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Articles

This article describes the outcomes of the redetermination of Supplemental Security Income (SSI) eligibility when a child recipient reaches age 18. Statistics on the characteristics of youth whose eligibility is redetermined are presented using 8 years of administrative data, and the relationship between these characteristics and both an initial cessation decision and a successful appeal or reapplication for SSI are discussed.

Retirement Research Consortium: Overview and Surveys of Research Accomplishments at the Three Centers

This article provides an overview of the Retirement Research Consortium (RRC) from the Social Security Administration's perspective, including a brief history of the development of the RRC, a discussion of the aims of the RRC, and some thoughts on its future. The mission of the RRC is to plan and conduct a broad research program to develop Social Security and retirement policy information to assist policymakers, the public, and the media in understanding the issues. The RRC has been a remarkably successful extra-mural research venture that has advanced the knowledge base on Social Security and retirement issues, trained new scholars to become the next generation of Social Security and retirement policy experts, and provided objective, research-based input to the policy-making process.

This article reviews the research contributions of the Center for Retirement Research at Boston College over its 10-year history and their implications for Social Security and retirement income policy in three major areas: (1) Social Security's long-term financing shortfall, (2) the adequacy of retirement incomes, and (3) labor force participation at older ages as a means to improve retirement income security. The center has received substantial funding support from the Social Security Administration (SSA) in each area and has also successfully leveraged SSA's investment by attracting funding from other sources.

Other

THE AGE-18 REDETERMINATION AND POSTREDETERMINATION PARTICIPATION IN SSI

by Jeffrey Hemmeter and Elaine Gilby*

Youth who initially become eligible for Supplemental Security Income under the definition of disability for children must have their eligibility redetermined upon attaining age 18, using the definition of disability for adults. Based on 8 years of administrative data from the Social Security Administration, this article provides statistics on the average age-18 redetermination outcomes over time by various individual characteristics. We find little change in the initial cessation rate for all groups over time, although there are large differences in initial cessation rates between disability type and other characteristics. The majority of redeterminations result in initial continuances. The article also examines data on individuals who successfully appeal an initial cessation determination and/or who successfully reapply for payments after losing eligibility. Many youth initially found not to meet the definition of disability for adults successfully appeal that decision, and a nontrivial number who lost eligibility successfully reapply at a later date.

Introduction and Background

The landmark Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA, Public Law 104-193) had substantial impacts on a number of federal programs, including the Supplemental Security Income (SSI) program. SSI provides monthly, means-tested cash payments to aged, blind, and disabled persons with low income and assets. Among other changes, the PRWORA changed the definition of disability for children who apply for SSI from an impairment (or combination of impairments) of "comparable severity" to one that would disable an adult, to the current and more restrictive "marked and severe functional limitations." This has been interpreted by the Social Security Administration (SSA) as requiring an impairment(s) that meets or medically equals the severity of a listing in SSA's Listing of Impairments (the listings)[1] or that functionally equals the listings. The PRWORA also required SSA to redetermine the eligibility of child SSI recipients who attain age 18 using the adult program rules, in which eligibility is based on the inability to perform substantial gainful activity (SGA).[2] An unfavorable initial determination, where the child is determined not disabled under the adult standard, can eventually lead to a cessation of payments if upheld through an

appeals process. Throughout this analysis, we refer to an initial determination that the youth is not disabled, as defined by SSA's legislative and regulatory requirements,[3] as an initial cessation determination or an adverse determination, reflecting the first decision made in the youth's age-18 redetermination.

In this study, we provide a description and analysis of the results of the PRWORA and other regulatory changes, using administrative data to summarize the characteristics of those who go through the age-18 redetermination and the relationship of those characteristics to the initial redetermination decision and later program participation. This will provide a useful baseline for any discussion of the longer-term outcomes of these youth and their transition to adulthood. We find little change in the initial cessation

Selected Abbreviations	
ALJ	Administrative Law Judge
CE	consultative examination
CDR	continuing disability review
DDS	disability determination services
DI	Disability Insurance
FTC	failure to cooperate

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rate for all groups over time, although there are large differences in initial cessation rates between disability type and other characteristics. Consistent with previous studies, the majority of redeterminations result in initial continuances. However, many youth initially found no longer categorically disabled at age 18 successfully appeal that decision, and a nontrivial number who lost eligibility successfully reapply at a later date.

The next section of this article presents the legislative and regulatory history and provides background on the age-18 redetermination process. We then describe the literature on age-18 redeterminations and the implications for the current study. The data, variables, and methodology are detailed next, and the following section provides descriptive statistics for the initially redetermined population. We then discuss the statistics on the initial redetermination outcome, focusing on adverse determinations. The odds of successfully appealing the initial adverse determination or reapplying for SSI are then examined. We conclude with a discussion of the findings, possible policy implications, and suggestions for future work. The Appendix provides additional tables.

Program History and Description

The SSI program provides monthly, means-tested payments to qualifying aged, blind, and disabled individuals. Before 1996, the Social Security Act provided that a child (an individual who has not attained age 18) was categorically disabled if he or she had an impairment that was of *comparable severity* to an impairment that would disable an adult.[4] However, from 1974, when the SSI program began, to 1990, a child was determined to be disabled under SSA's regulations only if he or she had an impairment (or a combination of impairments) that met or medically equaled the criteria of a listing in SSA's listings. Because this differed from the adult rules, which provided for an assessment of overall functioning and allowed many adults to qualify with

impairments that did not meet or medically equal the listings, the U.S. Supreme Court ruled that SSA's childhood regulations did not properly interpret the *comparable severity* standard in the law (*Sullivan vs. Zebley*).[5]

In response, SSA issued two new policies for evaluating disability in children: (1) functional equivalence—a new standard that considered functioning at the listings step of the disability analysis; and (2) Individualized Functional Assessment (IFA)—a new standard for determining disability in children whose impairments did not meet, medically equal, or functionally equal the listings.[6] The IFA was considered to be one of the primary factors leading to a dramatic increase in the growth of the child SSI program in the 1990s.[7] This growth, as well as allegations of fraud and other issues (Auxter and others 1999), paved the way for changes in the eligibility rules of the child SSI program to be included in the PRWORA. However, reports of fraud were found to be exaggerated (General Accounting Office 1995).

Among the changes implemented by the PRWORA was a revised definition of disability that removed the *comparable severity* standard and required individuals who have not attained age 18 to have impairments that result in *marked and severe functional limitations*. Congress also required SSA to remove the IFA policy from its regulations. Another important change was the addition of a new provision in the Social Security Act requiring the redetermination of medical eligibility within a year after the individual attains age 18 under the definition of disability for adults who file new claims, that is, inability to perform any SGA by reason of any medically determinable impairment that has lasted, or can be expected to last, a continuous period of at least 12 consecutive months or to result in death.[8] This redetermination is treated as a new application for SSI.

The PRWORA also required SSA to redetermine the eligibility of about 288,000 children who were allowed under the IFA rules or under the listings, which reference "maladaptive behaviors." In all, roughly 100,000 of these children lost eligibility; the remaining were found to have disabilities that met the new definition of disability for children.

In addition to the disability requirement, recipients (both adults and children) must also have limited financial resources, which can include income and assets deemed from the parents of child recipients.[9] Countable assets must be at or below defined levels, currently $3,000 for couples and $2,000 for

individuals. After the first $65 of earned income and $20 of unearned or earned income, SSI payments are reduced $1 for every $2 of earned income and $1 for every $1 of unearned income until payments are reduced to zero.[10] In addition to the federal payment, most recipients are also eligible for Medicaid if they receive SSI. Many states also provide a supplement to the federal SSI payment.

Children eligible for SSI payments in the month before they reach age 18 are required to go through the redetermination process.[11] SSA's field offices collect disability and functional reports—including the names and addresses of medical sources for the previous year—and work, education, rehabilitation, and support services received. Completed case files are forwarded to a state agency (the disability determination service, or DDS), charged with making the initial determination for SSA. The DDS obtains evidence and makes the determination whether the individual's condition satisfies the adult definition of disability using SSA's rules. If an individual could not be contacted by the field office and insufficient medical information has been collected to make a decision, payments can be ceased for failure to cooperate (FTC).[12]

If the individual is dissatisfied with the determination, he or she has the right to appeal. There are three levels of appeal within SSA: (1) reconsideration (at the DDS), (2) Administrative Law Judge (ALJ), and (3) Appeals Council. If the individual is still dissatisfied at the end of this process, he or she may appeal through the court system, starting with a federal district court and (potentially) ending with the U.S. Supreme Court. Court appeals are relatively rare, and U.S. Supreme Court appeals are extremely rare. At each level of the appeals process, the individual has 60 days in which to appeal. The individual may also request continuation of benefits at the reconsideration and ALJ-appeal levels, but has only 10 days in which to make this request.[13]

The requirement of the age-18 redetermination was intended to moderate the growth of SSI and ensure only those continuing to meet the medical eligibility for the program remained on the rolls. In 1997, when age-18 redeterminations were extended to the full SSI population, 54 percent of age-18 redeterminations resulted in an initial cessation decision.[14] This has since declined to 46 percent of age-18 redeterminations in 2006 when 40,640 young adults underwent an age-18 redetermination. About half of initially ceased determinations are appealed. Overall, about a third of all age-18 redeterminations result in a final cessation decision (SSA 2007b).

Review of Previous Research and Research Hypotheses

Very little is known about the effect these redeterminations have on long-term outcomes, such as future program participation or employment (Social Security Advisory Board 2006). Measurement of many long-term outcomes could be problematic with measures only a few years after the age-18 redetermination. For example, many children (with and without disabilities) may have gone into postsecondary education or have an extended period of secondary education, reducing the likelihood of observing employment before attaining age 22. This makes it difficult to fully understand how the age-18 redetermination will affect these youth. Several studies, however, have analyzed these outcomes in the short and intermediate term. Those studies provide a springboard for the hypotheses we consider in this study.

Previous work by Rogowski and others (2002) analyzing the characteristics of SSI recipients affected by the PRWORA employed an early cohort from Social Security administrative records that was likely not prepared for the changes in program rules brought about by the PRWORA and may have behaved much differently from, or were more adversely affected than, later cohorts. The authors found that about 45 percent of child SSI cases received an initial cessation determination and that there was a relatively low rate of reapplication within 12 months. They did, however, find varying rates of initial cessation determinations by type of disability.[15]

Loprest and Wittenburg (2007) and Hemmeter, Kauff, and Wittenburg (2009) have shown that those youth who leave SSI after age 18 have poorer educational backgrounds than those who remain on SSI, potentially reflecting lower opportunities for postsecondary education or employment. As a result, individuals may return to the SSI program because of a combination of worsening health status and their inability to support themselves, that is, inability to work and earn above SGA. However, these authors were estimating the characteristics of SSI participants before and after attaining age 18 in the National Survey of SSI Children and Families and did not have access to information on age-18 redeterminations; thus, they could not attribute post-age-18 outcomes to redetermination decisions.

These studies of short- and intermediate-term outcomes suggest that the cessation of payments may have long-term consequences for many SSI youth. Although the initial determination (and the appeals process) has determined that these individuals are capable of SGA, many of these youth have difficulty finding employment (Loprest and Wittenburg 2007). For some youth, health-care access via Medicaid is lost once they are determined ineligible for SSI (Loprest and Wittenburg 2007). This may result in their health worsening to the point of becoming eligible for SSI payments again.

There is some evidence that the age when a child initially becomes eligible for SSI may be correlated with later education and employment outcomes (Loprest and Maag 2007); this may give rise to different redetermination outcomes. Similarly, those persons initially allowed at earlier levels of the adjudication process or who did not require a consultative examination (CE) may have more clearly identifiable disabilities, and thus may be more likely to be allowed to continue into the adult SSI program. Previous research (Hemmeter, Kauff, and Wittenburg 2009) has shown that the presence of earnings before the age-18 redetermination is correlated with not receiving SSI at age 19. It may also be inversely correlated with return to SSI, since adult eligibility depends on the inability to work, and these youth have demonstrated some ability to work.

Previous work has also shown that judicial and legislative changes, such as the *Zebley* decision and the PRWORA, have had a significant effect on SSI participation (Kubik 1999; Brady, Seto, and Meyers 1998). Although the redetermination of childhood disability decisions as required by the PRWORA effectively resulted in all children receiving SSI at the age-18 redetermination being eligible under the current definition of disability, there may remain some differences between youth allowed during periods with different eligibility requirements. For example, some children (or their parents) who would not have initially applied under the more strict disability definition may have been induced to apply for SSI during the *Zebley* era. Once receiving SSI, however, they may not have exited the program rolls for a variety of reasons. Some of these selection differences may result in youth allowed under different eligibility requirements being more or less likely to be ceased as a result of the age-18 redetermination.

We focus on two major changes to child eligibility requirements: the *Zebley* decision and the PRWORA.

Although there were several other changes in the disability regulations over the years, we focus on these two regulations as the major changes in this period. The *Zebley* decision in 1990 led to more initial allowances of youth to the SSI program, especially among youth with mental disorders. Additionally, SSA altered the way mental impairments were evaluated in 1990, making it more likely for those persons with attention deficit hyperactivity disorder (ADHD) and other developmental and mental disorders to receive SSI. Although these two changes occurred in 1990, they were not fully implemented until 1991, which we use later in identifying the periods under study.

The second major change we consider is the PRWORA, which occurred in 1996. The PRWORA rules were not finalized until 2000; because of this, there may be differences between those allowed under the interim rules and the final rules. It should be noted that the vast majority of children (roughly three-fourths) receiving SSI payments were not affected by PRWORA, that is, there would have been no difference between the eligibility requirements when they first applied compared with other years. Because of this, differences across these cohorts may suggest unobserved factors other than the policies themselves, which have effects on the age-18 redetermination. However, children with the disorders specifically targeted by *Zebley* and PRWORA during these time periods may be differentially affected by the age-18 redetermination.

Additional Hypotheses

In addition to hypotheses suggested by previous studies and the legislation, we raise a few additional ones here. We believe that less severe disabilities (that is, disabilities that, although still meeting the eligibility criteria, do not cause as much of an interference with activities of daily living) may not have as great an impact on an individual's ability to perform SGA. For example, an individual with ADHD might have a less severe disability than an individual with Down's syndrome. In addition, there may be slight differences in the threshold for a particular disability between the child and adult listings. As a result, there might be more negative determinations for individuals with a specific type of disability.

Many youth have had a continuing disability review (CDR) before attaining age 18, where medical eligibility has been previously reassessed, subject to a medical improvement standard; this might have an effect on the likelihood of future SSI participation. Those

individuals who have had a prior CDR have already been determined to have a continuing disability and may be more likely to continue SSI participation or appeal or reapply after an initial determination of not being disabled. Those who have not had a CDR before reaching age 18 may thus be more likely to initially have an adverse determination, all else equal. However, because CDRs are typically conducted on individuals who are likely to recover from their disability, the presence of a prior CDR could indicate a less severe disability, as defined earlier, increasing the likelihood of an adverse determination.[16] On the other hand, those who remain eligible for SSI after a CDR (and are thus in our sample) are likely to be "more" disabled, all else equal. These individuals would thus lower the adverse determination rate for individuals with prior CDRs. These selection issues make it difficult to determine what the effect of a prior CDR will be on the likelihood of an initial cessation determination. Conditional on an initial cessation determination, it is unclear whether having a prior CDR would have a further effect on the likelihood of future SSI participation.

Certain youth may be less likely to cooperate during the age-18 redetermination and therefore their payments are initially ceased for that reason, even though SSA might have found that they were still disabled had they cooperated. Rogowski and others (2002) found that youth with infectious and parasitic diseases, schizophrenia and other psychiatric disorders, and "other" unlisted disabilities had a higher than average rate of initial cessation determinations because of FTC. If such individuals find that they are unable to provide for themselves at a later time, they may appeal the initial decision (within 60 days) or reapply.

Additionally, some youth have disabilities that do not directly correspond to the adult listings, for example, growth impairment. These individuals may be more likely to appeal or reapply for SSI than those who did not meet the adult medical eligibility requirements, if other factors contribute to their inability to perform SGA. Other factors, such as sex, may also impact the initial redetermination decision through the interrelationship between, for example, sex and disability type. Factors such as the year of the redetermination may also affect the youth's postredetermination decision to appeal or reapply for SSI because of secular trends in opportunities.

Our analysis addresses some of the shortcomings earlier research had in addressing these issues. Although our analysis does not include as extensive information on personal characteristics as can be found in the National Survey of SSI Children and Families, we use Social Security administrative data from a long time period and from cohorts that would have had time to adjust to, and prepare for, the changes resulting from the PRWORA. The analysis is broken out by certain individual characteristics, shedding light on how different groups fare during the redetermination, and we show how the initial redetermination experiences of these groups have changed over time using yearly cohorts of redeterminations from 1998 through 2005. Information on appealing the initial redetermination decision and reapplication to the SSI program can give a fuller understanding of how the age-18 redetermination process changes the composition of the SSI caseload, and it can identify groups of youth that might need additional help in becoming self-sufficient as they transition to adulthood.[17]

Data Sources and Methodology

The data we use for this project are from Social Security administrative records. The Office of Quality Data Management within the Office of Quality Performance maintains a record of all age-18 redeterminations.[18] For the period under study, from January 1, 1998, through December 31, 2005, we obtained an extract of this file including 409,260 age-18 redetermination decisions.[19] Only redeterminations for which an initial decision has been made are included in this file (and thus in our population). The file contains information on the result of the initial redetermination decision as well as the date of the decision, reason for the decision, and disability diagnosis. Similar information for each appeal through the Appeals Council level is also contained in the file.[20] We matched these records to SSA's Numident file to obtain date of birth, date of death, and sex. Longitudinal data from the Supplemental Security Record, which contains administrative data on SSI participation, was merged to these records to obtain age at first SSI receipt. If the sex of the person was missing from the Numident file, we used the sex designation from the Supplemental Security Record.

Additionally, we merged information from SSA's Disability Research File, maintained by the Office of Disability Programs, into the data. The file combines data from multiple administrative sources and contains information on applications and appeals for SSI and DI benefits. Detailed earnings records from the Master Earnings File were also merged into the file. Beginning in 1978, earnings information from an individual's W-2 Form is provided each year to SSA,

with the most recent year's complete data (at the time of this research) from 2006. Because some individuals may be self-employed or have covered earnings not taxed under the Federal Insurance Contributions Act (FICA), we use the total earnings reported on the W-2—including noncovered and self-employment income, not just FICA-taxable earnings—in our analysis. Each year of earnings data is associated with the age an individual turns in a given year because W-2s reflect yearly information. If an individual turned 17 in 2003, then the 2003 earnings data are associated with age 17.

Statistical Method and Approach

In addition to descriptive statistics about the sample population, we use logistic regression analyses to estimate the effect of the explanatory factors on the probability of an adverse determination. In addition to a pooled regression with yearly fixed-effects, separate regressions are run on each calendar-year redetermination cohort to determine if the effects of the explanatory factors change over time. This model can be expressed as—

$$(1) \quad \ln \frac{P(Y_i = 1)}{1 - P(Y_i = 1)} = \alpha + \sum_{k=1}^{K} \beta_k X_{ik} + \varepsilon_i.$$

Here, $Y_i = 1$ indicates an adverse determination for individual i; the X_i are characteristics identified shortly; the β_k are estimated coefficients; and ε_i is an error term. We express the effects as odds ratios (exponentiated coefficients). Additionally, we use a similar model to estimate the effect of the explanatory factors on postredetermination SSI participation: successfully appealing an initial adverse determination or successfully reapplying for SSI.

The control variables (X_i) include several programmatic and demographic variables available from administrative records. We identify the following variables reflecting the age-18 redetermination:[21] primary disability, whether or not a CE was requested by SSA, and whether or not the individual had a prior CDR.[22] We also identify information on the youth's age at his or her initial SSI entitlement and the adjudicative level of that award decision. Additionally, we control for sex and the year in which the redetermination occurred. We also include a variable identifying individuals who had annual reported earnings greater than or equal to $250 at age 17. We use this as a proxy for having had a serious work effort. This is roughly the 25th percentile of earnings for sample members with earnings.[23] In models of the appeal of the initial determination or

reapplication to SSI, we also include reason for the initial adverse determination as an explanatory covariate.

We identify the following periods of SSI entry (defined by age at eligibility), which may be of interest: before 1991; from 1991 through 1996 (under new childhood mental disorders listings, other revised listings, and under *Zebley,* but before the PRWORA); from 1997 through 1999 (under the interim PRWORA rules); and after 1999 (under the final PRWORA rules). Other factors that we do not measure, such as the economy, may have also affected participation and may have changed in these time periods as well, confounding any pure policy effect. The yearly fixed-effects will capture some of these effects at the national level, but local effects are not captured. There were also other changes to the listings and regulations that may not be reflected in the estimates for these time frames. We leave further analysis of those changes to future work.

There are several ways to examine a youth's participation in SSI after the initial redetermination decision. The simplest method takes a look at either a successful appeal of the decision or reapplication to the SSI program. This "global" approach is the broadest in the sense that it includes whether or not an initial cessation determination is overturned. We also estimate a multinomial logistic regression model where the possible paths—appeal and reapplication—are separated from each other. Each path is also estimated using separate logistic regression models. These specifications describe the odds of successful appeal or reapplication to SSI after an adverse initial redetermination.

As previous research has shown, appeals of adverse initial redeterminations are common. During this time, individuals may never stop receiving SSI payments.[24] To examine the return to SSI of youth who actually leave the program, we also specify a postappeal reapplication model based solely on those who have not successfully appealed an initial cessation determination and do not have an open appeal. We discuss these models in greater detail later.

Sample Selection

We placed several restrictions on the data, which lead to there being a different number of age-18 redeterminations than the number reported in SSA's Office of the Actuary's *Annual Report of the Supplemental Security Income Program.*[25] These restrictions are listed in Table A-1. We exclude 133 individuals from

the analysis who died before their redeterminations were completed. We also limit the sample to individuals whose age-18 redeterminations occurred between the day of and 3 years after their 18th birthday.[26] This excludes 6,314 individuals (1.5 percent of the remaining redeterminations). Finally, 212 individuals were found to have first received SSI payments outside the age range from birth to age 17. Excluding these individuals from the data resulted in a final sample population of 402,601 youth who had an age-18 redetermination occurring from 1998 through 2005. Of these individuals, 170,376 had an initial decision of not disabled (42.32 percent).

The two postinitial determination options for continued program participation—successful appeal and successful reapplication—require different amounts of time to complete. The appeals process can take many years to complete, and most individuals wait for completion of this process before reapplying for SSI, although some attempt both means of return simultaneously. Because of this, later cohorts most likely have not had enough time to experience the full range of postinitial determination options. To eliminate this censoring issue, our postinitial determination analyses are limited to individuals with 4 years of observed follow-up time—those whose redeterminations occurred during the 1998–2001 period (N = 81,458).[27] We then consider only successful appeals or reapplications within a rolling 4-year period (beginning at the date of the initial redetermination decision for each individual). This method allows enough time for an individual to go through both the appeal and reapplication processes. Additionally, the method we use incorporates most ages commonly suggested as alternative definitions of the child/adult age boundary.[28]

As mentioned earlier, we separately consider post-appeal reapplications. These individuals have not successfully appealed and are no longer eligible to appeal. Because individuals have 60 days to appeal their decision at each level of the appeal process, individuals for whom 60 days have not passed after their final appeal are removed from the sample population. This leaves 62,953 individuals in the reapplication-only analysis.

Descriptive Characteristics of the Age-18 Redetermination Population

We first present the characteristics of the age-18 redetermination population, the outcomes of the determination, and trends of the outcomes. This provides comparability with other studies and will allow for an analysis of trends in the population over time.

Table 1 presents summary statistics of the age-18 redetermination population.[29] A relatively constant proportion of individuals are initially either continued or determined not disabled as a result of these redeterminations (about 57 percent and 43 percent, respectively). This is very similar to the numbers produced by the Office of the Actuary; the difference is due to the selection differences described earlier. The majority of adverse determinations are due to the recipient not meeting the adult criteria for disability—although a sizable number, remaining relatively stable at around 8 percent, were also due to FTC. This is about 3 percentage-points less than what was estimated by Rogowski and others (2002). Although that study used a different data source than the current analysis, the higher number may also reflect differences in the implementation of the redetermination policy.

The largest share of redeterminations was for individuals with mental retardation as their primary disability. However, this share has been declining, as in the general child SSI population. Part of this is likely the result of SSA policy changes and training in the classification of mental retardation and "other" mental disorders. By 2005, individuals with mental disorders other than mental retardation were slightly more common in the age-18 redetermination population than those with mental retardation (37 percent versus 36 percent).[30] Combined, individuals with "other" mental disorders and mental retardation make up over two-thirds of the redetermination population.[31]

The proportion of age-18 redeterminations that first became eligible for SSI during the time period each policy was in effect has shifted as expected. In 1998, the majority of redeterminations (55 percent) were for children who first became eligible from 1991 through 1996 (under *Zebley* rules). This is still the most common time period when these children entered SSI overall, but those who first became eligible after 1996 have become increasingly more common (46 percent, total, in 2005). The proportion of cases that became eligible before 1990 has lessened by about one-third. This movement is natural as individuals who entered SSI in an earlier period age into adulthood.

Well over half of redeterminations are conducted for male SSI participants, similar to the fraction of those in the child SSI population. The share of age-18 redeterminations of youth who became eligible for SSI payments before age 5 has increased over time. The share of redeterminations of recipients who first became eligible at ages 5–12 increased from 1998

Table 1.
Characteristics of age-18 redeterminations, by selected calendar years, 1998–2005 (in percent)

Characteristic	Total	1998	1999	2000	2001	2002	2003	2004	2005
Total number	402,601	41,058	48,561	51,119	48,764	55,115	51,171	52,461	54,352
Total percent	100	100	100	100	100	100	100	100	100
Result and reason for initial cessation									
Continued	57.68	57.21	55.37	55.88	58.59	58.92	59.42	59.51	56.33
Ceased	42.32	42.79	44.63	44.12	41.41	41.08	40.58	40.49	43.67
Failure to cooperate	8.08	6.71	7.78	8.94	8.56	8.55	7.67	7.73	8.41
Does not meet adult criteria	30.82	31.97	32.78	31.74	29.23	29.13	29.71	29.89	32.39
Other reason	3.42	4.11	4.08	3.44	3.63	3.40	3.20	2.87	2.86
Primary diagnosis									
Schizophrenia, psychoses, and other neuroses	2.00	2.08	2.16	2.00	1.99	2.05	1.99	1.88	1.90
Major affective disorders	7.33	5.79	6.10	6.32	6.76	7.46	7.97	8.46	9.27
Other mental disorders	22.42	19.60	20.05	20.52	21.36	22.39	23.60	24.48	26.32
Mental retardation	39.09	40.84	40.43	40.13	40.31	38.87	38.29	38.16	36.42
Muskuloskeletal disabilities	1.37	1.39	1.58	1.40	1.36	1.40	1.31	1.29	1.23
Sensory disabilities	3.93	4.71	4.12	4.14	4.11	3.88	3.75	3.57	3.37
Physical disabilities	14.49	16.13	15.49	15.06	14.61	14.42	13.96	13.81	12.94
Other/uncodable disabilities	9.37	9.46	10.08	10.45	9.51	9.53	9.13	8.35	8.55
Year of initial SSI eligibility									
Before 1991	26.80	39.44	36.44	33.14	29.54	25.09	21.75	18.49	14.75
1991–1996	48.67	55.28	54.16	52.88	51.00	48.98	46.70	43.26	39.53
1997–1999	13.07	5.29	9.40	13.56	15.00	15.32	14.96	14.60	14.51
After 1999	11.45	0.00	0.00	0.43	4.46	10.61	16.59	23.65	31.20
Sex									
Male	60.62	59.27	59.74	60.11	60.49	61.00	60.91	61.59	61.43
Female	39.38	40.73	40.26	39.89	39.51	39.00	39.09	38.41	38.57
Age at initial SSI eligibility									
Younger than 5	17.17	15.07	15.35	16.22	16.84	16.59	17.57	18.90	20.12
5–12	46.71	35.49	42.74	48.82	51.26	51.87	50.81	47.21	43.11
13–17	36.12	49.44	41.91	34.96	31.90	31.54	31.62	33.89	36.78
Earnings ≥ $250 at age 17									
Did not work	79.05	78.36	77.11	75.80	76.08	77.21	79.82	83.12	84.22
Worked	20.95	21.64	22.89	24.20	23.92	22.79	20.18	16.88	15.78
Adjudication level of initial SSI eligibility									
Initial	80.78	80.92	79.87	80.73	81.63	81.21	80.95	80.33	80.63
Reconsideration	4.08	2.99	3.29	3.74	4.45	4.33	4.19	4.52	4.78
ODAR (ALJ or higher)	2.46	1.87	2.24	2.49	1.73	1.92	2.17	3.06	3.98
Unknown	12.68	14.23	14.61	13.04	12.19	12.54	12.69	12.09	10.61
Prior CDRs									
None	55.82	65.57	83.38	79.33	57.01	44.34	39.84	39.86	42.71
Any	44.18	34.43	16.62	20.67	42.99	55.66	60.16	60.14	57.29
Consultative examination requested									
No	38.58	38.86	35.47	37.34	40.44	40.53	40.02	39.48	36.40
Yes	61.42	61.14	64.53	62.66	59.56	59.47	59.98	60.52	63.60

SOURCE: Authors' calculations using Social Security administrative records.

through 2002, but has since declined; the share who first became eligible as a teenager declined from a high of 49 percent in 1998 to 32 percent in the early 2000s. However, this proportion has since risen to 37 percent in 2005. Among the many reasons the average age of first eligibility is dropping may be an increased awareness of disabilities at younger ages and a greater acceptance of mental disorders in the general population.

Over three-quarters of youth undergoing an age-18 redetermination had reported earnings of less than $250 in the year they turned age 17. This proportion has increased from 78 percent in 1998 to 84 percent in 2005. We do not know the reason for this increase, but we do note that there has been a general shift in the age at which youth first achieve significant earnings (Compson 2008). It may also reflect a behavioral response to economic cycles or the result of individuals attempting to ensure a favorable redetermination.

The majority of the redetermination population (80 percent) was originally entitled to SSI at the initial application level. Only 4 percent were allowed at the reconsideration level and 2.5 percent at higher levels, although the share of both of these groups has grown over time. A large minority (13 percent) have an unknown adjudication level.[32] The proportion with no prior CDRs almost halved from 1999 through 2005, from 83 percent to 43 percent. A relatively steady proportion of youth (61 percent) required a CE for their redetermination.

Initial Redetermination Decision

We now turn our attention to the initial redetermination decision. We focus on adverse determinations—those where the youth was found not to have a disability under the adult definition—because these decisions set the stage for later work on postinitial determination participation in SSI.

Descriptive Characteristics

The percentage of age-18 redeterminations initially determined not to be disabled by year and characteristic is shown in Table 2. All disability types, with the exception of other/uncodable disabilities, saw a decrease in the proportion initially receiving an adverse determination over time, although there has been a slight upward movement in 2004 and 2005. Youth with mental retardation and those with sensory impairments were initially determined not to be disabled under SSA's definition at a relatively low rate of about 20 percent. Some of these individuals may

have initially been misclassified (particularly youth with mental retardation); however, the low percentage receiving an adverse determination generally reflects the similar definition of disability between adults and children as well as the small expected changes in the severity of these disabilities. Similarly, only 15 percent of youth with schizophrenia, psychoses, or other neuroses had an adverse initial determination.

Over half of individuals with major affective disorders and over two-thirds of those with "other" mental disorders were initially determined not disabled under the adult definition. Youth with other/uncodable diagnostic codes were the most likely to receive an initial cessation determination, with over 90 percent receiving an adverse decision. The proportion of youth with musculoskeletal and physical disabilities receiving an initial cessation determination was over two-thirds; this share declined about 8 percentage points from 1998 through 2004, but has since risen slightly.

