SOCIAL SECURITY BENEFITS AS A RETIREMENT RESOURCE FOR U.S. NEAR-RETIREES

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This paper analyzes Social Security benefits as a retirement resource (wealth and income) for U.S. near-retirees. We look at how the average values of several measures of benefits such as Social Security wealth and earnings replacement rates have changed from earlier cohorts to today's near-retirement cohort, examine differences among demographic and socioeconomic groups within cohorts, and discuss reasons for these changes and differences. We use improved data (actual earnings history data) to produce more accurate measures of benefits. The paper also uses some new benefit measures. Three key findings are: (1) average real Social Security wealth increases markedly as we move to later cohorts primarily because of increases in average real lifetime earnings; (2) replacement rates fall as we move from the cohorts of persons reaching 61 in 1993–97 to later cohorts primarily because of the phase-in of increases in the age of eligibility for full benefits and the increasing labor market activity of women; and (3) median Social Security wealth is much higher for women than for men because women live longer.

1. INTRODUCTION

Social Security benefits are the major retirement resource (wealth and income) for U.S. retirees. Social Security is the single largest government program in the U.S. In 2005, it paid $530 billion in benefits to approximately 48 million beneficiaries. In retirement, the average American family receives more money in Social Security benefits than from any other source of income. In 2004, 66 percent of aged beneficiaries (those aged 65 and older) received at least half of their income from these benefits, while for 34 percent these benefits were 90 percent or more of their income. These benefits are especially important for low earners and for certain population subgroups such as widows. Moreover, benefits are now almost universal. The proportion of the aged population receiving Social Security benefits rose from 69 percent in 1962 to 89 percent in 2004.[1]

This paper analyzes Social Security benefits as a retirement resource for today's near-retirees and for earlier cohorts of near-retirees. The near-retirees in this study are people who reach age 61 during the 1988–2007 period. One reason

for selecting these birth-year cohorts is that these persons are not likely to be markedly affected by possible future cuts in benefits; we choose age 61 because 62 is the age of first eligibility for Social Security retired-worker and spouse benefits. The paper examines how the average values of several benefit measures (Social Security wealth, annualized benefit payout, and earnings replacement rates) have changed from earlier cohorts to today's near-retiree cohort. It also examines how within a cohort these benefit measures differ among sex–marital status and earnings quintile subgroups and how these have changed over time. We look at some reasons for these changes and differences, and discuss the effects of earnings, interest rates, marital behavior, longevity, and Social Security program provisions on these Social Security benefit measures. Our findings can help efforts to understand the economic well-being of the aged and to develop proposals to improve the Social Security program.

The Social Security program, formally known as the Old-Age, Survivors, and Disability Insurance (OASDI) program, provides monthly benefits to qualified retired and disabled workers and their dependants. To become qualified, a worker must earn a minimum number of credits based on covered work. In 2006, a worker was credited with a quarter of coverage for $970 in covered earnings. A worker can earn up to a maximum of 4 quarters per year, and must have 40 quarters of coverage to be eligible for retirement benefits. For those who qualify for benefits, the benefit amount increases, but less than proportionally, with lifetime wage-indexed taxable earnings in covered employment. In others words, the benefit formula is progressive. The earliest age for a worker to claim retirement benefits is 62. The full retirement age or age at which one can receive full benefits is 65 for those born before 1938 and increases gradually to 66 for those born in 1943 through 1954. Persons who start benefits before reaching the age of eligibility for full benefits receive reduced monthly benefits. For workers who become disabled or die before 62, the required number of quarters of coverage depends on their age at the time of disability or death. Fuller descriptions of Social Security program provisions appear in the Appendix and various other places in the paper.[2]

We summarize some of our findings here. Both average real Social Security wealth and average real annualized benefit payouts increase markedly for successive age cohorts, in considerable part because of increases in average real lifetime wage-indexed taxable earnings. In fact, we show that the increase in mean real Social Security wealth from the cohort reaching ages 57–61 in 1988 to the cohort reaching those ages in 1998 to be considerably larger than that reported by Wolff (2002) for roughly comparable age groups and periods. Earnings replacement rates decrease as we move from the cohorts of persons reaching ages 57–61 in 1993 to later cohorts, primarily due to the phase-in of increases in the age of eligibility for full retirement benefits and the increasing labor market activity of women. Average Social Security wealth is much higher for women than for men because women live longer. From the cohort reaching ages 57–61 in 1998 to the cohort reaching those ages in 2003, we find that the faster growth of lifetime earnings of higher earners led to median real annualized benefit payouts rising more rapidly in percentage terms for those in higher lifetime earnings quintiles than for those in lower quintiles.

[2]Social Security Administration (2006b) provides much greater detail.

There is a large literature on the retirement resources of near-retirees.[3] A number of these studies focus on other types of retirement resources, that is, private pension and private asset wealth. Of those that include Social Security wealth estimates, one set of studies generally is plagued by serious data problems, especially inaccurate estimates of Social Security benefits over the period of benefit receipt. Benefit estimates based on inaccurate earnings estimates are commonly used to evaluate this component of total retirement wealth. For example, Wolff (2002) estimated lifetime earnings based on a single year of earnings which in turn were used to calculate the Social Security retirement wealth of near-retirees. He found that mean real Social Security wealth of people aged 47–64 decreased during the period 1983–89, increased during 1989–98, with an overall decrease for 1983–98. Recent studies by Weller and Wolff (2005) and Wolff (2006) include 2001 data but produce somewhat conflicting results. Kennickell and Sunden (1997) calculate pension wealth and Social Security wealth for 1992 with earnings profiles estimated from a single year's cross-section data in order to determine the effect of those forms of wealth on non-pension saving.

Another group of studies that include Social Security wealth have more reliable Social Security earnings and benefit information. The focus of most of these is not specific to analysis of Social Security wealth and therefore rather different from that of our study. For example, Scholz *et al.* (2006) use Social Security earnings data to simulate benefits in order to determine whether households are saving optimally for retirement. That is, Social Security wealth is one of many measures in their model, the goal of which is to make overall retirement wealth predictions and point to those who undersave.[4] Haveman *et al.* (2006) compare overall retirement income adequacy for earlier birth cohorts, those who retired in the early 1980s with those who retired in the mid 1990s. In studying many forms of retirement and non-retirement income, Butrica *et al.* (2003) focus on baby boomers; Karen Smith (2003) focuses on persons born during the 1931–75 period and looks at how earnings inequality may translate into retirement income inequality. Smith *et al.* (2003–04) focus on the net redistributive effects of Social Security for birth cohorts ranging from 1931 to 1960. Earlier studies by Moore and Mitchell (2000), Gustman and Steinmeier (1998), and Engen *et al.* (2000) compute Social Security wealth in the context of overall retirement preparedness.

What then is the precise contribution of this paper? This paper attempts to provide clear and comprehensive answers regarding one component of retirement resources, that is, Social Security benefits. It provides an in-depth examination of Social Security benefits for a specific group of the retiree population, namely, recent near-retirees and those who can expect to retire in the very near future. We compute a variety of benefit measures that have not been used in previous studies. We rely primarily on actual earnings history data to examine Social Security benefits as a retirement resource for near-retirees. The use of observed earnings histories allows us to capture the large variation in these histories, unlike methods that estimate earnings histories based on a single earnings equation. The study uses MINT datafiles, which include Social Security Administration (SSA) administrative

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[3]See Congressional Budget Office (2003) for an overview of various studies.
[4]Engen *et al.* (2005) also make estimates of the adequacy of households' saving for retirement, but use estimated mean age-earnings profiles.

earnings and benefit history records exact-matched to the 1990–93 panels of the Survey of Income and Program Participation. Because of the extensive content of this dataset, we are able to use fewer imputations and projections than have a number of other studies of the subject. Any imputations and projections that were required were done by MINT modelers using sophisticated analytical methods. Thus, this paper attempts to produce more accurate measures of Social Security benefits by using improved data. For example, our results suggest that Social Security wealth increased considerably faster than was reported by Wolff (2002).

2. Data

As stated above, for this study we use data from the Modeling Income in the Near Term (MINT) model project.[5] The MINT project is a large-scale effort that has been underway since the late 1990s. Much of the developmental work was done for the Social Security Administration by analysts at the Urban Institute, Rand Corporation, and Brookings Institution. The starting sample is from the 1990, 1991, 1992, and 1993 panels of the U.S. Census Bureau's Survey of Income and Program Participation (SIPP). In this survey of the non-institutionalized population, interviews were conducted once every 4 months for 28–36 months. The initial SIPP interviews were conducted in 1990–93 and almost all of the final SIPP interviews were conducted during the 1992–95 period. The SIPP collected information on income and wealth components, mortality, marital histories, institutionalization, immigration, various demographic and socioeconomic variables (e.g. education, race, and ethnicity), and many other variables.

As part of the MINT project SSA administrative records were exact-matched to SIPP data for sample members born during the 1926–65 period. These administrative records include earnings history, benefit history, and death information through 1999; they also include sex and date of birth. Exact-matches were made for about 92 percent of these persons, and administrative records were imputed by MINT modelers for the remaining 8 percent of persons. Thus, we have survey data through 1992–95, and administrative data through 1999. For years after these time ranges, the MINT model projects dates of death, institutionalizations, marital histories, earnings histories, and benefit histories, using information from both the administrative records and the SIPP. In addition, persons are projected to enter the sample by means of immigration. These projections of economic and demographic variables were designed to be generally consistent with the intermediate assumptions of the 2002 Old-Age, Survivors and Disability Insurance (OASDI) Trustees Report.[6] Additional information about MINT imputations and projections is given in Appendix A of Bridges and Choudhury (2005). For a detailed description and evaluation of the MINT3 model and data, see Toder *et al.* (2002). Also see Panis and Lillard (1999) for a detailed description and evaluation of the MINT projections of marital histories, mortality, and disability status.

