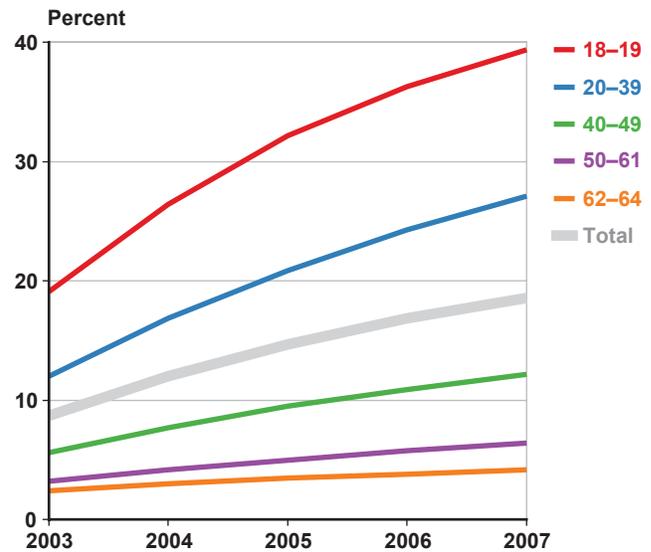
SOURCE: Authors' calculations based on matched 2008 DAF and MEF data.

NOTES: Employment is defined as having annual earnings of at least $1,000 (adjusted to 2007 wage levels).

Cumulative employment rates are calculated from the beginning of the second calendar year after award through the given calendar year.

Chart 12.
Average annual earnings among members of the 2001 SSI award cohort with positive earnings, by age at award, 2003–2007 (in 2007 dollars)
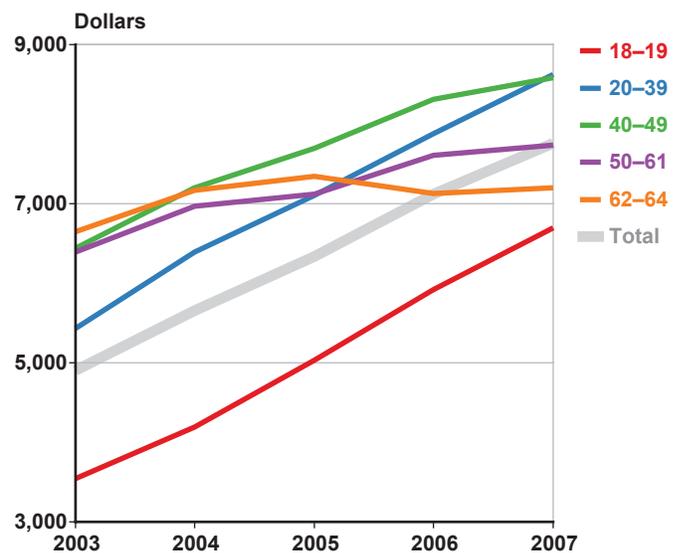
SOURCE: Authors' calculations based on matched 2008 DAF and MEF data.

The differences between the long-term cumulative statistics and the cross-sectional monthly statistics are not surprising because they describe beneficiary activities from two different perspectives. The cross-sectional statistics contain all current recipients in their denominators—including millions of recipients who have been on the rolls for many years and failed to work or use work incentives in the past—and count recipients with PCE or 1619(b) status in a single month only. The cumulative statistics include in their denominators only those recipients who have been on the SSI rolls for no more than 6 years and account for all recipients who achieved PCE or 1619(b) status during any month of the 6-year period. The higher numbers for the long-term cumulative statistics do not imply that more recipients work than the monthly statistics suggest. Instead, they offer a more complete picture—one that is important for understanding the dynamic process of finding work.

A substantial number of SSI awardees receive DI benefits, although their initial DI award might not coincide with their initial SSI award. (Our award cohorts exclude persons who receive SSI only during the 5-month DI waiting period; all others are included.) We find that more than 30 percent of the 2001 SSI award cohort received DI benefits during their award year, and others received DI benefits in subsequent years. We also find that nearly half of the recipients who had at least 1 month in NSTW or 1619(b) status were receiving DI benefits in those months.