We find that over half of youth originally entitled under *Zebley* (from 1991 through 1996) initially received an adverse determination from 1998 through 2001. These youth included many who may have been unprepared for the changes in the PRWORA. Although this share has decreased somewhat, 45 percent of this group was initially determined not disabled in 2005. The share determined not disabled of those initially allowed under PRWORA (for both cohorts) has increased over time. In 1998, only 18 percent of the 1997–1999 cohort, under the initial PRWORA rules, had an adverse determination; in 2005, over 50 percent of that cohort was found not disabled. The post-1999 cohort, also, initially had a low percentage of youth receiving an adverse determination (8 percent in 2000, the first year they would have been eligible for an age-18 redetermination), but this proportion grew to almost half by 2005. This may reflect the shorter time between initial eligibility and the age-18 redetermination in the early cohorts; these youth have had less time for their disability to improve. Additionally, many of the functional equivalence rules for older children allow for an easier transition to the adult disability rules.

A smaller fraction of female SSI participants had an adverse determination than their male counterparts almost every year, by about 5 percentage points (39 percent versus 44 percent). Only 20 percent of female redeterminations who first became eligible for SSI before age 5 are determined not disabled under the adult definition compared with almost 50 percent of those who first became eligible at ages 5–17. However,

Table 2.
Percentage of age-18 redeterminations with an initial cessation determination, by selected characteristics and calendar years, 1998–2005

Characteristic	Total	1998	1999	2000	2001	2002	2003	2004	2005
Total	42.32	42.79	44.63	44.12	41.41	41.08	40.58	40.49	43.67
Primary diagnosis									
Schizophrenia, psychoses, and other neuroses	15.10	16.61	16.19	15.38	14.88	13.02	14.72	14.29	16.14
Major affective disorders	54.59	58.49	58.81	55.81	53.18	52.03	51.74	53.27	55.98
Other mental disorders	68.37	73.19	74.67	72.46	67.60	66.10	64.78	65.08	66.89
Mental retardation	19.21	19.95	20.98	20.45	19.43	18.47	17.70	17.66	19.19
Muskuloskeletal disabilities	64.96	68.30	68.54	66.39	62.95	64.20	62.95	60.03	66.37
Sensory disabilities	20.37	20.12	22.69	21.71	20.46	19.35	19.91	18.72	19.86
Physical disabilities	34.25	38.54	39.28	38.51	33.13	31.82	30.28	29.30	33.18
Other/uncodable disabilities	91.01	89.37	90.76	91.76	91.66	91.47	90.88	90.52	91.22
Year of initial SSI eligibility									
Before 1991	27.41	33.02	33.77	31.13	26.04	23.72	21.70	20.04	19.79
1991–1996	50.38	52.16	54.66	54.82	51.73	49.69	47.69	45.24	45.38
1997–1999	44.74	17.78	28.99	35.28	43.24	49.71	50.22	51.02	54.27
After 1999	40.20	…	…	7.76	19.12	29.92	36.60	41.30	47.85
Sex									
Male	44.40	44.63	46.83	46.42	43.57	43.25	42.67	42.81	45.34
Female	39.11	40.12	41.38	40.65	38.12	37.68	37.32	36.78	41.00
Age at initial SSI eligibility									
Younger than 5	20.47	20.12	22.81	21.72	18.96	18.56	18.59	19.64	23.16
5–12	47.29	44.31	48.26	50.08	47.42	46.64	46.28	45.82	48.68
13–17	46.27	48.62	48.93	46.19	43.61	43.79	43.64	44.70	49.01
Earnings ≥ $250 at age 17									
Did not work	38.66	39.10	40.58	39.74	36.76	37.19	37.10	37.61	41.17
Worked	56.12	56.19	58.30	57.83	56.20	54.27	54.32	54.70	56.99
Adjudication level of initial SSI eligibility									
Initial	42.81	45.05	46.52	45.20	41.51	40.94	40.53	40.13	43.40
Reconsideration	54.52	59.53	59.71	58.47	52.53	55.16	51.77	51.12	52.48
ODAR (ALJ or higher)	70.09	69.58	71.45	74.57	72.78	69.60	66.97	68.87	68.65
Unknown	29.89	22.94	26.85	27.52	32.24	32.80	32.68	31.70	32.32
Prior CDRs									
None	45.02	57.46	43.94	42.51	42.20	42.59	42.40	42.99	46.91
Any	38.91	14.86	48.10	50.31	40.37	39.88	39.37	38.84	41.25
Consultative examination requested									
No	31.37	30.76	32.77	34.07	30.49	30.24	29.57	29.82	33.65
Yes	49.20	50.44	51.16	50.11	48.83	48.47	47.92	47.45	49.40

SOURCE: Authors' calculations using Social Security administrative records.

NOTE: … = not applicable.

in estimates not reported, children first receiving SSI as a teenager are less likely to have had a previous CDR, which would have removed some older children from the program rolls before the age-18 redetermination.

A higher proportion of individuals with no prior CDR initially received an adverse determination than those with a prior CDR. This was more of an issue in 1998 when the difference was 42 percentage points. The difference shrunk to only about 5 percentage points in 2005. Because individuals in the early cohorts were less likely to have had a prior CDR (Table 1), the percentage initially receiving an adverse determination decreased over time among those who did not have a prior CDR. Among youth who had a prior CDR, it is unclear why the percentage initially receiving an adverse determination increased from 1998 through 2000 and then decreased to around 40 percent thereafter; it is possible that earlier CDRs used somewhat different criteria than more recent ones.

Working youth have demonstrated a capacity for employment, which may signal an ability to perform SGA (the adult definition of disability). Those with a recent work history are, in fact, more likely to receive an adverse determination than those who did not work in the year they turned age 17 (56 percent versus 39 percent).

There are large differences in the percentages initially receiving an adverse determination by level of initial adjudication. The majority of individuals entitled at the initial application level are continued as a result of the initial age-18 redetermination; over 70 percent of those initially entitled at the Office of Disability Adjudication and Review (ODAR) level (ALJ and higher) are initially found not to have a disability under the adult rules. This is consistent with the hypothesis that individuals who have had a more difficult time proving that their disability meets SSA criteria are less likely to continue receiving SSI after age 18. We also find that cases requiring CEs, indicating that the disability does not obviously meet SSA criteria or lacked medical evidence, are more likely to receive an adverse determination than those not requiring a CE (49 percent versus 31 percent).

Odds of an Initial Cessation Determination

The results from a pooled logistic regression model controlling for all of these factors, expressed as odds ratios, are presented in the first column of Table 3. Most effects are significant at the 5 percent or

1 percent level. The results are largely consistent with the statistics from Table 2.

Relative to youth with physical disabilities, those with mental retardation and schizophrenia, psychoses, or other neuroses and those with sensory disabilities are significantly less likely to receive an adverse determination; those with all other disorders are significantly more likely to receive one. Among the larger effects, the odds of initial cessation for youth with schizophrenia, psychoses, and other neuroses are almost 80 percent lower than for those with physical disabilities; for youth with mental retardation, the odds are 74 percent lower.

Relative to those who first entered SSI from 1991 through 1996 (under *Zebley*), all other cohorts are less likely to have an initial cessation determination. Youth who first entered before 1991 have 29 percent lower odds, all else equal; youth who first entered under the interim PRWORA rules have 30 percent lower odds; and youth who first entered under the final PRWORA rules have 44 percent lower odds of having an initial cessation determination. Part of this may be due to individuals allowed after 1996 having very recently demonstrated their disability, whereas those in previous cohorts had more time for their disability to improve. Directly relating this result to the changes in legislation may be confounded by selective attrition and, particularly among earlier cohorts, a higher reliance on the program that has grown with the length of participation. However, the strong effect of the 1991–1996 cohort does suggest there may be some factors that should be explored more carefully.

Female child SSI participants are slightly less likely to have an adverse determination, all else equal; the estimated odds ratio, relative to their male counterparts, is 0.95. The odds of an adverse determination for children first eligible for SSI before age 5 are about half that of those who became eligible at ages 5–12. Those who became eligible as a teenager have only 6 percent lower odds of an adverse determination than those who became eligible at ages 5–12.

The likelihood of receiving an adverse determination for those who have reported earnings greater than $250 is large and significant. Controlling for other characteristics, the odds of an adverse determination for an individual who earned at least $250 at age 17 are 73 percent higher than the odds for someone who did not work.

Individuals who became eligible for payments at successively higher adjudication decision levels are

Table 3.
Odds ratios from logistic regression model of an initial cessation determination, by selected calendar years, 1998–2005

Characteristic	Initial cessation	1998	1999	2000	2001	2002	2003	2004	2005
	Primary diagnosis (reference = physical disabilities)								
Schizophrenia, psychoses, and other neuroses	0.22***	0.21***	0.20***	0.19***	0.22***	0.21***	0.24***	0.25***	0.23***
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Major affective disorders	1.31***	1.38***	1.29***	1.12**	1.20***	1.25***	1.26***	1.45***	1.34***
	(0.02)	(0.08)	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)	(0.06)	(0.06)
Other mental disorders	2.28***	2.65***	2.53***	2.20***	2.15***	2.14***	2.13***	2.31***	2.12***
	(0.03)	(0.11)	(0.09)	(0.08)	(0.08)	(0.07)	(0.08)	(0.08)	(0.07)
Mental retardation	0.26***	0.26***	0.25***	0.24***	0.28***	0.27***	0.26***	0.28***	0.26***
	0.00	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Muskuloskeletal disabilities	2.59***	2.31***	2.50***	2.39***	2.45***	2.72***	2.69***	2.52***	2.71***
	(0.08)	(0.25)	(0.22)	(0.21)	(0.22)	(0.23)	(0.24)	(0.22)	(0.25)
Sensory disabilities	0.44***	0.38***	0.41***	0.41***	0.48***	0.49***	0.50***	0.50***	0.47***
	(0.01)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Other/uncodable disabilities	14.20***	10.02***	11.44***	12.50***	15.42***	15.57***	14.95***	16.12***	14.92***
	(0.29)	(0.65)	(0.65)	(0.71)	(0.94)	(0.88)	(0.88)	(0.96)	(0.89)
	Year of initial SSI eligibility (reference = 1991–1996)								
Before 1991	0.71***	0.79***	0.70***	0.66***	0.61***	0.62***	0.70***	0.77***	0.57***
	(0.01)	(0.04)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.07)	(0.03)
1997–1999	0.70***	0.20***	0.42***	0.56***	0.69***	0.78***	0.63***	1.01	1.13***
	(0.01)	(0.01)	(0.02)	(0.02)	(0.03)	(0.04)	(0.05)	(0.05)	(0.04)
After 1999	0.56***	…	…	0.13***	0.25***	0.42***	0.41***	0.72***	1.02
	(0.01)	…	…	(0.04)	(0.02)	(0.02)	(0.04)	(0.05)	(0.06)
	Sex (reference = male)								
Female	0.94***	0.95**	0.89***	0.92***	0.97	0.93***	0.97	0.95**	1.00
	(0.01)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
	Age at initial SSI eligibility (reference = 5–12)								
Younger than 5	0.47***	0.54***	0.49***	0.47***	0.46***	0.50***	0.47***	0.49***	0.61***
	(0.01)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.04)	(0.03)
13–17	0.95***	1.00	0.94**	0.90***	0.92**	1.09*	1.57***	1.10*	1.03
	(0.01)	(0.04)	(0.03)	(0.03)	(0.03)	(0.05)	(0.13)	(0.07)	(0.06)
	Earnings ≥ $250 at age 17 (reference = no)								
Yes	1.73***	1.72***	1.75***	1.73***	1.84***	1.68***	1.71***	1.75***	1.68***
	(0.02)	(0.05)	(0.05)	(0.04)	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)
	Adjudication level of initial SSI eligibility (reference = initial)								
Reconsideration	1.37***	1.40***	1.39***	1.38***	1.32***	1.55***	1.40***	1.31***	1.24***
	(0.03)	(0.11)	(0.09)	(0.08)	(0.07)	(0.08)	(0.08)	(0.07)	(0.06)
ODAR (ALJ or higher)	1.74***	1.74***	1.68***	2.10***	1.91***	1.64***	1.70***	1.85***	1.68***
	(0.04)	(0.17)	(0.13)	(0.16)	(0.17)	(0.13)	(0.13)	(0.12)	(0.09)
Unknown	0.72***	0.54***	0.76***	0.77***	1.05	0.95	0.84***	0.73***	0.61***
	(0.01)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.03)	(0.03)	(0.02)
	Prior CDRs (reference = none)								
Any	0.69***	0.13***	0.90***	1.04	0.83***	0.92***	0.95*	0.95	1.06
	(0.01)	0.00	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)	(0.04)

(Continued)

Table 3.
Odds ratios from logistic regression model of an initial cessation determination, by selected calendar years, 1998–2005—*Continued*

Characteristic	Initial cessation	1998	1999	2000	2001	2002	2003	2004	2005
	Consultative examination requested (reference = no)								
Yes	2.34***	2.04***	2.29***	2.18***	2.25***	2.30***	2.41***	2.41***	2.28***
	(0.02)	(0.06)	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)	(0.06)	(0.05)
	Redetermination year (reference = 1998)								
1999	0.98	…	…	…	…	…	…	…	…
	(0.02)	…	…	…	…	…	…	…	…
2000	0.96**	…	…	…	…	…	…	…	…
	(0.02)	…	…	…	…	…	…	…	…
2001	0.94***	…	…	…	…	…	…	…	…
	(0.02)	…	…	…	…	…	…	…	…
2002	0.96**	…	…	…	…	…	…	…	…
	(0.02)	…	…	…	…	…	…	…	…
2003	0.97	…	…	…	…	…	…	…	…
	(0.02)	…	…	…	…	…	…	…	…
2004	1.02	…	…	…	…	…	…	…	…
	(0.02)	…	…	…	…	…	…	…	…
2005	1.16***	…	…	…	…	…	…	…	…
	(0.02)	…	…	…	…	…	…	…	…
Observations	402,601	41,058	48,561	51,119	48,764	55,115	51,171	52,461	54,352
Pseudo-R^2	0.26	0.36	0.27	0.27	0.27	0.27	0.26	0.25	0.25
Log likelihood	-202,263.52	-17,905.23	-24,284.09	-25,448.95	-24,164.28	-27,408.54	-25,577.98	-26,444.97	-28,106.90
LR Chi^2 [a]	144,057.27	20,252.02	18,191.41	19,259.62	17,827.52	19,825.54	17,954.00	17,927.43	18,259.83
Prob>Chi^2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

SOURCE: Authors' calculations using Social Security administrative records.

NOTES: Standard errors are in parentheses.

* = significant at the 10 percent level; ** = significant at the 5 percent level; *** = significant at the 1 percent level; … = not applicable.

a. LR refers to the likelihood ratio. LR Chi^2 has 26 degrees of freedom in the pooled regression, 18 in 1998 and 1999, and 19 in 2000−2005.

more likely to have an initial adverse determination during an age-18 redetermination than those who first became eligible for payments at the initial application level (as shown in Table 2). Youth who had a prior CDR are also still less likely to have an adverse determination. All else equal, when a CE is requested, indicating a difficult evaluation or a lack of available medical information, the odds of an adverse determination more than double, relative to when a CE is not requested.

Robustness

These results are largely robust to calendar-year-specific regressions (Table 3, columns 2–9). One important trend to note is that youth who first entered SSI from 1991 through 1996 were more likely to have an adverse determination in the earlier years. In 2004, the odds ratio for the 1997–1999 cohort is not significantly

different from that of the 1991–1996 cohort; in 2005, the 1997–1999 cohort has 13 percent *greater* odds of an adverse determination. For the post-1999 cohort, the odds ratio in 2005 is not significantly different from that of the 1991–1996 cohort.

The significant effect of prior CDRs on reducing the likelihood of an adverse determination is largely driven by redeterminations that occurred in 1998 (odds ratio = 0.13), which includes a large proportion of individuals with no prior CDR and a very low adverse determination rate among those with a prior CDR (see Tables 1 and 2). Most other years have an odds ratio that is either insignificant or greater than 0.9.

Because the policy changes we identify altered the regulations with respect to certain disabilities and not others, we also estimated policy/cohort-specific regressions (not reported, but available upon request).

If there are lasting effects from *Zebley* or other changes, we would expect to find stronger results among youth with disabilities primarily affected by these policies. Instead, the results for each policy cohort are largely similar to the combined results. This suggests that the policy/cohort effect is driven by population changes, such as the general selection issue raised earlier, and not policy-specific changes.

Appeals and Reapplications

We next turn our attention to the postredetermination participation of individuals who initially received an adverse decision and have had at least 4 years to either have that decision overturned on appeal or reapply. For this reason, the remaining results reported in this article are conditional on having an initial cessation determination from 1998 to 2001. Because the time frame is limited to 4 years for postinitial decisions for all cohorts, only the pooled results are presented. Additionally, because of death in our sample population, we removed 536 individuals for ease of computation and to maintain a comparable comparison group.

Descriptive Characteristics

Descriptive statistics for youth who received an initial cessation determination by their postinitial determination outcomes are shown in Table 4.[33] The first column shows the composition of all youth receiving an adverse determination and largely reflects the findings in Tables 2 and 3. Youth with "other" mental disorders make up one-third of the population that initially received an adverse determination. Individuals with mental retardation and those with other/uncodable disabilities each make up an additional 20 percent of this population. About 2 percent of youth who initially received an adverse determination have either sensory disabilities and musculoskeletal disabilities. Youth with physical disabilities; schizophrenia, psychoses, or other neuroses; and major affective disorders make up 13 percent, less than 1 percent, and 8 percent of the population, respectively.

Consistent with the high adverse determination rate in the early cohorts, most of the postinitial decision population (66 percent) initially became eligible for SSI under *Zebley* rules (from 1991 through 1996). However, the proportion of the total age-18 redetermination population initially allowed in that time period has been decreasing over time, and increasingly fewer individuals from that cohort have initially received an adverse determination at the age-18 redetermination.

Almost two-thirds of the population is comprised of male participants, and half became eligible for SSI at ages 5–12. Most (69 percent) did not have earnings greater than or equal to $250 in the year they turned age 17. The vast majority received an adverse determination because of their failure to meet the adult disability criteria (73 percent), although a sizable minority (19 percent) failed to cooperate during the redetermination. Most of our sample population were first entitled to SSI as a child at the initial application level (83 percent). The majority also did not have any prior CDRs (76 percent) and required CEs during the redetermination process (72 percent).

Summary characteristics of youth who either successfully appealed their initial cessation determination or successfully reapplied for payments are shown in Table 4, column 2. Compared with the population in column 1, a larger proportion of youth who successfully appealed the decision or reapplied for SSI has schizophrenia, psychoses, and other neuroses; mental retardation; and physical disabilities. A smaller proportion has "other" mental disorders. The gap between male participants and their female counterparts decreases, with the male group who successfully appealed or reapplied at 56 percent as opposed to 63 percent of the full initial cessation determination group. The initial cessation population also has a larger proportion with earnings of at least $250 at age 17 (31 percent versus 25 percent), which is not surprising because those with a work history have demonstrated an ability to work. Youth who successfully appeal or reapply are also less likely to have been initially allowed from 1991 through 1996, but in any other cohort, are more likely to be allowed.

There are only minor differences in the characteristics of individuals who successfully appeal and those who successfully reapply (columns 3 and 4). However, differences by level of appeal could be masked by this taxonomy. Individuals for whom we do not observe either a successful appeal or a successful reapplication (that is, who are censored after 4 years) are very different from those who did successfully appeal or reapply within 4 years. Comparing columns 5 and 2, a larger proportion of the censored group has "other" mental disorders (36 percent versus 28 percent), and a smaller proportion has mental retardation (17 percent versus 23 percent). The censored group is also composed of a larger proportion of male participants and more frequently were employed at age 17 (33 percent versus 25 percent).

Table 4.
Characteristics of individuals with an initial cessation determination, by postredetermination event (in percent)

Characteristic	All initial cessation determinations	All successful appeals and reapplications	Successful appeals	Successful reapplications	Censored
Total number	81,458	22,185	16,028	6,157	59,273
Total percent	100	100	100	100	100
Primary diagnosis					
Schizophrenia, psychoses, and other neuroses	0.74	1.32	1.42	1.07	0.53
Major affective disorders	8.16	8.20	8.37	7.78	8.14
Other mental disorders	33.90	28.05	27.65	29.09	36.09
Mental retardation	18.90	23.81	23.49	24.65	17.06
Muskuloskeletal disabilities	2.20	2.33	2.56	1.71	2.15
Sensory disabilities	2.10	2.73	2.80	2.57	1.86
Physical disabilities	13.19	14.26	14.65	13.24	12.80
Other/uncodable disabilities	20.81	19.30	19.07	19.90	21.38
Year of initial SSI eligibility					
Before 1991	24.85	29.84	30.56	27.97	22.98
1991–1996	65.72	58.45	57.81	60.14	68.44
1997–1999	8.91	10.94	10.86	11.14	8.15
After 1999	0.53	0.77	0.78	0.75	0.44
Sex					
Male	62.75	56.13	55.58	57.56	65.22
Female	37.25	43.87	44.42	42.44	34.78
Age at initial SSI eligibility					
Younger than 5	7.69	10.03	10.49	8.84	6.82
5–12	49.84	49.04	48.98	49.20	50.13
13–17	42.47	40.93	40.54	41.97	43.05
Earnings ≥ $250 at age 17					
Did not work	69.26	75.25	75.71	74.08	67.02
Worked	30.74	24.75	24.29	25.92	32.98
Reason for initial cessation					
Failure to cooperate	18.59	20.29	19.68	21.89	17.95
Does not meet adult criteria	72.63	70.97	71.34	70.02	73.25
Other reason	8.78	8.74	8.98	8.09	8.80
Adjudication level of initial SSI eligibility					
Initial	83.18	81.71	80.78	84.12	83.73
Reconsideration	4.80	4.79	4.94	4.40	4.81
ODAR (ALJ or higher)	3.51	3.01	3.36	2.10	3.69
Unknown	8.51	10.49	10.91	9.39	7.77
Prior CDRs					
None	75.90	74.52	73.91	76.11	76.42
Any	24.10	25.48	26.09	23.89	23.58
Consultative examination requested					
No	28.11	29.88	29.67	30.44	27.44
Yes	71.89	70.12	70.33	69.56	72.56

SOURCE: Authors' calculations using Social Security administrative records.

The proportion of each characteristic group in the initially ceased population in each of the postredetermination events is shown in Table 5. We find that a large proportion (27 percent) of these early cohorts successfully appealed their determination or successfully reapplied for SSI. Certain groups are much more likely to return, however, such as individuals with schizophrenia, psychoses, and other neuroses (48 percent). Other groups are less likely to return, such as those who were initially entitled in the 1991–1996 period or who worked at age 17 (24 percent and 22 percent, respectively). Table 5 also shows how prevalent the appeals process is, with almost 20 percent of initial decisions overturned upon appeal. Comparatively, less than 8 percent successfully reapply for SSI within 4 years.

Odds of Successful Appeal or Reapplication

The results from logistic and multinomial logistic regressions of the likelihood of having a successful appeal or successful reapplication, controlling for all of the other individual characteristics, are presented in Table 6. The specifications are similar to those for the regressions in Table 3, with the inclusion of the reason for the initial cessation decision as an additional explanatory variable. Recall that this population is limited to those individuals who we could follow for 4 years after the initial cessation determination. The specification in column 1 (model 1) does not differentiate between a successful appeal and a successful reapplication. The results are similar to the patterns observed in the descriptive statistics in Tables 4 and 5.

Relative to youth with physical disabilities, those with schizophrenia, psychoses, or other neuroses; mental retardation; and sensory disabilities are significantly more likely to return to SSI within 4 years of their initial cessation determination. These groups are also less likely to receive an initial cessation determination. Youth with other/uncodable disabilities and "other" mental disabilities are less likely to successfully appeal or reapply for SSI than those with physical disabilities.

Controlling for the year of the redetermination and age at first SSI receipt, youth first allowed under PRWORA regulations (the post-1996 cohorts) are most likely to successfully appeal or reapply. The odds of successfully appealing or reapplying are 60 percent higher for the 1997–1999 cohort than for the 1991–1996 cohort; those allowed under the pre-1991 policies have a 43 percent higher odds ratio of successfully

appealing or reapplying. The very large odds ratio for the post-1999 cohort should be taken with caution; the relatively small sample size (429) may be driving this result.[34]

Female participants are much more likely to successfully appeal or successfully reapply than their male counterparts. Individuals who first became eligible before age 5 have 14 percent higher odds than those who became eligible at ages 5–12. Those who had at least $250 of earnings at age 17 have 32 percent lower odds of returning to the program than those who did not.

The odds of successfully appealing or reapplying if individuals fail to cooperate during the redetermination are 19 percent higher than if they did not meet the adult eligibility criteria. Individuals with an unknown initial level of adjudication are more likely to successfully appeal or reapply relative to those entitled at the initial application level. We also find that youth who had a prior CDR are more likely to successfully appeal or reapply for SSI after an initial cessation determination, and youth with more difficult cases—who required a CE—are less likely to successfully appeal or reapply than those who did not, all else equal.

Odds of Successful Appeal or Reapplication: Alternative Specifications

As indicated, a successful appeal is not differentiated between a successful reapplication in the specification in column 1 of Table 6. The specifications in columns 2–6 each demonstrate the difference between the two pathways under various econometric and operational assumptions. The specification in column 2 (model 2) models successful appeal against successful reapplication, conditional on returning. A logit regression was run on the returning sample, and the dependent variable indicates whether or not an individual successfully appealed. The specifications in columns 3 and 4 (models 3a and 3b) model each path separately using a logit regression for each pathway, relative to not using that path. If the individual was successful using the other path (that is, he or she successfully reapplied in the appeal model or successfully appealed in the reapplication model), that person is treated as not using the path in that specification—but instead, is treated identical to those in the censored group. Under somewhat stronger restrictions, the specification in columns 5 and 6 (model 4) estimates a multinomial logit regression of the two paths with individuals who

Table 5.
Percentage of youth with an initial cessation determination in each first-observed postredetermination event, by selected characteristics

Characteristic	Number	All successful appeals and reapplications	Appeals	Reapplications	No return observed
Total	81,458	27.23	19.68	7.56	72.77
Primary diagnosis					
Schizophrenia, psychoses, and other neuroses	606	48.35	37.46	10.89	51.65
Major affective disorders	6,645	27.39	20.18	7.21	72.61
Other mental disorders	27,613	22.54	16.05	6.49	77.46
Mental retardation	15,394	34.32	24.46	9.86	65.68
Muskuloskeletal disabilities	1,791	28.81	22.95	5.86	71.19
Sensory disabilities	1,709	35.46	26.21	9.25	64.54
Physical disabilities	10,748	29.43	21.85	7.58	70.57
Other/uncodable disabilities	16,952	25.25	18.03	7.23	74.75
Year of initial SSI eligibility					
Before 1991	20,242	32.70	24.20	8.51	67.30
1991–1996	53,533	24.22	17.31	6.92	75.78
1997–1999	7,254	33.44	23.99	9.46	66.56
After 1999	429	39.86	29.14	10.72	60.14
Sex					
Male	51,112	24.36	17.43	6.93	75.64
Female	30,346	32.07	23.46	8.61	67.93
Age at initial SSI eligibility					
Younger than 5	6,267	35.50	26.82	8.68	64.50
5–12	40,595	26.80	19.34	7.46	73.20
13–17	34,596	26.25	18.78	7.47	73.75
Earnings ≥ $250 at age 17					
Did not work	56,417	29.59	21.51	8.08	70.41
Worked	25,041	21.92	15.55	6.37	78.08
Reason for initial cessation					
Failure to cooperate	15,140	29.74	20.83	8.90	70.26
Does not meet adult criteria	59,164	26.61	19.33	7.29	73.39
Other reason	7,154	27.09	20.13	6.96	72.91
Adjudication level of initial SSI eligibility					
Initial	67,755	26.75	19.11	7.64	73.25
Reconsideration	3,912	27.17	20.25	6.93	72.83
ODAR (ALJ or higher)	2,857	23.38	18.87	4.52	76.62
Unknown	6,934	33.56	25.22	8.34	66.44
Prior CDRs					
None	61,827	26.74	19.16	7.58	73.26
Any	19,631	28.80	21.30	7.49	71.20
Consultative examination requested					
No	22,894	28.96	20.77	8.19	71.04
Yes	58,564	26.56	19.25	7.31	73.44
Redetermination year					
1998	17,471	26.70	19.93	6.77	73.30
1999	21,552	27.29	19.44	7.86	72.71
2000	22,391	27.02	19.15	7.87	72.98
2001	20,044	27.88	20.30	7.58	72.12

SOURCE: Authors' calculations using Social Security administrative records.

Table 6.
Odds ratios from logistic regressions of successful appeal or successful reapplication within 4 years of an initial cessation determination, by model

Characteristic	Model 1 Successful appeal or reapplication (1)	Model 2 Appeal vs. reapplication, conditional on either (2)	Model 3a Successful appeal only (3)	Model 3b Successful reapplication only (4)	Model 4—Multinomial logit Successful appeal (5)	Model 4—Multinomial logit Successful reapplication (6)	Model 5 Successful postappeal reapplication (7)
Primary diagnosis (reference = physical disabilities)							
Schizophrenia, psychoses, and other neuroses	2.44***	1.31*	2.36***	1.47***	2.60***	2.01***	2.26***
	(0.21)	(0.19)	(0.21)	(0.20)	(0.24)	(0.28)	(0.33)
Major affective disorders	0.99	1.02	1.00	0.98	1.00	0.98	1.06
	(0.04)	(0.07)	(0.04)	(0.06)	(0.04)	(0.06)	(0.07)
Other mental disorders	0.82***	0.90**	0.81***	0.92*	0.80***	0.88***	0.91*
	(0.02)	(0.05)	(0.02)	(0.04)	(0.02)	(0.04)	(0.04)
Mental retardation	1.39***	0.92*	1.30***	1.37***	1.36***	1.48***	1.59***
	(0.04)	(0.05)	(0.04)	(0.06)	(0.04)	(0.07)	(0.08)
Muskuloskeletal disabilities	0.97	1.37***	1.07	0.75***	1.04	0.76**	0.78**
	(0.06)	(0.16)	(0.07)	(0.08)	(0.07)	(0.08)	(0.09)
Sensory disabilities	1.28***	1.00	1.24***	1.21**	1.28***	1.29***	1.36***
	(0.07)	(0.10)	(0.08)	(0.11)	(0.08)	(0.12)	(0.13)
Other/uncodable disabilities	0.87***	0.95	0.86***	0.93	0.85***	0.90**	0.95
	(0.03)	(0.05)	(0.03)	(0.05)	(0.03)	(0.05)	(0.05)
Year of initial SSI eligibility (reference = 1991–1996)							
Before 1991	1.43***	1.09*	1.41***	1.24***	1.46***	1.36***	1.39***
	(0.03)	(0.05)	(0.04)	(0.05)	(0.04)	(0.06)	(0.06)
1997–1999	1.60***	1.05	1.55***	1.38***	1.63***	1.55***	1.56***
	(0.05)	(0.06)	(0.05)	(0.07)	(0.06)	(0.08)	(0.08)
After 1999	1.96***	1.04	1.84***	1.60***	1.99***	1.91***	2.16***
	(0.21)	(0.19)	(0.21)	(0.26)	(0.23)	(0.32)	(0.37)
Sex (reference = male)							
Female	1.44***	1.08**	1.42***	1.25***	1.47***	1.37***	1.35***
	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)
Age at initial SSI eligibility (reference = 5–12)							
Younger than 5	1.14***	1.08	1.15***	1.03	1.16***	1.08	1.08
	(0.04)	(0.07)	(0.04)	(0.06)	(0.04)	(0.06)	(0.06)
13–17	0.99	0.96	0.98	1.02	0.98	1.02	1.03
	(0.02)	(0.04)	(0.02)	(0.04)	(0.02)	(0.04)	(0.04)
Earnings ≥ $250 at age 17 (reference = no)							
Yes	0.68***	0.92**	0.69***	0.79***	0.66***	0.72***	0.72***
	(0.01)	(0.03)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)
Reason for initial cessation (reference = does not meet adult criteria)							
Failure to cooperate	1.19***	0.90**	1.12***	1.23***	1.15***	1.27***	1.32***
	(0.03)	(0.04)	(0.03)	(0.05)	(0.03)	(0.05)	(0.05)
Other reason	1.01	1.09	1.04	0.95	1.03	0.95	0.96
	(0.03)	(0.06)	(0.03)	(0.05)	(0.03)	(0.05)	(0.05)

(Continued)

Table 6.
Odds ratios from logistic regressions of successful appeal or successful reapplication within 4 years of an initial cessation determination, by model—*Continued*

Characteristic	Model 1 Successful appeal or reapplication (1)	Model 2 Appeal vs. reapplication, conditional on either (2)	Model 3a Successful appeal only (3)	Model 3b Successful reapplication only (4)	Model 4— Multinomial logit Successful appeal (5)	 Successful reapplication (6)	Model 5 Successful postappeal reapplication (7)
Adjudication level of initial SSI eligibility (reference = initial)							
Reconsideration	1.04	1.15*	1.09**	0.93	1.09*	0.94	0.91
	(0.04)	(0.08)	(0.05)	(0.06)	(0.05)	(0.06)	(0.06)
ODAR (ALJ or higher)	0.94	1.69***	1.11**	0.62***	1.07	0.63***	0.61***
	(0.04)	(0.17)	(0.06)	(0.06)	(0.05)	(0.06)	(0.06)
Unknown	1.15***	1.16***	1.19***	0.99	1.20***	1.04	1.04
	(0.03)	(0.06)	(0.04)	(0.05)	(0.04)	(0.05)	(0.05)
Prior CDRs (reference = none)							
Any	1.27***	1.16***	1.31***	1.05	1.32***	1.13***	1.14***
	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)	(0.04)	(0.04)
Consultative examination requested (reference = no)							
Yes	0.95***	1.02	0.96**	0.95	0.95**	0.94**	0.93**
	(0.02)	(0.04)	(0.02)	(0.03)	(0.02)	(0.03)	(0.03)
Redetermination year (reference = 1998)							
1999	1.01	0.83***	0.95**	1.17***	0.96	1.16***	1.19***
	(0.02)	(0.04)	(0.02)	(0.05)	(0.03)	(0.05)	(0.05)
2000	0.99	0.81***	0.92***	1.17***	0.93***	1.15***	1.19***
	(0.02)	(0.04)	(0.02)	(0.05)	(0.03)	(0.05)	(0.05)
2001	0.97	0.88***	0.92***	1.09*	0.93**	1.07	1.14***
	(0.03)	(0.04)	(0.03)	(0.05)	(0.03)	(0.05)	(0.05)
Observations	81,458	22,185	81,458	81,458	81,458		62,085
Pseudo-R^2	0.03	0.01	0.03	0.01	0.02		0.02
Log likelihood	-46313.07	-13025.79	-39348.36	-21561.6	-59339.38		-18502.96
LR Chi^2 [a]	2774.4	153.58	2090.63	514.11	2926.95		847.94
Prob>Chi^2	0.00	0.00	0.00	0.00	0.00		0.00

SOURCE: Authors' calculations using Social Security administrative records.