[5]We use MINT3 datafiles created in April 2003.
[6]Board of Trustees (2002). Two key economic assumptions of Trustees Reports are those with regard to inflation and the growth of average earnings. The 2002 report uses actual historical data on average wages through calendar year 2000 and on consumer price levels through early 2002.

TABLE 1
AGE OF PERSONS IN 1999 (THE LAST YEAR OF SSA ADMINISTRATIVE DATA)

Cohort		Year of Birth	Year Reached 61	Age Reached in 1999
1988	Begins	1927	1988	72
	Ends	1932	1992	68
1993	Begins	1932	1993	67
	Ends	1936	1997	63
1998	Begins	1937	1998	62
	Ends	1941	2002	58
2003	Begins	1942	2003	57
	Ends	1946	2007	53

The data set used in this study has notable strengths. First, longitudinal administrative data are available through 1999. Thus, as shown in Table 1, earnings history data are available through age 53 for the youngest birth cohort analyzed (those born in 1946) and through age 72 for the oldest birth cohort (born in 1927). Benefit record information is available for the great majority of members of the eight oldest single-year cohorts (born 1927–34) and for many members of the next three single-year cohorts (born 1935–37). Second, the combined SIPP panels provide a large sample. Each of our single-year birth cohorts is represented by a sample of more than 1,000 persons. Studies of retirement resources of near-retirees typically use much smaller samples.

3. DEFINITIONS AND BENEFIT MEASURES

This section discusses the empirical constructs of the study: the definition of cohorts of near-retirees and the benefit measures (Social Security wealth, annualized payout, and earnings replacement rates).

3.1. *Cohorts of Near-Retirees*

The unit of analysis is the person and not some larger unit such as a marital unit or family. In studies that use longitudinal data, the person is often the unit of analysis. The composition of the larger units changes over time. For example, the marital status of most persons changes one or more times during their adult lifetime.

The paper looks at 20 single-year cohorts, that is, those persons reaching age 61 in the 20 years from 1988 through 2007. Each single-year cohort consists of all persons who reach age 61 during that year and are members of the non-institutionalized population at the end of that year, that is, at the beginning of the year most of them can first receive Social Security retirement benefits. Each of the four SIPP panels (1990–93) includes persons from each of our 20 single-year cohorts.

To facilitate the presentation of results and to avoid small sample sizes for certain sex–marital status subgroups, we combine these 20 single-year cohorts into four groups of five single-year cohorts. From here onward whenever we use the term cohort we refer to these 5-year groups. When we refer to single-year cohorts we will use the term single-year cohort. The first or oldest cohort of near-retirees

(the 1988 cohort) consists of persons reaching ages 57–61 in 1988. The 1993, 1998, and 2003 cohorts are persons reaching ages 57–61 in 1993, 1998, and 2003. Benefits of cohort members are evaluated as of January 1 of the year they reach 62. To increase comparability among cohorts and among subgroups within a cohort, benefits of all members of a particular cohort are evaluated as of the year they reach a given age (62) rather than as of a given year (for example, 1988).

The MINT population excludes persons reaching age 61 in 1988–93 who were in the non-institutional population at the end of the year they reached 61, but who were not eligible for SIPP interviews because they died, were institutionalized, or left the country before the first SIPP interviews in 1990–93. This attrition has some effect on the size and composition of the first two cohorts and has no effect on the other two cohorts. This attrition is relatively small for the 1988 cohort and tiny for the 1993 cohort. We attempt to remove the effects of this attrition on the benefit and earnings measures for the 1988 cohort by using attrition factors and thus making these measures comparable with those for the other cohorts. We compute attrition factors using data from the 1993 cohort of near-retirees. For a description and discussion of our attrition correction method, see Appendix B of Bridges and Choudhury (2005).

3.2. *Benefit Measures*

In our study all benefit amounts are those payable under actually enacted Social Security law. The most recent significant change in Social Security law, a change in the earnings test, was enacted in 2000.

Our benefit concept is *shared benefits*. For each year a person is married, the person's shared benefit equals half the benefits received by the couple. It is our view that shared benefit is superior to individual benefit received as a measure of the income support the person receives from the OASDI program. The individual benefits of husband and wife often are quite different. However, most married couples share their incomes. For each year a person is not married, the person's shared benefit equals the benefits received by the person.[7]

Our benefit measures such as Social Security wealth include benefits received in the years after the year the person reaches age 61. Our measures include the benefits paid from the Old-Age and Survivors (OASI) and Disability Insurance (DI) trust funds to a worker, spouse, divorced spouse, surviving spouse, or surviving divorced spouse.

Social Security Wealth

For each person with benefits, we compute Social Security wealth—the present value of shared benefits evaluated as of January 1 of the year the person reaches age 62. Real Social Security Wealth (SSW) is expressed in January 1 of 2002 prices.[8] Our annual discount rate series consists of the rates of return on

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[7]Given the content of the MINT datafile, the sharing of benefit income within a larger unit, such as the family, could not be considered.

[8]Through the price index of January 1 of 2002, the price index for January 1 of a given year is the average of the published price index for January of that year and the published price index for December of the previous year. For years after 2002, the price index value for January 1 of a given year is the average of the projected price index for that year and the projected price index for the previous year.

OASI trust fund assets. Projected CPI-Ws (Consumer Price Index for Urban Wage Earners and Clerical Workers) and trust fund interest rates are based on the intermediate assumptions of the 2002 Trustees Report.

Annualized SSW Payout

For each person with benefits, we compute an annualized SSW payout (ANNPAYOUT), which is equal to the constant real annual payment over all the person's potential benefit years that has a present value equal to the person's Social Security Wealth. In other words, the person's Social Security wealth is converted into an annuity which provides constant real annual payments over the person's potential benefit years. As with SSW, ANNPAYOUT is expressed in prices as of January 1 of 2002. The person's number of potential benefit years is the maximum number of years that the person could receive benefits. Potential benefit years consist of all years from the year the person reaches age 62 through the last year before the year of death.[9,10] After 1999, the year of death is that projected by the MINT model.

Annualized payout, which has not been used in previous studies, is a useful measure of the average annual support provided by Social Security after age 61.[11] It is less affected by increases over cohorts or differences within cohorts in longevity than is the Social Security wealth measure.[12]

Earnings Replacement Rates

There are a number of possible replacement rate measures. For example, replacement rates have been defined as the percent of average earnings for the last few years before benefit receipt that are replaced by benefits. Our replacement rates measure the extent to which average *career* earnings are replaced by benefits. One reason for selecting average career earnings for the replacement rate measures is because one goal of the Social Security program is to provide benefits that replace a portion of average career earnings. In addition, for a given single-year cohort, average wage-indexed career earnings provides a useful indicator of a worker's average position over their career in the economy's earnings distribution. For each person with some shared earnings we calculate two earnings replacement rates; one

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[9]The number of potential benefit years equals 0 for persons who die in the year they reach age 62, equals 1 for persons who die in the year they reach 63, and so on.

[10]For the year of a person's death, the MINT benefit calculator does not credit the person with any individual or shared benefits. For the year the person begins to receive benefits, the benefit calculator credits the person with 12 months of benefits unless that is the year that the person dies.

[11]A somewhat similar approach is used in Smith *et al.* (2003–04). See their "Overall Approach" section.

[12]The cohort or cohort subgroup with greater longevity can be said to have additional potential benefit years, most of which will also be years in which the beneficiaries receive real annual benefits that are at least as large as those they receive in their earlier years. These additional benefits result in additional Social Security wealth. To compute additional annualized payout, this additional SSW is spread over *all* potential benefit years. Thus, greater longevity usually causes a smaller percentage increase in annualized payout than in Social Security wealth.

for average wage-indexed shared taxable earnings (TX-REPRATE) and another for average wage-indexed shared less-censored earnings (LC-REPRATE). Less-censored earnings is a proxy for total earnings and its computation is explained below. The taxable earnings replacement rate is somewhat like the replacement rate measure implicit in OASDI law. The less-censored earnings replacement rate is our proxy for a total earnings replacement rate; it is superior to the taxable earnings replacement rate as a measure of the adequacy of Social Security benefits because its denominator is a better proxy for the person's pre-retirement standard of living. The annualized payout, ANNPAYOUT, is the numerator of each of these two replacement rates. Each of these career average earnings measures is computed from shared annual earnings amounts. For each year a person is married, the person's shared earnings equal half of the earnings of the couple. For each year a person is not married, the person's shared earnings equal the person's own earnings.

James Smith (2003) discusses several factors to which earnings replacement rates can be sensitive. He considers the use of after-tax instead of pre-tax incomes, the changing family composition of households between their pre-retirement and post-retirement years, differential underreporting of income by age, and position in the income distribution. Data limitations preclude our consideration of most of these factors, but we are able to examine replacement rates by earnings quintiles.