Young recipients were much more likely to have their SSI payments suspended or terminated because of work for at least a month than were older awardees. In the 2001 award cohort, 19.2 percent of recipients aged 18–19 at award and 14.9 percent of those aged 20–39 at award achieved NSTW, compared with only 6.3 percent, 3.7 percent, and 1.8 percent of recipients aged 40–49, 50–61, and 62–64 at award, respectively. Although persons aged younger than 40 at award represented only 43.4 percent of the cohort, they accounted for about 73 percent of the NSTW months through 2007.

Only a small minority of persons who gave up SSI payments because of work enrolled in employment services from providers eligible for payment from SSA, and most of those who achieved 1619(b) status and NSTW had not enrolled in such services. Although the employment rates among service enrollees were well above the rates for the 1998 award cohort as a whole, the more favorable outcomes for

service enrollees may reflect, at least to some extent, their relatively high interest in higher earnings—a factor that likely explains their enrollment in services in the first place. TTW might therefore have expanded use of these services by those who would have forgone payments for work without the additional help. Outcomes for such recipients may have offset some of the costs, but only if they were higher than the outcomes the same recipients would have achieved without TTW. Our analysis does not provide evidence about the extent to which SSA payments for services were offset by lower benefit expenditures.

We have not produced statistics on another interesting dimension of the extent to which SSI recipients forgo their payments for work: the number of months in which they remain in nonpayment status following the initial suspension or termination of payments for work. Schimmel and others (2013) provided such statistics for persons who experienced their first NSTW month in 2001—separately for those in DI nonpayment status (or otherwise ineligible for DI benefits) and for SSI-only recipients or those receiving concurrent SSI and DI benefits.[22] They found that 45 percent of beneficiaries with concurrent benefits were in NSTW 12 months later, gradually declining to 30 percent at 60 months and 20 percent at 96 months. They also found that SSI-only recipients typically returned to current-pay status more quickly; slightly less than half were in nonpayment status for more than 1 month and 27 percent were in that status at 12 months, as were 15 percent at 60 months and 12 percent at 96 months.

Comparison with Long-Term Cumulative Statistics for DI Award Cohorts

In qualitative terms, the long-term cumulative statistics presented here are similar to the cumulative statistics produced by Liu and Stapleton (2011) for DI award cohorts. Quantitative comparisons are more difficult to make, however, because of differences between SSI's and DI's work incentives and differences in beneficiary characteristics. For example, although more SSI recipients had their payments suspended or terminated because of work in at least 1 month than did DI beneficiaries, that might simply reflect the fact that new SSI awardees tend to be younger than DI awardees, and the earnings levels that trigger the suspension of benefits differ between SSI and DI.

Both sets of statistics show that the percentage of awardees that eventually forgoes payments because of work (a long-term cumulative statistic) is far higher

than the percentage that forgoes payments because of work in a given month (a monthly statistic), and that relatively young awardees account for a large portion of those who forgo payments because of work. For both DI and SSI, the long-term statistics show that many recipients work without having their payments suspended, even temporarily. For instance, although 19.4 percent of the 2001 SSI award cohort had PCE in at least 1 month by 2007, only 9.8 percent had their payments suspended or terminated because of work for at least a month. Functional limitations and declining health might have prevented recipients from earning enough to stop receiving payments, but perhaps many of those recipients would have done so if more assistance or stronger work incentives had been available.

In addition, both sets of statistics show that a large majority of those awardees who find work and earn enough to forgo all or (in the case of SSI) part of their payments do so in the first 5 years after their award. For example, for the 1996 SSI award cohort, the cumulative percentage with at least 1 month in 1619(b) status by the end of the fifth year after award, 8.9 percent, is equal to 77 percent of the corresponding percentage by the end of 2006, the 10th full year after award. Stapleton and others (2010) found that 4.8 percent of the 1996 DI award cohort had at least 1 month of suspended benefits for work by the end of the fifth year after award, also equal to 77 percent of the comparable figure at the end of 2006.

Policy Implications

Cumulative statistics on employment and work-incentive use by cohorts of SSI and DI beneficiaries paint a substantially different picture than do annual or monthly statistics—not because more beneficiaries are working than the short-term statistics suggest, but because the long-term statistics provide richer information on their work efforts. Compared with the cross-section statistics, the cumulative statistics show that many more awardees are working and on the margin of earning enough to give up some (in the case of SSI) or all of their cash payments at some point after they enter the DI or SSI rolls; that they are much more likely to be on that margin in the first 5 years after award; that those who are young at entry are also much more likely to be on that margin; and that many who work and forgo payments do not use SSA-financed employment services. Cumulative statistics also show that the share of recipients that uses a program work incentive at some point after program

entry is much larger than the very small share that is using the incentive in a given month or year; that is, those who use these program features are a substantial, rather than tiny, minority of all recipients. Of course this does not mean that the work incentives had their intended effect of helping recipients earn enough to give up their payments; we do not know what the employment and earnings of recipients would have been in the absence of the incentives, or under alternative work incentives.