NOTES: Standard errors are in parentheses.

* = significant at the 10 percent level; ** = significant at the 5 percent level; *** = significant at the 1 percent level.

a. LR refers to the likelihood ratio. LR Chi^2 has 24 degrees of freedom in all of the models except model 4, which has 48.

do not successfully appeal or reapply (the censored group) as the reference.

Focusing on model 2 (Table 6), individuals with schizophrenia, psychoses, and other neuroses; and musculoskeletal disorders are more likely to be successful via the appeal route over reapplication, conditional on successfully appealing or reapplying for SSI within 4 years, relative to those with physical disabilities. Turning to the year-of-entry effects, the estimates do not indicate any difference between either of the post-1996 cohorts and the 1991–1996 cohort. Youth who entered the program before 1991, however, are more likely to be

successful appealing than reapplying. Among the other effects, female youth who had a prior CDR, and youth first entitled to payments after the initial level of adjudication or with an unknown level of adjudication are more likely to be successful through the appeal route. Youth who had earnings greater than or equal to $250 and those who failed to cooperate during the redetermination are more likely to return through the reapplication route. Additionally, youth in later redetermination cohorts are less likely to return via the appeal route.

Models 3a/3b and 4 largely support the findings in models 1 and 2 (Table 6). The odds ratios are generally

similar to those in model 1. When model 2 indicated that a successful appeal was more likely, the odds ratio for the "appeal" portion of the model is greater than that for the "reapplication" portion (and vice versa). For most groups, the effect on successfully regaining SSI payments is driven by the appeals process. For example, the odds of successfully appealing or reapplying among those who first became eligible before age 5 are 14 percent higher than for those who first became eligible at ages 5–12 (model 1). However, we found no difference in path conditional on returning (model 2), but models 3a/3b and 4 suggest that this effect is only significant with respect to the appeals choice.

Odds of Successful Postappeal Reapplication

The appeals process can be thought of as part of the redetermination process itself, as described earlier. The majority of youth who receive an initial cessation determination appeal the decision with a high level of success (SSA 2007b). In this section, we focus on youth who regain SSI eligibility through a postappeal reapplication. The population is limited to those who have not successfully appealed, do not have an open appeal, and whose 60-day appeal window has closed (technically), that is, the initial cessation determination became final.[35] The results of a logistic regression of this population successfully appealing (model 5) is shown in Table 6, column 7. These results are qualitatively quite similar to the estimates in models 1, 3, and 4, which is not surprising because almost all attempted reapplications occur after the appeal window has closed.

Even after the appeals process, youth with schizophrenia, psychoses, and other neuroses; mental retardation; and sensory disabilities are more likely to successfully reapply than those with physical disabilities. The lower likelihood of successful appeal or reapplication in model 1 that was found for youth with "other" mental disorders and other/uncodable disabilities mostly disappears. Additionally, youth with musculoskeletal disabilities are less likely to return to SSI through a postappeal reapplication, relative to youth with other physical disabilities.[36]

Female youth are more likely to successfully reapply after the appeals process than their male counterparts. Individuals who had earnings greater than or equal to $250 at age 17 are less likely to have a successful postappeal reapplication than those who did not. Other youth more likely to have a successful postappeal reapplication include those who received

an initial cessation determination for FTC, youth with prior CDRs, and those in later redetermination-year cohorts. Youth initially entitled at the ALJ or higher level of appeal and those who required a CE are less likely to have a successful postappeal.

Concluding Remarks

In this article, we present the characteristics and initial outcomes of youth with disabilities in the SSI program who have undergone the age-18 redetermination process as well as the likelihood of successfully appealing or reapplying for SSI. The age-18 redetermination is a major event in the lives of youth receiving SSI, with potentially long-lasting effects. Our results are largely consistent with previous research. We find that the characteristics of the redetermination population and the percentage with an initial cessation determination have remained stable over the 8-year period under study.

The analysis reveals that there are large differences in the probability of an initial cessation determination by demographic characteristics and program background. One important finding is that in recent years fewer youth are working before their redetermination than previously. Whether this decrease is due to a conscious effort to try to remain on SSI, because fewer job opportunities are available, or for other reasons is not identified. Additionally, youth with a history of work are less likely to successfully appeal or reapply for SSI payments after an adverse age-18 determination. This suggests that efforts to employ youth, such as SSA's Youth Transition Demonstration projects (Fraker and Rangarajan 2009), may help reduce long-term dependence on SSI.

Even controlling for several observable characteristics identifiable in administrative records, there are still differences in the risk of successfully overturning an initial cessation determination or successfully reapplying for SSI payments. Those youth with a higher likelihood of initially having an adverse redetermination are not necessarily those who have the highest likelihood of a successful appeal or reapplication. This suggests that the age-18 redetermination is being implemented in a manner consistent with the criteria of the decision process. For example, youth with "other" mental disorders are the most likely to be initially ceased, but are less likely to successfully appeal or successfully reapply relative to youth with physical disabilities. The strongly significant odds ratios of return to the program for individuals with schizophrenia, psychoses, and other neuroses; sensory

disabilities; and mental retardation suggest that closer attention to these cases may be warranted during the initial redetermination decision. Targeting redeterminations to youth likely to have their payments ceased may allow SSA or the DDS to reallocate resources to the sizable backlog of other decisions.

The results also imply that the policy in effect at the time of initial entry may have lasting effects on SSI participation, significantly affecting the probability of initially receiving an adverse age-18 redetermination and of appealing that determination or reapplying for SSI. In particular, we find that youth who were originally allowed from 1991–1996, when *Zebley* policies were in effect, are much more likely than other cohorts to initially receive an adverse determination during their age-18 redetermination and are less likely to successfully appeal or reapply afterward. The source of this difference, whether this is due to selection issues, policies, or a variety of other factors, is not clear from these results and warrants further analysis.

Although we find that over one-quarter of the population that initially received an adverse determination successfully appealed or successfully reapplied,

important questions remain. Do individuals who have been determined not to have a qualifying disability seek employment before attempting to appeal or reapply? When do they return to SSI? Is it after a few years of trying to become self-sufficient or immediately after payments officially cease? Why do they return to SSI? Do individuals who file new applications do so on the basis of the same impairments or new ones? Questions about whether certain groups are more likely to return before others also remain.

There are likely several factors not captured in this study, such as current employment and education, which address reasons individuals return or how they become reeligible. These factors will likely play a large role in any policy concerning the age-18 redetermination. Employment opportunities and education quite likely have large roles in this process. The results here and in Loprest and Wittenburg (2007) and Hemmeter, Kauff, and Wittenburg (2009) suggest that there are likely to be large differences in return to SSI by nonprogrammatic individual characteristics. Such results warrant further study.

Appendix

Table A-1.
Number and percent of sample restrictions

Restriction	Number	Percent of administrative records
Redeterminations on CDR Waterfall File (1998–2005)	**409,260**	**100.00**
Minus—		
Deaths before redetermination	133	0.03
Redeterminations before 18th birthday or after 21st birthday	6,314	1.54
Individuals who first received SSI before age 0 or after age 17	212	0.05
Initial redetermination decision sample (1998–2005)	**402,601**	**98.37**
Minus—		
Initially continued	232,225	56.74
Redeterminations after selected calendar year 2001	88,382	21.60
Individuals who died during 4-year period after initial redetermination	536	0.13
Postinitial determination sample (1998–2001)	**81,458**	**19.90**
Minus—		
Individuals who successfully appealed or can still appeal	18,505	4.52
Postappeal return sample (1998–2001)	**62,953**	**15.38**

SOURCE: Authors' calculations using Social Security administrative records.

Table A-2.
Percentage of youth with the same diagnosis upon successful appeal or reapplication

Primary diagnosis at age-18 redetermination	Percent
Total	45.08
Schizophrenia, psychoses, and other neuroses	63.14
Major affective disorders	46.26
Other mental disorders	34.71
Mental retardation	69.37
Muskuloskeletal disabilities	47.87
Sensory disabilities	58.58
Physical disabilities	70.72
Other/uncodable disabilities	7.24

SOURCE: Authors' calculations using Social Security administrative records.

Notes

[1] See 20 Code of Federal Regulations, part 404, subpart P, appendix 1.

[2] Age-18 redeterminations are different from continuing disability reviews (CDRs), which are periodically conducted to determine if an individual's disability has improved, in that there is no medical improvement standard.

[3] For more information on the legislative and regulatory medical requirements for disability work for Social Security programs, see SSA's *Blue Book: Disability Evaluation Under Social Security*, available at http://www.socialsecurity.gov/disability/professionals/bluebook.

[4] Like the adult standard of disability, SSI eligibility also requires that the individual not be engaging in SGA and includes a duration requirement, that is, the disability must have lasted or be expected to last for 12 continuous months or to result in death.

[5] *Sullivan vs. Zebley,* 493 U.S. 521 (1990).

[6] See 56 Federal Register, 5534, February 11, 1991.

[7] See General Accounting Office (1994) and Stapleton and others (2001/2002) for in-depth discussions of the causes of the program's growth.

[8] Later rules allow the age-18 redetermination to occur beyond one year after the individual attains age 18.

[9] Deeming refers to "the process by which the income and resources of an ineligible individual are considered to be available to a recipient" (SSA 2007b, 125).

[10] For more information on the work incentives for SSI recipients, see SSA's *Red Book: A Summary Guide to Employment Support of Individuals with Disabilities under the Social Security Disability Insurance and Supplemental Security Income Programs,* available at http://www.socialsecurity.gov/redbook/.

[11] Youth may voluntarily leave SSI at age 18 as their living and employment situations change; however, this does not appear to be common. This can be estimated by comparing the annual number of age-18 redeterminations in the *Annual Report of the Supplemental Security Income Program* with the annual number of SSI recipients at age 17 in *Children Receiving SSI* (these tables are now published in the *SSI Annual Statistical Report*). The *Annual Report of the Supplemental Security Income Program* is available at http://www.socialsecurity.gov/OACT/pubs.html. Editions of *Children Receiving SSI* and the *SSI Annual Statistical Report* are available at http://www.socialsecurity.gov/policy/.

[12] Individuals' payments are ceased for FTC only if they do not provide the necessary information for a review, all leads have been followed, and a determination cannot be made from the documents available on file. This determination was generally made by the DDS during the time of the period under study. Currently, SSA does not present statistics on cessations because of FTC. An early analysis of age-18 redeterminations under the PRWORA (Rogowski and others 2002) found that, from 1996 through August 1999, about 11 percent of those cessations were for this reason.

[13] The restriction on how long an individual has to appeal may be extended if there is "good cause" for the late filing, as defined in SSA's regulations.

[14] Each year before 1997, one-third of youth turning age 18 each year were required to have an age-18 redetermination.

[15] SSA has previously estimated how different characteristics affect the probability of medical cessation in an unpublished report (SSA 2003). Our article generally confirms this initial work.

[16] Children with "permanent" disabilities are not required to have periodic CDRs.

[17] The oldest individuals in the sample are only about age 28 at the end of the period under study. This is likely too early to determine if these individuals turn to the Social Security Disability Insurance (DI) program after their redeterminations, even though only 6 quarters of coverage are required for individuals aged 18–24 to become insured for the DI program covered under Social Security. For this, and

other reasons, we do not consider the relationship between the age-18 redetermination and DI program participation.

[18] We use an extract from the CDR Waterfall File from January 2007, which includes the CDR Tracking File and a few derived variables from fiscal years 1999 through 2006. This is the file used by SSA's Office of the Chief Actuary to produce "waterfall" tables, which provide statistics on the number and percent of individuals initially continued, ceased, and appealing their age-18 redetermination decision.

[19] We limit the study to this time period for two reasons: (1) Earlier cohorts faced the early implementation of the age-18 redetermination process and were reviewed under slightly different rules than later cohorts, which may affect the policy relevance of the results, and (2) later administrative data were not complete at the time of our research.

[20] We found that less than 4 percent of age-18 adverse determinations will be eligible for the federal court level (the initial adverse determination was upheld through the appeals court level). Additionally, only 5 percent of all initial applications and CDRs that make it to federal court are allowed (SSA 2007a). This would mean that less than 40 people per year would return to SSI by this method, on average. To the extent that appeals to federal courts are from age-18 redeterminations, our estimates will slightly undercount successful appeals. However, the length of time needed to get to this level effectively eliminates most of the age-18 redetermination population in our sample from using this method of appeal. Cases appealing to the federal court level can be remanded to lower levels where allowance rates would be mixed with nonfederal court cases.

[21] Disabilities are categorized in eight groups: schizophrenia, psychoses, and other neuroses; major affective disorders; "other" mental disorders; mental retardation; musculoskeletal disorders; sensory disorders; physical disabilities; and other/uncodable disorders. Individuals may have other impairments; however, we counted only the impairment that primarily qualified the individual for SSI eligibility. These groupings are consistent with those used in other studies (for example, Liu and Ireys (2006)). We refer to mental retardation rather than intellectual disabilities to maintain consistency with official SSA publications (see Schalock and others (2007)).

[22] Prior CDRs include childhood redeterminations and are only identified for the youth's current eligibility period. If the youth had an earlier SSI spell that ended before the spell that included the age-18 redetermination, that is not captured in the data.

[23] Some of these youth may be in sheltered workshops, and there are numerous reasons for them not working, which cannot be identified in the data.

[24] Youth who are in vocational rehabilitation or a similar program (such as an individualized education program) are allowed to continue their SSI payments until they complete that program under section 1631(a)(6) of the Social Security Act and §416.1338 of SSA's regulations. This is sometimes referred to as "Section 301," a reference to that section of the Social Security Disability Amendments of 1980 (Public Law 96-265). However, this is likely a very small proportion of the population. Additionally, many youth may have appealed the decision regardless of their Section 301 deferral, to guard against both losing SSI payments and possibly not finding employment.

[25] In addition to the selection criteria described in the text, the differences between the number of age-18 redeterminations in this study and the Office of the Actuary report are due to calendar-year versus fiscal-year measurements.

[26] Some redeterminations that occurred before age 18 may be legitimate, for example, because of the early collection of the necessary information; however, there is no way to determine from the data which are legitimate and which are errors in the administrative data.

[27] Detailed results using the full sample and all follow-up years are similar to the results presented and are available from the authors upon request.

[28] Wittenburg and Loprest (2004) discuss extending eligibility through age 22 to be consistent with other programs (for example, the Individuals with Disabilities Education Act), or age 25 to allow for greater human capital development. This would be consistent with the general lengthening of childhood or postponing adulthood, which has been documented in the general population (Danziger and Rouse 2007).

[29] Because the estimates we present are for the entire population, with some restrictions, we do not present standard errors for means and proportions. Standard errors for the estimates are, however, available from the authors upon request.

[30] There are changes in the primary disability diagnosis between the initial age-18 redetermination and successful appeals and reapplications; however, the disability category of most individuals who received an initial cessation determination does not change. This information is presented in Table A-2.

[31] Disaggregating the types of disability into 23 separate groups does not provide additional information on differences in the likelihood of termination. More detailed statistics on the groupings used in this study are available from the authors upon request.

[32] It is possible that these youth were allowed at the federal court level, which is not recorded in our data, or this information may have been lost as administrative files have changed over time. It should be noted that administrative data is kept to properly administer the program, and if the information is not required for that purpose, it may be overwritten or is not included in readily available data.

[33] Only the first observed event is presented. For example, if an individual's initial cessation decision was overturned on appeal, but he or she voluntarily left SSI a year

later, the individual is included in the "successful appeals" category.

34 When we look at year of entry cohort-specific regressions, we do find large differences in the likelihood of successfully appealing or reapplying by disability type; however, the directions of the effects are largely similar across cohorts. Focusing on the pre-1991, 1991–1996, and 1997–1999 cohorts (because of the small sample size of the post-1999 cohort), there are a few notable deviations. Youth with major affective disorders in the 1991–1996 cohort are significantly less likely to successfully appeal or reapply, and youth with those same disorders in the 1997–1999 cohort are more likely to successfully appeal or reapply, compared with youth who have physical disabilities in both of those cohorts. Additionally, there is no significant difference between youth with "other" mental disorders and physical disabilities in the 1997–1999 cohort, but youth with "other" mental disorders are less likely to successfully appeal or reapply in the earlier cohorts. Finally, youth with other/uncodable disabilities have 18 percent higher odds of successfully appealing or reapplying in the 1997–1999 cohort compared with youth with physical disabilities; youth with other/uncodable disabilities in the earlier cohorts are less likely to successfully appeal or reapply. The results from these regressions and similar regressions for all of the appeal and reapplication models are available from the authors upon request. The postappeal reapplication results are discussed in a later note.

35 As we mentioned earlier, it is possible that some individuals may still appeal at some point after the 60-day limit. For example, to allow for "good cause," SSA sometimes allows appeals past the limit. Also, there are often delays in the recording of decisions. By using the 60-day limit, we are focusing on the letter of the law. Our results are robust to using longer time periods, for example, requiring 240 days (about 8 months) to have passed. Results using this longer period are available from the authors upon request.

36 As before, we also ran separate regressions for each year-of-entry cohort. These results, which are available from the authors upon request, indicate that relative to youth with physical disabilities, only youth in the 1991–1996 cohort with "other" mental disorders and other/uncodable disabilities are significantly less likely to successfully reapply compared with those in the other cohorts. Also, youth with major affective disorders in the 1997–1999 cohort have 42 percent higher odds of successfully reapplying compared with youth with physical disabilities; there is no significant difference for those in the other cohorts.

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The Retirement Research Consortium: Past, Present, and Future

by Paul S. Davies and T. Lynn Fisher*

Introduction

"Research doesn't tell the policymaker what to do. It does give him [or her] a body of tested knowledge and an understanding of the probable consequences of alternative policy decisions. It takes strong and open-minded leadership to accept, publish and use research findings."

Ida C. Merriam (1985), former assistant commissioner of the Social Security Administration's (SSA's) Office of Research and Statistics, wrote those words in a *Social Security Bulletin* article commemorating the agency's research efforts at its 50th anniversary. Since its inception nearly 75 years ago, SSA has worked to produce high quality, research-based information required to formulate policy that will meet the changing needs of the public. In 1998, Steven H. Sandell, then director of SSA's Division of Policy Evaluation, spearheaded the creation of the Retirement Research Consortium (RRC) to broaden SSA's research capabilities and help to produce a new generation of highly trained social scientists to shape the future direction of policy research. Through the RRC, SSA has access to a large group of world-class researchers in the fields of Social Security and retirement policy who are affiliated with the Center for Retirement Research at Boston College, the National Bureau of Economic Research Retirement Research Center, and the University of Michigan Retirement Research Center.

By all accounts, the RRC has been a remarkably successful extramural research venture of SSA. Through its first 11 years, the RRC produced hundreds of research papers, policy briefs, and newsletters; organized 11 annual conferences and a number of seminars and workshops on special topics; and supported over 100 training grants to graduate students and junior scholars. Perhaps more importantly, RRC research and researchers have been influential in the national policy debate on a number Social Security and retirement policy issues.

A series of articles in this issue of the *Bulletin* commemorate the research and policy accomplishments of the three centers of the RRC. Each of the following three articles, one by each center of the RRC, highlight that particular center's contributions to research and policymaking on Social Security and retirement. In this introductory article, we provide an overview of the RRC from SSA's perspective, a brief history of its development, a discussion of the aims of the consortium, and some thoughts on its future.

A Brief History of the RRC

The roots of the RRC can be traced back to the 1990s and the expansion of SSA's research capacity. SSA's Office of Research and Statistics had long been responsible for most of the agency's research program; however, staffing levels had declined over the 1970s and 1980s. When SSA became an independent agency in 1995, the Office of Research and Statistics became the Office of Research, Evaluation, and Statistics (ORES) with the addition of the Division of Policy Evaluation, under the leadership of Steven H. Sandell. Around the same time, an outside review team found that the office "consistently produces good quality research and sound statistics. It is the scope and the

Selected Abbreviations	
DI	Disability Insurance
ORES	Office of Research, Evaluation, and Statistics
RRC	Retirement Research Consortium
SSA	Social Security Administration
SSI	Supplemental Security Income

timeliness, not the quality of the research that is of concern" (Estes, Linkins, and Rice 1997, 10). The Social Security Advisory Board issued a report urging SSA to enhance its internal and external research and policy evaluation capacity, including among other things "providing financial support for research centers at universities or other research institutions" (Social Security Advisory Board 1998, 12).

After Kenneth S. Apfel was sworn in as the first confirmed commissioner of SSA as an independent agency, he released in September 1997 SSA's new strategic plan. The first goal of the strategic plan was "to promote valued, strong, and responsive Social Security programs and conduct effective policy development, research, and program evaluation." That was to be accomplished in part by building and strengthening "SSA's capacity to undertake necessary research, evaluation, policy development, and actuarial studies for the Social Security and SSI [Supplemental Security Income] programs" and by involving universities and research centers directly through extramural funding (SSA 1997, 14–15). Then in early 1998, Commissioner Apfel established lead policy development responsibilities under one deputy commissioner, and he created two new policy analysis offices. The Office of Policy, as it was named, included the long-established Office of Research, Evaluation, and Statistics and the new Office of Retirement Policy and Office of Disability and Income Assistance Policy. In the new organization, ORES continued its responsibilities for research and evaluation studies on the effects of Social Security and income assistance programs and proposed changes in those programs on individuals, the economy, and solvency (SSA 2000).

Part of SSA's new commitment to improving its research and policy analysis capabilities included a greatly expanded extramural research budget. Out of this expansion grew the notion of forming a university-based, grant-funded research organization with the mission of conducting a broad program of research, training, and dissemination on

> " …I can tell you that the kind of research done at this conference… has an enormous impact over time on the course of public policy. Just because the causal chains are long and variable does not mean that the impact isn't very real. And one of the very great strengths of American economic policy, and I think it's actually an area where the United States is stronger than almost any other country, is the cross fertilization between a rich and vibrant research community in universities and in think tanks and the actual process of creation of public policy. "
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> The Honorable Lawrence H. Summers
> Assistant to the President for Economic Policy
> Director, National Economic Council
> Remarks delivered to RRC Annual Conference
> August 11, 2009

Social Security and retirement policy issues. Susan Grad, deputy associate commissioner of ORES, recalls a briefing on the Office of Policy's extramural budget with Peter Wheeler, then associate commissioner for ORES, and John Dyer, then deputy commissioner for Finance, Assessment, and Management. John Dyer "threw out the idea of a consortium that he thought HCFA [Health Care Financing Administration] was using…Peter and I handed the idea off to Steve [Sandell, then director of SSA's Division of Policy Evaluation] and he and Debra Whitman [also then with the Division of Policy Evaluation] ran with it. Steve had some experience from when he had been at the ASPE [Office of the Assistant Secretary for Planning and Evaluation, Department of Health and Human Services], especially with the Institute for Research on Poverty at Wisconsin [the University]. The RRC that came into being was basically designed by Steve and Debra and based on that model" (University of Michigan Retirement Research Center 2006).

The RRC was established to bring together the academic and policy communities to increase objective, policy-relevant research and inform the public and policymakers about alternative policies and their consequences. In October 1998, two university-based, multidisciplinary centers were chosen for the RRC. One center was located at Boston College and the other at the University of Michigan. Both centers formed collaborative partnerships with other academic institutions and policy experts, and each center received $1.25 million in funding in the initial year of the 5-year program. In a press release announcing the selection of the centers, Commissioner Apfel stated, "The Social Security Administration is privileged to have a working partnership with some of the foremost retirement policy experts in America. Through this Consortium, the Social Security Administration will be in a position to provide national leadership on retirement policy issues" (SSA 1998). The RRC was recompeted in 2003 for a second

5-year period. Boston College and the University of Michigan received awards to continue their centers, and a third center—housed at the National Bureau of Economic Research—was added to the consortium. Another recompetition was held in 2008, which led to new 5-year awards to Boston College, the University of Michigan, and the National Bureau of Economic Research.[1]

Under the leadership of Alicia H. Munnell (Boston College), John P. Laitner (University of Michigan), and David A. Wise (National Bureau of Economic Research), the three centers have become the cornerstone of SSA's extramural research program on Social Security and retirement policy. Over the years, SSA has increased total annual funding for the RRC from $2.5 million to $7.5 million. As described later in the article, the payoff has been immense in terms of advancing the knowledge base on Social Security and retirement policy issues; training new scholars to become the next generation of Social Security and retirement policy experts; and providing objective, research-based input to the policymaking process.

Goals and Objectives of the RRC

The mission of the consortium is to plan and conduct a broad research program that will develop Social Security and retirement policy information to assist policymakers, the public, and the media in understanding Social Security and retirement policy issues. The RRC disseminates the results of its research program to the public, policymakers, and the media through papers and conferences. The centers have well-established Web sites containing research papers, policy briefs, quarterly newsletters, and other information to aid that effort. In addition, the centers provide training and education in the retirement policy area through dissertation and postdoctoral fellowships and research assistantships. The three primary objectives of the RRC—(1) research, evaluation, and data development; (2) dissemination; and (3) training and education—are described in the following subsections.

Research, Evaluation, and Data Development

The RRC is broadly charged with planning, initiating, and maintaining a high-quality, multidisciplinary research program that covers retirement and Social Security program issues. Over time, SSA has widened the scope of the research component of the RRC to include disability issues related to the Social Security Disability Insurance (DI) and Supplemental Security Income (SSI) programs. A portion of the research effort focuses on the development of research data sources and providing opportunities to use nonpublicly available data that can be accessed at restricted-use data sites, subject to the rules and requirements of those sites.

The scope of research conducted by the RRC is characterized by six broad priority research areas defined by SSA.

1. *Social Security and retirement.* Here we seek to understand how Social Security's programs influence the nature and timing of retirement and the claiming of benefits and the impact of changes in Social Security program rules on trust fund solvency. Examples of research topics in this area include new insights on claiming behavior; demand and supply of older workers; health and functional capacity of older workers, with an emphasis on whether or not they can work longer given longer life expectancies; early retirement and the DI and SSI disability programs; retirement decisions of married couples; effects of voluntary individual accounts; and implications of changes in the Social Security retirement ages and other parameters of the Social Security program (for example, tax rates, benefit amounts, benefit computations).

2. *Macroeconomic analyses of Social Security.* This area includes the macroeconomic and financial effects of Social Security and changes in policy on national saving, investment, and economic growth. Macroeconomic analysis also includes, but is not limited to, intertemporal effects on capital formation, retirement saving, and the unified budget. Examples of research topics in this area include the study of the effects of demographic changes on saving behavior, the effects of national tax policy on both the Old-Age and Survivors Insurance and Disability Insurance Trust Funds, and the impact on financial markets of Social Security reform.

3. *Wealth and retirement income.* This area considers the role of Social Security in retirement income and wealth accumulation. It includes analyses of other sources of retirement income and private savings such as employer-provided pensions, individual assets, and earnings from continued employment. Examples of research topics in this area include the role of financial literacy in wealth accumulation and decumulation, the optimal design of retirement investment vehicles, the effects of 401(k)

and 403(b) plans on retirement wealth, measuring retiree well-being, and the distribution of retirement income sources among subgroups of interest. Current research in this area focuses on the effects of the recent financial crisis on wealth accumulation and retirement preparedness.

4. *Program interactions.* This area covers interactions between the old-age and survivors portions of the Social Security program and other public or private programs such as DI, SSI, and Medicare, as well as private pension plans and personal saving. Examples of research topics here include interactions between the veterans' disability programs, SSI and Social Security, reforms to promote work among the disabled, understanding retirees' take up of Medicare Part D, and in general—how changes in the Social Security program (for example, retirement ages, tax rates, benefit amounts, benefit computations) might influence applications to the DI and SSI programs.

5. *International research.* The aim is to learn from other countries' social insurance experiences. This includes cross-country comparisons of social, demographic, and institutional characteristics as well as studies of specific countries as they institute reform. Examples of research topics in this area include cross-national comparisons of retirement policy reform, health insurance and retirement behavior, and pension reform in various countries.

6. *Demographic research.* This area includes changes in mortality, fertility, immigration, health, and marital status, and their implications for retirement policy. Also included here are differences in the effects of Social Security policy alternatives among workers and beneficiaries by age, race/ethnicity, sex, and occupation. Examples of research topics in this area include trends in fertility and mortality, labor market behavior of immigrants, marital histories and retirement income security, and health limitations and retirement behavior.

> " The Retirement Research Consortium brings together some of the best academic minds in the country to examine one of the most important challenges we face as a society: the aging of America. In my work as Staff Director of the Senate Special Committee on Aging, I have often used facts and policy recommendations from RRC reports and always find the annual conference to be a great place to learn about the latest ground-breaking ideas in the field. "
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> Debra Whitman
> Staff Director
> U.S. Senate Special Committee on Aging
> September 10, 2009

To provide further guidance to the centers as they develop their annual research prospectus, each spring SSA issues a memorandum to the center directors that outlines questions of particular interest to SSA within broad categories such as early retirement, planning for retirement, retirement wealth, economic well-being, Social Security solvency, health and disability, and immigration. SSA develops its list of research priorities by soliciting input from a number of research and policy components within the agency.