The annual taxable earnings (wages and self-employment income) of a worker is that part of the worker's total earnings from employment covered by Social Security which is at or below the legislated taxable maximum (the maximum amount of annual earnings that is subject to Social Security payroll tax and is included in the calculation of benefits). For each year since 1981, the legislated taxable maximum has been indexed by SSA's average annual wage series, a series for all wage workers. Therefore, since 1983 the ratio of the legislated taxable maximum to the average annual wage has been roughly constant at about 2.3–2.5. The ratio was 2.3–2.4 during 1983–89 and 2.4–2.5 during the 1990s. Before 1983 this ratio was always below 2.3 and varied substantially. The ratio was 1.0–1.7 during 1951–78 and 2.0–2.2 during 1979–82.[13]

We compute a measure of earnings that is less censored than taxable earnings and that unlike taxable earnings has censoring limits that are a constant percentage of average annual wage series amounts. The annual less-censored earnings of a worker is that part of the worker's total earning from employment covered by Social Security which is estimated to be at or below a hypothetical taxable maximum that for each year was set at about 2.45 times the average annual wage. The SSA earnings records included in our MINT datafile include annual amounts of taxable earnings, but not amounts of total covered earnings. For each year before 1990, the MINT model estimates covered earnings in excess of the legislated taxable maximums using SSA administrative data on quarters of coverage and Current Population Survey wage data. The 1951–89 hypothetical maximums are

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[13]The proportion of all workers (of any age) in covered employment with covered earnings at or above the legislated taxable maximums was 6 percent during 1983–89 and 5–6 percent during the 1990s. The percentages during 1951–78 and 1979–82 were 15–36 and 7–10.

then applied to these estimated earnings to get less-censored earnings.[14] For years after 1989 less-censored earnings are simply set equal to taxable earnings; for these years the legislated taxable maximums were 2.4–2.5 times the average annual wage. For each year of the 1951–89 period the hypothetical maximum exceeds the legislated maximum; for each year of this period less-censored earnings are less censored than taxable earnings. Less-censored earnings are superior to taxable earnings in approximating relative changes in total earnings over cohorts or differences in total earnings within cohorts among socioeconomic subgroups.

We compute average taxable wage-indexed earnings as follows. For each person, shared taxable earnings for each year of the computation period (defined below) are indexed, using the average wage series, to wage levels as of the beginning of the year the person reaches age 62. The indexed earnings are then averaged over the person's computation period. Finally, this average is expressed in prices prevailing as of January 1, 2002, to get a measure of average wage-indexed shared taxable earnings, TX-EARN.[15] For TX-EARN we often will use the term indexed taxable earnings. The computation period for these indexed taxable earnings begins with 1951 or the year the person reaches age 22, whichever comes later, and ends with the year the person reaches age 61. Projected average annual wages in the MINT datafile are based on the intermediate assumptions of the 2002 Trustees Report. Average wage-indexed shared less-censored earnings (LC-EARN) are computed in an analogous way.[16,17] For LC-EARN we often will use the term indexed less-censored earnings.

A person's taxable earnings replacement rate, TX-REPRATE, is the person's annualized payout, ANNPAYOUT, expressed as a percent of the person's indexed taxable earnings, TX-EARN. As stated earlier, the taxable earnings replacement

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[14]For each year of the 1951–77 period, the MINT model uses information from SSA administrative records on the quarter in which a person's earnings reached the legislated taxable maximum to assign a person to an earnings interval. Means for each interval were derived from earnings data collected by the U.S. Census Bureau in its Current Population Surveys (CPS). Each person is assigned the mean earnings for their interval. For the 1978–89 period, administrative records do not contain information on the quarter in which an individual's earnings reached the legislated taxable maximum. For this later period, earnings above the legislated taxable maximum were set at the CPS average of earnings above the legislated taxable maximum for each year. See Butrica *et al.* (2001) for a fuller description of the MINT projection method for less-censored earnings. MINT modelers coined the phrase "less-censored earnings."

[15]Because the numerator of the replacement rate, annualized payout (ANNPAYOUT), is expressed in January 1, 2002, prices, we need to express the denominator of the replacement rate, indexed taxable earnings (TX-EARN), in January 1, 2002, prices. P_{2002} is the CPI as of January 1, 2002, and P_T is the CPI as of January 1 of year T (the year the person reaches age 62). AE_T is average wage-indexed shared taxable earnings indexed to the average wage level prevailing as of January 1 of year T. TX-EARN = $(P_{2002} / P_T) AE_T$.

[16]The computation period for indexed less-censored earnings, LC-EARN, begins with 1951, or the year the person reaches age 22, or the year the person immigrates to the United States, whichever comes later, and ends with the year the person reaches age 61. Thus, except for immigrants who enter the United States after the year they reach age 22, the computation periods for indexed less-censored earnings are the same as those for indexed taxable earnings, TX-EARN.

[17]SSW is evaluated as of January 1 of the year the person reaches age 62. Annualized payout is the numerator of our replacement rates, and is derived from SSW. Thus, we want to wage-index less-censored earnings, the denominator of our less-censored earnings replacement rate, LC-REPRATE, to the wage level as of the beginning of the year the person reaches age 62. Making the timing of the numerator and denominator consistent makes the less-censored earnings replacement rate a better measure of the adequacy of Social Security benefits. We chose to wage-index taxable earnings to the same date as that used for wage-indexing less-censored earnings.

rate is somewhat like the replacement rate measure implicit in OASDI law. Under that law, a person's initial Monthly Benefit Amount (MBA) is determined as a percent of the person's Average Indexed Monthly Earnings (AIME) and over time the person's MBA is kept constant in real terms. The numerator of the taxable earnings replacement rate is the annualized payout, which is a constant real benefit and is related to the price-indexed Monthly Benefit Amount. The denominator of the taxable earnings replacement rate is indexed taxable earnings, which is average wage-indexed taxable earnings from age 22 through age 61. Indexed taxable earnings and the AIME have some similar features. Both are indexed using the SSA average annual wage series and their averaging periods are similar.[18] The same AIME computation procedure applies to all of our cohorts of near-retirees.

The less-censored earnings replacement rate, LC-REPRATE, is the percentage of indexed less-censored earnings replaced by Social Security benefits. As stated earlier, the less-censored earnings replacement rate is our proxy for a total earnings replacement rate. Both the taxable and less-censored earnings replacement rates are age-62 replacement rates, that is, they give the percentages of a person's earnings wage-indexed to January 1 of the year the person reaches age 62 that are replaced by the person's constant real annualized payout. As average real economy-wide earnings increase in the years after age 61, the person's annualized payout declines relative to average economy-wide earnings.

4. Findings for all Social Security Program Participants

All of our results are for Social Security program participants, that is, near-retirees who have paid some program taxes. A participant does not necessarily receive any Social Security benefits. The very small group of non-participants (near-retirees with no shared earnings) is excluded from this analysis. For each of the four near-retiree cohorts, 94.8–95.6 percent of program participants have some shared benefits, that is, have positive Social Security wealth. The tables provide data for program participants regardless of whether they have positive SSW, that is, the tables include participants who have positive indexed taxable earnings but receive no benefits—nearly always because of insufficient quarters of coverage for benefit eligibility or because they die before claiming benefits.

4.1. Social Security Wealth (SSW)

Average real SSW increases as we move from earlier to later near-retiree cohorts; the medians and means exhibit similar patterns (Table 2). The percentage increase in average real Social Security wealth from the 1993 cohort to the 1998 cohort is larger than the increases for 1988–93 and 1998–2003.

[18]For purposes of determining retired-worker benefits, the worker's AIME is determined as follows. Annual taxable earnings through age 60 are indexed, using the average wage series, to wage levels as of the year the worker reaches age 60; annual earnings after age 60 are not wage-indexed. The sum of the 35 highest earnings is divided by 420 (35×12) to get AIME. For disabled workers the calculation of AIME usually employs a shorter computation period (less than 35 years). Given that we use a shared benefit measure, annualized payout, we needed a shared earnings measure. AIME is a person or individual measure. For various conceptual and data reasons, we could not compute a shared AIME measure.

TABLE 2

SOCIAL SECURITY BENEFIT AND RELATED MEASURES FOR COHORTS OF NEAR-RETIREES[a]

Measure	Cohort[a]				Percentage Change				
	1988	1993	1998	2003	1988–1993	1993–1998	1998–2003	1993–2003	1988–2003
Social Security Wealth ($) (SSW)									
Median	105,624	122,258	147,003	164,961	16	20	12	35	56
Mean	108,352	125,588	153,307	173,296	16	22	13	38	60
Annualized payout ($) (ANNPAYOUT)									
Median	5,580	6,338	7,487	8,292	14	18	11	31	49
Mean	5,382	6,079	7,189	7,952	13	18	11	31	48
Median replacement rate (%)									
Taxable earnings (TX-REPRATE)	32.6	33.9	32.2	31.0	4	−5	−4	−9	−5
Less-censored earnings (LC-REPRATE)	28.8	30.6	30.0	29.5	6	−2	−2	−4	2
Average wage-indexed earnings ($)									
Taxable (TX-EARN)									
Median	16,836	18,454	22,915	26,198	10	24	14	42	56
Mean	16,460	18,309	22,995	26,770	11	26	16	46	63
Less-censored (LC-EARN)									
Median	19,093	20,276	24,437	27,237	6	21	11	34	43
Mean	18,917	20,354	24,775	28,061	8	22	13	38	48
Mean potential benefit years	21.23	21.47	21.97	22.34	1	2	2	4	5

Source: Authors' computations on MINT3 data.
Notes: Money amounts are in January 1, 2002, dollars.
a. Persons aged 57–61 in specified year.