Compared with the cross-section statistics, the cumulative statistics also reveal a major challenge to efforts to reduce program costs by making the work incentives more attractive, such as those implemented as a result of the Ticket Act. Such initiatives are likely to increase the use and cost of work incentives to the considerable number of recipients who already earn enough to forgo some or all of their payments. Findings reported by Stapleton, Mamun, and Page (2014) illustrate this point: The introduction of TTW induced more young DI-only beneficiaries to use employment services but had little or no impact on the number of months in which they gave up their benefits for work.[23] Similarly, SSA is testing the Benefit Offset National Demonstration, an initiative that will allow many DI beneficiaries who would otherwise earn enough to give up their benefits for work to retain a portion of those benefits without having to reduce their earnings. Proposals to raise the SSI income and asset disregard thresholds, which have not been adjusted for inflation since the program's 1974 inception, might make work more attractive for many SSI recipients, but would also increase program costs for all recipients who already use the earned-income exclusion.[24] Targeting work-incentive enhancements toward individuals who are unlikely to forgo their payments for work under the current incentives would improve the prospects for reductions in benefit costs, but such targeting is likely to encounter administrative and other challenges.

There are, of course, other important reasons to consider making the work incentives more attractive to disability program participants. Most notably, policymakers may wish to support the efforts of people with disabilities to be productive members of society; to help them share the fruits of the American economy; and to enable them to escape from the economic hardships that many (especially those receiving SSI) will otherwise experience.[25] Our findings imply that achieving these policy objectives without increasing disability program costs will be challenging.

Notes

[1] The new regulations made TTW more financially attractive to providers of employment services by (1) lowering the level of recipient earnings needed for the provider to be eligible for payments, (2) increasing the total value of potential payments to providers, and (3) reducing the administrative burden for participating providers (Altshuler and others 2011).

[2] In 1997, Congress grandfathered SSI eligibility for noncitizens who had entered the country before PRWORA's enactment. For a description of the SSI provisions of PRWORA and subsequent legislation, see Schmidt (2004).

[3] The SGA level for those determined to be blind is higher—in 2014, it was $1,800. Impairment-related work expenses, wage subsidies, and some other expenditures can be used to offset earnings for purposes of determining SGA.

[4] In 2014, the SSI program's definition of countable income, which disregards $1 out of every $2 of earned income, implied that an individual with income from wages only could earn up to $1,527 a month before SSI payments would be suspended, compared with $741 for an individual with nonwage income.

[5] In 32 states and the District of Columbia, the application process for SSI and Medicaid is combined, and a person qualifying for SSI is automatically eligible for Medicaid. In 7 states, the same rules used by SSA to determine eligibility for SSI are used to determine Medicaid eligibility, but a separate application is needed. The remaining 11 states use their own means tests for Medicaid, and small shares of SSI recipients in those states do not qualify.

[6] The 1619(b) income threshold is determined annually and depends on the state's Medicaid expenditures for SSI recipients, which in 2014 ranged from $26,420 in Alabama to $56,786 in Alaska. For further details on SSI (and DI) work incentives, including Sections 1619(a) and 1619(b), see SSA (2014a).

[7] Before the Ticket Act, SSA paid a few nonstate VR agency providers for services delivered to a very small number of recipients under its Alternative Participant program, which was phased out when TTW began.

[8] A small minority of DI beneficiaries qualify as the disabled adult child or the disabled widow(er) of a Social Security beneficiary. Technically, most disabled adult children and disabled widow(er)s are not DI beneficiaries, because the primary beneficiary (parent or deceased spouse) qualifies under Old-Age and Survivors Insurance. Following common practice, however, we include all disabled adult children and disabled widow(er)s when we refer to DI beneficiaries.

[9] The term "joint beneficiaries" describes a subset of individuals who receive DI benefits and SSI payments concurrently; specifically, it refers to persons who initially receive only SSI payments during the 5-month DI waiting period and then continue to receive an SSI payment after DI benefits start.