One distinctive feature of the RRC is that SSA encourages joint research between consortium researchers and those at SSA. Of course, federal employees cannot receive any funding support for collaborative research projects. But, such joint ventures have become an excellent opportunity for SSA researchers to develop productive connections with RRC researchers and for RRC researchers to benefit from the programmatic expertise of those at SSA and, in some cases, to conduct research based on Social Security administrative records that generally are not accessible to the research community.

From fiscal year (FY) 1999 through FY 2009, SSA funded 482 research projects across the three centers of the RRC.[2] More than 20 of these projects were conducted collaboratively by RRC and SSA researchers. Over 40 were quick turn-around projects initiated by SSA during a given budget year to answer high-priority and often unanticipated policy questions. Over the most recent few years, SSA has funded from 55 to 60 research projects annually.

Dissemination

Another important feature of each center's responsibilities is making knowledge and information available to the academic and policy communities and to the public. The centers maintain a dissemination system of quarterly newsletters, research papers, and policy briefs that are accessible to the public via each center's Web site.[3] Before public release, SSA reviews all

publications created using RRC funding and requires all RRC research and dissemination to be nonpartisan and of value to a wide variety of audiences including policymakers, practitioners, the public, advocates, and academics.

The centers also organize conferences, workshops, lectures, seminars, and other means of sharing current research activities and findings. For example, in March 2009 the University of Michigan center along with the Brookings Institution, Wharton's Pension Research Council and Boettner Center, and The Retirement Security Project cosponsored a 1-day conference on financial literacy and retirement preparedness. Over the years, SSA has funded basic research on financial literacy and education as part of the RRC. At this conference, SSA announced its intention to fund one or more new research centers for financial literacy, in part to augment the research efforts of the RRC by transforming research findings into a variety of products that can be tested for their efficacy in helping Americans learn about their finances and the importance of saving.

The consortium holds an annual conference in August in Washington, DC on issues related to Social Security and retirement policy, with organizational responsibility rotating among the three centers. Papers selected for presentation are the product of research projects funded in the respective fiscal year (for example, projects funded for FY2009 are eligible to be presented at the RRC conference in August 2009). The hosting center works jointly with SSA to develop the conference agenda and to select keynote speakers. Recent keynote speakers have included Lawrence H. Summers, assistant to the president for economic policy and director of the National Economic Council (2009); Sylvester J. Schieber, chair of the Social Security Advisory Board (2009); Peter Orszag, director of the Congressional Budget Office (2008); Henry J. Aaron, the Bruce and Virginia MacLaury Senior Fellow in Economic Studies of the Brookings Institution (2008); and Andrew G. Biggs, deputy commissioner of Social Security (2007). After the conference, applicable papers and presentations are made available on the hosting center's Web site. In recent years, the consortium's annual conference has drawn more than 300 registrants from a wide variety of research and policy institutions including SSA; other federal agencies such as the Office of Management and Budget and the Treasury Department; Congress (including the Congressional Budget Office, the Congressional Research Service, staff of the House of Representatives Budget Committee, staff of the House of Representatives Ways and Means Committee, staff of the Senate Finance Committee, and the Government Accountability Office); the press; think tanks and nonprofit research and policy institutions; and the financial services industry.

Training and Education

Each center of the RRC is tasked with training new scholars and educating academics and practitioners on new techniques and research findings on issues relating to Social Security and retirement policy. The centers financially support the training and research of graduate students, junior (untenured) scholars, and scholars new to the field of retirement research via two mechanisms—research assistantships and fellowships/grants. Individual RRC researchers typically request support for graduate student research assistants who then become skilled and knowledgeable with the data and subject matter of the project.

More formally, the RRC provides dissertation fellowships to support graduate students and small research grants to support postdoctoral researchers and junior scholars. The dissertation fellowship program is managed by the Center for Retirement Research at Boston College. Applications are solicited from students throughout the nation. The dissertation fellowship award committee, which includes representatives from SSA and all three RRC centers, reviews and competitively selects six fellowship recipients each year. One or two dissertation fellows are invited to present their research at the annual RRC conference. In total, 48 graduate students have been awarded dissertation fellowships through the RRC. Many of the dissertation fellows have launched

> " …[the] Retirement Research Consortium, which in its 11-year history has really become the premier gathering of researchers and policy makers interested in the core questions associated with retirement in the U.S. and other developed nations. "
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> James M. Poterba
> President and CEO
> National Bureau of Economic Research
> Remarks delivered to RRC Annual Conference
> August 11, 2009

successful careers in retirement-related research at top academic institutions and government agencies.

The junior scholars program—formally known as the Steven H. Sandell Grant Program in honor of the leadership of the late Steven Sandell in founding the RRC—provides 1-year grants to new scholars in the field of retirement research, either untenured junior scholars or senior scholars newly working in the field. The grant competition is international in scope and is managed by the Center for Retirement Research at Boston College. SSA provides funding for up to eight Sandell grants to be awarded each year to applicants selected by the Sandell grant award committee, which consists of representatives from SSA and all three RRC centers. Two or three Sandell grantees are invited to present their research at the annual RRC conference. In total, 60 Sandell grants have been awarded. The junior scholars program has been very successful in expanding and enriching the field of retirement research since being first funded by SSA in 2000. Many of the awardees have now become established researchers in their fields.

The Future of the RRC

The first 11 years of the RRC were overwhelmingly successful. The program has expanded and is continuing in its third 5-year funding cycle with centers at Boston College, the University of Michigan, and the National Bureau of Economic Research. In addition to the RRC's substantial contributions to (1) public policy development, (2) the research literature, and (3) general public knowledge on Social Security and retirement issues, the research and the researchers themselves have won a number of awards. Moreover, several RRC researchers have moved into positions of influence in the legislative and executive branches of federal government, and vice versa.

As changes evolve (1) in the retirement-age population and its need for income security through Social Security programs, (2) in the private pension

" …when we manage to meet the challenge of making complex ideas accessible we have the potential to bring the best public policy analysis to the policymakers who must implement it. Looking back at the Social Security reform debate over the past several years, I can think of a number of instances where academic and policy research directly impacts the Social Security policy arguments people in Washington have…

You should know that your work does not simply move ahead the store of academic knowledge on retirement security. Rather, you are performing a valuable service to your government and to Americans, both today and in the future. "

Andrew G. Biggs
Deputy Commissioner of Social Security
Remarks delivered to RRC Annual Conference
August 9, 2007

system, and (3) in the health care system, we expect the RRC to build on its successes over its first 11 years to make even more important contributions to the development of Social Security, retirement, DI, and SSI policy in the future.

The success of the RRC is now spawning sister research centers, as evidenced by SSA's recently awarded Financial Literacy Research Centers (FLRC). Based on the RRC model, the FLRC will develop innovative materials and programs to help Americans plan for a secure retirement. With centers at Boston College, the RAND Corporation, and the University of Wisconsin, the FLRC will tailor materials for Americans at different stages of their working lives—new workers, mid-career professionals, near retirees, and those who have already exited the workforce—to address the different challenges these individuals face. The FLRC also will help traditionally underserved populations better understand the path toward a secure retirement.

With its ability to fund top researchers in fields related to Social Security, retirement, and disability, the RRC will continue to be a vital component of SSA's research portfolio. Cross fertilization between the research community and policymakers has become the hallmark of the RRC. With SSA's ongoing support, the consortium will continue to benefit the American public by expanding the knowledge base upon which Social Security and retirement policy decisions are made.

Notes

[1] The Center for Retirement Research at Boston College is comprised of core staff at Boston College and affiliated researchers from the Brookings Institution, the Massachusetts Institute of Technology, Syracuse University, and the Urban Institute, among others.

The University of Michigan's center is located in the Survey Research Center at the university's Institute for Social Research. Institutions affiliated with the Michigan center include RAND, the University of Pennsylvania, Dartmouth College, and Cornell University, among others.

The National Bureau of Economic Research's center is a component of its Program on the Economics of Aging. Researchers affiliated with this particular center are drawn from numerous institutions including Harvard University, the Massachusetts Institute of Technology, Yale University, Stanford University, the University of California at Berkeley, the University of Illinois at Urbana Champaign, and Dartmouth College.

[2] This figure does not include training grants (Sandell grants and dissertation fellowships), which would bring the total number of projects to 590, funded from FY 1999 through FY 2009.

[3] Boston College center—http://www.crr.bc.edu/; University of Michigan center—http://www.mrrc.isr.umich .edu/; National Bureau of Economic Research center—http://www.nber.org/programs/ag/rrc/rrchome.html.

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THE RESEARCH CONTRIBUTIONS OF THE CENTER FOR RETIREMENT RESEARCH AT BOSTON COLLEGE

by Steven A. Sass*

Background and Introduction

The Center for Retirement Research (CRR) at Boston College was established in October 1998 as part of the Social Security Administration's (SSA's) Retirement Research Consortium (RRC). To advance the RRC's larger goal "to inform the public and policymakers about policy alternatives and their consequences," the CRR's mission is to produce policy-relevant research on Social Security and retirement income issues, educate and train new researchers in the field of retirement income policy, and disseminate research findings to the research community, policymakers, and the general public.

The CRR and its affiliates—the Brookings Institution, the Massachusetts Institute of Technology, Syracuse University, and the Urban Institute—produce research studies that address Social Security and retirement income issues as part of the RRC's annual research cycle.[1] The CRR also conducts research on Social Security and retirement income independent of the RRC initiative. To enlarge the pool of qualified researchers in the field of retirement income policy, the CRR manages SSA's Steven H. Sandell Dissertation Awards and other dissertation fellowship programs for junior scholars. Research findings are disseminated though the CRR's working papers and biweekly issue in brief series, delivered via e-mail to over 4,000 recipients, and as articles in refereed journals. The CRR has also produced literature that synthesize current research on key Social Security and retirement income policy issues.[2]

This article reviews the CRR's research contributions over its 10-year history and their implications for Social Security and retirement income policy in three major areas: (1) Social Security's long-term financing shortfall, (2) the adequacy of retirement incomes, and (3) labor force participation at older ages as a means to improve retirement income security. The CRR at Boston College has received substantial funding support from SSA in each area and has also successfully leveraged SSA's investment by attracting funding from other sources.

Social Security's Financing Shortfall

Social Security's long-term financing shortfall was the dominant policy concern throughout the CRR's existence. According to recent projections of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Fund (2009), benefit outlays will exhaust the Social Security trust fund in 2037.[3] Ongoing tax revenues will then be able to pay only 76 percent of scheduled benefits, declining to 74 percent at the end of the program's 75-year projection period, in 2083.

The shortfall is hardly new. Congress, following recommendations of the Greenspan Commission, addressed the problem in 1983. It accelerated the introduction of scheduled tax increases, building up assets in the Social Security trust fund to pay future benefits; and it scheduled an increase in the full retirement age (FRA), from 65 to 67, to cut retirement benefits by about 13 percent when fully phased in. The 1983 Amendments to the Social Security Act closed the program's projected 75-year shortfall at the time, but they left the trust fund with growing projected annual

Selected Abbreviations	
CRR	Center for Retirement Research at Boston College
DB	defined benefit
DC	defined contribution
EEA	earliest eligibility age
FRA	full retirement age

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deficits before the end of the 75th year, so the long-range solvency problem soon reemerged.

When the 1994–1996 Social Security Advisory Council (1997) revisited the problem, it considered more far-reaching reforms than combinations of tax increases and benefit cuts. Particularly noteworthy was the Advisory Council's consideration of potential investments in private equities that offer higher expected returns than those projected for the special-issue Treasury bonds held by the Social Security trust fund. Equity investment could be made directly by the trust fund, or alternatively, through individual accounts, which are invested, owned, and managed by prospective beneficiaries and funded either out of individual payroll taxes or by an additional tax on earnings. The Advisory Council, however, failed to reach a consensus on a single plan and instead presented three quite different proposals, reflecting both the difficulty in closing the shortfall within Social Security's traditional institutional framework and strong divisions in the policy community on how to respond at the eve of the creation of the RRC and CRR.

During the nascent years of the RRC and CRR, the *Final Report of the President's Commission to Strengthen Social Security* (2001) energized and focused retirement policy research. The report's primary reform plan to restore long-range solvency (model 2) reduced the growth in future benefits by indexing initial benefits to increases in prices rather than wages (as occurs under current law), effectively freezing their purchasing power at current levels. Payroll tax rates would be unchanged, but workers could divert a portion of their payroll taxes (up to 4 percent of earnings) to an individual account in exchange for a reduction in their traditional Social Security benefit. The reduction would be based on an interest rate somewhat less than the government bond rate, and the account could be invested in equities and other assets with higher expected returns. According to projections made by SSA's Office of the Actuary, a two-earner household retiring in 2052 could expect a retirement income equal to 89 percent of the Social Security benefits scheduled under current law. Although less than currently scheduled benefits, this amount is 23 percent

more than what Social Security could actually pay out of projected tax revenues, according to estimates prepared for the commission.

The CRR conducted a variety of studies on issues critical in evaluating the commission's model 2 and other proposals for reforming Social Security. These include the expected returns, risks, and benefits of equity investments; administrative costs in individual account programs and how they might be reduced; postreform benefit levels and their policy implications; and automatic mechanisms other nations use to eliminate financing shortfalls, such as the one that has plagued Social Security and dominated the policy debate, creating more heat than light, for more than a quarter century.

Both the 1994–1996 Advisory Council and President's Commission viewed equity investments as a way to improve the financial performance of the nation's retirement income system. The gain is based on the expectation that equities produce higher returns than bonds—whether bonds held in the Social Security trust fund or bonds issued to offset the loss of Social Security revenues, which are redeemed through reductions in workers' retirement benefits, as they direct their payroll taxes to individual accounts. The size of the gain depends in part on the size of the equity premium—the excess returns of equities over bonds. Based on historical data, the Office of the Actuary had used a 400 basis-point equity premium to estimate the effect of various reform proposals on the Social Security shortfall. Diamond (1999) reviews the literature and concludes that reductions in the cost of stock investing, the high value of stocks at the end of the 1990s, and expectations of slower economic growth should significantly reduce the equity premium used in such projections.[4]

A second issue critical in evaluating reform proposals that use equity investments is treatment of the risk. Equities are risky, with substantial variance in the returns they deliver. Burtless (2000) shows that this translates into substantial variance in the retirement incomes produced by individual accounts invested in equities; had Social Security always included such accounts, workers with these accounts who were retiring just a few years apart would often have dramatically different retirement incomes. The Office of the Actuary ignored risk when scoring reform proposals, crediting equities with their expected rate of return with no adjustment for such variance in outcomes. Munnell, Sass, and Soto (2005) review how other government agencies treat risk when evaluating the

finances of similar programs that invest in equities, such as the Railroad Retirement program; the authors find that these agencies generally use a risk-adjusted (that is, riskless) rate that eliminates the equity premium and any improvement in their evaluation of a program's finances.

Individual accounts are a major component of many reform proposals, and the CRR's studies found the administrative costs of such accounts varying widely among countries that include these accounts in their social security programs. Sundén (2000); Palme, Sundén, and Söderlind (2005); and Weaver (2005) assess Sweden's low-cost public/private system, which gives workers wide discretion when choosing private-sector investment managers and uses the government's payroll deduction and social security apparatus to collect contributions and make payments, provide record-keeping and reporting services, and transfer funds with private-sector investment managers after aggregating net contributions, transfers, and payouts. At the other extreme, Sass (2004), Soto (2005a), Weaver (2006), and Williamson (1999, 2000) describe the systems in the United Kingdom and Chile, where private-sector firms handle collections, recordkeeping and reporting, payments, transfers, and investment management. The added administrative expenses in private-sector systems can be quite costly—an additional 100 basis points in fees reduce retirement incomes by roughly 20 percent, and administrative expenses are especially high for low-wage workers, whose contributions and account balances are relatively low.[5]

A major concern in proposals that close the shortfall by cutting benefits and include carve-out individual accounts is the postreform level of retirement income and the secure provision of a basic retirement income. Uccello and others (2003) and Favreault and others (2004) use the Urban Institute's Dynamic Simulation of Income Model (DYNASIM) to project the retirement incomes of different demographic groups under various specifications of the President's Commission's approach and with various assumptions regarding administrative costs, investment returns, and annuitization rules. The studies find that retirement incomes would generally be lower even under their most optimistic assumptions: The additional income provided by carve-out accounts would not offset the effect of freezing the purchasing power of Social Security benefits at current levels, which by 2050 reduces benefits before a carve-out by a projected 23 percent. Those studies also project higher rates of "near poverty"—incomes less than 150 percent of the federal poverty line—for vulnerable groups such as divorced or never married individuals, blacks, and those without a high school diploma.

Using SSA's Modeling Income in the Near Term (MINT) model, Davies and Favreault (2004) project increased dependence on Social Security's means-tested Supplemental Security Income program under various specifications of the President's Commission's approach. The study also finds the provision of a minimum Social Security benefit, as proposed in model 2, far more effective in reducing poverty among the elderly than the Supplemental Security Income program. Retirement incomes might also be less than commonly projected. Uccello (2000) finds that workers in the Survey of Consumer Finances who are covered by defined benefit (DB) pension plans invest a greater share of their 401(k) accounts in equities; so equity allocations in carve-out individual accounts and the higher retirement incomes they are expected to produce could be less than projected given the sharp reduction in guaranteed Social Security benefits.

In *Social Security and the Stock Market: How the Pursuit of Market Magic Shapes the System*, Munnell and Sass (2007) compare the experience of three nations that adopted reforms similar to the three proposals advanced by the 1994–1996 Social Security Advisory Council. The benefit cut and carve-out approach, as implemented in the United Kingdom, led to a dramatic shift from a social insurance system to a means-tested old-age income system. As benefit cuts and carve-outs reduced guaranteed retirement incomes, means-tested programs expanded. To reduce moral hazard (the hazard that those workers who lose £1 in benefits for every £1 of income from work or savings would work less and save less), the government introduced a tapered withdrawal rate (reducing benefits by £0.4, not £1), which resulted in one-half of the elderly now eligible for means-tested benefits—a greater share eligible for those benefits at some point in their lifespan and a greater share eligible in the future, as guaranteed benefits continue to fall relative to means-tested thresholds. Australia created mandatory individual accounts to supplement its Age Pension program—a means-tested system with a 40 percent tapered withdrawal rate, which provides full benefits to one-half of the elderly population and full or partial benefits to all but 10 percent. The means test in the Age Pension program dampens the variance in retirement incomes produced by the add-on accounts; but it does so at the cost of significant moral hazard. Canada addressed the long-term shortfall in

its Canada Pension Plan by raising taxes and investing trust fund assets in equities. The investment program is widely seen as conservatively funded and professionally managed; its use of equities has not expanded moral hazards and the variance in equity returns can be pooled across multiple worker cohorts (Monk and Sass 2009).

CRR studies also reviewed automatic mechanisms other nations have adopted to close long-term financing shortfalls in social security programs. Sundén (2000), Williamson and Williams (2003), and Brooks and Weaver (2005) analyze notional defined contribution (DC) designs—where social security contributions are recorded in a notional account; balances are credited with a notional return; and at retirement, balances are converted into a monthly benefit stream using a notional annuity rate. Such systems generally include automatic adjustments that affect benefits, not contributions, in response to shocks—pegging the notional return, and thus the future benefits of current workers, on contribution inflows and annuity rates at retirement so that the benefits of new retirees are affected by the cohort's projected mortality experience. Ponds and van Riel (2007) review the automatic adjustment mechanisms in the funded, government-mandated DB programs in The Netherlands, which cover essentially all workers. These Dutch programs adjust both contributions and benefits in response to shocks. Monk and Sass (2009) assess the automatic mechanism in the Canada Pension Plan, which adjusts both contributions and benefits should the "stewards" of the plan, the federal and provincial governments, fail to close a long-term shortfall. The automatic adjustments—an increase in contributions sufficient to amortize half the shortfall over 75 years and cut the benefits of current pensioners by about 7 percent—were designed not to go into effect but to motivate politicians (by motivating current pensioners) to close the shortfall in a more politically acceptable way.

Given the critical importance of Social Security's long-term financing problem and the public's need to be better informed about how it could be addressed, the CRR produced the *Social Security Fix-It Book*, a "citizen's guide" to the primary options proposed for restoring solvency. *Fix It* uses a clean and inviting layout, a limited amount of text that is simple but precise, and entertaining and informative illustrations to present the role of Social Security and the need for a "lasting fix." The estimates of the effect of various reform initiatives in closing the financing shortfall are largely produced by SSA's Office of the Actuary. More than 50,000 copies of *Fix It* have been printed to date.[6]

Retirement Income Adequacy

Today we live in the "golden age of retirement." The expansion of Social Security and employer pension plans, the creation of Medicare, and the rise in home ownership over the past half century have allowed most retirees to maintain a reasonable approximation of the standard of living they enjoyed during their working years. Engen, Gale, and Uccello (2000) find only 20 percent of households in the initial Health and Retirement Study (HRS) cohort (individuals born from 1921 through 1931) at risk of hardship. Johnson, Mermin, and Uccello (2006) and Coile and Milligan (2006) report that the elderly are vulnerable to deteriorating health, financial setbacks, and declining living standards as they age. Favreault and Steuerle (2007) and Smeeding (1999, 2004) find that benefits often fail to keep certain portions of the elderly population— single older women, in particular—out of poverty or near poverty (incomes less than 150 percent of the federal poverty line). They also suggest reforms, such as a universal flat-rate benefit, to assure minimally adequate retirement incomes.[7] Despite these areas of weakness, the overall economic standing of the elderly, compared with the young, has likely never been better.

The concern is how well retirement incomes will hold up when the baby boom generation exits the workforce. As Social Security is the largest source of cash income for two-thirds of elderly households, SSA's calculation of monthly benefits paid to the stylized "medium earner," as a share of preretirement earnings, is a common measure for assessing retirement income adequacy. Through the last quarter of the twentieth century, the benefits of this stylized medium earner—essentially an individual who consistently earns the average wage and retires at age 65—generally replaced about 40 percent of preretirement earnings. But as most workers retire as married couples and claim benefits before age 65, this figure might not be a reliable indicator of the program's role in replacing preretirement earnings. Munnell and Soto (2005a), however, estimate actual household replacement rates in the HRS population and find that these complicating factors largely cancel each other out, and Social Security benefits replace about 44 percent of the "average" household's preretirement earnings.

Social Security replacement rates, however, are now being cut in response to the rise in the program's FRA; the phase-in period began in 1983. When the cuts are fully phased in, for workers born in or after 1960, benefits claimed at any age will decline by about 13 percent. Including projected increases in Medicare Part B premiums and income taxes retirees will pay on benefits, Munnell (2003) estimates a 25 percent reduction in the net cash benefits—to about 30 percent of preretirement earnings—for medium earners born in 1960 or later, who claim at age 65. Munnell, Sanzenbacher, and Soto (2007) also project a decline in replacement rates for married couples because of the increased employment of married women. Although the sharp rise in the employment of married women raises preretirement household earnings, it often has little or no effect on the household's Social Security retirement benefits, as increases in the worker benefits earned by the wife are offset, dollar for dollar, by a loss of spousal and survivor benefit top-ups until those top-ups are gone. Butrica, Smith, and Toder (2002) actually project an increase in the wage-adjusted poverty rate from 8 percent to 10 percent of the elderly, mainly a result of the rise in the FRA and changes in marital composition.[8]

Employer-sponsored retirement income plans that are publicly subsidized and regulated are the second most important source of retirement income, providing about 20 percent of elderly household cash income if wages are included as a source of income; without wages, these plans provide about 25 percent of elderly household retirement income.[9] Participation has remained remarkably constant over the past quarter century, at about half the nation's workforce, suggesting the continued importance of employer plans going forward. Among private-sector employers, however, DC retirement savings plans have largely replaced DB pensions. The transition in the private sector was primarily due to the demise of existing DB plans and employers opting for DC formats when creating new plans. Recently, however, employers have been converting or replacing existing DB plans with DC plans. Studies by Dushi, Friedberg, and Webb (2006) and Munnell and Soto (2007) document the rising financial risks to employer sponsors of DB plans and their role in encouraging the shift to DC formats. Munnell, Haverstick, and Soto (2007) explain the persistence of DB plans in state and local governments by their less mobile and more risk-averse workforce, a higher degree of unionization. The authors note that employee contributions moderate financial risks and

that state and local governments, as perpetual entities, are not subject to the same stringent counter-cyclic funding requirements. Munnell, Haverstick, and others (2008) nevertheless find these plans about as well funded as DB plans in the private sector. Munnell, Golub-Sass, and others (2008) find that ideology (in the form of a Republican governor and legislature), not economic factors, appears to be the most influential factor behind the few public-sector conversions from DB to DC pension plan formats.

Much of the CRR's work on employer plans has focused on the new DC programs. In *Coming Up Short: The Challenge of 401(k) Plans,* Munnell and Sundén (2004) synthesize much of their research, as well as research done by others, to produce an overall evaluation of such plans as a source of retirement income. As the title makes clear, the authors find significant limitations in the ability of 401(k) plans to function as a reliable source of retirement income. The major problems include participation shortfalls; irrational asset allocations, especially excessive allocations to employer stock and a failure to rebalance in response to aging and market shifts; assets leaking out of worker accounts before retirement; and an almost complete lack of annuitization upon retirement. *Coming Up Short* also emphasizes the consensus in the research community, based on numerous studies of participant behavior, that well-designed defaults can significantly improve the performance of DC plans as a source of retirement income. Unless explicitly choosing otherwise, workers would participate, contribute target amounts, allocate assets according to some life-cycle formula, roll balances into an individual retirement account when changing employers, and at retirement receive a portion of their balance as a joint-and-survivor annuity.

The CRR produced further studies of DC plans after *Coming Up Short*. Poterba (2004) calculates the effect of taxes on retirement saving within and outside tax-deferred retirement accounts. He shows that the different taxation of capital appreciation—as capital gains in taxable accounts and as ordinary income upon withdrawal from traditional retirement accounts—results in long-term equity investments producing more income in retirement when held in taxable accounts. Munnell (2005) analyzes the adverse effects of proposed reductions in capital gains and marginal income tax rates on the attractiveness of participating in, or sponsoring, a DC plan. Agnew and others (2007) find that participation in DC plans is explained more by financial literacy and trust in the firms that

administer the plan and invest its assets than by the worker's income. Reinforcing the *Coming Up Short* conclusion, Sorokina, Webb, and Muldoon (2008) find a decline in the ability of employer plans to replace preretirement earnings with the shift from DB to DC plans. Munnell, Soto, and others (2006) identify a major explanatory factor. The authors find that asset returns in DC plans are a full percentage point less than returns in DB plans—a differential roughly equal to the additional administrative costs of DC plans.

The rational response to the coming decline in replacement income provided by Social Security and employer pension plans is an increase in other types of saving. The widely noted collapse of the personal saving rate since the early 1980s—to approximately zero by 2005—suggests that this has not occurred. Bosworth (2004) examines various explanations, including measurement problems created by dis-inflation (which produced a spurious "decline," as less "saving" is now needed to offset inflation and maintain the real value of assets) and a sharp run-up in asset values (which reduced or even eliminated the need to save). The study shows that correcting for mismeasurement reduces but hardly eliminates the decline in saving, and the decline was largely complete well before the sharp run-up in asset values in the late 1990s. Thus the decline in saving remains real, puzzling, and troublesome. To evaluate effects on future retirement incomes, Munnell, Golub-Sass, and Varani (2005) estimate the changes in the saving rate of the working-age population, including the portion of business saving attributable to the working-age population, since the early 1980s. The study finds that the saving rate of the working-age population remained significantly greater than zero; dissaving by the elderly drove the aggregate rate below zero. Nevertheless, saving by the working-age population declined, rather than increased, even though the income these workers will get from Social Security will replace a declining share of preretirement household earnings. Studies by Bosworth, Bryant, and Burtless (2004) and Engelhardt and Kumar (2007a) on the effect of demographic swings on saving and investment demand also suggest that it will become more difficult to accumulate retire-ment wealth while working and to rely on such wealth to provide an income in retirement, as the baby boom generation exits the labor force. These studies find saving less responsive to demographic swings than investment demand. So saving should decline less than investment demand as the population ages, reducing the return on assets, the growth of assets in retirement

accounts, and the income these accounts can provide in retirement.

To gauge the extent of the retirement income problem going forward, the Center for Retirement Research at Boston College (2006) developed a National Retirement Risk Index. This index estimates the share of working-age households "at risk" of lack-ing sufficient retirement income to maintain a reason-able approximation of their preretirement standard of living, that is, households with projected retirement incomes at 10 percent or more below the estimated amount needed to maintain preretirement living standards. Depending on factors such as household composition, home ownership, and the level of prere-tirement income, households are classified as at risk if their projected retirement income is less than about 65 percent of their income in their fifties. The retire-ment income calculation assumes the household head retires at age 65, not the current average retirement age of 63, and the household annuitizes all assets, including the value of home equity not consumed over the household's remaining life, leaving no intended or unintended bequest. Driven by scheduled declines in Social Security replacement rates (the retirement income estimates do not include additional benefit cuts to close the long-term shortfall) and projected declines in replacement income provided by employer plans and other types of saving and rising longevity, the study finds a steady rise in the share of households at risk—35 percent of older boomers (born from 1948 through 1954), 44 percent of younger boomers (born from 1955 through 1964), and 49 percent of "Genera-tion X" (born from 1965 through 1972)—that could well mark the end of the "golden age of retirement."[10]

The well-being of future retirees will also depend on their ability to draw incomes out of two increas-ingly important types of wealth—financial assets held in DC plans and the equity in their homes. Projections of the well-being of future retirees, such as the CRR's National Retirement Risk Index, generally assume retirees will consume much or all of this wealth, either through annuitization or by adopting some optimal drawdown strategy based on survival probabilities and household time and risk preferences. Retirees today, however, are quite resistant to annuitizing financial assets or tapping home equity as a source of retirement income through downsizing, borrowing, or taking out a reverse mortgage.[11] To the extent that future retirees fail to convert financial and housing wealth into retire-ment income, their standard of living will be less than generally projected.

The private annuity market is currently quite small. But given the decline in Social Security and employer DB pension annuity income, rising longevity, and uncertainty about the magnitude and distribution of future longevity gains, the value of private annuities could rise significantly. Davidoff, Brown, and Diamond (2003) show that annuitization is likely to produce large welfare gains for households aiming to maintain their standard of living in retirement. Poterba (2001) and Brown (2000) review factors that have limited the growth of annuity markets, most importantly adverse selection, administrative costs, and the relatively ample annuity income provided by Social Security and employer DB pensions; analyze the effect of mandating full or partial annuitization, which reduces adverse selection and administrative costs; and find such mandates generally welfare-improving, given the relative decline in annuity income from Social Security employer pensions. Innovations that make private annuities less costly and more attractive could expand annuity take-up. Webb, Gong, and Sun (2007) analyze one such innovation, the advanced life deferred annuity—a product that can be purchased, say, at the point of retirement and provide a lifetime payout beginning at ages 75, 80, or even older. Advanced life deferred annuities are relatively inexpensive, address a widespread anxiety about outliving one's assets at advanced ages, and thus could be quite attractive. Agnew and others (2008) show that the way in which annuity options are framed, or presented, significantly affects their appeal. Insuring longevity, however, is tricky. Friedberg and Webb (2005) provide evidence that insurance companies might be underestimating recent mortality improvements and underpricing annuity contracts, but could hedge this risk relatively inexpensively using mortality-contingent bonds.