The growth of average earnings is the main cause of the growth of average Social Security wealth. Under the Social Security benefit formula that applies to all of our cohorts of near-retirees, the benefit increases as Average Monthly Indexed Earnings, the program's measure of average wage-indexed taxable earnings, increases. The bend points of the progressive benefit formula are indexed using the SSA average annual wage series.[19] The individual benefits of worker-only beneficiaries are determined by their own Average Indexed Monthly Earnings (AIMEs). In contrast, the individual benefits of spouse and survivor beneficiaries are determined by the AIMEs of their spouses or deceased spouses.[20] Thus, the growth of average real AIME of worker-only beneficiaries should be a good indicator of the contribution of earnings growth to the growth of average real SSW of program participants. As with the increases in average real SSW of program participants, the 1993–98 percentage increase in average real AIME of worker-only beneficiaries is greater than the 1988–93 and 1998–2003 increases.[21]

The growth of this average AIME measure reflects the interaction of the growth of earnings of our near-retiree cohorts and of all wage earners with the provisions of Social Security law. The average wage of all workers is used to index AIMEs and to index the legislated taxable maximums. The same AIME computation procedure applies to all of our cohorts of near-retirees. The same procedure for indexing the taxable maximums has been in effect since the early 1980s. Prior to 1982 there were a number of ad hoc legislated changes in the taxable maximum.

Another important cause of the growth of average real Social Security wealth is the fall in real trust fund interest rates over time. Average annual rates facing our 1988, 1993, 1998, and 2003 cohorts are roughly 4.2, 3.7, 3.2, and 3.1 percent.

In this paper we use historical data for interest rates, benefit amounts, earnings amounts, and other variables whenever available and we use projected data for later years. In computing SSW and annualized SSW payouts we use historical trust fund annual interest rates through 2001 and rates projected by the Social Security trustees for later years. We evaluate each person's SSW as of the year the

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[19]Because AIMEs are wage-indexed, the rates of growth of average real Social Security wealth and of average real annualized payouts from the 1998 cohort to the 2003 cohort are sensitive to the projected growth of the average annual wage series through 2006. Similarly, because indexed taxable earnings, TX-EARN, and indexed less-censored earnings, LC-EARN, are wage-indexed, their rates of growth are sensitive to the projected growth of the average annual wage series through 2008. In this paper we use projections of the average annual wage series from the 2002 Trustees Report, which overstated the growth of the average annual wage over the 2000–04 period. Using 2002 Report projections, the real average annual wage facing the 2003 cohort at age 62 exceeded that faced by the 1998 cohort at age 62 by 9 percent; using the 2006 Report assumptions, the comparable figure is 4 percent. Thus, Table 2 probably overstates the growth from the 1998 cohort to the 2003 cohort of average real indexed taxable earnings and of average real indexed less-censored earnings by a half or so. Some analogous computations suggest that Table 2 probably overstates the growth from the 1998 cohort to the 2003 cohort of average Social Security wealth and of average annualized payouts similarly by half or so.

[20]Here we refer to both spouse only beneficiaries and dually entitled spouse beneficiaries as spouse beneficiaries. We refer to both survivor only beneficiaries and dually entitled survivor beneficiaries as survivor beneficiaries.

[21]The 1988–93, 1993–98, and 1998–2003 increases in median real AIME of worker-only beneficiaries are 7, 14, and 10 percent. The corresponding increases in mean real AIME are 9, 17, and 13 percent.

TABLE 3

EFFECT OF INTEREST RATE DECREASES ON GROWTH RATES OF SOCIAL SECURITY BENEFIT MEASURES

	Percentage Point Changes in Intercohort Growth Rates				
Measure	1988–1993	1993–1998	1998–2003	1993–2003	1988–2003
Median Social Security Wealth (SSW)	8	7	2	10	21
Median annualized payout (ANNPAYOUT)	7	6	2	9	19
Median taxable earnings replacement rate (TX-REPRATE)	6	5	1	5	11
Median less-censored earnings replacement rate (LC-REPRATE)	6	5	1	6	12

Source: Authors' computations on MINT3 data.
Note: Money amounts are in January 1, 2002, dollars.

person reaches age 62 using interest rates for the years from the year they reach age 62 up to their year of death. We wanted to use the interest rates each person faced and/or was projected to face during their post age 61 years. A number of other studies have used our interest-rate approach.[22]

For a given stream of actual real annual benefits, the lower the real interest rates the higher real SSW. Consider the growth of average SSW from cohort A to cohort B. Assume that cohort B faces a lower stream of interest rates than that faced by cohort A. If cohort B had faced the same higher interest-rate stream faced by cohort A, cohort B would have had a hypothetical SSW lower than its actual SSW. Thus, the hypothetical growth rate of SSW from cohort A to cohort B would be lower than the corresponding actual growth rate. The excess of the actual growth rate over the hypothetical growth rate is the effect of the fall in interest rates in increasing the growth rate.

We can determine from Tables 2 and 3 that the fall in real interest rates accounts for 8, 7, and 2 percentage points of the 1988–93, 1993–98, and 1998–2003 growth of median SSW, i.e. for about one-half, one-third, and one-sixth of the 1988–93, 1993–98, and 1998–2003 growth. Note that the interest rate effect becomes smaller over time as the size of interest rate declines is smaller.

Increases in life expectancy cause small increases in Social Security wealth. Changes in the socioeconomic and demographic composition of cohorts can also affect the trends in our benefit measures, because as will be seen in a subsequent section, Social Security benefit measures can vary considerably by socioeconomic and demographic characteristics.

Legislated increases in Social Security benefits that became effective in 1989 or later are not a main cause of the sizable growth of average Social Security wealth over our cohorts. A significant benefit change affecting two of our cohorts, the increase in the Full Retirement Age (FRA), began to be phased in for persons reaching age 62 in 2000; this increase in the FRA causes a reduction in benefits.

[22]For example, see Leimer (2003).

The effect of this benefit change is discussed in some detail in Section 4.3 below.[23] There are very few studies with which we can compare these results.[24] Recently Wolff (2002) provided estimates of Social Security wealth for the soon-to-retire (47–64 years of age). He reported that over the period 1983–98, mean real Social Security wealth declined among the soon-to-retire older American households.[25] He attributed this to falling real lifetime earnings which translate directly to lower real Social Security retirement benefits. When he examined the 47–64 year olds in six 3-year age groups, he found that decreases in mean real Social Security wealth occurred for all but one of the age groups and were particularly marked for the groups aged 56–58, 59–61, and 62–64. In all cases, he found that real Social Security wealth first declined for the period 1983–89 and then rose from 1989 to 1998.

We provide a brief comparison of our results for Social Security wealth with those obtained by Wolff for roughly comparable age groups for roughly comparable periods. Our results indicate that between 1988 and 1998 mean real Social Security wealth increased by 39 percent for those aged 57–58 and by 43 percent for those aged 59–61. Wolff found that the increase between 1989 and 1998 was 13 percent for those aged 56–58 and 30 percent for those aged 59–61 years. Our results show consistently higher increases than those reported by Wolff. This discrepancy probably stems from the differences in the underlying earnings histories used to calculate Social Security benefits.[26] Whereas our computations are based largely on actual earnings histories, Wolff uses lifetime earnings generated from an analysis of single year, cross-section data. Wolff's methodology markedly understates the increases in average lifetime earnings. In addition, realistic variability in lifetime earnings is notoriously difficult to project using standard wage equations.

We do not find any evidence of declining average real Social Security wealth in our results that span 1988–2003. Instead, successive cohorts of near-retirees receive higher average real amounts than previous cohorts. For our cohorts aged 57–61, we find a 1993–98 increase in mean real Social Security wealth of 22 percent, about the same percentage increase that Wolff found for his sample of persons aged 56–61 over the longer period of 1989–98.

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[23]Two benefit changes that result in modest increases in benefit expenditures are (1) the gradual increase in the delayed retirement credit and (2) the liberalization and subsequent elimination of the retirement earnings test for beneficiaries over the Full Retirement Age. The increases in the delayed retirement credit began with those reaching age 62 in 1987 and will be fully phased in for those reaching age 62 in 2005. This earnings test was liberalized in 1996 and abolished in 2000.

[24]Haveman *et al.* (2006) suggest that changing eligibility for Social Security benefits due to demographic compositional changes may explain their finding of lower mean Social Security wealth for those who retired in the mid 1990s compared to those who retired in the early 1980s. Because they use earlier birth cohorts, we are not able to evaluate our results against theirs.

[25]Wolff (2002) has Social Security wealth estimates for 47–64 year olds for 1983, 1989, and 1998. In more recent work, Weller and Wolff (2005) present Social Security wealth estimates for 2001 as well as for 1983, 1989 and 1998, but the 1998 wealth estimates are different from those in Wolff's 2002 study. In still later work, Wolff (2006) presents estimates for 1983, 1989, and 2001, but here the 1989 wealth estimates are different from those in Wolff (2002) and Weller and Wolff (2005). We have not been able to determine the reasons for these differences; hence we make our comparisons with the 2002 study.

[26]Wolff's estimated increases in Social Security wealth include the effects of large decreases in real interest rates.