[10] "New awards" included those to applicants who previously applied and were awarded SSI payments, but had since become ineligible and had to reapply.

[11] The DAF was previously called the Ticket Research File.

[12] Some SSI recipients who are deemed eligible for VR services may ultimately decide not to complete an Individualized Plan for Employment or not to follow their completed plan. Identifying enrollment for VR services based on eligibility may therefore overestimate actual receipt of VR services and the level of human capital enhancement the VR system provides to SSI recipients.

[13] Because RSA-911 data capture 90 percent of closures within 5 years of application, and the median time in the VR program is 465 days for those with employment and 667 days for those without employment (Government Accountability Office 2005), service enrollment statistics for 2005 and 2006 also may be underestimated.

[14] If a successful age-18 redetermination occurred before the recipient's 18th birthday, we assign the recipient to a cohort based on the first month in which an SSI payment was received after turning 18. If a successful age-18 redetermination (or a successful adult reapplication) occurred after the recipient's 18th birthday, we assign the recipient to a cohort based on the first month in which an SSI payment was made after the decision. Some former SSI child recipients had received SSI payments as adults (aged 18 or older), but were not found in the administrative records of age-18 redeterminations. Of those, recipients who turned 18 before 1997 are assigned to a cohort based on the first month in which an SSI payment was made after turning 18, because the age-18 redetermination process was not fully implemented before 1997. Remaining recipients who turned 18 in 1997 or later are assigned similarly if they had not been on the SSI rolls in the month before turning 18, suggesting that they had reapplied for SSI payments as adults. If they were on the SSI rolls in the month before turning 18, they are assigned to a cohort based on the first month in which an SSI payment was received after turning 19.

[15] Specifically, beneficiaries are categorized by sex and age group (ages 18–19, 20–39, 40–49, 50–61, and 62–64), and each age-sex group is assigned a weight equal to the proportion of the 2001 national cohort it represented. We do not adjust for changes in the composition of other personal characteristics such as impairment type. Such changes seem to occur gradually relative to changes in policy or the economic environment. Adjusting for age already accounts for some of the changes seen in impairment types.

16 See Schimmel and Stapleton (2011) and Schimmel and others (2013) for more details on how the NSTW measure was developed. Various NSTW measures, including the measure used in this analysis, have been developed and refined over the years, and they may be revised in the future. The NSTW measure we use was developed for the 2008 DAF.

17 SSA usually terminates SSI eligibility if a recipient stops complying with SSI reporting requirements for 12 months. When applicable, DI eligibility continues unless there is another reason for DI termination.

18 There are also circumstances under which a recipient of concurrent benefits has his or her DI benefit suspended or terminated because of SGA, but remains eligible for an SSI payment under Section 1619(a). We have not produced statistics on recipients in this mixed status.

19 Muller (1992) notes that earnings reported to the IRS sometimes include those for work performed in a different year, such as delayed compensation, commissions, and vacation pay. This likely creates some errors in the timing of employment and earnings estimates for the second year after award and later, but such errors are less likely to affect cumulative statistics.

20 The difference between the cumulative percentages for NSTW and 1619(b) status implies that some SSI recipients entered NSTW without first going through 1619(b) status, which might happen for several reasons. For example, their earnings might exceed the 1619(b) threshold, they might prefer to avoid asset restrictions or reporting requirements, or they might be unaware of the Section 1619(b) incentive or misunderstand its value.

21 For more detailed results, see Ben-Shalom and others (2012).

22 Schimmel and others differentiate between beneficiaries who have assigned their ticket and those who have not, and they do not report statistics for the combined groups. The statistics reported here are for persons who had not assigned their ticket—a large majority of those in the sample. Statistics for those who had assigned their ticket are similar.

23 The study did not produce estimates for SSI recipients, for DI beneficiaries on the rolls many years prior to TTW, or for older beneficiaries. The estimates are for the period prior to the substantial changes to TTW regulations that were implemented in 2008.

24 See Social Security Advisory Board (2009) for further discussion of the earnings disregard and other SSI provisions that are not indexed for inflation.

25 See Wright and others (2012) for poverty statistics on DI and SSI beneficiaries and She and Livermore (2007) for statistics on the material hardships beneficiaries experience.

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