Studies of retiree well-being too often ignore the role of owner-occupied housing. Soto (2005b) shows that the elderly generally own their homes, either free and clear or nearly free and clear. Owner-occupied housing provides an important stream of in-kind income, which is received (and consumed) free of income tax. Butrica, Goldwyn, and Johnson (2005) show that real estate taxes, utility bills, general upkeep, and other housing-related costs are also the largest expenditure item in the budgets of elderly households—even larger than medical care. Although Munnell and Soto (2008) find that about 30 percent of households aged 50–62 had increased mortgage debt in response to the rapid run-up in housing prices earlier in the decade, home equity is by far the largest

untapped asset available as a source of retirement income for most households in or near retirement. The elderly, however, rarely convert housing wealth into cash income. Munnell, Soto, and Aubry (2007) report the results of a survey that finds that few households approaching retirement plan to tap their home equity for retirement, but those inadequately prepared for retirement and dependent on DC plans as opposed to DB plans are more disposed to do so. As retirees increasingly find themselves ill-prepared and dependent on DC plans, home equity could thus become a far more important source of retirement income.[12]

Working Longer

Given the decline in replacement income provided by Social Security and employer pension plans, the limited extent of other savings, and the pattern of resistance to annuitization or tapping home equity as a source of retirement income, the only alternative to sharply lower living standards for many retirees is to remain in the labor force longer. Working longer has a powerful impact on retirement incomes. Monthly Social Security benefits increase about 7–8 percent each year a worker postpones claiming from age 62 to 70. As these adjustments are actuarially fair, the gains in income drawn from 401(k)s, on a risk-adjusted basis, will be much the same. Butrica, Smith and Steuerle (2006) and Munnell, Buessing, and others (2006), using somewhat different approaches, both find that an additional 2–4 years in the labor force could offset, for the baby boom generation, the decline in the share of earnings replaced by Social Security and employer pension plans.[13] The average retirement age for men had remained essentially unchanged, at 63, since the mid-1980s.[14] So working an additional 2–4 years means pushing the average retirement age to 66, which was the average retirement age for men in 1960, or to 67, the FRA under Social Security for workers born in 1960 or later.

Munnell and Sass (2008) synthesized much of the research on the prospects for extending working careers in *Working Longer: A Solution to the Retirement Income Challenge*. As reported in *Working Longer*, health is not a major obstacle in extending careers. A review of the evidence, also reported in Munnell and Libby (2007), indicates that individuals aged 55–64 today are healthier than their counterparts in 1960 and that work has become less physically demanding, though perhaps 15–20 percent of workers would not be able to remain in the labor force into their mid-to-late sixties. For those who can work

at these ages, Calvo (2006) finds that work actually enhances health and happiness. So the critical questions are whether workers will choose to extend their careers and whether employers will choose to employ them.

The literature reviewed in *Working Longer* suggests that the coming decline in earnings replacement from Social Security and employer pension plans might not, on its own, lead workers to stay in the labor force long enough to assure reasonably secure retirements. This research finds that the availability of benefits is generally more important in retirement decisions than the level of benefits. Munnell, Soto, and Zhivan (2008) do find a statistically significant relationship between estimated earnings replacement rates and retirement decisions, but the effect is small. Their study estimates that a 10 percentage-point decline in replacement rates—comparable to the projected decline in net Social Security replacement rates by 2030 for the average individual retiring at age 65—would raise the labor force participation rate for men aged 55–64, currently about 70 percent, by just 1.5 percentage points.

Other studies, however, provide grounds for optimism that workers will opt to remain in the labor force longer. Defined contribution retirement plans, unlike employer defined benefit pension plans, lack financial incentives that encourage retirement at particular ages. Drawing a retirement income out of a savings account is also much riskier than relying on the annuity provided by a DB pension. Munnell, Triest, and Jivan (2004) estimate that the shift from DB to DC plans could raise the retirement age of those affected by about one year. Various studies also suggest that the increased labor force participation of succeeding cohorts of married women will raise participation rates. As Johnson (2004) finds that couples tend to retire together and as Coile (2003) finds that the continued employment of married women tends to extend their husbands' careers, the increased labor force participation of married women should extend both their own and their husbands' work lives.[15] Muldoon and Kopcke (2008) report that the majority of workers no longer claim Social Security benefits at the program's earliest eligibility age (EEA) of 62, as they had since the mid-1980s, although most still claim by 63.

Although the average retirement age for men has remained relatively steady since the mid-1980s, participation rates among men aged 65–69 have indeed increased dramatically, from about 20 percent at the end of the 1980s to above 35 percent today. Engelhardt and Kumar (2007b) associate the sharp rise in this

age group with the elimination of the Social Security earnings test—which many workers incorrectly view as a tax—once workers attain the FRA. Such responsiveness to financial incentives suggests that workers will indeed opt to extend their work lives as the retirement income system contracts. Haider and Loughran (2001), however, dispute this inference. Their study finds that men aged 65–69 who remain in the labor force are disproportionately educated, high-wage workers who earn much less than they had at younger ages, and the authors conclude that nonpecuniary considerations play a critical role in their work/retirement decisions. More educated, high-wage workers are also those who are least at risk of having inadequate retirement incomes. So their increased participation at older ages does less to ameliorate the nation's retirement income challenge than a more broad-based extension of working careers.

Even if workers want to stay in the labor force into their late sixties, the decision is not theirs alone. Employers must provide opportunities. And here the CRR's research findings have been somewhat discouraging. Eschtruth, Sass, and Aubry (2007) find employers lukewarm about retaining even half of the workers they expect will want to stay on the job 2–4 years longer because of a lack of resources to retire at the organization's traditional retirement age.[16] Sapozhnikov and Triest (2007) analyze the effect of cohort size on wage rates—controlling for educational attainment, experience, and time trend—and find that the large number of older workers in the labor market, now that the oldest baby boomer is age 63, reduces their market value. Also troubling is a sharp decline in career employment, defined as employment with a single employer from middle age (or earlier) to retirement. Using age and tenure data from the Current Population Survey, Munnell and Sass (2008) report that only 44 percent of employed men aged 58–62 currently work full time for the same employer they had at age 50, a dramatic change from the early 1980s when 70 percent of men in that age range were working full time for their age-50 employer. For workers in their fifties, job transitions are often quite difficult. Lahey (2006) documents significant age discrimination in the job search, using interview request rates responding to paired résumés submitted by applicants for entry-level jobs, with information on the résumés addressing concerns over issues such as job skills and the need for health insurance.[17] Johnson and Kawachi (2007) report that workers in the HRS who change jobs typically get sharply lower wages and benefits,

though the effect on well-being is ambiguous. The authors find that new positions are also less stressful and job-changers are somewhat more likely to say that their new positions are enjoyable. Job-changing, however, significantly raises the risk of displacement.[18] Although older workers are generally less prone to displacement, Munnell, Sass, and others (2006) find that tenure, not age, is the reason; older workers today are actually at greater risk of displacement than younger workers with similar amounts of tenure.

Given the importance of benefit availability in retirement decisions, the most effective way to keep workers in the labor force longer, thereby enhancing retirement income security, could be an increase in the EEA for Social Security benefits. Raising the EEA should also make older workers more attractive to employers. Munnell, Sass, and Soto (2006), analyzing the results of an employer survey, find that the limited time employers expect older workers to remain on the job significantly diminishes their attractiveness. To the extent that a higher EEA postpones the expected departure date, employers should be more willing to hire, train, and promote older workers.

The primary objection to raising the EEA is the hardship it would create for those unable to work or find employment and who lack the financial resources to support themselves without working. Raising the EEA is also seen as unfair to groups with low life expectancy, such as low-wage workers and certain minorities, who would collect the higher monthly benefit payable at the higher EEA for a shorter period of time. To estimate the share of the workforce at risk of hardship if the EEA were raised from age 62 to age 64, Munnell, Meme, and others (2004) review the health and financial status of workers in the HRS who claim retirement benefits at ages 62 or 63. They concluded that only 4 percent of the workforce is physically unable to work to age 64 and lack the resources needed to support themselves without working. If the EEA were raised, the standard approach for addressing that at-risk population is to expand Social Security's Disability Insurance or Supplemental Security Income programs. Using earnings data that SSA already collects, Zhivan and others (2008) analyze an alternative approach that would raise the EEA for most workers but retain an earlier EEA, and perhaps an earlier FRA, for workers with low lifetime earnings. The study shows that such an "elastic" EEA could be an effective and target-efficient way to protect vulnerable workers and workers with low life expectancy.

Although monthly Social Security benefits are higher the later a worker claims, lifetime benefits are much the same no matter when a worker with average life expectancy claims. But because Social Security provides special spousal and survivor benefits to married couples, the value of household lifetime benefits can be affected by claiming ages.[19] Munnell and Soto (2005d) calculate current claiming ages that maximize the expected present value of household benefits based on the age difference between the spouses and the relative size of benefits based on their earnings records. The study finds that most married men maximize the value of household benefits if they claim at age 69, as their wives are likely to survive them and as a survivor gets their higher monthly benefit. Sass, Sun, and Webb (2008), using a sample of actual households from the first HRS cohort (which had different benefit rules that provided smaller increases to workers who claimed past the FRA), find that the median maximizing ages were 66 for the husband and 62 for the wife. The study compares the expected value of benefits claimed at the household's maximizing ages with the value of benefits had both husband and wife claimed at age 62. It finds little difference in the expected value of benefits while the husband is alive, but a 25 percent gain in the expected value of the wife's survivor benefits if the husband claims at the maximizing age. As low incomes among elderly widows is a major social problem, the study suggests guaranteeing the low-earning spouse a survivor benefit equal to the higher earner's FRA benefit, paid for by reducing the higher earner's benefit if claimed before the FRA.

An Evaluation After 10 Years

The CRR at Boston College, in its first 10 years of existence—

- Produced or oversaw the production of roughly 200 basic research studies on key policy issues.

- Helped train and educate many promising new scholars in the field, primarily through its management of SSA-sponsored education and training programs.

- Disseminated this research widely through its working papers and biweekly issue in brief series, currently sent by e-mail to 4,000 subscribers; through literature providing overviews of research findings on key policy issues; through educational products designed for the general public; and through a dedicated media outreach campaign.[20]

These contributions enhanced our understanding of the retirement income challenges the nation faces, expanded areas of consensus on how these challenges might be addressed, and helped ameliorate some of the strong divisions in the policy community that were present at the CRR's birth. The CRR's contributions can be seen in the enactment of the Pension Protection Act of 2006, which addressed various shortcomings in employer retirement income plans. The CRR's review of the 401(k) institution, *Coming Up Short*, helped make the case that reform was needed—that 401(k) plans as currently structured would not produce enough retirement income for workers dependent on these programs. It also supported the emerging consensus that best-practice defaults—a halfway house between government mandates and laissez-faire—could go a long way toward improving 401(k) performance. The CRR also helped open critical new areas of retirement policy research. Perhaps most important is the employment of older workers, increasingly viewed as the nation's most effective response to shortcomings in the retirement income system. Given the nation's pressing retirement income challenges, the CRR's contributions to the policy debate have arrived none too early.

Notes

[1] During part of the past 10 years, the CRR also had affiliations with the American Enterprise Institute, the Center for Strategic and International Studies, and the Max Planck Institute for Demographic Research.

[2] The research output of the CRR and its affiliates, organized by topic, is listed at http://www.crr.bc.edu.

[3] The 2037 exhaustion date refers to the Old-Age and Survivors Insurance Trust Fund and the Disability Insurance Trust Fund combined. For the purposes of this article, all references to the "trust fund" will reflect the two funds combined.

[4] SSA's actuaries later reduced their assumed rate of return on equities from 7.0 percent to 6.5 percent when analyzing proposals from the President's Commission.

[5] The model 2 proposal avoided those costs by requiring centralized account administration and restricted investment choice to low-cost options on balances less than $5,000.

[6] The *Social Security Fix-It Book* is available for download at the CRR at Boston College's Web site: http://www.crr.bc.edu/special_projects/the_social _security_fix-it_book.html; hard-copies are available at Amazon.com for $4.95. Other public education efforts addressing the Social Security reform debate include

Munnell (2004); Brown, Hassett, and Smetters (2005); and Munnell and Soto (2005b, 2005c).

[7] Many proposals that restore solvency by cutting benefits rather than raising revenues, including model 2, include provisions that raise benefits for vulnerable groups such as widow(er)s and low-wage workers.

[8] The wage-adjusted poverty rate adjusts the poverty threshold in line with the rise in real wages, unlike the official poverty rate, which adjusts the poverty threshold in line with prices. The wage-adjusted rate reflects a relative definition of poverty—deprivation relative to current social norms; the official price-adjusted poverty rate reflects an absolute definition of poverty—deprivation relative to biological necessity (or, in the case of the U.S. official poverty rate, relative to social norms in the 1960s).

[9] Munnell and Soto (2005a) and Social Security Administration (2006).

[10] Also see Butrica, Iams, and Smith (2003)—"It's All Relative: Understanding the Retirement Prospects of Baby-Boomers"—which highlights the importance of the standard of reference, whether the adequacy of retirement incomes is measured relative to workers' preretirement standard of living or some other standard, such as the standard of living of current retirees.

[11] Without annuitization, households pursuing "optimal" drawdown strategies would consume more of their incomes when relatively young and have incomes declining rather steeply over time, with "unlucky," long-lived households having no income at the end of their lives other than their Social Security benefits. This consumption pattern is inferior to that offered by an actuarially fair annuity, given reasonable assumptions and abstracting from bequest and precautionary wealth-holding motives. Butrica and Mermin (2006) find such a front-loaded household pattern of expenditures, albeit not nearly so radical as indicated by most optimizing models. Smeeding and others (2006) find that U.S. retirees retain significant amounts of home equity— far more than retirees in other industrialized nations—and suggest that a greater need for precautionary assets against possible long-term care expenditures might explain this difference in the behavior of U.S. retirees. Cox and Soldo (2004) provide evidence that retirees also hold assets as potential bequests, offered in exchange for care from adult children.

[12] Inheritances, most often the value of the parents' house, are sometimes seen as an important retirement asset. But such bequests have not been major contributors to the income of most retirees and are unlikely to be so in the future. Cox and Soldo (2004), however, do show that the promise of a bequest is sometimes explicitly or implicitly exchanged for caregiving.

[13] Burtless and Quinn (2002) also review working longer as a response to the contraction of the retirement income system.

[14] The average retirement age is defined here as the age at which more than half of men are not participating in the labor force. Preliminary data suggest that the average retirement age has risen recently, from 63 to 64.

[15] Schirle (2008) provides strong evidence for this point.

[16] As reported in Munnell, Sass, and Aubry (2006), these employers expect that one out of four of their employees will lack the resources needed to retire at the organization's traditional retirement age and, in response, will want to stay on the job 2–4 years longer. The employers' lack of interest in retaining these workers highlights the importance of employer demand for older workers as an issue to be addressed in retirement income policy.

[17] Lahey (2006) also finds evidence that more vigorous antidiscrimination efforts could be counterproductive. As states with tougher regimes have lower employment rates for older workers, employers seem to respond by avoiding hiring or retaining older workers.

[18] Displacement rates in the 1996–2004 Displaced Worker Surveys averaged 15.9 percent for those with less than 1 year of tenure and 11.3 percent for those with 1–5 years of tenure, dropping to 5.5 percent for those with 5–10 years of tenure and 4.0 percent for those with 10 or more years of tenure.

[19] Spousal benefits are only available if both spouses have claimed. Survivors are entitled to their spouse's monthly benefit (reduced if claimed early) if greater than their own earned benefit, and their spouse's monthly benefit is based on the spouse's claiming age.

[20] The CRR's working papers and issue in brief series can also be downloaded from its Web site, which currently averages 9,000 unique visitors per month. To disseminate research beyond the English-speaking world, the CRR also translates the introductions to its briefs into Spanish and the full text of selected briefs into Spanish and Chinese, and it distributes these translations via e-mail and the Web.

In addition to the overviews previously discussed, Munnell and Sundén (2003) edited *Death and Dollars: The Role of Gifts and Bequests in America*, an anthology on inheritance and its current and prospective impact on retirement income security. Clark, Munnell, and Orszag (2006) edited the *Oxford Handbook of Pensions and Retirement Income*, an anthology covering the latest research and major theoretical frameworks for assessing retirement income systems.

The CRR produced *Working Longer*, a film on the retirement income benefits of remaining in the labor force longer and the challenges workers face in doing so, and *When Should I Retire and Start Social Security?*, which explains the importance of Social Security claiming ages on the monthly retirement income of a worker and his or her survivor, using the same popular format as the CRR's *Social Security Fix-It Book*. The Center for Retirement Research at Boston College and the Educational Technology Center at Northeastern University (2008) produced *Get Rich Slow*, an interactive group game designed to educate and motivate participants to become actively engaged in retirement planning (available for download at http://www.crr.bc.edu).

The CRR's e-mail distribution includes about 200 journalists, and accommodating requests for interviews is an important CRR priority. As a result, the CRR currently averages about 45 press citations per month, and CRR staff regularly appear on national radio and TV programs and are featured in documentaries such as Hedrick Smith's influential *Can You Afford to Retire?*

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Social Security Research at the Michigan Retirement Research Center

by Richard Burkhauser, Alan Gustman, John Laitner, Olivia Mitchell, and Amanda Sonnega*

Introduction

Social Security has been a topic of widespread discussion in the last decade. Rising longevity and falling fertility have led to an aging population, which increases solvency challenges for the Social Security system. Public concerns over low national saving have led to an extensive dialog on the merits of reform that might change the U.S. system into one with fully or partially funded personal accounts. Meanwhile, pensions in the private sector have been evolving from predominantly defined benefit (DB) to predominantly defined contribution (DC), raising concerns that workers preparing for retirement have more personal responsibility, with more complex financial challenges, than ever before.

The Office of Retirement and Disability Policy at the Social Security Administration (SSA) created the Retirement Research Consortium (RRC) in 1998 to encourage research on topics related to Social Security and the well-being of older Americans, and to foster communication between the academic and policy communities—in particular, through an annual research conference in Washington, D.C.[1] The Michigan Retirement Research Center (MRRC) has been part of that effort for more than a decade. This article surveys a selection of MRRC output[2] and highlights principal themes in the Center's ongoing research.

From its inception, many MRRC researchers have specialized in quantitative analysis using microeconomic data. The single most important data set for this work is the University of Michigan's Health and Retirement Study (HRS), a panel survey representative of the U.S. population older than age 50, with complementary information on Social Security and pension benefits. (Primary support for the HRS comes from the National Institute of Aging; however, SSA provides important supplementary support. SSA also provides earnings histories of HRS respondents and spouses who consent.) MRRC and the HRS work closely together.

Many analyses of possible Social Security reforms and related policy issues begin with the so-called "life-cycle model" of Nobel laureate Franco Modigliani (1986). It forms the conceptual framework underlying most empirical studies, and much of the research reviewed in this paper employs the life-cycle model. As its name implies, the model follows household members through their life spans. A household starts with a young adult single or couple. Earnings tend to rise as one ages, until abruptly ending at retirement. The premise of the model is that a household's desired lifetime consumption profile is likely to be relatively flat. A household should therefore save during its peak earning years to accumulate assets that will enable it to maintain its standard of living, that is to say its consumption, after retirement. Thus, the model indicates motives for saving. It posits for each household a criterion, or "utility function," which measures the satisfaction derived from lifetime consumption. A household's lifetime consumption aims to maximize this utility function, subject to its budget constraints.

Selected Abbreviations

CAMS	Consumption and Activities Mail Survey
DB	defined benefit
DC	defined contribution
DI	Disability Insurance
HRS	Health and Retirement Study

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The latter make a household's consumption options conditional on its earnings. Generalizing the criterion to reflect a household's valuation of leisure time, we can use the model to study choices of how much to work and when to retire. The attributes of the utility function will characterize a household's tolerance for risk; hence, one can use the model to explain portfolio choices at different ages. In fact, the model can admit many details and complexities.

Social Security Reform

One of the topics of greatest interest to MRRC researchers in recent years has been possible reform of the Social Security system. There have been numerous proposals from a wide variety of sources. One prominent example is the 2001 Presidential Commission report *Strengthening Social Security and Creating Personal Wealth for All Americans.*[3]

One strand of MRRC research considers basic theoretical differences among public pension systems. A number of reform proposals involve the establishment of personal retirement accounts. Laitner (2002) examines the fundamental theoretical difference between a pay-as-you-go (PAYGO) public pension system and a system with funded private accounts. A PAYGO system pays benefits to current retirees out of tax revenues from current workers. A system with funded private accounts would collect taxes from each current worker and later pay his or her retirement benefits from the balance of the account (that is, from the worker's own cumulative contribution) plus accrued interest. Either system will reduce private incentives to save because both provide retirement benefit payments that substitute for private life-cycle accumulations. In the case of a funded public system, the system's private account balances tend to offset reductions in private saving, and Laitner shows the offset is one-for-one in some cases. With a PAYGO system, however, there are no public-system account balances to offset reduced private saving, inhibiting potential national wealth. To switch from a PAYGO Social Security system to one with funded private accounts requires a funding mechanism. Laitner shows that borrowing money through an increase in the national debt can set up initial private account balances for older workers.

Neither efficiency gains or losses, nor changes in general equilibrium prices, will necessarily follow. Nevertheless, such a transition does not improve national saving.

Smetters (2005) employs a more complicated model reflecting household choices about work hours and lifetime consumption, and shows that it is possible to design a changeover from a PAYGO to an account-type Social Security system that leaves no household worse off and leaves some clearly better off (known to economists as a "Pareto improvement"). The study shows that the course of reform can be arranged to elicit larger and more efficient labor supplies during the transition. When Nishiyama and Smetters (2006, 2007) elaborate the model to include earnings uncertainty and mortality risk, however, the efficiency gains tend to disappear. The existing Social Security system has a progressive benefit structure, which provides risk sharing, especially for households with low earnings. In the sophisticated model, switching one-half of Social Security taxes to personal accounts no longer yields overall efficiency gains. Net gains reappear only when benefits to low earners under the residual Social Security system are made considerably more progressive than those of the current system.

A second strand of MRRC research simulates likely effects of specific elements from the Presidential Commission's list of reforms. Gustman and Steinmeier (2002, 2004) use HRS panel data to construct a life-cycle model of household behavior. The model assumes that households choose their lifetime consumption and retirement age, with the latter perhaps preceded by an interval of part-time employment. Interpersonal differences in earning ability, impatience, taste for leisure, and taste for part-time work constitute an important element of the model (see "Labor Supply Behavior" section). Households face constraints on their ability to borrow, in the sense that their net worth must always remain nonnegative.

Gustman and Steinmeier (2003) consider commission proposals to limit future benefit growth to price inflation, boost minimum benefits, reduce benefits for early retirement more rapidly than currently scheduled, increase benefits for surviving spouses in low-wage households, or reduce high-income bracket Social Security benefits. The first and third proposals could have fairly significant effects according to the simulations. Pegging benefit growth to inflation leads to substantial reductions in the purchasing power of benefits over time, causing postponement of retirement. The authors find that full-time work

among individuals aged 62 in 2075 would increase by about 7 percentage points relative to current law, which allows benefits to grow with wages. The third proposal, which directly penalizes early retirement, can increase labor supply 3–4 percentage points at age 65 in 2075. Gustman and Steinmeier (2005a) study a Commission proposal allowing Social Security participants to allocate 4 percentage points of their payroll tax to a personal account, with traditional Social Security benefits being reduced proportionately for those with personal accounts. The new accounts pay market interest rates, assumed in the simulations to equal 4.3 percent above the rate of inflation. Beyond a poverty threshold, retirement funds from the personal account may be withdrawn as either a lump sum or an annuity. In this simulation, the percentage of men retiring at age 62 increases from 33 percent to 42 percent. The high rate of return on the new accounts tends to increase resources available to households, facilitating earlier retirement. Although the new accounts reward households—especially those with higher earnings—with greater benefits for postponing retirement than the existing system, the rate-of-return effect predominates in the simulations.

A third strand of MRRC research investigates possible reforms not explicitly covered in the Presidential Commission report. Gramlich (2006) confronts solvency problems of the current Social Security system, which the Board of Trustees (2007) estimated to be about 3.5 percent of future taxable payroll.[4] Gramlich proposes a package of modest-scale changes. He calculates that eliminating the taxable maximum on the payroll tax, immediately increasing the normal retirement age for benefits by 1 year, and adopting price indexing for approximately a decade would eliminate Social Security's solvency problems in perpetuity. Laitner and Silverman (2006) investigate a policy change affecting Social Security tax requirements and benefit calculations. Earnings beyond a preset age—for example, 54—would not be subject to the payroll tax nor would they be used in calculating the participant's Social Security benefits. The payroll tax earlier in life would be slightly (less than 1 percent) higher, to make the proposed reform revenue neutral. The simulations suggest that men would extend their careers by about 1 year, on average, following the policy change. An individual retires when the after-tax value of wages falls short of the value of retirement leisure. Income and payroll taxes lower a household's perceived reward for work. By eliminating the payroll tax late in life, the proposed reform reduces tax-induced incentives to retire early. In the simulations, most participants value the chance to work longer and keep more of their compensation, and the economy benefits from additional income tax revenues stemming from longer careers.

The research of James and Edwards (2005) on public pension reform in Chile provides interesting evidence corroborating the possibility of labor-supply increases among older men in response to lower tax rates. Although the effects of different aspects of Chilean reform are difficult to separate, "restricted access to early pensions and the exemption of pensioners from the pension payroll tax appear to exert a powerful effect on labor force participation rates."

Social Security Disability Insurance

The onset of disability can pose a significant threat to work and economic welfare. The United States has established a network of public and private programs to mitigate disability's economic consequences. The two most important federal programs are Social Security Disability Insurance (DI) and Supplemental Security Income (SSI). MRRC disability research evaluates features of these programs and studies program interactions.

Unlike most European countries, the United States has no universal short-term disability program, and imposes a 5-month waiting period for DI benefits. This has raised concerns about the potential for substantial loss of income before benefit payments begin. Bound, Burkhauser, and Nichols (2003) trace sources and patterns of household income prior to and following DI application. The average applicant's monthly earnings decline significantly (from $1,575 to $248) in the months before application, but the monthly income of the applicant's household drops much less in the months before and after application (from $3,254 to $2,455) and over the next 3 years—even for those denied benefits. A patchwork of temporary disability benefits such as workers' compensation and employer pension benefits seems to offset declines in their own and their spouse's earnings. In the longer run, most of these temporary sources of income are replaced by DI benefits. Although SSI applicants also experience declines in earnings, their household income holds up much better because, on average, earnings play a less important role for them (the average household income of SSI applicants is $1,530 per month, compared with $3,458 for DI applicants). However, income from Aid to Families with Dependent Children (AFDC) and other welfare programs declined for SSI awardees.

Mitchell and Phillips (2001, 2002) study potential economic consequences of increasing the early Social Security retirement age for workers with health limitations. The 2001 study finds that in the HRS cohort of men and women aged 51–61, the majority is eligible to apply for DI, but some men, and 20 percent of women, are not. The main reason for ineligibility is having insufficient quarters of coverage to qualify for benefits. A disproportionate share of the uncovered population has a health problem and lower income or wealth. The 2002 paper uses the first four waves of the HRS to predict DI application and award patterns longitudinally. Those in poor health and with lower education and income are more likely to apply for DI, compared with those reporting no health problems and more assets. Few factors distinguish those who are awarded benefits from those who are not. Among initial applicants, middle earners are more likely to be awarded DI benefits, while high-earning respondents are less likely to receive initial awards. For reapplications and appeals, higher non–Social Security wealth is positively correlated with a secondary award.

Examining the impact of increasing the early retirement age is important, and merits additional research. For example, Bound, Stinebrickner, and Waidman (2004) run successive simulations using increasingly sophisticated methods, with somewhat different results. They simulate consequences of several policy changes—including increasing the minimum age for Social Security retirement benefits to 65—on employment and DI applications. They find that increasing the early retirement age would reduce exits from the work force at age 62 (currently around 60 percent) by nearly 20 percent, with little change in DI applications.

Bound, Cullen, Nichols, and Schmidt (2004) evaluate the adequacy of the DI program to insure against income losses associated with disability onset. They argue that the empirical literature measures DI efficiency costs in terms of either caseload growth or reduced labor force attachment, without considering how these costs are related to societal gains from redistribution. To address this, they calculate the expected financial benefits and costs of an increase in DI payments. The total cost of providing an additional $1 of income to current DI recipients is $1.50, which the average worker should be willing to "pay." The average implicit price of an additional dollar of insurance is much higher than $1.50 for more highly educated (higher wage) workers, so they would not willingly purchase additional insurance. Although the average implicit price is always such that typical workers would purchase additional insurance, more highly educated workers never gain since they bear a disproportionate share of the costs. This analysis starkly shows the political economy aspects of DI program growth—those who will gain and lose from the policy as well as the tradeoff between program inefficiencies and social gains from its distributional consequences.

Another aspect of MRRC analysis, which is more multidisciplinary in nature, focuses on the relationship between poor health behaviors or specific medical conditions and disability. Richardson and others (2003) show that poor health behaviors at baseline, specifically smoking and a sedentary lifestyle, predict workforce disability (a health-related limitation or inability to perform work tasks) and workforce exits within the 6 years studied. Vijan and Langa (2003) and Vijan, Hayward, and Langa (2004) find strong correlations among diabetes, health-related work limitations, and workforce exit. Wray (2003) finds that poor mental health is also a strong predictor of workforce exit.

Burkhauser and Cawley (2004) examine the impact of obesity, as measured by body mass index (BMI), and find evidence that obesity increases the probability of health-related work limitations. The same authors (2006, 2008) argue that BMI does not distinguish fat from fat-free mass such as muscle and bone. Using data from the National Health and Nutrition Examination Survey III, they show that the identification of individuals as obese, group rates of obesity, and correlations of obesity with social science outcomes are all sensitive to one's measure of fatness. They find that total body fat is negatively correlated with employment for some groups and that fat-free mass is not significantly correlated with employment for any group, a difference obscured in previous research using only BMI. Burkhauser, Cawley, and Schmeiser (2008) apply a similar strategy to predict DI application. They find that, for white men, BMI consistently predicts future DI application. For white women, almost all measures are consistently predictive. For black men, none predict application. For black women, waist circumference and waist-to-hip ratio are the only significant predictors of DI application. This variation across race and gender suggests that social science data sets should include alternative measures of fatness. These findings allow policymakers to better predict program application and enrollment and hence overall Social Security costs.

Labor Supply Behavior

The age at which workers decide to retire will have an important bearing on labor supply and per capita national output in coming years. Certainly, changing trends in women's labor force participation will have a profound impact. This is especially significant in an era of declining birth rates and increasing longevity.

For many years, the most common retirement age for males was 65, and the second most common was 62. Researchers could readily identify probable reasons: Because of inequitable actuarial adjustments embedded in both Social Security and many private DB pensions, the reward for working after becoming eligible for benefits declined. By working full time another year after reaching age 65 (or, in the case of pensions, after qualifying for normal retirement benefits), one would continue to collect wages, but as much as 1 year's worth of benefits could be lost. Because the system failed to adjust future benefits to compensate for any benefits lost while continuing to work, the net wage fell. Furthermore, workers were not allowed to collect private pensions while working on the same job, and many jobs had a mandatory retirement age. Analysts examined the impact of wages, the change in the present value of expected future Social Security and pension benefits, and other factors on retirement age and found that the net gain from continued work typically turned sharply negative at age 65.

However, the institutional backdrop for retirement choices has shifted dramatically in the last three decades. Changes to Social Security enacted in 1983 established incremental increases in the full-benefit retirement age and gradually reduced penalties for earnings after retirement until the penalty was entirely eliminated in 2000. The Age Discrimination in Employment Act of 1986 abolished mandatory retirement in most jobs. Evolution toward DC pension plans in the private sector tended to ensure, and to make transparent, financial advantages for postponing retirement. Recent data show that the "spike" in male retirements at age 65 has indeed greatly diminished as more men work longer. Nevertheless, a bunching of male retirements at age 62 is still quite evident—in fact it is now the most common retirement age— and presents a puzzle, given the incentives to delay retirement.