4.2. *Annualized SSW Payout (ANNPAYOUT)*

Average real annualized payout also increases as we move from earlier to later near-retiree cohorts; the medians and means for annualized payouts exhibit similar patterns (Table 2). The relative 1993–98 increase in median real annualized payout is larger than the increases for 1988–93 and 1998–2003. Notice that the relative increases in average annualized payout are slightly smaller than the corresponding increases in average Social Security wealth. This difference is due to small increases in average potential benefit years (all years from year age 62 through last year before death); the increases in mean potential benefit years are 1.0 percent for 1988–93, 2.3 percent for 1993–98, and 1.7 percent for 1998–2003. These increases in potential benefit years are the actual and projected increases in life expectancy.

The growth of average earnings is also the main cause of the growth of average annualized payouts. Another important cause is the decrease in real interest rates.[27] We can determine from Tables 2 and 3 that about one-half, one-third, and one-sixth of the 1988–93, 1993–98, and 1998–2003 growth of annualized payouts is caused by the fall in real interest rates.

For 1988–93 the growth rate of average hypothetical annualized payout (where both cohorts face the same interest rate stream) is about the same as that of average real AIME of worker-only beneficiaries. For 1993–98 and 1998–2003 the growth rate of the hypothetical payout measure falls a bit short of that of the AIME measure. The rise in the Full Retirement Age does not affect the 1988 and 1993 cohorts, modestly affects the 1998 cohort, and more strongly affects the 2003 cohort.

4.3. *Taxable Earnings Replacement Rates (TX-REPRATE)*

Recall that the taxable earnings replacement rate is the annualized benefit payout expressed as a percentage of average indexed taxable earnings. Both the taxable maximum and the Average Indexed Monthly earnings, AIME, are indexed using the SSA average annual wage series. The bracket endpoints in the progressive formula for computing initial Social Security benefits also are wage-indexed by this wage series.[28]

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[27]For a given stream of actual real benefits, the sign of the effect of lower interest rates on annualized payouts depends on the slope of the stream of benefit payments. In other words, the sign of the effect depends on whether the person's actual real benefits tend to increase, remain constant, or decrease over time after age 62. If the person receives a constant shared real benefit from age 62 until death, a change in interest rates does not affect the annualized payout. If the person's shared benefit increases as the person ages (e.g. because the person goes from spouse beneficiary to survivor beneficiary or because the person starts getting benefits after age 62), a fall in interest rates increases annualized payout and this increases the growth rate of annualized payout. The net effect of lower interest rates on annualized payout results from two offsetting effects: (1) lower interest rates increase SSW; and (2) lower interest rates decrease the annualized payment that can be financed by a dollar of SSW. If the actual benefits are more concentrated in the person's later years than is the stream of constant benefits due to the increase in actual benefits over time, then the first effect dominates. In this case more of the actual benefits are received in the later years when the level of interest rates matters more. On the other hand, if the person's benefit decreases as the person ages, a fall in interest rates decreases annualized payout and the growth rate of annualized payout. More than 75 percent of our beneficiaries have real benefit increases and less than 1 percent have sizable real benefit decreases. Thus, the first effect dominates.

[28]Note, however, that the taxable maximum was generally not wage-indexed before the early 1980s.

In this paper, we do not present means of individual replacement rates. Such means are strongly affected by the relatively small number of very high individual replacement rates. In Table 2, we report median values and find that as we move from earlier to later near-retiree cohorts the median taxable earnings replacement rate first increases (by 4 percent for 1988–93) and then decreases (by 5 percent for 1993–98 and 4 percent for 1998–2003).[29,30]

The intercohort changes in taxable earnings replacement rates result from several offsetting effects. Of course the fall in real interest rates works to raise replacement rates. We see in Table 3 that for 1988–93 and 1993–2003 the fall in interest rate increases the replacement rates by 6 percentage points and 5 percentage points.

We now discuss two factors that cause replacement rates to fall: (1) the phase-in of increases in Social Security's Full Retirement Age; and (2) the interaction between the growth of women's labor market activity and the benefit formula.

(1) A key cause of the 1993–2003 declines in the median taxable earnings replacement rate is the phase-in starting with the 1998 cohort of increases in Social Security's Full Retirement Age (FRA) from age 65 to age 66. The Full Retirement Age is the age of eligibility for full or unreduced retirement benefits. For those who claim retirement benefits before reaching the FRA, the longer the period from claiming age to FRA, the larger the reduction in initial monthly benefits. For a given claiming age, increases in the FRA increase the length of this period and hence reduce initial monthly benefits. In response to the FRA increases some beneficiaries do not alter their claiming date and receive lower initial benefits, and others delay claiming benefits. In either case the beneficiary suffers a reduction in lifetime benefits. The scheduled benefit reductions are phased in so that once they begin, they are larger the later the year of birth. The effect is to gradually lower the numerator of the taxable earnings replacement rate. Increases in the FRA begin with persons reaching age 62 in 2000 (2-month increase in FRA) and continue through those reaching age 62 in 2005 (12-month increase in FRA). These FRA increases do not affect the individual benefits of persons in the 1988 and 1993 cohorts, but do affect the individual retired-worker and spouse benefits of persons in four of the five single-year cohorts in the 1998 cohort (those reaching age 62 in 2000–03) and in all five of the single-year cohorts in the 2003 cohort (who reach age 62 in 2004–08).[31] In both the 1998 and 2003 cohorts, the

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[29]The overstatement of the 2000–04 growth of the average annual wage (referred to in note 19) should have only small effects on Table 2's estimates of median taxable earnings replacement rates and less-censored earnings replacement rates. This overstatement of wage growth causes offsetting overstatements of the numerator and denominators of our replacement rates.

[30]We estimate some group replacement rates. The replacement rate of a group (cohort or subgroup of a cohort) is mean annualized payout of the group as a percentage of mean indexed earnings of the group. For all program participants, group taxable earnings replacement rates are similar to the corresponding median taxable earnings replacement rates, TX-REPRATE; for group replacement rates, the intercohort increase is a bit smaller and the intercohort decreases are slightly larger.

[31]The benefit reductions for surviving spouse beneficiaries are phased in starting with persons reaching age 60 in 2000.

median age of first receipt of shared benefits is 62 and the mean is 62.9. Persons in the middle single-year cohorts of the 1998 and 2003 cohorts reach age 62 in 2001 and 2006. For workers who reach age 62 in 2001 and take retired-worker benefits at age 62, the FRA increases would reduce their benefits by 2.1 percent; their counterparts reaching age 62 in 2006 would see their benefits reduced by 6.2 percent.[32] The comparable reductions for spouse benefits are slightly larger (2.2 percent and 6.7 percent).[33,34] For more than 70 percent of our beneficiaries, the first benefit they receive is a retired-worker or spouse benefit. The above facts suggest that increases in the Full Retirement Age can account for a sizable part of the decreases in taxable earnings replacement rates as we move from the 1993 cohort to later cohorts.

(2) The interaction of the growth of women's labor market activity with the benefit formula produces downward pressure on taxable earnings replacement rates. As we move from earlier to later cohorts women's share of total indexed taxable earnings increases. Persons can receive benefits based on their own earnings (worker benefits) or based on the earnings of their spouses or deceased spouses (auxiliary benefits). The person will receive the larger of the two benefits. The lifetime earnings of most wives are lower than those of their husbands. Most women receive auxiliary benefits, and the great majority of men receive worker benefits. Because the benefits of most women depend on the higher earnings of their husbands, a sizable part of the growth in women's earnings does not lead to higher benefits. This phenomenon is reflected in the shortfall of the growth of average real AIME of worker-only beneficiaries compared to that of average real indexed taxable earnings for program participants. For 1988–93, 1993–98, and 1998–2003 for medians AIME growth rates fall 3 percentage points, 10 percentage points, and 4 percentage points short of those of TX-EARN. Thus, *ceteris paribus*, over time the annualized payout, which is the numerator of the taxable earnings replacement rate, will tend to fall relative to the denominator (indexed taxable earnings).

We now discuss another factor that could cause intercohort changes in taxable earnings replacement rates. For 1988–93 the intercohort percentage increase in median AIME of worker-only beneficiaries is 4 percentage points larger

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[32]These benefit reduction percentages are for persons who do not postpone benefit receipt in response to the FRA increases. Persons who postpone benefit receipt also experience decreases in their annualized payouts.

[33]The comparable reductions for surviving spouses are smaller (0 and 2.8 percent). The FRA increases do not affect disabled-worker benefits.

[34]For workers who reach age 62 in 2001 (2006) and start retired-worker benefits at age 63, the FRA increases would reduce their benefits by 2.6 (7.7 percent). The benefit reductions for spouses are larger (3.3 and 10.0 percent). For retired-worker and spouse benefits, the percentage benefit reduction caused by the FRA increase is smaller for those who take benefits at age 62 than for those who take benefits at age 63, because with the higher FRA the average monthly benefit reduction factor is smaller for those who take benefits at age 62. For example, with the higher FRA the monthly benefit reduction factor is 5/9 percent for each of the first 36 months of early receipt of retired-worker benefits and 5/12 percent for each of the remaining months of early benefit receipt.

than that in the SSA average annual wage. This growth differential could produce some modest downward pressure on the 1988–93 growth of the taxable earnings replacement rate. SSA's progressive benefit formula has three brackets for the Average Indexed Monthly Earnings. Because for 1988–93 the growth rate of average AIME exceeds that of the SSA wage series used to adjust the formula endpoints, the proportion of AIME falling in the upper brackets of the benefit formula, where the replacement factors are lower, increases over time. For 1993–2003 the intercohort percentage increases in median AIME of worker-only beneficiaries and of the average annual wage are very similar.[35]

4.4. *Less-Censored Earnings Replacement Rates (LC-REPRATE)*

As we move from earlier to later near-retiree cohorts, the median less-censored earnings replacement rate also first increases (by 6 percent for 1988–93) and then decreases (by 2 percent for 1993–98 and for 1998–2003).[36] The denominator of the less-censored earnings replacement rate is our proxy for a person's pre-retirement standard of living. Thus, the 1993–2003 declines in this replacement rate mean that for the 1998 and 2003 cohorts to maintain their pre-retirement living standards they would need to rely more heavily on non-Social Security sources of retirement income than they would in the absence of the replacement rate declines.