MRRC research suggests a possible explanation for a continuing effect of institutions and policies on retirement choices. Social Security and pension benefit formulas include a "one-size-fits-all" actuarial adjustment that favors no retirement age over another. Yet, there may be major differences in individual preferences. For instance, some people are very patient while others are not. Economists measure this impatience with the "subjective discount rate." A household with a high subjective discount rate "discounts" the value of a future pleasure relative to that of a present pleasure. Allowing different degrees for impatience for different households, Gustman and Steinmeier (forthcoming) estimate that about 45 percent of married men have subjective discount rates above 5 percent, and one-third have rates above 20 percent. The latter rates indicate very impatient individuals who will eschew delays in benefit receipt under almost all circumstances. For them, the Social Security early retirement age is a great temptation.

As an illustration, although the Social Security penalty for early retirement at age 62 relative to retirement at 65 is now roughly actuarially fair, Gustman and Steinmeier (2005b) find that a policy changing the early retirement age to 64 would induce 5 percent of the older male population to delay retirement from 62 to 64. In a second example, simulations find that changes in Social Security rules legislated in the 1980s and 1990s, and phased in between 1992 and 2004, increased labor force participation among married men aged 65–67 by almost 2 percentage points, raising full-time work for this age group by about 9 percent (Gustman and Steinmeier 2006). According to these calculations, changes from 1992 to 2004 in the Social Security normal retirement age, the earnings test, and the delayed retirement credit account for about one-sixth of the increase in labor force participation of married men aged 65–67 for 1998–2004. Preference heterogeneity within the population seemingly can make even subtle details of pension plan and Social Security rules quite important for private behavior.

Some MRRC research analyzes complex retirement outcomes involving the flows between full-time work, partial retirement, and full retirement, including people who retire, resume working, and subsequently increase the amount they work. Maestas (2004, 2007) examines the extent to which reversals from less to more work are planned, are due to economic hardship, or are due to dissatisfaction with retirement. Using the HRS, Maestas finds that almost half of retirements include periods of part-time work or involve returns to more intensive work. The return to work (or "unretirement") rate is 24 percent within 5 years of the first retirement and 36 percent for those who retired at ages 51–52. For all but 9 percent of those who returned

to work, "unretirement" was expected. Maestas and Li (2007) expand this investigation to discern possible other reasons for postretirement return to work. They use a measure of psychological burnout and recovery to predict retirement and labor force reentry patterns. Among their findings are that burnout is not a factor among those who partially retire, and that burnout combined with health problems makes full retirement more likely.

Another aspect of MRRC research considers implications of changes in women's labor force participation. As married women have chosen to work more outside the home, they have improved the solvency of the Social Security system by contributing payroll taxes (despite being eligible for spousal benefits without contributing)—and they have, of course, greatly augmented the market economy's labor force. Laitner, House, and Stolyarov (2005) and House, Laitner, and Stolyarov (2008) attempt to quantify the "net social" consequences of the changeover. If the value of housework is measured as "home production," then the economy's net gain from married women entering the labor force equals their new earnings minus sacrificed home production. One can divide the net gain into private gain, which equals new after-tax earnings minus lost home production, and public gain, which equals new tax revenues. The authors focus on private gain. Standard national income and product accounts do not measure home production, as direct measures are not available. However, the authors develop an indirect measure based on the life-cycle model. They argue that the financial assets of a retired couple with given lifetime earnings should be lower if both spouses earned wages than if the husband alone accounted for all wages. The asset difference should equal the market expenditures needed in dual-earner households to replace forgone home production of the wife. Calibrating parameters from HRS data, the authors find that the private gain from a married woman's labor force participation is roughly 75 cents per dollar of female earnings. In other words, increases in married women's labor force participation seem to have augmented the well-being of U.S. households quite substantially in recent years.

House, Laitner, and Stolyarov (2006) expand the basic life-cycle model to include household choices about married women's labor force participation at different ages, household saving, and married men's retirement behavior. The aim is to understand the motives for new behavioral patterns rather than just assessing their welfare consequences, so that

simulations can more accurately predict policy outcomes. Although the resulting model is complex, the authors provide preliminary calibrations. The paper shows that HRS data with linked lifetime Social Security earnings records for both men and women provide a basis for estimating the model's new coefficients. Because the life-cycle model has long been a basic tool for analyzing prospective Social Security reforms, continuous efforts to update the model are potentially very important.

Financial Investment for Retirement

MRRC research over the last several years has sought to better understand how households build up and draw down their retirement wealth in the face of risks and opportunities. Models tend to distinguish investors' *asset location* decisions (whether to hold wealth directly or to have it managed by money managers, pension funds, or insurers) from *asset allocation* decisions (whether to hold wealth in stocks, bonds, or other forms). Generally, researchers distinguish patterns of behavior during the work-life *accumulation phase* from those in the retirement *payout phase*. These investigations generate insights about life-cycle saving and investment patterns.

One focus of MRRC research is the influence of labor market conditions on preretirement planning. One example is risk of lost earnings. Younger employees are most vulnerable to sharp declines in anticipated earnings, especially job loss. According to McCarthy (2003), this risk induces workers to favor DC pensions early in life so as to diversify their retirement saving. As workers near retirement, they increasingly prefer DB pensions, which provide access to well-priced group annuities and allow diversification of wealth outside financial markets. Horneff, Maurer, and Stamos (2006) also find that asset allocation decisions among the young are strongly shaped by earnings risk. Empirical research by Benitez-Silva (2003b) shows that labor market flexibility shapes investment preferences. He finds that those with more flexible jobs[5] hold 12-14 percent more stock than those whose jobs tightly constrain them, suggesting that job flexibility acts as a kind of insurance that allows greater financial risk-taking. Another way in which earnings and investment decisions are intertwined involves the timing of retirement. Sevak (2002) finds that workers nearing retirement who experience unexpected increases in wealth retire earlier. Specifically, a $50,000 gain in retirement wealth (through successful

investments) leads to a 1.9 percentage point increase in retirement probability among workers aged 55 to 60.

Another set of studies has explored ways in which workers handle DC pension investments. Yamaguchi (2006), Yamaguchi, Mitchell, Mottola, and Utkus (2007), and Mitchell, Mottola, Utkus, and Yamaguchi (2006) have built an extensive database of millions of 401(k) plan participants to assess trading and investment patterns. The research shows that about 80 percent of participants fixed their initial contribution allocation and never revisited the decision over a 2-year period between 2003 and 2004. This is striking because financial market shifts can make pension accumulations diverge dramatically from initial intentions. The analysis also finds that portfolio trading is more frequent if employers put more funds in the plan menu, if participants invest in company stock, and if workers have internet access to their portfolio. One particularly interesting finding is that traders' risk-adjusted returns prove to be the same as those of nontraders overall, though passive rebalancers— who hold only life-cycle or balanced funds—earn the highest risk-adjusted returns. Dominitz and Hung (2006) find that employees who are offered lifestyle and life-cycle funds in their pension menus can wind up better off; although it does tend to be conservative, life-cycle investing may induce some investors to take on more risk than they otherwise would, and to invest more efficiently than if relying on their own strategies. Interestingly, van Soest and Kapteyn (2006) show that people who expect higher Social Security benefits view those benefits as a safe buffer that makes the risk of investing in other retirement resources more acceptable. These findings seem to contradict the notion that high Social Security benefits have a negative effect on private retirement investment. Instead, Social Security benefits exert positive effects on several forms of wealth accumulation.

The possibility of outliving one's assets is perhaps the most prominent risk affecting retirees. Work by Horneff, Maurer, Mitchell, and Dus (2006, 2008), Horneff, Maurer, Mitchell, and Stamos (2007), and Dus, Maurer, and Mitchell (2005) examines older women's decisions of whether (and when) to buy annuities or to hold financial-market assets. The appeal of an annuity is that it provides longevity insurance, so that the retiree will not outlive her wealth. On the other hand, turning funds over to an insurer precludes leaving an estate for one's heirs. The research shows that the optimal strategy involves holding some stock and gradually annuitizing over the retirement period.

This gives the retiree access to both the survival insurance of annuities and the equity premium from stocks. The research also shows that the phased withdrawal rule encouraged under U.S. tax law can appeal to a wide range of retirees. Complementing this work, Benitez-Silva (2003a) suggests that Social Security benefits, paid as a lifelong annuity, play an important role in retiree asset location decisions.

Some recent MRRC research on retirement accumulation and decumulation turns to the question of how people actually make financial decisions— whether they are financially literate, whether they carefully plan, and whether they execute their plans successfully. Lillard and Willis (2001) focus on differences in consumer competence at older ages to make complex investment and saving decisions. The authors find that low cognitive capacity[6] is a significant impediment to good financial decisionmaking. Expanding on this topic, Kezdi and Willis (2003) examine how cognitive capacity and other factors shape people's perceptions of investment options, and show strong effects of cognitive capacity and optimistic expectations on the probability of holding stocks. Delavande, Rohwedder, and Willis (2008) propose thinking about financial literacy as a cognitive capacity, a part of human capital in which people can invest. In deciding whether to invest in acquiring financial knowledge, the effort is balanced against the expected return. For older people, the potential reward may not seem worth the effort.

Financial literacy in retirement planning is the focus of a number of MRRC studies (Lusardi 2003, 2006; Lusardi and Beeler 2007; Lusardi and Mitchell 2005, 2007a, 2007c). Lusardi (2003) finds that strikingly few HRS respondents can correctly answer simple questions about inflation, interest compounding, and risk diversification. Women and racial/ethnic minorities display particular deficits of financial knowledge. People who are more financially literate are more likely to plan for retirement and execute their financial plans successfully. The availability of professional financial services does not seem to eliminate the need for individual literacy.

More recent work stresses the accumulation phase of the life cycle. Using data from the RAND American Life Panel, Lusardi and Mitchell (2007b) evaluate financial knowledge during workers' prime earning years (most of the sample is aged 40–60), when important financial decisions are made. With more detailed measures of financial literacy than were available in earlier studies, the authors show that by

every measure, financial literacy proves to be a strong predictor of financial planning for retirement.

Well-being in Retirement

A significant share of MRRC work deals with factors affecting retirement savings and material well-being in retirement. In this context, important questions of how to measure well-being arise. For example, policymakers have long relied on income-based measures of poverty. Hurd and Rohwedder (2006) compare these with a consumption-based measure. They use data from the Consumptions and Activities Mail Survey (CAMS), which they developed. Consumption is arguably a much more accurate measure of material well-being than income, because those in retirement are able to spend out of their savings. Hurd and Rohwedder find that consumption-based poverty rates are considerably lower than income-based rates. The differences are especially dramatic for singles. For example, among 55- to 59-year-old singles, the poverty rate based on after-tax income is around 20 percent, but it is only 10 percent when a consumption-based measure is used.

It is well-documented that household expenditures over the life cycle increase through middle age and decline sharply thereafter. Household consumption tends to rise from ages 25 to 45 and to fall between ages 45 and 70. Some research finds a distinct drop in spending at retirement. This finding is somewhat at odds with the life-cycle model, which posits that households should seek to smooth consumption—to acquire and maintain a given standard of living—over the life cycle. Using the CAMS, Hurd and Rohwedder (2005) examine this so-called "retirement consumption puzzle." They find that declines in spending after retirement often appear to have been anticipated. A closer examination shows that 37 percent of households report no change in spending at retirement, 11 percent report spending increases, 20 percent report declines of 20 percent or less, and 30 percent report declines exceeding 20 percent. A detailed look at the last group reveals that they are more likely to have experienced deteriorating health (see also Rohwedder 2006).

Aguiar and Hurst (2008) use data from the Consumer Expenditure Survey to analyze categories of spending as well as time allocation over the life cycle. They find that the entire decline in nondurable expenditures later in life is attributable to three categories—food, nondurable transportation, and clothing/personal care—which are all positively correlated with gainful employment. Food expenditures are amenable to home production, while transportation and clothing are primarily workers' expenses. The remaining nondurable categories, constituting roughly half of total nondurable expenditures, do not decline at older ages. These categories include entertainment, housing services, charitable giving, and utilities. Moreover, expenditures on several of these categories, most notably entertainment, actually increase over the latter half of the life cycle.

Other MRRC research addresses different factors that influence retirement well-being. Rohwedder and van Soest (2006) use HRS data to examine the impact of misperceptions about Social Security benefits. Comparing expected benefits with those actually received, the authors demonstrate that people who overestimate their Social Security benefits tend to be among the least prepared when they retire. These people tend to reduce consumption at retirement more than those who underestimated or correctly estimated their benefits. Once retired, they have more worries about how to get by with the resources they have. They also more often report that retirement years turned out worse than expected. Such outcomes seem more pronounced for respondents who claimed benefits earlier than anticipated, relative to those who were simply misinformed.

Scholz and Seshadri (2007) examine the effects of children on household net worth. They find that the presence of children is important in explaining why wealth distribution is far more dispersed than earnings distribution. Because children require a portion of household resources, retirees with children may have a lower living standard to maintain than those with no children. Their share of household resources has been less at all ages.

Another set of MRRC papers directly addresses the question of resource adequacy in retirement. Using data from the CAMS, Hurd and Rohwedder (2008) find that a substantial majority of those aged 66–69 are adequately prepared for retirement in that they will be able to follow a path of consumption that begins at their current level and subsequently follows an age pattern similar to the average for current retirees. They do not find inadequate preparation for retirement on average or at the median. However, they also find that many singles lacking a high school education are forced to reduce consumption: Almost half could reduce initial consumption by 15 percent and still face a greater than 5 percent chance of outliving their wealth. The authors find that retirement preparation

among couples is much better. However, a noteworthy subgroup is college graduates: When taxes are taken into account, the proportion that is adequately prepared falls by about 18 percentage points.

Scholz and Seshadri (2008) use HRS data to assess the degree to which individuals born before 1954 have accumulated or are accumulating the wealth necessary to maintain preretirement living standards in retirement. They show that only 3.6 percent of HRS households have net worth below optimal targets, and among those, the shortfall is small. There is some evidence that younger subgroups are less likely to meet targets; but even in the 1948–1953 birth year cohort only 10.2 percent of households are below target, and the median shortfall is $16,306. These findings suggest that households overall are not making large, systematic errors in their financial preparation for retirement.

Dushi and Honig (2007) investigate specific sources of retirement wealth. They report on HRS data comparing 401(k) plan participation rates for cohorts born 1931–1941 with those born 1948–1953. Participation for the younger cohort is nearly 50 percent greater. The substantial growth in participation over a relatively brief period may reflect a growing interest in this particular saving vehicle, changes over this period in the external environment (such as the overall shift from DB to DC plans), or both influences.

With much attention currently focused on the housing market, MRRC is investigating housing equity as a potentially significant resource for older people. Walker (2004) uses the HRS to study how often older individuals draw down their housing equity to finance retirement expenses. She finds that most continue to own their homes until advanced ages. An interesting question is whether this pattern will change in the future.

Distributional Effects

MRRC researchers are keenly interested in distributional aspects of policy and the extent to which public programs may mitigate potentially negative consequences of income and wealth inequality.

In one of the earliest MRRC projects, Gustman and Steinmeier (2000) examine the distributional effects of the Social Security system in practice using the HRS cohort born 1931–1941. The formula for Social Security benefits is progressive, offering proportionately higher returns to lower lifetime earners. At the family level, however, spousal benefits alter this pattern. Generally, a retired couple can claim either the sum of the Social Security benefits for each spouse, or 150 percent of the higher of the two benefits. Upon widowhood, the survivor can claim the higher of the spouses' individual benefits. For HRS families in which the wife had little or no earnings history, the spousal benefit represented a bigger net gain than for families in which the wife had a substantial history of labor force participation. To the extent that wives of high-earning men in the HRS tended to have less labor force participation, their families' gain from the spousal formula was especially large. This tended, in practice, to partially offset the progressivity of the benefit formula for individuals. Indeed, Gustman and Steinmeier find that redistribution from the Social Security system among HRS families is substantially lower than redistribution among individuals.

More recently, Stevens (2008) finds that reduced earnings growth rates over several decades, particularly at the bottom of the earnings distribution, have produced greater wealth inequality for those in and nearing retirement. Stevens' measure of household wealth includes capitalized pensions and Social Security benefits. Changes in the lower half of the male earnings distribution explain a substantial portion of the growing inequality in the distribution of preretirement wealth. Growth in women's earnings does not offset declines associated with male earnings. The declining value of private employer-provided pensions is an important factor. In contrast, Social Security benefits have not been eroding, even for groups that have faced significant deterioration in real earnings. In fact, the role of Social Security for the latter groups is larger than for earlier cohorts.

Another set of papers examines an especially vulnerable population: widowed and divorced women (McGarry and Schoeni 2005; Haider, Jacknowitz, and Schoeni 2003; Weir and Willis 2003; Weir, Willis, and Sevak 2002). For example, the latter two studies show that widowhood is a key risk factor for transition into poverty for women. However, women older than age 65 are less likely to experience severe economic changes than women younger than age 61. Several factors account for age differences: the declining importance of husbands' earnings with age, the rising importance of Social Security benefits, and the occasionally large out-of-pocket medical expenses associated with husbands' death before Medicare eligibility. McGarry and Schoeni examine the importance of medical expenses after Medicare eligibility. They show that, despite the success of Medicare in reducing out-of-pocket medical costs for the elderly, significant

gaps remain. Out-of-pocket spending to assist a dying spouse is a significant determinant of poverty rates for survivors. This circumstance disproportionately affects women and diminishes widows' financial resources.

Conclusion

To summarize, themes of MRRC research include:

1. *Developing a dynamic model of household behavior to estimate and simulate the effects of actual and proposed policy changes.* The HRS, with its rich supply of socioeconomic information including linked Social Security lifetime earnings records, is a premier data resource for the estimation step. MRRC researchers have been pioneers in developing and using these data. The life-cycle model provides a theoretical framework to identify and describe behavioral motives and criteria. It therefore enables analysts to predict effects of policy reforms never previously implemented, make microeconomic calculations of welfare gains from policy and other changes, and understand and anticipate simultaneous household consumption/saving, labor supply, and asset-allocation reactions to external changes.

2. *Studying program policy interactions.* Changes in one public program (for example, increasing the age for full Social Security retirement benefits) may affect utilization and budgets of other public programs such as DI and SSI, and may also influence private behavior.

3. *Promoting household welfare as the ultimate concern of public policy.* Accurate measurement of the well-being of the older population, for example, requires analysis of their time-allocation and consumption possibilities rather than merely their income or wealth. As another example, Social Security and other public programs have important redistributive components—and in studying possible reforms, one should seek to quantify welfare gains and losses, including potential diminution of the power of existing insurance-providing mechanisms, as opposed to merely measuring effects on aggregate saving, income, or labor supply.

4. *Using a research framework that is rich enough, and flexible enough, to encompass large-scale trends.* For example, longevity is increasing, private pensions are switching from DB to DC, and women's labor force participation is rising. A dynamic model of household behavior can help

policymakers to understand the consequences of such changes and contribute to the optimal design of public programs.

5. *Mitigating the shortage of financial literacy.* Empirical evidence seems to point to substantial diversity of financial knowledge. Those with less sophistication are increasingly vulnerable as the range and complexity of financial decisions facing Americans is now greater than ever. Policy remedies such as minimum Social Security benefit guarantees, sensible default settings in private pensions, and financial literacy education may be more important in practice than basic economic models predict.

Notes

[1] An article in the October 2006 *MRRC Quarterly Newsletter* covers the history of the RRC, including Steven Sandell's founding role. October *Newsletter* issues also review the most recent RRC Washington conference. See http://www.mrrc.isr.umich.edu/publications/newsletters/.

[2] To date, the MRRC has issued over 200 working papers and policy briefs. See http://www.mrrc.isr.umich.edu/publications/papers/ and http://www.mrrc.isr.umich.edu/publications/policy/, respectively.

[3] See http://govinfo.library.unt.edu/csss/reports/Final_report.pdf

[4] The 3.5 percent figure arises from infinite-horizon Social Security system deficit calculations.

[5] Indicators of flexibility include self-employed status and ability to change hours worked or to work a second job.

[6] As determined by age and education.

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Social Security in a Changing Environment: Findings from the Retirement Research Center at the National Bureau of Economic Research

by David A. Wise and Richard G. Woodbury*

Introduction

Social Security is the foundation of retirement and disability income support in the United States, paying out $615 billion in benefits in 2008 to nearly 51 million beneficiaries. Although the core functions of Social Security remain largely unchanged, the system now faces an exceptional challenge: It is not financially sustainable in its current form. In the coming years, efforts to meet this challenge will be staged in a changing environment. That environment is in part responsible for the solvency crisis, but it also presents policy reform opportunities to address the financial challenge. More generally, any reforms to the system should be informed by the changing, and uncertain, environment in which the Social Security program will operate in the coming years.

With funding from the Social Security Administration, the National Bureau of Economic Research (NBER) Retirement Research Center has embarked on a coordinated series of investigations on Social Security in a changing environment, and the potential routes to sustainable solvency. The Center is designed to support a critical mass of projects that provide the basis for collaborative interaction over a multi-year horizon. The extensive interaction among the research team and the compilation of independent but related research topics is designed to achieve a more fully integrated understanding of the issues. This article is an overview of the first 45 studies completed since the Center's inception in September 2003. The complete studies, along with policy abstracts and executive summaries, can be found at the Center's Web site (http://www.nber.org/programs/ag/rrc/rrchome.html).

The article is organized in three topical sections. The first covers Social Security sustainability and reform. It focuses on the long-term financial imbalances in the Social Security system, the financial implications of uncertainty in demographic and economic forecasts, and the characteristics of reform that could provide sustainable solvency. The second section covers resources and needs of older people. The mix of resources available to retirees is changing, most notably through increased participation in 401(k) and similar retirement saving programs. The resources needed in retirement are also changing, influenced importantly by increasing health care costs and the continuing advancement of available health care services. The third section is on Social Security, labor markets, and the macroeconomy. It highlights research on work and retirement behavior, the influence of Social Security and other public policy on employment decisions, and the potential for delayed retirement to facilitate the social and economic transition to an older population demographic, both in the United States and around the world.

Social Security Sustainability and Reform

Over the next 30 years, Social Security benefits are projected to grow from 4.3 percent of gross domestic

Selected Abbreviations	
DB	defined benefit
DC	defined contribution
NBER	National Bureau of Economic Research
NDC	notional defined contribution
PRA	personal retirement account

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product (GDP) to 6.1 percent, while revenues are expected to equal only 4.7 percent of GDP (Board of Trustees 2008). When the challenge of financing the retirement consumption of the elderly is viewed more broadly, the gap between income and costs is even wider. In particular, Medicare and Social Security costs together are projected to increase from about 7 percent of GDP today to about 13 percent by 2035 and to nearly 17 percent by 2082. The challenge of rebalancing Social Security finances for the future is well known. Also important to Social Security reform is the resiliency of the system to future uncertainties. The demographic and economic factors that will determine Social Security's future finances are projections only. A reformed system that cannot adapt to unforeseen circumstances is unlikely to provide sustainable solvency. Thus, resiliency must be a critical component of the evaluation of alternative reform options.

The changes required to restore Social Security to sustainable financial footing are sizable, and numerous reform proposals have been put forward. Many involve "parametric" reforms, by which basic parameters of the existing Social Security system (such as tax rates, tax base, benefit formula, and eligibility) are altered. Other proposals involve more fundamental changes to the program, such as establishing personal retirement accounts (PRAs) to supplement or partially replace Social Security's current defined benefit. This section explores the challenges and uncertainties facing the Social Security system, and the implications of reform for the system and also for the broader economic and policy environment.

Understanding Uncertainty and Its Implications

In the Center's first year, Lee, Miller, and Anderson (2005) developed methods that quantify the uncertainty in long-term projections of Social Security finances. The study involved extensive and detailed modeling of the many uncertain variables that will influence Social Security finances in the future, such as birth rates, death rates, and the growth of wages and the economy. By analyzing trends, variations, correlations, long-range expectations, and professional opinions about these underlying influences, the authors compute a probability distribution of Social Security's future financial situation. In the median scenario, the payroll tax would need to increase by 5.1 percentage points to sustain Social Security permanently (exceeding the 3.5 percentage point deficit projected

by the 2004 Trustees Report). This divergence is most likely caused by differing mortality projections across estimation models.

The uncertainty in mortality projections inspired a two-phase project by Cutler, Glaeser, and Rosen on U.S. health risk trends. The first phase (2006) compares the risk factor profile of the population in the early 1970s with that of the population in the early 2000s, using data from National Health and Nutrition Examination Surveys (NHANES). The investigators estimate the impact of medical risk factors (smoking, drinking, obesity, high blood pressure, and cholesterol) and demographic characteristics (age, gender, race, and education) on 10-year mortality rates, and compare predicted 10-year mortality rates in the two time periods. For the population aged 20–74, they find the 10-year probability of death fell from 9.8 percent in 1971–1975 to 8.4 percent in 1999–2002. The largest contributors to these changes are reductions in smoking and better control of blood pressure.

The second phase (2009) projects risk factors and behaviors and their health implications over the next 20 years. Smoking and obesity are found to be the most important, and offsetting, components of the forecast. Based on an isolated forecast of continued reductions in smoking, 10-year mortality risk for those aged 25 or older would *decline* by 0.7 percentage points (from 8.4 percent) over the next 20 years. A continuation of current trends and treatment rates in obesity, however, would lead to increased hypertension and high cholesterol—and a 1.1 percentage point *increase* in mortality risk for those aged 25 or older. Of course there is substantial uncertainty in these projections. Although future changes in obesity could overwhelm the benefits of reduced smoking, better control and treatment of hypertension and high cholesterol among those who are overweight and obese are also possible.

The Center also initiated work on fertility and immigration patterns, and their implications for Social Security finances. The fertility rate, a principal determinant of future age distribution, has fallen below the replacement level of 2.08 children per woman in all developed countries. It is higher in the United States than in many countries, remaining between 1.98 and 2.08 since 1989. Preston and Hartnett (forthcoming) identify several demographic variables associated with fertility that are changing in predictable ways. For instance, shifts in ethnicity would suggest an increase in future fertility rates. Other shifts involving educational attainment would suggest a decrease. In each

case, however, the projected impact is modest and the combined impact is offsetting. The clearest finding of the study is that fertility in the United States is relatively high, even for its lowest-fertility groups. Compared with most countries in Europe and East Asia, U.S. fertility is high—even for white non-Hispanics, for states with the lowest fertility, and for college graduates. Until the source of this divergence is better understood, the authors conclude that fertility projections remain substantially uncertain.

Immigration is another aspect of demographic uncertainty in the future. The age distribution of immigrants, their earnings, the Social Security taxes they pay, the timing of their retirements, and the benefits they receive can have important implications for system solvency. Borjas (2007) looks at the labor market behavior of older immigrants, as compared with nonimmigrants. He finds that the primary difference between immigrants and nonimmigrants can be expressed in terms of a "crossover" age which occurs in the late 50s or early 60s. Before the crossover age, natives tend to have higher employment rates than immigrants. After the crossover age, natives have lower employment rates than immigrants. The greater reluctance of immigrants to leave the labor market as they near retirement age arises partly because of the eligibility requirements for Social Security benefits. A person needs to have worked in the United States for at least 10 years to qualify for retirement benefits. Immigrants in their 50s who have not yet accumulated the required employment credits have much greater employment rates than otherwise comparable persons. Once the 10-year work rule is satisfied, the probability that an elderly immigrant receives retirement benefits rises significantly and the probability of employment drops by 7 to 11 percentage points. Continuing research is looking at how immigration affects the broader labor market for older workers.

Geanakoplos and Zeldes (forthcoming) develop a market-based approach to estimating Social Security liabilities in the current system, taking account of future risks and uncertainties the way investors would if they regarded Social Security payments as dividends on assets or liabilities of their own business. The key uncertainty incorporated in their approach is the future growth in economy-wide wage rates, the variable by which an individual's salary history is indexed when determining the Social Security benefit at retirement. Geanakoplos and Zeldes find that the difference between the risk-adjusted "market" valuation of Social Security liabilities and the risk-neutral

"actuarial" valuation is large, especially when valuing the benefits of younger cohorts for whom uncertain future wage growth plays out over a longer period. Aggregating across all Social Security participants, the risk-adjusted valuation is about three-quarters of the risk-neutral valuation.

Although projections are important, and NBER research has provided a stronger foundation for analyzing future trends, these investigations reinforce the idea that it is hard to know what the future will bring. This makes "parametric" reforms to Social Security—such as a fixed increase in the payroll tax, or a fixed reduction in benefits, or a fixed change in the age structure of benefits—only partial solutions. They could be effective in achieving financial balance, based on an expected future scenario or an "intermediate" projection, but they are not responsive to the unexpected. Other types of reform might make the system more resilient to unexpected developments, adjusting automatically to a range of demographic and economic futures.

Investment-Based Social Security Reform

For several years, the possibility of adding an investment-based component to Social Security received widespread attention. The idea was that some portion of Social Security contributions could be redirected to PRAs, maintained individually for each Social Security beneficiary. A number of Center projects have explored the potential benefits and complications of an investment-based component to Social Security. To the extent that an investment-based approach insulates the government from an uncertain future benefit liability (by transferring some of its financial obligation to the present rather than an uncertain future), the approach may improve the financial resiliency of the Social Security system as demographic and economic changes unfold over time. However, it introduces "investment risk" to Social Security participants. The Center has focused on methods that could moderate the investment risk to participants, while retaining the advantages of a PRA.

Two background studies help frame the issue. The first (Geanakoplos and Zeldes 2009) develops a methodology for comparing the current system with a PRA system. The authors note the strong differences in emphasis among those on either side of the debate. Advocates of retaining the current system argue that Social Security should redistribute wealth from those who have earned more over their working lives to those who have earned less, and different

generations should share in the risks and benefits of macroeconomic growth. PRA advocates support individual ownership of tangible assets that cannot be revoked by a future government, with market valuation of those assets as they accrue as an additional financial planning tool outside of Social Security. The study demonstrates how both the redistributive characteristics of the current system and its intergenerational risk-sharing properties could be incorporated in an investment-based approach. Redistribution, for example, is accomplished using a variable government match (or tax) on contributions, based on lifetime earnings. Risk sharing across generations is accomplished through a new kind of derivative security whose future payoff depends on future earnings.

The second background study (Shoven and Slavov 2006) illustrates the risk in both traditional Social Security and in an investment-based system. This study develops the concept of "political risk" as the possibility that a future legislature will change the tax and benefit provisions of pay-as-you-go social security programs when there are changes in the demographic and macroeconomic variables that support it. Thus, there is a "political risk" to participants that might be compared with the "market risk" in a PRA scheme. Shoven and Slavov present a detailed quantitative analysis of political risk in the U.S. Social Security system, as well as an overview of policy reforms in several European countries that demonstrate political risk more broadly across social security systems. They find that adjustments to restore Social Security solvency in 1983 and 1994 led participants to experience significant declines in the internal rate of return on contributions, and would do so again if the system were brought into actuarial balance now. For example, estimated lifetime internal rates of return for younger cohorts would decline by about 0.8 percent if actuarial balances were restored. Shoven and Slavov argue that the debate over personal accounts is therefore not one of "safe" versus "risky" benefits, but one of alternative risk characteristics.

The balance of NBER research on investment-based Social Security reform has focused on how to moderate the investment risk associated with PRAs. For example, Feldstein (2009) develops a flexible risk-reduction method that could be tailored to individual risk preferences. A key feature of the approach is a guarantee that the individual would not lose any of the real value of each year's PRA savings and might be guaranteed to earn at least some minimum real rate of return. In one example of such a plan, the current 12.4 percent pay-as-you-go tax is compared with a plan that combines a 6.2 percent pay-as-you-go tax with saving 6.2 percent of annual earnings in a PRA. This mixed plan, when fully phased in, would have the following desirable characteristics: (1) the median value of the combined retirement income (that is, the sum of the pay-as-you-go benefit and the PRA annuity) would be 147 percent of the traditional pay-as-you-go benefit; (2) there would be a 95 percent probability that the combined retirement income exceeds the traditional pay-as-you-go benefit; (3) there would be less than one chance in 100 that the combined retirement income would be less than 96 percent of the traditional pay-as-you-go benefit; and (4) PRA savings would earn a guaranteed real rate of return of at least 1 percent (and generally substantially more) each year until the account holder reaches age 66. The study considers a range of "no lose" options with varying trade-offs between the guaranteed minimum return and the distribution of possible higher returns.