Notice that the relative decreases in median less-censored earnings replacement rates, LC-REPRATE, are smaller and that the relative increase is larger than the corresponding decreases and increase in median taxable earnings replacement rates, TX-REPRATE. The reason for this difference is that the relative intercohort increases in average indexed taxable earnings are a bit larger than those for average indexed less-censored earnings (Table 2). The percentage increases in indexed taxable earnings are larger than those for indexed less-censored earnings because legislated taxable maximums were well below the less-censored maximums from the 1950s through the early 1980s. As we move from earlier to later cohorts, the average ratio of the legislated taxable maximums to the SSA annual wage amounts faced by the various cohorts increases from about 1.6 for the 1988 cohort to about 2.1 for the 2003 cohort; on the other hand, the ratio of less-censored maximums to the SSA annual wage amounts is about 2.45 for each cohort.

However, the percentage increases in average indexed less-censored earnings exceed those in SSA's average annual wage.[37] For example, from the 1988 cohort to the 1998 cohort the increase in median real indexed less-censored earnings is 34 percent; the corresponding increase for SSA's average annual wage is about 17 percent. We find that the increasing labor force participation of women caused a

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[35]There is a difference in the wage indexing of the two earnings measures, AIME and indexed taxable earnings, TX-EARN. This difference could cause intercohort changes in taxable earnings replacement rates. In our data the effects of such differences on replacement rates are rather small.

[36]We see in Table 3 that for 1988–93 and 1993–2003 the fall in real interest rates increases the less-censored earnings replacement rates by 6 and 5 percentage points respectively.

[37]For a description of the SSA average annual wage series, see Donkar (1981) and Clingman and Kunkel (1992).

substantial part of the excess of the growth rate of indexed less-censored earnings over that of the average wage index.[38,39]

5. Findings by Sex and Marital Status

We now turn to results that are delineated by two important demographic characteristics, sex and marital status. Under Social Security law the two main determinants of the size of a person's benefit are earnings and marital status. For example, many ever-married persons receive spouse benefits and surviving spouse benefits. Although under Social Security law a person's benefits do not depend on the person's sex, levels and trends in average earnings of women differ substantially from those of men. Thus, it should be quite useful to examine how our Social Security benefit measures differ among sex and marital status subgroups.

Several studies show how Social Security benefits differ widely by these demographic features.[40] Haveman *et al.* (2006) examine Social Security wealth for single and married men and women when they compare earlier birth cohorts, those who retired in the early 1980s with those who retired in the early 1990s. Weller and Wolff (2005), and Wolff (2002, 2006) report Social Security wealth by marital status. These authors do not present estimates of shared Social Security wealth, and therefore we do not make comparisons with our results.

Marital status is as of the beginning of the year the person reaches age 62. Table 4 shows the sex–marital status composition of our cohorts of near-retirees. More than 70 percent are married. The percentage who are divorced rises from 9 to 16 percent, while the percentage who are widowed falls from 12 to 8 percent.

[38]In computing the SSA average annual wage, only workers with positive wages in the year are included. On the other hand, in computing indexed less-censored earnings for a worker, all of the years in the worker's computation period are included, i.e. even though a number of them may be years of zero earnings. To what extent does the faster growth of indexed less-censored earnings result because of the inclusion of years of zero earnings? To examine this question we computed an indexed less-censored earnings measure for individual earnings in which earnings were averaged over years with positive earnings; let us call this measure positive-year indexed earnings. It can be shown that, if the proportion of years with zero earnings decreases as we move from earlier cohorts to later cohorts, then the percentage growth of positive-year indexed earnings will fall short of that of all-year indexed earnings; the difference in these growth rates provides an estimate of the effect of changes in the proportion of years with zero earnings. In our data, we find that the proportion of years of zero earnings decreases steadily from 36 percent for the 1988 cohort to 26 percent for the 2003 cohort; these decreases reflect increases in labor force participation. For women the proportion of zero earnings years decreases steadily from 52 percent for the 1988 cohort to 35 percent for the 2003 cohort; for men there is little change. We find that for individual earnings average positive-year indexed earnings increase much less rapidly than do average all-year indexed earnings; in other words, a considerable part of the growth of average indexed less-censored earnings relative to the SSA average annual wage results because of the inclusion of years of zero earnings in the computation of average indexed less-censored earnings. From the 1988 cohort to the 2003 cohort the percentage increase for positive-year indexed earnings is about 8 percentage points lower than that for all-year indexed earnings.

[39]The SSA average wage is computed for individual earnings of persons. On the other hand, indexed less-censored earnings is computed for the shared earnings of persons. Does the faster growth of less-censored earnings result because these are shared earnings? In order to examine this question we computed an indexed less-censored earnings measure for individual earnings. We conclude that the faster growth of the shared indexed less-censored earnings measure compared to that of the annual wage series does not result because the former is a shared measure. The growth of mean individual indexed less-censored earnings is about the same as that of mean shared indexed less-censored earnings.

[40]These studies also look at the effects of other demographic characteristics—race, education, etc. We limit ourselves in this paper to sex–marital status and earnings quintiles.

TABLE 4

SELECTED CHARACTERISTICS OF NEAR RETIREES BY COHORT

	Cohort			
	1988	1993	1998	2003
Male (%)	46.74	48.20	47.65	48.43
Education (%)				
Dropout	28.48	24.71	18.59	14.92
High school graduate	54.64	56.03	59.95	57.58
College graduate	16.87	19.27	21.46	27.50
Race (%)				
White	88.05	86.60	86.95	85.56
Black	8.98	9.95	9.62	10.09
Native American	0.60	0.71	0.70	0.56
Asian	2.36	2.73	2.72	3.79
Hispanic (%)	5.77	6.72	6.77	7.51
Foreign born (%)	7.96	9.92	10.35	11.57
Marital status at age 62 (%)				
Never married	**4.08**	**4.23**	**4.32**	**5.10**
Women	1.62	2.06	2.22	2.72
Men	2.46	2.17	2.10	2.38
Married	**74.50**	**74.46**	**73.24**	**71.35**
Women	35.39	34.60	34.78	33.52
Men	39.11	39.86	38.46	37.83
Widowed	**12.36**	**10.06**	**7.83**	**7.55**
Women	10.42	8.61	6.63	5.99
Men	1.94	1.45	1.20	1.56
Divorced	**9.06**	**11.26**	**14.61**	**16.00**
Women	5.64	6.54	8.72	9.34
Men	3.43	4.72	5.89	6.66
Sample size (unweighted)	6,602*	6,584	7,524	9,562
Total number of near-retirees (weighted)	10,372,401	10,032,734	11,114,759	13,910,898

*Note: Not corrected for attrition.

The composition of our near-retiree population shows some other intercohort changes in demographic composition. Educational attainment levels have steadily risen from earlier to later near-retiree cohorts. In the 2003 cohort, 28 percent of near-retirees are college graduates compared with only 17 percent just 15 years earlier. The percentage white decreased slightly (from 88 to 86 percent); the percentage who identify themselves as Hispanic rose (from 6 to 8 percent) and the percentage foreign-born increased markedly (from 8 to 12 percent).

5.1. Social Security Wealth (SSW)

For each marital status subgroup, SSW is greater for women than men (Table 5). For each of the not-married subgroups, SSW is greater for women because on average they have a longer period of benefit receipt. For the married subgroup, SSW is greater for women for two reasons: (1) their longer period of benefit receipt; and (2) our use of a shared concept of wealth rather than an individual concept.[41] Women in every cohort and every marital status have

[41]Most married women receive smaller annual benefits (auxiliary or worker) than their husbands. Thus, shared benefit is greater than individual benefit for most married women and less than individual benefit for most married men.