The market value of a rate-of-return guarantee is estimated by Biggs, Burdick, and Smetters (2009). They point out that policy discussions have focused on the "expected" cost of such guarantees. Expected values are based on a pure probability distribution of expected market returns; they do not incorporate any risk premium. Investors in financial markets, however, would need to be compensated more, based on the risk involved. The distinction is corollary to the risk-return trade-off in financial markets, as riskier assets are assigned a lower value than safer assets with the same "expected" future payout. Thus, the total "market" cost of a benefit guarantee, incorporating the risk premium, could be several times larger than its "expected" cost. Based on an illustrative policy considered in the study—an investment-based Social Security reform proposal put forward by former Senator John Sununu (R–NH) and Representative Paul Ryan (R–WI)—the "expected cost" valuation of the proposed guarantee is calculated to be about 11 percent of total benefits to new retirees in 2050, while the "market value" cost is calculated to be 28 percent of benefits.

Using a very different approach, Samwick (2009) analyzes the potential for changes in the progressivity of the Social Security benefit formula to lessen the risk in investment-based reform. In each simulation, Samwick reduces the overall cost of traditional Social Security by 40 percent (to restore actuarial balance and to fund a PRA component), but distributes the benefits in a way that is more heavily weighted toward

lower-income participants. In his "most progressive" scenario, a flat benefit that is independent of earnings, the bottom 30 percent of earners achieve a higher expected utility even with no PRA investments in equity. An additional 30 percent of earners can lessen their exposure to equity risk without a loss of welfare. Similarly, by using progressive benefit reductions (reducing the benefits of higher earners by more than the benefits for lower income workers), about half of the equity risk can be eliminated for the lowest earnings decile.

Finally, the Center has viewed the 401(k) experience as a laboratory for studying the operational features that might be incorporated in investment-based Social Security reform, and the issues surrounding investor behavior in individually controlled retirement accounts. These are described below in sections on "Determinants of Retirement Saving" and "Portfolio Allocation and Asset Accumulations." These studies are relevant not just for the design of a PRA system, but also for understanding the transition in retirement resources under way in the private sector, and how that transition relates to Social Security.

Notional Defined Contribution Plans

Another type of reform explored in Center research is notional defined contribution (NDC) systems. NDC programs mimic characteristics of fully-funded defined contribution (DC) plans without actually setting aside assets. Thus, they can be designed with many of the same incentives, automatic adjustment features, and financial resiliency of DC plans, while avoiding the costs of moving to a fully-funded DC system. Under an NDC program, a notional capital account is maintained for each participant. Balances in this account earn a rate of return that is declared by the pension plan each year, and notional payments into the account are made over a working career. Sweden has developed and implemented an NDC system and other countries have followed, including Italy, Poland, Latvia, Mongolia and the Kyrgyz Republic. Germany has recently adopted pension reforms that reflect some of the NDC principles, and France is considering NDC–type reforms.

Two studies by Auerbach and Lee consider the financial properties of NDC plans, as compared with other types of social security reform. One (2009a) focuses on the financial stability of NDC systems over time. Using different versions of the system recently adopted in Sweden, and calibrating them to U.S. demographic and economic parameters, this study finds that the basic NDC scheme effectively prevents excessive debt accumulation, providing substantial financial stability. In some future scenarios, however, the plans accumulate significant fund balances. The study draws attention to an important distinction between one-sided and two-sided automatic adjustment features. One-sided plans automatically adjust the rate of return in the accounts in response to adverse financial and demographic conditions, preventing imbalanced accumulation of debt in the system. Two-sided plans, on the other hand, adjust to both adverse *and beneficial* financial conditions. They lower account returns in response to adverse financial pressures, but also distribute gains to the NDC accounts in response to financially beneficial trends.

The second study (2009b) analyzes the generational uncertainty and risk-sharing properties of NDC systems, as compared with automatic adjustment features in a traditional Social Security design. In this study, Auerbach and Lee consider a number of actual and hypothetical pay-as-you-go pension structures. These include versions of the U.S. Social Security system in which taxes or benefits are adjusted annually to maintain fiscal balance, with zero debt or assets in every period; the actual Swedish NDC system; several modifications to the Swedish system; and the actual reformed German system. A specific goal of the NDC systems is to deliver a rate of return to contributors that is warranted by the macroeconomic and demographic environment, while maintaining financial stability. Important features of NDC system design are the rate of return paid in the notional accounts and the use of a brake mechanism if the financial stability of the program is jeopardized. Differences in these design features lead to different outcomes in terms of stability of returns, horizontal equity, and mean rates of return. NDC plans are shown to be very effective, however, in providing financial stability in the face of demographic and economic uncertainty.

Changing Resources and Needs at Older Ages

The landscape of financial resources available in retirement is in transition, and so are the likely financial needs of future retirees. Most notable are the increases in retirement saving in the private sector and increases in out-of-pocket medical spending. Along with demographic trends, these changes in resources and needs are important aspects of the changing environment in which Social Security operates.

NBER research on changing resources and needs is in five areas. The first analyzes trends in retirement saving and projects the private sector assets that are likely to be available to older Americans in the future. The second explores the determinants of saving behavior, which are directly applicable to 401(k) plans and other retirement accounts in the private sector, but could also apply to a national saving program such as a PRA component of Social Security. The third considers issues of retirement plan portfolio allocation and financial market returns. The fourth looks at payout streams, including the annuitization (or nonannuitization) of assets later in life. The fifth considers changing financial needs in retirement, benefit adequacy, and the increasing cost of medical care. Together, these studies provide context for how Social Security and private saving may fit together in providing financial security for future retirees.

Trends in Retirement Saving

The most important trend affecting the financial resources of future retirees is the transition from employer-provided defined benefit (DB) plans to 401(k) and other DC personal retirement plans. Approximately 85 percent of contributions to private retirement saving programs are now to accounts in which individuals decide how much to contribute to the plan, how to invest plan assets, and how and when to withdraw money from the plans. Largely as a result of the conversion to personal accounts, people attaining retirement age three decades from now will likely have, on average, several times the retirement assets of current retirees.

A series of studies by Poterba, Venti, and Wise has focused on the transition from DB to 401(k) and similar plans in the private sector, and projected accumulations in various asset categories. One study (2005) presents historical and projected trends in 401(k) plan eligibility by cohort and year, participation rates by cohort and year, participation among those eligible, and contribution amounts. Among the findings: the percentage of 40-year-olds eligible for a 401(k) plan increased from 18 percent in 1984 to 34 percent in 1989 and to 65 percent in 1999; and average 401(k) assets (in constant 2000 dollars) are projected to increase from about $14,000 in 2000 to $86,000 in 2020 and to $273,000 in 2040. The dramatic increase is a result of increased eligibility, increased participation, an increasing average period of participation, and the compounding of savings among those who will have started saving at younger ages. Aggregating

the individual cohort projections, total equity assets in 401(k) plans are projected to grow from about $1.1 trillion in 2000 to about $27 trillion in 2040. Though these projections may need to be updated in light of recent financial market declines, the character of the trend would not change.

Poterba, Venti, and Wise have conducted parallel studies on asset accumulations in DB pension plans (2009) and in housing equity (2007). For DB plans, the projections suggest that the average present value of real DB benefits at age 65 (for all people regardless of DB plan participation) peaked in 2003, and as the proportion of new retirees covered by DB plans decreases over time, that value will continually decline. The study concludes that the increase in 401(k)-type saving offsets and will eventually dominate DB asset flows. The value of 401(k) assets at age 65 is projected to surpass the average present value of DB benefits in about 2010, and increase rapidly thereafter. The specific timing of this crossover may need to be updated, but again, the direction and character of the transition in saving remains, and is profound.

The housing study analyzes trends in homeownership, housing equity, housing value, and, in particular, how the accumulation of wealth in the form of housing equity has changed over time. The study finds that homeownership rates by age have changed little over the past two decades. This stability suggests that one can predict with some confidence how demographic trends will affect the number of homeowners. On the other hand, there has been substantial recent volatility in housing markets, with an extended period of rising prices followed by sharp declines. In the years the study was completed (before the most recent declines), new retirees had both more home equity and more mortgage debt than past retirees. Cohort data also show that over a 20-year period marked by very large increases in home equity, the ratio of home equity to total nonpension wealth remained remarkably stable. This empirical regularity raises the question of whether home equity projections for future retirees might parallel forecasts of wealth more generally. The recent turmoil in the housing market adds interest to such projections but also draws attention to the large changes in home value and home equity that can occur over a short period.

A final study in the series (Poterba, Venti, and Wise, forthcoming) examines retirement saving and asset accumulation across the earnings distribution. It looks at how Social Security, 401(k) participation, and other assets will fit together for households with

different lifetime earnings and different Social Security wealth accumulations. Although 401(k) participation varies substantially by income, broader measures of retirement assets show a "retirement replacement rate" (inclusive of both Social Security and retirement saving) and a "total saving rate" (including dedicated retirement resources, other financial wealth, and home equity) that varies only moderately by lifetime earnings and by Social Security wealth. The projected growth rate of combined 401(k) assets and Social Security wealth is surprisingly similar across the top eight earnings deciles, and translates to at least a doubling of retirement resources in most earnings and Social Security wealth deciles over the period from 2000 to 2040. The growth rate is lower in the bottom two deciles of lifetime earnings: close to zero growth in the lowest earnings decile, and about 50 percent growth in the second earnings decile. Although the use of 401(k) plans is not universal, these various results indicate a very dramatic shift in the landscape of financial resources available to retirees in the future.

Determinants of Retirement Saving

The Center has conducted a number of studies, discussed here and in the next section, on the determinants of saving in 401(k) plans and the factors that influence asset accumulations over time. These influences are already important in understanding retirement saving in the private sector, and in improving the design of 401(k)-type programs. The private sector experience can also inform the evaluation of certain reforms in the public sector, including proposals for an investment-based component in the Social Security system. The experience of 401(k) plans is particularly useful for this research, because there is substantial design variation from one 401(k) plan to another and within plans over time. This enables researchers to relate plan design features to the saving decisions of those who are eligible.

A series of studies has explored from multiple dimensions the effect of plan design on saving behavior in 401(k) plans. An initial study by Choi, Laibson, and others (2006) explores the influence of such features as automatic enrollment, employer matching, the default contribution rate, the investment options available, and the default allocation of savings among these options. Underlying the findings is the key behavioral principle that people tend to follow the "path of least resistance," accepting the plan's default provisions rather than actively overriding them. As a result, plan

administrators can manipulate the defaults to powerfully influence the savings and investment decisions that people make. Whether in 401(k) plans or in a Social Security system that includes private accounts, it seems possible to influence passive decisionmakers to make reasonable saving decisions by default without encroaching on the freedom of active decisionmakers to choose for themselves.

One default option explored in greater detail is automatic enrollment (Beshears and others, forthcoming). Although automatic enrollment is known to strongly influence plan participation, previous research had looked only at firms that combine automatic enrollment with an employer match of employee contributions to the plan. Would automatic enrollment have the same impact in the absence of an employer match? The results suggest that the match has only a modest impact on opt-out rates. The investigators estimate that moving from a typical matching structure—50 percent on contributions up to 6 percent of pay—to no match would reduce participation under automatic enrollment at 6 months after plan eligibility by 5 to 11 percentage points. In one company, for example, the authors found that 89.1 percent of match cohort employees were participating in the savings plan at 6 months of tenure, while the 6-month participation rate for the no-match cohort was 80.7 percent. Thus, companies with automatic enrollment need not offer a match in order to achieve broad-based participation.

Choi, Laibson, and Madrian (2005) have also looked in greater detail at people who choose not to participate in a 401(k) plan. They focus on a group of workers who are at least age 59½, who are eligible to contribute to a 401(k) plan, who would have their contributions matched by their employer, and who could immediately withdraw the funds penalty-free. In other words, there is no cost to participate, no penalty for early withdrawal, and a clear financial gain from contributing. The researchers find that roughly half of employees in this situation still choose to make either no contributions, or a contribution below the employer's matching limit. The average annual loss among these employees is about 1.3 percent of their yearly salary. At one firm in the sample, the average loss was 2.2 percent of salary. In a combined survey/field experiment, these losses were clearly explained to some employees, yet the resulting change in contributions was infinitesimal. The results indicate there are definitive limits on what can be achieved by plan design, interventions, and information.

Portfolio Allocation and Asset Accumulations

Center research on portfolio allocation and asset accumulations has addressed two fundamental questions. First, how do people allocate their retirement savings among alternative investment options? Second, what are the implications of portfolio decisions for asset accumulations?

Two studies consider how investment decisions are affected by the options made available in a 401(k) plan. The first study (Brown, Liang, and Weisbenner 2007; Brown and Weisbenner 2004) finds that the amount workers invest in different asset classes (such as company stock, equities, and bonds) is influenced by the number of investment options offered in each class. When there are proportionately more equity options in a 401(k) program, for example, participants allocate more of their 401(k) contributions to equities. Workers also appear to interpret investment limitations (such as a limit on investing in company stock) as being, in part, investment advice, leading to a bigger impact on portfolio allocation than the limitations require. A third finding is that investors actively respond to past asset returns, for instance by allocating a higher fraction of contributions to equities when recent returns on equities have been higher. Finally, the authors find substantial inertia in investment behavior, as it takes several years for participant contributions to fully adjust to the addition of a new fund.

The second study (Brown and Weisbenner 2005) provides evidence that a wider choice of funds could actually decrease average asset accumulations. The authors first document the rapid growth in the average number of fund options, and show that this growth is dominated by actively managed equity funds. They then show that the resulting change in the mix of fund options leads to a higher average allocation of plan assets into actively managed equity funds, partly at the expense of lower-cost passively managed equity funds. As the number of actively managed equity funds in a plan increases, asset-weighted average expenses of the 401(k) plan equity portfolios rise, while asset-weighted average returns fall.

The issue of management fees was also the subject of an experimental study (Choi, Laibson, and Madrian forthcoming; Choi, Gabaix, and others 2005) in which subjects were asked to review four S&P 500 index fund prospectuses and then allocate $10,000 across those funds. Because the four funds invested in the same portfolio of stocks, their returns were nearly identical except for the mutual fund fee. Some of the subjects were given only the fund prospectuses (with fee information imbedded in a very long document). Others were given a one-page summary of fund fees, along with the prospectuses. A third group was given a summary sheet showing each index fund's annualized return since inception—a largely irrelevant document, because of the different dates of inception. Those receiving the fee summary sheet chose lower-cost index funds on average; but even with the summary sheet, over 80 percent still failed to minimize the fees on their investment. Those receiving the return-since-inception summary sheet chose funds with inception dates suggesting a higher historical return. In fact, in chasing the historical returns, the subjects were choosing the higher-fee funds which would have done worse (after fees) over any common historical time period.

These results support a growing body of evidence that individual investors' portfolio allocation decisions may not always be in their best long-term interests, and that policymakers should carefully evaluate how to select the fund options in any retirement saving program. Follow-up work is looking at how simplified information about mutual fund options might aid individual investment management.

Three studies have explored the potential impact of portfolio choice on the accumulation of retirement assets, and the implications of investment risk. Poterba, Rauh, and others (2009) examine the effect of different PRA asset allocation strategies over the course of a worker's career on the distribution of retirement wealth and the expected utility of wealth at retirement. They consider DC plan asset allocation rules that assign a constant fraction to various assets at all ages, as well as "life-cycle" rules that vary the mix of portfolio assets as the worker ages. They find that the desirability of these various options is sensitive to four factors: the return on corporate stock, the worker's relative risk aversion, the amount of non-PRA wealth that the worker will have available at retirement, and the expense ratios charged for the investment. At modest levels of risk aversion, or in the presence of substantial non-PRA wealth at retirement, the historical pattern of stock and bond returns implies that the expected utility of investing completely in diversified stocks is greater than that from any of the more conservative strategies. Higher risk aversion or lower expected returns on stocks raises the expected utility of portfolios that include less risky assets. There often exists a fixed-proportions portfolio of stocks and inflation-indexed government bonds that yields expected utility at retirement that at least equals

expected utility from typical life-cycle investment strategies. Once an asset allocation approaches its highest expected utility, expense ratio variations affect retirement utility more than further asset allocation variations.

Campbell, Sunderam, and Viceira (2007) investigate the riskiness of bond investments in a retirement saving portfolio. Are bonds risky investments, which investors must be rewarded to hold? Or are they safe investments, whose price movements are either inconsequential or possibly even beneficial to investors as a hedge against other risks? The authors find that in some periods, notably the late 1970s and early 1980s, bond and stock returns move closely together, implying that bonds are relatively risky. In other periods, notably the late 1990s and early 2000s, bond and stock returns are negatively correlated, implying that bonds have lower risk and can be used as a hedge against stock market variations. The study models the term structure of interest rates in a new way that helps to explain the changes in bond market risk over time.

Payout Streams and Annuitization

Under DB pension systems, retirees receive annuitized payouts, providing a form of insurance against outliving their retirement resources. Conversely, 401(k) plan participants typically withdraw assets on their own schedule, only rarely converting their savings to annuities. This raises two questions. First, do people draw down 401(k) assets too quickly after retirement, or do they tend to conserve these assets, perhaps longer than they should? The second question is based in part on the answer to the first: Would greater use of annuities improve retiree well-being? Some initial work on this topic has focused on how people evaluate DB versus DC pension systems, how much they value annuitized payment streams, and the operational characteristics of private annuity markets.

One study examines pension decisions of people given a choice between a nonannuitized DC-style plan and an annuitized DB plan (Brown and Weisbenner 2009). In the study, 50,000 public university workers in Illinois are offered a one-time, irrevocable choice between a traditional DB plan, a portable DB plan, and an entirely self-managed DC plan. The majority of participants fails to make an active decision, and is defaulted into the traditional DB plan after 6 months. Interestingly, financially sophisticated employees are more likely than others to choose the self-managed DC plan, even though the portable DB plan is worth more,

under reasonable assumptions about future financial market returns.

To learn more about the decisionmaking process, Brown and Weisbenner (2007) survey a subsample of workers in this retirement system. They find that individuals who value "control" over their investments are more likely to choose the DC option; that workers consider political risk (individuals lacking confidence that the legislature will retain the DB benefits are significantly more likely to choose the DC option); and that workers who rate themselves as average or better-than-average investors are more likely to choose the DC plan. As with the earlier study, a significant minority of participants appears to make decisions based on mistaken beliefs.

Brown, Casey, and Mitchell (2007) explore the desirability of an annuitized benefit by analyzing people's willingness to exchange part of the Social Security annuity for an immediate lump-sum payment. Based on responses from an experimental module in the 2004 Health and Retirement Study, they find that nearly 3 out of 5 respondents favor the lump-sum payment option if it is approximately actuarially fair. The desirability of the lump-sum option is evident in virtually every demographic sub-group in the sample. The relative price of the annuity matters: When the amount of the lump-sum option is reduced, fewer people are willing to trade away their Social Security annuity. Individual health and longevity expectations also matter, as those reporting poor health are more likely to want the lump sum, while those with optimistic longevity expectations are more likely to choose the annuity. After controlling for education, more financially literate individuals prefer the annuity. Finally, people anticipating future Social Security benefit reductions are more likely to choose the lump sum, suggesting that political risk matters. Other factors such as gender, marital status, income, wealth, or having children are not associated with respondents' relative preferences for the annuity versus the lump sum.

Einav, Finkelstein, and Schrimpf (2007) aim to quantify the welfare costs of adverse selection in annuity markets. Adverse selection exists if the group of individuals voluntarily purchasing annuities is healthier and longer-lived, on average, than the general population. With adverse selection, financial institutions selling annuities in the private market must charge higher prices, since the annuity payout lasts longer on average than it would for the population as a whole. Using the example of the U.K. annuity market,

the study focuses on the guarantee period selected by people who are required to buy an annuity. These selections involve asymmetric information, in that people have some knowledge about their own mortality risk that other parties do not, and choose a guarantee period based on that knowledge. Relative to a first-best, symmetric-information benchmark, welfare is reduced by about £127 million per year, or about 2 percent of annual premiums. However, government mandates do not necessarily reduce the welfare loss because of the difficulty of determining the best contract mandate.

The Center's preliminary research on annuitization and the drawdown of assets at older ages raises many questions for future research. The tendency of individuals to prefer lump-sum over annuitized distributions has profound implications, as people may outlive their resources or, alternatively, die before using them. Ongoing research is exploring the patterns of withdrawal from retirement saving plans among current retirees.

Benefit Adequacy

Seeking the "optimal" rate at which Social Security benefits replace preretirement income should be informed not only by projected increases in the retirement resources of older Americans but by projected increases in financial need as well. What does benefit adequacy mean in current and future contexts? It could refer to ensuring that all retired and disabled Americans are able to maintain a standard-of-living target—avoiding poverty, for example. Alternatively, benefit adequacy could imply minimizing the extent to which people's standards of living decline upon retirement or disability onset. Perhaps the most important trend affecting standards of living for the elderly is the continuing increase in spending on medical care. Advancing technology has provided better but also more expensive medical care. The aim of NBER research in this area is to understand the implications of this rising cost, and its relationship with benefit adequacy.

Meyer and Sullivan (2007), for example, estimate a broad range of poverty measures for individuals aged 65 or older, focusing on income-based and consumption-based measures. The distinction is important because income and consumption diverge more significantly at older ages as accumulated assets can be used to maintain consumption even when income is low. Consumption-based measures of

poverty indicate greater improvements in well-being than are evident in income-based measures. Between 1980 and 2004, consumption poverty for those aged 65 or older fell by 12 percentage points, almost double the reduction in poverty based on income measures. Ongoing research explores changes in Social Security rules that could eliminate poverty among the elderly.

Brown, Coronado, and Fullerton (2006) have studied the evolution of Social Security progressivity. They find that the Social Security system exhibits less overall progressivity when it is measured using more comprehensive concepts of income than when it is evaluated using narrower definitions. Indeed, when evaluated using potential labor earnings at the household level (rather than actual earnings at the individual level), the system exhibits virtually no overall progressivity. Even when there is redistribution, it is found to be targeted inefficiently, with many high-income households receiving net transfers and many low-income households subject to net taxes.

The Center has also conducted research on the rising costs of health care and its implications for future financial needs in retirement. McGarry and Skinner (2008) focus on the important financial obligation and risk to retirees associated with out-of-pocket health care costs. Their primary finding is that out-of-pocket health care expenditures exceed previous estimates, are growing over time, and represent a substantial financial burden for a surprisingly large fraction of older people in the United States.

Social Security, Labor Markets, and the Macroeconomy

Changes in the labor market could potentially moderate the financial pressure that the Social Security system will face in the future. Specifically, some of the bounty of longer and healthier lives may be allocated to prolonging the labor force participation of older workers, particularly if the Social Security incentives to leave the labor force at younger ages are removed. Longer working lives could increase economic output, increase tax payments, and help to pay for Social Security benefits. Thus, continued labor force participation at older ages could fundamentally ease the transition to an older population in the United States and around the world. This prospect has motivated Center research on the complex relationships between Social Security policy provisions, health trends, labor market behavior, and macroeconomic outcomes.

Health Improvement and Retirement

The prevalence of disabling health conditions has declined significantly over the past two decades. This suggests that people have the physical capacity to work longer and retire later, if they so choose. On the other hand, the number of people receiving disability benefits has increased.

Many Social Security reform proposals recommend increasing the age at which people become eligible for retirement benefits in order to reduce future expenditures, maintain benefit adequacy, increase labor supply, and compensate for increasing longevity over time. However, these reform plans rarely use the principles of social science in selecting a revised benefit eligibility age. Cutler, Liebman, and Smyth (2006) develop two models for determining an "optimal" early retirement age. In the first model, the retirement age stems from a paternalistic concern that some people will mistakenly retire too early if left to make decisions on their own. In the second model, the retirement age is that at which it no longer makes sense to require a disability screening to receive retirement benefits.

Cutler, Liebman, Shepard, and Smyth (2007) update the models and use higher-quality data to evaluate how health improvements may affect the determination of an optimal entitlement age for Social Security benefits. The authors ask at which age a person today has the same health status a 62-year-old had in 1960. For example, a 62-year-old man in 1960 had about a 6 percent likelihood of dying in the next 2 years. In 2000, a man did not face a 6 percent likelihood of dying within 2 years until age 68. Thus, "comparable health status" is 6 years older in 2000, compared with 1960, if one uses mortality risk as a measure of health. Over roughly similar time frames, comparable health status is estimated to be 10 years older, when comparing self-reported health; and possibly more than 10 years, when comparing direct physical measures and some functional limitations. Considering all the evidence, it is clear that health near traditional retirement ages has improved markedly over time. This should translate in our models to an older optimal age of eligibility for Social Security, although rising incomes and productivity could partly offset the effects of improving health.

Given these health trends, it is surprising that the number of people receiving disability insurance benefits is rising in the United States. The Center is now initiating research on disability insurance and its implications.

Social Security, Labor Supply, and Economic Efficiency

NBER has studied the determinants of work and retirement behavior, and the influence of Social Security policy on the labor market and the broader economy. The studies are in two categories. The first analyzes the retirement incentives inherent in the current provisions of Social Security and Medicare. These studies also introduce characteristics of reform that would make the policies more neutral with respect to retirement age. The second looks at the effects of Social Security taxes on labor market behavior more generally and at all ages.

Goda, Shoven, and Slavov (2009) highlight features of Social Security that discourage long careers, discourage work at older ages, and increase the number of years in retirement. For example, Social Security benefits are calculated using the worker's highest 35 years of earnings. This means that the 33rd, 34th, and 35th years of work noticeably improve retirement benefits by replacing a "zero" in the benefit calculation formula. A 36th year of work, on the other hand, may or may not count, and if it does, it will only replace a year of lower earnings (and not a zero) in the calculation. Thus, the benefit formula encourages careers of 35 years or less. Another distortionary aspect of the benefit formula offers disproportionately higher benefits to workers with short careers, treating them with the same redistributive advantages as lower earners. Both characteristics of the benefit formula lead to large discontinuities and high implicit tax rates for those at older ages and with longer careers.

In another study, Liebman, Luttmer, and Seif (2006) estimate the effect of these incentives on actual work and retirement decisions. They focus on how the marginal Social Security benefits that accrue with additional earnings affect three measures of labor supply: hours, labor earnings, and retirement. The study finds that retirement increases at 35 years of service, when the current year's earnings crowd out a prior year's earnings in the Social Security benefit formula. This result is consistent with individuals responding to incentives implicit in the Social Security benefit formula, but further analysis is needed to determine whether the Social Security rules cause this result.

Follow-up research by Goda, Shoven, and Slavov (2007b) considers similar work disincentives in the Medicare program. Medicare as a Secondary Payer (MSP) legislation requires employer-sponsored health insurance to be a primary payer for Medicare-

eligible workers at firms with 20 or more employees. Although the legislation was developed to better target Medicare services to individuals without access to employer-sponsored insurance, MSP creates a significant implicit tax on work beyond age 65. This implicit tax is 15–20 percent at age 65 and increases to 45–70 percent by age 80. Eliminating this implicit tax by making Medicare a primary payer for all Medicare-eligible individuals could significantly increase lifetime labor supply because of the high labor supply elasticities of older workers. The extra income tax receipts from such a policy would likely offset a large percentage of the estimated costs of making Medicare a primary payer.

Liebman and Saez (2006) explore a similar issue, but in the context of Social Security reform. Among the policy options for improving the system's financial sustainability are proposals to raise the maximum earnings on which Social Security payroll taxes are imposed. Liebman and Saez consider the likely impacts of raising the taxable maximum on worker behavior, earnings, and tax revenues. Their methodology identifies variations in the marginal tax rate paid by people in similar circumstances, and evaluates the extent to which earnings appear to be affected by those variations. For example, the marginal tax rate for individuals with earnings just below the Social Security payroll tax threshold is 12.4 percentage points higher than that for individuals just above the threshold. Despite this discontinuity in tax rates, the distribution of taxpayers around the taxable maximum is quite smooth, revealing little earnings responsiveness to these taxes. Liebman and Saez find this to be true not only for the entire population but also for the self-employed—presumably a group with more control over their earnings. The authors also examine earnings responses to the 1986 and 1993 tax reforms that changed marginal tax rates for high-income taxpayers. Again, the earnings trends that existed before the reforms seemed to continue smoothly leading into, through, and after the periods the reforms took effect. The absence of behavioral responses to these various situations could result either from a low elasticity of earnings to tax rate changes, or from a perceived link between incremental taxes paid now and benefit entitlements later.

Kotlikoff, Smetters, and Walliser (2007) consider similar issues of economic efficiency by estimating the impact of several proposals to restore financial balance to the system. They look first at the payroll tax, finding that raising payroll taxes would result in

less national saving, less capital accumulation, and lower real wages. As a result, macroeconomic conditions exacerbate rather than mitigate Social Security's fiscal problems. The authors also consider reforms that would reduce Social Security benefits as needed or raise the eligibility age for Social Security. They find that these types of reforms have more beneficial macroeconomic implications in the long term, but they impose major welfare losses on those close to retirement, who would absorb the loss of reduced Social Security benefits without the longer-term rewards of lower taxes, higher real wages, and capital-driven growth. Finally, they consider the impact of prefunding Social Security through consumption taxes. This spreads the welfare losses more evenly across generations, and helps future generations by stimulating capital formation.

Population Aging and Financial Market Returns

Some analysts have hypothesized that financial markets will fall when the baby-boom generation retires, causing a shift from inflows to outflows of resources in the equity market. The most intensive Center research on this issue was conducted through a series of studies using a sophisticated macroeconomic model of international capital markets. The model incorporates variations in demographic trends across countries, the moderating impact of international capital flows on financial markets, and their effects on labor, capital, and economic productivity. There are three studies completed to date in this series.

The first study (Börsch-Supan, Ludwig, and Winter 2005) enhances the macroeconomic model. Aging populations and the reform of public pension systems worldwide will affect international capital markets in several ways. First, demographic change alters the time path of aggregate savings within each country. Second, this process may be amplified when pension reform leads to more prefunding. Third, although patterns of population aging are similar in most countries, timing and initial conditions differ substantially. Hence, to the extent that capital is internationally mobile, population aging will induce capital flows between countries, which can moderate the impacts of demographic change in any single country. All three effects influence the rate of return to capital and interact with the demand for capital in production and also with labor supply. In order to quantify these effects, the investigators develop a computational general equilibrium model that incorporates detailed

long-term demographic projections for seven world regions. The initial simulations indicate that capital flows from fast-aging regions to the rest of the world will initially be substantial but that such trends will be reversed when households decumulate savings.

A second study in the series (Ludwig, Krüger, and Börsch-Supan 2009) focuses on the relationships between demographic trends, international resource flows, and macroeconomic changes across countries and across generations within countries. As the working-age population declines, for example, labor will become scarcer relative to capital, real wages will increase, and real rates of return to capital will decrease. The welfare implications of changing factor prices differ across generations, as younger generations gain from wage increases, and older generations lose from lower capital returns. For younger households with few capital assets, the simulations suggest that increases in wages will dominate the decline in rates of return on capital. For example, abstracting from social security and its reform, the cohort born in 2005 will gain 0.6–0.9 percent in terms of lifetime consumption. Older, asset-rich individuals, on the other hand, tend to lose because of the decline in interest rates on capital.

A third study in this series (Kuhle, Ludwig, and Börsch-Supan 2007) focuses on the relative return on riskier assets such as stocks, as compared with safer assets such as government bonds. This differential is typically referred to as the equity premium. The question is whether investing in stocks will become relatively more attractive or less attractive during a period of significant population aging worldwide. The paper includes both theoretical and empirical components. The theoretical analysis finds that the equity premium increases when smaller cohorts enter the labor market, as is expected in the coming decades. Thus, riskier investments such as stocks would be expected to elicit comparatively higher returns than safer investments such as government bonds. The simulations indicate that the expected decrease of the risky rate of return to capital until 2030 is in the range of 1.2 percentage points. However, the decrease in the risk-free interest rate on government bonds is slightly higher than that, so that the equity premium increases by about 0.28 percentage points. Continuing work by this research team is focusing on the financial market implications of social security reform, as an increasing number of countries move toward prefunding.

Other Aspects of Social Security Policy

In addition to its labor supply effects, Social Security can influence the economy through its effect on saving. Other characteristics of Social Security are more targeted, such as the treatment of the family, or the treatment of workers who spend only part of their careers in Social Security-covered employment.

Nataraj and Shoven (2004) look at the Social Security and Medicare trust funds and present evidence that their buildup may not help future generations as much as the balances would indicate. The 1983 Social Security reforms were designed to ease the burden on workers during the retirement of the baby-boom generation by partially prefunding those future benefits. However, the unified budget concept treats all trust fund receipts as part of "unified" revenues and payments as part of "unified" expenditures. The empirical evidence suggests that attempts to balance the unified budget while the trust funds were generating surpluses has led to increased government spending and tax cuts in other parts of the federal budget. There is no evidence of increased government saving as a result of the trust fund accumulations. Indeed the trust fund surpluses appear to be offset—perhaps completely—by increased deficit spending by the rest of government.

Separate work has explored Social Security's treatment of the family, as family structure has evolved and two-earner households have become the norm. Social Security provides a wide range of benefits to individuals other than the insured worker, such as spouses, former spouses, widows and widowers, minor children, and disabled adult children. Goda, Shoven, and Slavov (2007a) have considered the incentive effects of the 10-year marriage requirement for spousal benefits. The spousal benefit is particularly valuable to couples with a large earnings disparity between the primary and secondary workers. This study examines whether these couples, who have more to gain from extending their marriage to 10 years, are more likely to delay divorce relative to a control group. The investigators find that vulnerable couples (those more likely to lose spousal benefits) are slightly more likely to delay divorce from year 9 to year 10; however, the effect is statistically insignificant and small in magnitude. The accrual of the entire spousal benefit at 10 years of marriage raises equity concerns between those divorcing just before and just after accruing the benefit, but it does not appear to distort in any significant way the timing of divorce.

Whether spousal benefits need to be redesigned now that two-earner families are the norm depends in part on the interactions between earnings within couples. This is the subject of ongoing research by Juhn and Potter (2007). To date, they have focused on the role of each spouse as "insurance" against adverse labor market events affecting the other. If one spouse becomes unemployed or ill, for example, the other may enter the labor force to make up for the loss in family income. The investigators find continued evidence of spouses increasing work following employment losses of the partner, but the aggregate impact is smaller than in the past, because of decreasing numbers of one-earner couples. More generally, the study finds a positive comovement of couples' employment in recent years, which also points to a diminished role for intrafamily risk-sharing.

Future Agenda

The environment in which Social Security operates is evolving in numerous ways, and the interactions between Social Security and its environment remain core motivations for our ongoing work. Last year, for example, the leading edge of the baby-boom generation reached age 62 and became eligible to receive Social Security benefits. Remaining life expectancy at age 62 is about 20 years for men and 23 years for women and is getting longer. Accounting for both the aging of the baby-boom generation and increasing life expectancy, mid-range Census projections suggest that the U.S. population aged 62 or older will grow from 45 million to 80 million in just 20 years. Social Security needs to adapt to these demographic realities.

The imbalance in Social Security finances motivates continuing research on the determinants of demographic change, the trajectory of Social Security finances, and the evaluation of Social Security reforms that can provide sustainable solvency for a future that is both challenging and uncertain. Significant long-term trends in health, disability, and retirement saving in the private sector provide a context in which prospective Social Security reforms should be evaluated. Changing health care costs and opportunities are also important to this assessment. In short, the set of issues being addressed by the Center is critical not just for the sustainability of the system itself, but for the broader economic transition that we face with an older population in the United States and around the world.

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OASDI and SSI Snapshot and SSI Monthly Statistics

Each month, the Social Security Administration's Office of Retirement and Disability Policy posts key statistics about various aspects of the Supplemental Security Income (SSI) program at http://www.socialsecurity.gov/ policy. The statistics include the number of people who receive benefits, eligibility category, and average monthly payment. This issue presents SSI data for October 2008–October 2009.

The Monthly Statistical Snapshot summarizes information about Social Security and the SSI programs and provides a summary table on the trust funds. Data for October 2009 are given on pages 84–85. Trust Fund data for October 2009 are given on page 85. The more detailed SSI tables begin on page 86. Persons wanting detailed monthly OASDI information should visit the Office of the Actuary's Web site at http://www.socialsecurity.gov/ OACT/ProgData/beniesQuery.html.

Monthly Statistical Snapshot

Table 1. Number of people receiving Social Security, Supplemental Security Income, or both
Table 2. Social Security benefits
Table 3. Supplemental Security Income recipients
Table 4. Operations of the Old-Age and Survivors Insurance and Disability Insurance Trust Funds

The most current edition of Tables 1–3 will always be available at http://www.socialsecurity.gov/policy/docs/ quickfacts/stat_snapshot. The most current data for the trust funds (Table 4) are available at http://www .socialsecurity.gov/OACT/ProgData/funds.html.

Table 1.

Number of people receiving Social Security, Supplemental Security Income, or both, October 2009 (in thousands)

Type of beneficiary	Total	Social Security only	SSI only	Both Social Security and SSI
All beneficiaries	57,303	49,621	5,032	2,650
Aged 65 or older	37,377	35,337	890	1,149
Disabled, under age 65 [a]	12,611	6,968	4,142	1,501
Other [b]	7,315	7,315	. . .	. . .

SOURCE: Social Security Administration, Master Beneficiary Record, 100 percent data. Social Security Administration, Supplemental Security Record, 100 percent data.

NOTES: Data are for the end of the specified month. Only Social Security beneficiaries in current-payment status are included.

. . . = not applicable.

a. Includes children receiving SSI on the basis of their own disability.

b. Social Security beneficiaries who are neither aged nor disabled (for example, early retirees, young survivors).

CONTACT: Art Kahn (410) 965-0186 or ssi.monthly@ssa.gov for further information.

Table 2.

Social Security benefits, October 2009

	Beneficiaries		Total monthly benefits	Average monthly
Type of beneficiary	Number (thousands)	Percent	(millions of dollars)	benefit (dollars)
All beneficiaries	52,271	100.0	55,530	1,062.40
Old-Age Insurance				
Retired workers	33,367	63.8	38,755	1,161.50
Spouses	2,350	4.5	1,345	572.50
Children	553	1.1	314	568.20
Survivors Insurance				
Widow(er)s and parents [a]	4,339	8.3	4,764	1,098.00
Widowed mothers and fathers [b]	158	0.3	133	840.70
Children	1,902	3.6	1,418	745.50
Disability Insurance				
Disabled workers	7,726	14.8	8,211	1,062.70
Spouses	159	0.3	46	288.00
Children	1,718	3.3	545	317.30

SOURCE: Social Security Administration, Master Beneficiary Record, 100 percent data.

NOTES: Data are for the end of the specified month. Only beneficiaries in current-payment status are included.

Some Social Security beneficiaries are entitled to more than one type of benefit. In most cases, they are dually entitled to a worker benefit and a higher spouse or widow(er) benefit. If both benefits are financed from the same trust fund, the beneficiary is usually counted only once in the statistics, as a retired-worker or a disabled-worker beneficiary, and the benefit amount recorded is the larger amount associated with the auxiliary benefit. If the benefits are paid from different trust funds the beneficiary is counted twice, and the respective benefit amounts are recorded for each type of benefit.

a. Includes nondisabled widow(er)s aged 60 or older, disabled widow(er)s aged 50 or older, and dependent parents of deceased workers aged 62 or older.

b. A widow(er) or surviving divorced parent caring for the entitled child of a deceased worker who is under age 16 or is disabled.

CONTACT: Hazel P. Jenkins (410) 965-0164 or oasdi.monthly@ssa.gov for further information.

Table 3.
Supplemental Security Income recipients, October 2009

Age	Recipients		Total payments [a] (millions of dollars)	Average monthly payment [b] (dollars)
	Number (thousands)	Percent		
All recipients	7,682	100.0	4,113	499.40
Under 18	1,189	15.5	746	600.70
18–64	4,454	58.0	2,537	515.30
65 or older	2,039	26.5	830	405.60

SOURCE: Social Security Administration, Supplemental Security Record, 100 percent data.

NOTE: Data are for the end of the specified month.

a. Includes retroactive payments.

b. Excludes retroactive payments.

CONTACT: Art Kahn (410) 965-0186 or ssi.monthly@ssa.gov for further information.

Table 4.
Operations of the Old-Age and Survivors Insurance and Disability Insurance Trust Funds, October 2009 (in millions of dollars)

Component	OASI	DI	Combined OASI and DI
Receipts			
Total	$45,360	$7,382	$52,743
Net contributions	40,827	6,933	47,760
Income from taxation of benefits	4,506	410	4,916
Net interest	27	39	66
Payments from the general fund	0	0	0
Expenditures			
Total	47,166	10,341	57,506
Benefit payments	46,855	10,081	56,936
Administrative expenses	311	259	570
Transfers to Railroad Retirement	0	0	0
Assets			
At start of month	2,295,835	207,777	2,503,612
Net increase during month	-1,805	-2,958	-4,763
At end of month	2,294,030	204,819	2,498,849

SOURCE: Data on the trust funds were accessed on December 1, 2009, on the Social Security Administration's Office of the Actuary's web site: http://www.socialsecurity.gov/OACT/ProgData/funds.html.

NOTE: Totals may not equal the sum of the components because of rounding.

Supplemental Security Income, October 2008–October 2009

The SSI Monthly Statistics are also available at http://www.socialsecurity.gov/policy/docs/statcomps/ssi_monthly/index.html.

SSI Federally Administered Payments

Table 1. Recipients (by type of payment), total payments, and average monthly payment

Table 2. Recipients, by eligibility category and age

Table 3. Recipients of federal payment only, by eligibility category and age

Table 4. Recipients of federal payment and state supplementation, by eligibility category and age

Table 5. Recipients of state supplementation only, by eligibility category and age

Table 6. Total payments, by eligibility category, age, and source of payment

Table 7. Average monthly payment, by eligibility category, age, and source of payment

Awards of SSI Federally Administered Payments

Table 8. All awards, by eligibility category and age of awardee

Table 1.
Recipients (by type of payment), total payments, and average monthly payment, October 2008–October 2009

| Month | Number of recipients | | | | Total payments [a] (thousands of dollars) | Average monthly payment [b] (dollars) |
	Total	Federal payment only	Federal payment and state supplementation	State supplementation only		
2008						
October	7,504,271	5,163,780	2,039,238	301,253	3,838,166	476.80
November	7,533,795	5,185,746	2,046,378	301,671	3,820,243	477.30
December	7,520,501	5,176,902	2,042,110	301,489	3,880,433	477.80
2009						
January	7,533,922	5,192,985	2,047,850	293,087	4,009,142	504.10
February	7,566,208	5,217,483	2,055,832	292,893	4,044,694	502.80
March	7,599,464	5,243,129	2,063,657	292,678	4,162,308	503.70
April	7,607,994	5,248,781	2,066,071	293,142	4,126,381	505.10
May	7,596,745	5,253,853	2,067,978	274,914	4,077,881	500.80
June	7,638,836	5,287,256	2,076,756	274,824	4,157,154	500.20
July	7,618,848	5,281,432	2,074,422	262,994	4,049,965	497.80
August	7,651,360	5,307,020	2,081,537	262,803	4,098,660	498.50
September	7,691,602	5,337,606	2,090,610	263,386	4,182,914	497.50
October	7,682,338	5,330,233	2,088,580	263,525	4,113,205	499.40

SOURCE: Social Security Administration, Supplemental Security Record, 100 percent data.

NOTE: Data are for the end of the specified month.

a. Includes retroactive payments.

b. Excludes retroactive payments.

CONTACT: Art Kahn (410) 965-0186 or ssi.monthly@ssa.gov for further information.

Table 2.
Recipients, by eligibility category and age, October 2008–October 2009

Month	Total	Eligibility category		Age		
		Aged	Blind and disabled	Under 18	18–64	65 or older
2008						
October	7,504,271	1,206,466	6,297,805	1,138,706	4,330,689	2,034,876
November	7,533,795	1,210,023	6,323,772	1,152,268	4,341,446	2,040,081
December	7,520,501	1,203,256	6,317,245	1,153,844	4,333,096	2,033,561
2009						
January	7,533,922	1,203,955	6,329,967	1,153,684	4,344,951	2,035,287
February	7,566,208	1,204,781	6,361,427	1,165,415	4,362,970	2,037,823
March	7,599,464	1,204,671	6,394,793	1,172,224	4,388,753	2,038,487
April	7,607,994	1,205,349	6,402,645	1,173,714	4,393,945	2,040,335
May	7,596,745	1,199,665	6,397,080	1,173,700	4,389,985	2,033,060
June	7,638,836	1,200,922	6,437,914	1,185,753	4,416,687	2,036,396
July	7,618,848	1,196,190	6,422,658	1,178,932	4,408,897	2,031,019
August	7,651,360	1,198,038	6,453,322	1,189,283	4,426,845	2,035,232
September	7,691,602	1,199,576	6,492,026	1,195,708	4,457,046	2,038,848
October	7,682,338	1,199,260	6,483,078	1,189,467	4,453,509	2,039,362

SOURCE: Social Security Administration, Supplemental Security Record, 100 percent data.

NOTE: Data are for the end of the specified month.

CONTACT: Art Kahn (410) 965-0186 or ssi.monthly@ssa.gov for further information.

Table 3.
Recipients of federal payment only, by eligibility category and age, October 2008–October 2009

Month	Total	Eligibility category		Age		
		Aged	Blind and disabled	Under 18	18–64	65 or older
2008						
October	5,163,780	605,292	4,558,488	908,584	3,132,083	1,123,113
November	5,185,746	606,874	4,578,872	919,557	3,140,406	1,125,783
December	5,176,902	602,347	4,574,555	920,836	3,135,122	1,120,944
2009						
January	5,192,985	604,209	4,588,776	920,828	3,148,016	1,124,141
February	5,217,483	604,285	4,613,198	930,292	3,162,043	1,125,148
March	5,243,129	603,315	4,639,814	936,012	3,182,658	1,124,459
April	5,248,781	603,076	4,645,705	937,186	3,186,808	1,124,787
May	5,253,853	602,826	4,651,027	937,302	3,191,392	1,125,159
June	5,287,256	603,148	4,684,108	947,230	3,213,216	1,126,810
July	5,281,432	602,563	4,678,869	941,735	3,212,379	1,127,318
August	5,307,020	603,370	4,703,650	950,076	3,227,252	1,129,692
September	5,337,606	603,879	4,733,727	954,863	3,251,286	1,131,457
October	5,330,233	603,483	4,726,750	949,858	3,248,892	1,131,483

SOURCE: Social Security Administration, Supplemental Security Record, 100 percent data.

NOTE: Data are for the end of the specified month.

CONTACT: Art Kahn (410) 965-0186 or ssi.monthly@ssa.gov for further information.

Table 4.
Recipients of federal payment and state supplementation, by eligibility category and age, October 2008–October 2009

Month	Total	Eligibility category		Age		
		Aged	Blind and disabled	Under 18	18–64	65 or older
2008						
October	2,039,238	498,613	1,540,625	227,594	1,048,053	763,591
November	2,046,378	500,397	1,545,981	230,264	1,050,271	765,843
December	2,042,110	497,841	1,544,269	230,458	1,048,077	763,575
2009						
January	2,047,850	500,080	1,547,770	230,668	1,050,539	766,643
February	2,055,832	500,584	1,555,248	233,092	1,054,940	767,800
March	2,063,657	501,483	1,562,174	234,221	1,060,209	769,227
April	2,066,071	502,230	1,563,841	234,559	1,061,010	770,502
May	2,067,978	502,842	1,565,136	234,659	1,061,666	771,653
June	2,076,756	503,900	1,572,856	236,848	1,066,521	773,387
July	2,074,422	503,892	1,570,530	235,596	1,065,209	773,617
August	2,081,537	504,927	1,576,610	237,710	1,068,414	775,413
September	2,090,610	505,832	1,584,778	239,266	1,074,273	777,071
October	2,088,580	506,003	1,582,577	238,030	1,072,970	777,580

SOURCE: Social Security Administration, Supplemental Security Record, 100 percent data.

NOTE: Data are for the end of the specified month.

CONTACT: Art Kahn (410) 965-0186 or ssi.monthly@ssa.gov for further information.

Table 5.
Recipients of state supplementation only, by eligibility category and age, October 2008–October 2009

Month	Total	Eligibility category		Age		
		Aged	Blind and disabled	Under 18	18–64	65 or older
2008						
October	301,253	102,561	198,692	2,528	150,553	148,172
November	301,671	102,752	198,919	2,447	150,769	148,455
December	301,489	103,068	198,421	2,550	149,897	149,042
2009						
January	293,087	99,666	193,421	2,188	146,396	144,503
February	292,893	99,912	192,981	2,031	145,987	144,875
March	292,678	99,873	192,805	1,991	145,886	144,801
April	293,142	100,043	193,099	1,969	146,127	145,046
May	274,914	93,997	180,917	1,739	136,927	136,248
June	274,824	93,874	180,950	1,675	136,950	136,199
July	262,994	89,735	173,259	1,601	131,309	130,084
August	262,803	89,741	173,062	1,497	131,179	130,127
September	263,386	89,865	173,521	1,579	131,487	130,320
October	263,525	89,774	173,751	1,579	131,647	130,299

SOURCE: Social Security Administration, Supplemental Security Record, 100 percent data.

NOTE: Data are for the end of the specified month.

CONTACT: Art Kahn (410) 965-0186 or ssi.monthly@ssa.gov for further information.

Table 6.
Total payments, by eligibility category, age, and source of payment, October 2008–October 2009
(in thousands of dollars)

Month	Total	Eligibility category		Age		
		Aged	Blind and disabled	Under 18	18–64	65 or older
			All sources			
2008						
October	3,838,166	473,343	3,364,824	671,832	2,361,694	804,640
November	3,820,243	475,770	3,344,472	680,894	2,331,667	807,682
December	3,880,433	475,880	3,404,553	684,552	2,386,554	809,328
2009						
January	4,009,142	496,179	3,512,964	718,597	2,445,116	845,429
February	4,044,694	496,670	3,548,024	727,249	2,470,398	847,048
March	4,162,308	499,779	3,662,529	747,164	2,563,702	851,443
April	4,126,381	500,346	3,626,035	741,838	2,531,720	852,824
May	4,077,881	488,153	3,589,728	738,370	2,504,478	835,033
June	4,157,154	490,264	3,666,889	752,909	2,565,843	838,401
July	4,049,965	481,411	3,568,554	734,333	2,489,436	826,197
August	4,098,660	482,682	3,615,978	747,253	2,522,549	828,858
September	4,182,914	483,759	3,699,155	756,658	2,595,105	831,151
October	4,113,205	482,769	3,630,436	746,096	2,537,059	830,051
			Federal payments			
2008						
October	3,457,102	369,367	3,087,735	653,337	2,157,278	646,487
November	3,440,107	371,338	3,068,768	662,297	2,128,868	648,941
December	3,497,759	371,512	3,126,247	665,678	2,181,608	650,473
2009						
January	3,630,829	392,284	3,238,545	699,999	2,243,606	687,225
February	3,664,119	392,537	3,271,582	708,369	2,267,299	688,451
March	3,775,713	394,882	3,380,831	727,912	2,355,990	691,811
April	3,741,381	395,105	3,346,276	722,880	2,325,840	692,660
May	3,735,175	394,849	3,340,327	723,168	2,319,309	692,698
June	3,810,543	396,524	3,414,018	737,431	2,377,672	695,440
July	3,730,693	394,870	3,335,823	720,964	2,315,836	693,893
August	3,777,800	395,886	3,381,914	733,759	2,347,927	696,114
September	3,857,447	396,737	3,460,709	742,811	2,416,630	698,005
October	3,791,682	395,942	3,395,740	732,647	2,361,874	697,160

(Continued)

Table 6.
Total payments, by eligibility category, age, and source of payment, October 2008–October 2009
(in thousands of dollars)—Continued

Month	Total	Eligibility category		Age		
		Aged	Blind and disabled	Under 18	18–64	65 or older
State supplementation						
2008						
October	381,064	103,976	277,089	18,496	204,416	158,153
November	380,136	104,432	275,704	18,597	202,799	158,740
December	382,674	104,368	278,306	18,875	204,946	158,854
2009						
January	378,313	103,895	274,418	18,599	201,511	158,204
February	380,575	104,133	276,442	18,880	203,098	158,597
March	386,595	104,897	281,698	19,252	207,711	159,632
April	385,001	105,242	279,759	18,958	205,879	160,163
May	342,706	93,305	249,401	15,202	185,169	142,335
June	346,611	93,740	252,871	15,478	188,172	142,961
July	319,272	86,541	232,731	13,369	173,600	132,303
August	320,860	86,796	234,064	13,494	174,622	132,744
September	325,467	87,022	238,445	13,847	178,474	133,146
October	321,524	86,827	234,697	13,448	175,185	132,891

SOURCE: Social Security Administration, Supplemental Security Record, 100 percent data.

NOTE: Data are for the end of the specified month and include retroactive payments.

CONTACT: Art Kahn (410) 965-0186 or ssi.monthly@ssa.gov for further information.

Table 7.
Average monthly payment, by eligibility category, age, and source of payment,
October 2008–October 2009 (in dollars)

		Eligibility category		Age		
Month	Total	Aged	Blind and disabled	Under 18	18–64	65 or older
All sources						
2008						
October	476.80	391.50	493.20	566.30	492.20	394.30
November	477.30	391.90	493.70	567.10	492.40	394.60
December	477.80	393.50	493.90	561.30	494.00	396.00
2009						
January	504.10	411.10	521.80	603.00	519.90	414.30
February	502.80	410.60	520.30	597.90	518.80	413.90
March	503.70	411.60	521.00	599.40	519.40	414.70
April	505.10	412.20	522.60	605.40	520.10	415.30
May	500.80	404.80	518.80	601.40	516.60	408.70
June	500.20	405.10	517.90	598.10	516.00	408.90
July	497.80	400.80	515.90	596.20	514.20	405.20
August	498.50	400.90	516.60	598.10	514.60	405.30
September	497.50	401.10	515.30	592.50	514.20	405.40
October	499.40	401.30	517.50	600.70	515.30	405.60
Federal payments						
2008						
October	446.00	333.90	466.30	552.10	464.30	341.80
November	446.50	334.40	466.90	553.00	464.50	342.10
December	447.00	336.00	467.00	547.10	466.10	343.60
2009						
January	473.90	354.40	495.40	588.60	492.60	362.60
February	472.60	353.80	493.90	583.60	491.50	362.20
March	473.50	354.80	494.70	585.10	492.10	362.90
April	475.00	355.20	496.30	591.20	492.80	363.40
May	474.80	355.40	496.10	590.20	492.80	363.60
June	474.20	355.60	495.30	587.00	492.20	363.80
July	474.00	355.50	495.10	586.50	492.20	363.70
August	474.80	355.60	495.90	588.40	492.70	363.90
September	473.80	355.80	494.60	582.70	492.30	363.90
October	475.70	355.90	496.80	591.00	493.40	364.10

(Continued)

Table 7.
Average monthly payment, by eligibility category, age, and source of payment,
October 2008–October 2009 (in dollars)—*Continued*

| Month | Total | Eligibility category | | Age | | |
		Aged	Blind and disabled	Under 18	18–64	65 or older
			State supplementation			
2008						
October	156.10	171.90	150.70	76.30	159.10	172.30
November	156.00	171.90	150.50	76.00	159.10	172.40
December	156.20	172.30	150.70	76.10	159.30	172.70
2009						
January	156.00	172.20	150.40	76.00	159.00	172.50
February	155.80	172.10	150.20	75.80	158.80	172.50
March	155.90	172.30	150.20	75.80	158.80	172.60
April	155.90	172.40	150.20	75.80	158.80	172.70
May	139.50	154.80	134.30	59.80	143.40	155.20
June	139.40	154.70	134.10	59.70	143.20	155.10
July	130.40	144.50	125.60	52.30	134.80	145.10
August	130.30	144.50	125.50	52.30	134.80	145.10
September	130.20	144.40	125.40	52.30	134.60	145.10
October	130.30	144.50	125.50	52.30	134.70	145.10

SOURCE: Social Security Administration, Supplemental Security Record, 100 percent data.

NOTE: Data are for the end of the specified month and exclude retroactive payments.

CONTACT: Art Kahn (410) 965-0186 or ssi.monthly@ssa.gov for further information.

Table 8.
All awards, by eligibility category and age of awardee, October 2008–October 2009

Month	Total	Eligibility category		Age		
		Aged	Blind and disabled	Under 18	18–64	65 or older
2008						
October	79,082	9,769	69,313	13,874	55,273	9,935
November	72,635	9,945	62,690	13,521	49,048	10,066
December	77,917	8,074	69,843	15,287	54,422	8,208
2009						
January	67,577	8,475	59,102	13,239	45,743	8,595
February	72,924	8,932	63,992	14,379	49,500	9,045
March	93,218	9,425	83,793	18,985	64,651	9,582
April	80,706	9,748	70,958	15,728	55,101	9,877
May	83,702	9,158	74,544	15,863	58,530	9,309
June	91,533	8,362	83,171	18,824	64,212	8,497
July	80,922	8,933	71,989	16,259	55,607	9,056
August	81,089	8,977	72,112	15,960	56,026	9,103
September [a]	97,752	9,140	88,612	19,078	69,400	9,274
October [a]	80,323	9,043	71,280	15,378	55,806	9,139

SOURCE: Social Security Administration, Supplemental Security Record, 100 percent data.

NOTE: Data are for all awards made during the specified month.

a. Preliminary data. In the first 2 months after their release, numbers may be adjusted to reflect returned checks.

CONTACT: Art Kahn (410) 965-0186 or ssi.monthly@ssa.gov for further information.

Perspectives—Paper Submission Guidelines

The *Social Security Bulletin* is the quarterly research journal of the Social Security Administration. It has a diverse readership of policymakers, government officials, academics, graduate and undergraduate students, business people, and other interested parties.

To promote the discussion of research questions and policy issues related to Social Security and the economic well being of the aged, the *Bulletin* welcomes submissions from researchers and analysts outside the agency for publication in its Perspectives section.

We are particularly interested in papers that:

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- evaluate changing economic, demographic, health, and social factors affecting work/retirement decisions and retirement savings;

- consider the uncertainties that individuals and households face in preparing for and during retirement and the tools available to manage such uncertainties; and

- measure the changing characteristics and economic circumstances of SSI beneficiaries.

Papers should be factual and analytical, not polemical. Technical or mathematical exposition is welcome, if relevant, but findings and conclusions must be written in an accessible, nontechnical style. In addition, the relevance of the paper's conclusions to public policy should be explicitly stated.

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Authors should submit papers for consideration via e-mail to Michael V. Leonesio, Perspectives Editor, at perspectives@ssa.gov. To send your paper via regular mail, address it to:

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Washington, DC 20254-0001

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Formatting Guidelines

To facilitate the editorial process, papers submitted for publication must be prepared in Microsoft Word (**except for tables and charts—see below**) and be formatted as outlined below.

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- **Synopsis**—For the *Bulletin's* table of contents include a separate synopsis, including the title of the paper along with one to three sentences outlining the research question.

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- **Text**—Papers should average 10,000 words, including the text, the notes, and the references (but excluding the tables and charts). Text is double-spaced, except notes and references, which are double spaced only after each entry. **Do not embed tables or charts into the text. Create separate files (in the formats outlined in "Tables/ Charts" below) for the text and statistical material**. Tables should be in one file, with one table per page. Include charts in a separate file, with one chart per page.

- **End Notes**—Number notes consecutively in the text using superscripts. Only use notes for brief substantive comments, not citations. (See the *Chicago Manual of Style* for guidance on the use of citations.) All notes should be grouped together and start on a new page at the end of the paper.

- **References**—Verify each reference carefully; the references must correspond to the citations in the text. The list of references should start on a new page and be listed alphabetically by the last name of the author(s) and then by year, chronologically. Only the first author's name is inverted. List all authors' full names and avoid using *et al*. The name of each author and the title of the citation should be exactly as it appears in the original work.

- **Tables/Charts**—Tables must be prepared in Microsoft Excel. Charts or other graphics must be prepared in or exported to Excel or Adobe Illustrator. The spreadsheet with plotting data must be attached to each chart with the final submission. Make sure all tables and charts are referenced in the text. Give each table and chart a title and number consecutive with the order it is mentioned in the text. Notes for tables and charts are independent of Notes in the rest of the paper and should be ordered using lowercase letters, beginning with the letter a (including the Source note, which

should be listed first). The sequence runs from left to right, top to bottom. The order of the notes as they appear below the tables or charts is (1) Source, (2) general notes to the table or chart, if any, and (3) letter notes.

For specific questions on formatting, use the *Chicago Manual of Style* as a guide for notes, citations, references, and table presentation.

Review Process

Papers that appear to be suitable for publication in Perspectives are sent anonymously to three reviewers who are subject matter experts. The reviewers assess the paper's technical merits, provide substantive comments, and recommend whether the paper should be published. An editorial review committee appointed and chaired by the Associate Commissioner, Office of Research, Evaluation, and Statistics, makes the final decision on whether the paper is of sufficient quality, importance, and interest to publish, subject to any required revisions that are specified in a letter to the author(s). The entire review process takes approximately 12 weeks.

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If your paper is accepted for publication, you will be asked to make your data available to others at a reasonable cost for a period of 3 years (starting 6 months after actual publication). Should you want to request an exception from this requirement, you must notify the Perspectives Editor when you submit your paper. For example, the use of confidential or proprietary data sets could prompt an exemption request. If you do not request an exemption, we will assume that you have accepted this requirement.

Questions

Questions regarding the mechanics of submitting a paper should be sent to our editorial staff via e-mail at ssb@ssa.gov. For other questions regarding submissions, please contact Michael V. Leonesio, Perspectives Editor, at perspectives@ssa.gov.

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Program Highlights, 2010

Old-Age, Survivors, and Disability Insurance

Tax Rates for Employers and Employees, Each [a] (percent)
- Social Security
  - Old-Age and Survivors Insurance 5.30
  - Disability Insurance 0.90
    - Subtotal, Social Security 6.20
  - Medicare (Hospital Insurance) 1.45
    - Total 7.65

Maximum Taxable Earnings (dollars)
- Social Security 106,800
- Medicare (Hospital Insurance) .... No limit

Earnings Required for Work Credits (dollars)
- One Work Credit (One Quarter of Coverage) 1,120
- Maximum of Four Credits a Year 4,480

Earnings Test Annual Exempt Amount (dollars)
- Under Full Retirement Age for Entire Year 14,160
- For Months Before Reaching Full Retirement Age in Given Year 37,680
- Beginning with Month Reaching Full Retirement Age .... No limit

Maximum Monthly Social Security Benefit for
Workers Retiring at Full Retirement Age (dollars) 2,346

Full Retirement Age 66

Cost-of-Living Adjustment (percent) 0.0

a. Self-employed persons pay a total of 15.3 percent—10.6 percent for OASI, 1.8 percent for DI, and 2.9 percent for Medicare.

Supplemental Security Income

Monthly Federal Payment Standard (dollars)
- Individual 674
- Couple 1,011

Cost-of-Living Adjustment (percent) 0.0

Resource Limits (dollars)
- Individual 2,000
- Couple 3,000

Monthly Income Exclusions (dollars)
- Earned Income [a] 65
- Unearned Income 20

Substantial Gainful Activity (SGA) Level for
the Nonblind Disabled (dollars) 1,000

a. The earned income exclusion consists of the first $65 of monthly earnings, plus one-half of remaining earnings.

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