TABLE 5

MEDIANS OF SOCIAL SECURITY BENEFIT AND RELATED MEASURES BY COHORT, SEX, AND MARITAL STATUS

Cohort	Sex	Marital Status at Age 62				
		Never-married	Married	Widowed	Divorced	All
Social Security Wealth (SSW) (Jan. 1, 2002 $)						
1988	Women	78,347	123,792	128,049	107,271	120,660
	Men	73,288	92,312	107,626	75,255	87,018
	All	70,101	105,077	125,149	91,966	105,624
1993	Women	95,595	149,838	142,041	147,314	146,224
	Men	60,214	101,214	112,293	96,411	99,454
	All	80,195	122,107	134,931	123,063	122,258
1998	Women	127,556	177,171	177,615	177,847	175,531
	Men	108,973	121,625	129,375	121,798	121,767
	All	115,961	145,385	167,753	153,148	147,003
2003	Women	133,549	196,891	203,534	198,649	195,822
	Men	105,137	137,700	152,987	137,421	136,700
	All	119,263	163,742	188,613	171,960	164,961
Annualized Payout (ANNPAYOUT) (Jan. 1, 2002 $)						
1988	Women	4,841	5,645	6,087	4,919	5,646
	Men	5,663	5,428	6,918	6,570	5,513
	All	5,183	5,533	6,228	5,411	5,580
1993	Women	4,614	6,476	6,854	6,049	6,425
	Men	5,019	6,116	7,568	7,526	6,232
	All	4,837	6,281	6,948	6,564	6,338
1998	Women	5,769	7,567	7,955	7,256	7,520
	Men	7,792	7,265	9,406	8,926	7,446
	All	6,755	7,414	8,130	7,808	7,487
2003	Women	6,625	8,396	8,663	8,137	8,316
	Men	7,254	8,074	9,521	10,039	8,249
	All	6,964	8,231	8,761	8,771	8,292
Taxable Earnings (TX-EARN) (Jan. 1, 2002 $)						
1988	Women	14,141	16,562	12,894	13,157	15,323
	Men	15,392	18,937	16,411	16,817	18,629
	All	15,235	17,697	13,216	14,214	16,836
1993	Women	10,219	18,144	13,463	16,012	16,831
	Men	14,032	20,460	19,631	18,858	20,065
	All	11,581	19,431	14,226	16,960	18,454
1998	Women	13,836	22,560	17,818	19,907	21,349
	Men	22,910	24,936	22,853	24,858	24,859
	All	18,461	23,745	18,666	21,589	22,915
2003	Women	16,595	25,977	18,395	23,407	24,207
	Men	21,517	29,228	24,574	28,005	28,681
	All	18,375	27,473	19,787	25,164	26,198
Potential Benefit Years						
1988	Women	24	25	23	22	24
	Men	16	19	18	13	17
	All	19	22	23	18	22
1993	Women	27	26	24	25	25
	Men	14	18	14	15	17
	All	18	22	23	20	22
1998	Women	24	26	25	26	26
	Men	18	18	14	15	18
	All	20	22	24	22	22
2003	Women	24	26	26	28	27
	Men	15	19	19	16	18
	All	19	22	24	22	22

considerably more years of benefit receipt than men. For example, for married or divorced women, the median number of years of benefit receipt is 26 compared with only 17 for married men and 14 for divorced men in the 2003 cohort. The never-married receive the lowest Social Security wealth in each gender group, while the ever-married have roughly similar amounts.

For each sex-marital status subgroup, median Social Security wealth is greater for the 2003 cohort than for the 1988 cohort. The relative increases in the amount of Social Security wealth between the 1988 cohort and the 2003 cohort are similar for men and women. The patterns of relative increase are somewhat different among marital status subgroups.

5.2. *Annualized SSW Payout (ANNPAYOUT)*

The ANNPAYOUT amounts given in Table 5 show that not-married women receive smaller amounts than not-married men across the four cohorts. Annualized payout spreads Social Security wealth over potential benefit years. Because median potential benefit years are greater for women than men, the ratio of female to male median amounts is considerably lower for annualized payouts than for Social Security wealth. For the never-married, the ratio of women's annualized payout to men's is less than one because women have lower taxable earnings. For the divorced, the reason that women's annualized payout is less than men's is probably that these divorced women typically have lower earnings and these divorced men typically have higher earnings than their ex-spouses. Thus, divorced men tend to receive higher benefits based on their own higher earnings, and divorced women tend to receive lower benefits (divorced spouse benefits or worker benefits based on their own lower earnings). For the married, median annualized payout is slightly larger for women than for men.

In each of the four cohorts, never-married women receive the lowest annualized payout amounts, and women in other subgroups receive somewhat similar amounts. Among men, the widowed and divorced have substantially larger annualized payout amounts than men in the other two subgroups. Indexed taxable earnings of widowed and divorced men are generally higher than those of never-married men. The married share the benefits received by the couple; the benefit received by the wife is usually smaller than that received by the husband.

For each sex–marital status subgroup, median annualized payout is greater for the 2003 cohort than for the 1988 cohort. Overall, the relative increases in annualized payouts between the 1988 and 2003 cohorts are similar for men and women.

5.3. *Taxable Earnings Replacement Rate (TX-REPRATE)*

As seen in Table 6, overall taxable earnings replacement rates are a bit higher for women than men; for the 1998 cohort, these are 34 percent for women and 30 percent for men. Among women, taxable earnings replacement rates are highest for widows, and quite similar for women in other marital status subgroups. For the 1998 cohort, the taxable earnings replacement rate for widows is 43 percent compared with rates between 31 and 34 percent for women in the other subgroups. Among men, taxable earnings replacement rates are lowest for the married and

TABLE 6

MEDIANS OF EARNINGS REPLACEMENT RATES AND RELATED MEASURES BY COHORT, SEX, AND MARITAL STATUS

Cohort	Sex	Marital Status at Age 62				
		Never-married	Married	Widowed	Divorced	All
Taxable Earnings Replacement Rates (TX-REPRATE) (%)						
1988	Women	28.9	34.0	47.0	33.5	35.6
	Men	32.8	29.7	38.1	39.3	30.1
	All	30.4	31.6	45.2	35.2	32.6
1993	Women	34.9	35.5	47.8	35.2	37.0
	Men	36.7	30.2	39.3	37.8	31.1
	All	35.9	32.7	46.5	36.2	33.9
1998	Women	30.5	33.4	43.1	34.0	34.2
	Men	31.9	29.0	41.0	35.4	29.9
	All	31.3	31.2	42.9	34.6	32.2
2003	Women	30.0	32.0	43.6	32.0	32.9
	Men	32.6	28.1	38.8	34.2	29.0
	All	31.4	29.9	42.5	33.0	31.0
Less-Censored Earnings Replacement Rates(LC-REPRATE) (%)						
1988	Women	26.8	29.5	41.6	31.0	31.4
	Men	29.7	25.6	36.0	35.7	26.4
	All	28.6	27.4	40.8	32.2	28.8
1993	Women	30.5	31.8	44.3	33.0	33.7
	Men	33.9	27.3	36.9	35.6	28.1
	All	32.6	29.1	42.7	34.1	30.6
1998	Women	30.3	31.2	40.5	32.4	32.2
	Men	30.1	27.1	37.7	33.1	28.0
	All	30.2	28.9	39.8	32.6	30.0
2003	Women	29.2	30.3	41.7	31.0	31.3
	Men	29.8	26.7	37.9	33.1	27.6
	All	29.3	28.4	41.2	32.1	29.5
Less-Censored Earnings (LC-EARN) (Jan. 1, 2002 $)						
1988	Women	14,984	19,029	14,404	14,092	17,552
	Men	15,861	21,365	18,111	17,659	21,003
	All	16,625	20,204	15,044	15,324	19,093
1993	Women	10,998	20,351	14,334	17,427	18,593
	Men	15,758	22,557	21,727	20,134	22,143
	All	12,566	21,580	15,084	18,577	20,276
1998	Women	13,836	24,130	18,930	20,852	22,834
	Men	23,282	26,577	23,897	25,976	26,363
	All	18,739	25,452	19,649	23,029	24,437
2003	Women	16,839	27,036	19,077	24,408	25,283
	Men	22,365	30,386	25,070	29,234	29,714
	All	19,373	28,736	20,823	25,825	27,237

highest for the widowed and divorced. Widowed and divorced men have markedly larger annualized payout amounts than men in the other two subgroups. Married men have higher indexed taxable earnings than the other three subgroups.

For seven of the eight subgroups (divorced men are the exception), the taxable earnings replacement rates are higher for the 1993 cohort than for the 1988 cohort; between these two cohorts these replacement rates rose by 4 percent for women and 3 percent for men. In subsequent years, replacement rates fell. For each subgroup, the median taxable earnings replacement rate is lower for the 2003 cohort than for the 1993 cohort.

5.4. *Less-Censored Earnings Replacement Rate (LC-REPRATE)*

Values for the less-censored earnings replacement rates are, as is to be expected, lower than the corresponding values for the taxable earnings replacement rates, as seen in Table 6. Overall, the less-censored earnings replacement rates are higher for women than men, as observed with the taxable earnings replacement rates; for the 1998 cohort, for example, these less-censored earnings replacement rates are 32 percent for women and 28 percent for men. The widowed have the highest replacement rates. Looking at changes in these replacement rates over time across these marital subgroups, we find that for seven of the eight subgroups (divorced men are the exception), less-censored earnings replacement rates are higher for the 1993 cohort than for the 1988 cohort. For all but widowed men, these rates are lower for the 2003 cohort than for the 1993 cohort.

6. Findings by Earnings Quintiles

Due to the nature of the Social Security benefit formula, our measures of Social Security benefits will be affected by the position of the individual in the earnings distribution. We turn now to results delineated by quintiles of average indexed less-censored earnings over pre-retirement years. These quintiles approximate quintiles of persons ranked by their average positions over their pre-retirement years in the economy's earnings distribution. For this purpose we consider average indexed less-censored earnings to be superior to average indexed taxable earnings. We examine how annualized payouts and earnings replacement rates differ as we move from lower quintiles to higher quintiles.

Information for the four cohorts by quintiles of average indexed less-censored earnings is shown in Table 7 and Figure 1. Within each of the 20 single-year cohorts of near-retirees, we rank persons by average indexed less-censored earnings and group them into quintiles. A person's quintile location in their 5-year cohort is their quintile location within their single-year cohort.

As expected, the median real annualized payout increases markedly as we move to higher earnings quintiles. For the 1998 cohort, for example, the top quintile's annualized payout is about 2.2 times that of the bottom quintile. Scholz *et al.* (2006) examine median values of Social Security wealth, pension wealth, and net worth by lifetime household earnings decile, and report that Social Security wealth exceeds the combined value of pension and non-pension net worth in the bottom three deciles of the lifetime earnings distribution.

For each less-censored earnings quintile, median real annualized payout is substantially higher for the 2003 cohort than for the 1988 cohort. Each quintile has about the same 1993–98 relative increase in annualized payout (from 17 to 20 percent). In addition, each of the top four quintiles has about the same 1988–93 relative annualized payout increase. However, the 1998–2003 relative increases rise consistently from lowest to highest quintile. The pattern of differences in 1998–2003 earnings growth by quintiles is an important cause of the pattern of differences in annualized payout growth by quintiles. The 1998–2003 relative increases in median AIME of worker-only beneficiaries rise consistently from the second to the highest quintile.

TABLE 7

MEDIANS OF SOCIAL SECURITY BENEFIT AND RELATED MEASURES FOR
COHORTS OF NEAR-RETIREES BY LESS-CENSORED EARNINGS
QUINTILES

	Cohort			
Quintile	1988	1993	1998	2003
Social Security Wealth (SSW) (Jan. 1, 2002 $)				
Bottom	47,538	57,888	69,173	76,649
2nd	95,893	109,787	130,169	146,100
3rd	110,430	137,730	161,425	186,338
4th	131,188	152,326	193,914	215,300
Top	146,868	170,219	220,816	251,363
Annualized Payout (ANNPAYOUT) (Jan. 1, 2002 $)				
Bottom	2,897	3,552	4,226	4,382
2nd	4,824	5,561	6,508	7,066
3rd	5,655	6,429	7,640	8,448
4th	6,283	7,004	8,340	9,437
Top	6,703	7,697	9,266	10,646
Taxable Earnings Replacement Rates (TX-REPRATE) (%)				
Bottom	57.7	60.5	58.0	56.8
2nd	40.5	42.5	39.4	39.6
3rd	33.1	34.8	33.0	32.0
4th	29.4	29.9	28.4	27.0
Top	25.0	25.3	23.9	22.7
Taxable Earnings (TX-EARN) (Jan. 1, 2002 $)				
Bottom	4,940	5,852	7,113	7,342
2nd	11,863	13,161	16,579	17,821
3rd	17,077	18,693	23,087	26,381
4th	21,440	23,594	29,408	34,832
Top	26,733	29,931	37,982	46,258
Less-Censored Earnings (LC-EARN) (Jan. 1, 2002 $)				
Bottom	5,114	6,091	7,711	7,923
2nd	12,953	14,008	17,321	18,512
3rd	19,111	20,282	24,465	27,241
4th	24,685	26,121	31,619	36,332
Top	31,599	33,975	41,062	48,299
Potential Benefit Years				
Bottom	20	19	20	21
2nd	21	21	21	21
3rd	22	23	22	23
4th	21	22	24	23
Top	23	23	24	24

The typical (median) household relies on Social Security benefits differently than those at the ends of the earnings distribution. The median less-censored earnings replacement rate (LC-REPRATE) falls sharply as we move to higher earnings quintiles, showing substantial progressivity (Figure 1). Under OASDI's progressive benefit formula, Monthly Benefit Amount decreases as a percentage of Average Indexed Monthly Earnings, as AIME increases. For the 1998 cohort, the median less-censored earnings replacement rates are 54 percent for the bottom quintile and 22 percent for the top quintile. In each of our cohorts, for the bottom quintile Social Security benefits replace more than one-half of indexed less-censored earnings. At the top quintiles, Social Security benefits replace a little over
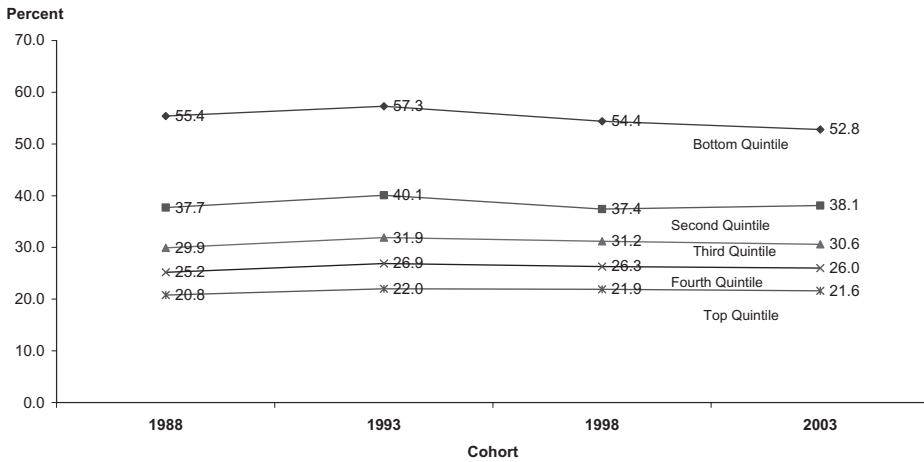
Figure 1. Median Less-Censored Earnings Replacement Rates of Near-Retirees, by Earnings Quintiles

a fifth of these earnings. James Smith (2003), using public-use survey data, considers after-tax benefit income replacement rates of earnings at age 55 for 70 year olds, and reports similar results in terms of progressivity of Social Security benefits. At the 25th percentile, he finds Social Security benefit income replaces between one-half to two-thirds of earnings, and for those at the 75th percentile, roughly only one-fourth of earnings is replaced.

When we move from earlier to later near-retiree cohorts, Figure 1 shows that for each quintile the less-censored earnings replacement rate first increases and then decreases. This replacement rate for each quintile is a bit lower for the 2003 cohort than for the 1993 cohort. The relative 1993–2003 decreases are a bit larger for the bottom two quintiles than for the top three quintiles. For the bottom two quintiles to maintain their living standards they would have to place greater reliance on sources of retirement income other than Social Security benefits than if there were no replacement rate declines. One can say that the less-censored earnings replacement rates show a bit less progressivity in 2003 than in 1993. How much less? From the 1993 cohort to the 2003 cohort, the ratio of the top quintile's replacement rate to that of the bottom quintile rises from 0.384 to 0.409; the percentage point shortfall of the top quintile's replacement rate from that of the bottom quintile drops from 35.3 percentage points to 31.2 percentage points.

7. Concluding Remarks

While overall retirement wealth and retirement preparedness have been heavily studied in recent years, the study of Social Security wealth, which comprises a critical component of retirement resources, is either subject to severe measurement error or is overshadowed by greater attention paid to other forms of retirement wealth. This paper addresses the shortcoming in the literature. It has analyzed the Social Security benefits of our near-retirees, people turning age

61 in the years 1988 through 2007. It has examined Social Security wealth, annualized benefit payouts, and replacement rates for average career earnings for all program participants, sex–marital status subgroups, and career earnings quintile subgroups.

A few of the paper's key results are:

- Both average real Social Security wealth and average real annualized payout increase markedly for successive age cohorts, in considerable part because of increases in average real wage-indexed taxable earnings.
- Our estimates show the increase in mean real Social Security wealth from the 1988 cohort to the 1998 cohort to be considerably larger than that reported by Wolff (2002) for the 1989–98 period.
- Replacement rates decrease as we move from the 1993 cohort to later cohorts, primarily due to the phase-in of increases in the age of eligibility for full retirement benefits and the growth in the labor market activity of women.
- For those not married at age 62, women have markedly lower median annualized benefits than men, but Social Security wealth is much higher for women because they live longer.
- Between 1998 and 2003, median real annualized benefit payouts rose more rapidly in percentage terms for those in higher earnings quintiles than for those in lower quintiles, because of more rapid growth in career earnings among higher earners.
- Replacement rates for less-censored earnings (our proxy for total earnings) show a bit less progressivity in 2003 than in 1993.

It is beyond the scope of this paper to answer the question of overall retirement preparedness of near-retirees. Yet our results are critical because they provide considerable evidence of rising Social Security wealth for successive cohorts of retirees and thereby considerably weaken the limited empirical evidence that indicates otherwise. We also report a drop in earnings replacement rates by Social Security benefits for recent cohorts, although there continues to be considerable progressivity in the pattern of earnings replacement.

The analysis of the Social Security benefits of near-retirees could be extended in various ways. We plan to extend our analysis to cover additional subgroups including racial-ethnic subgroups and benefit-type subgroups (retired workers, spouses, and so on). There is considerable interest in how various racial and ethnic subgroups fare under Social Security. The analysis of benefit-type subgroups should not only provide useful information about these subgroups but should help us better understand our results for sex–marital status subgroups.

One could extend the analysis to cover younger cohorts. This extension could quantify the effects of the second round of scheduled increases in the Full Retirement Age on replacement rates and other benefit measures. Note, however, that younger cohorts could be markedly affected by possible future changes in benefit law provisions. Although our paper's replacement rates measure the extent to which average career earnings are replaced by benefits, one could examine late-life earnings replacement rates that measure the extent to which earnings for the last few years before benefit receipt are replaced by benefits.

APPENDIX: BRIEF DESCRIPTION OF SOCIAL SECURITY BENEFIT PROVISIONS

The Old-Age, Survivors, and Disability Insurance (OASDI) program provides monthly benefits to insured retired and disabled workers and their dependants, and to survivors of insured workers. In order to simplify the explanations the following description will deal only with non-disabled workers who reach age 62 in 1991 or later and their spouses and surviving spouses.

Benefit Eligibility

To become eligible for his or her benefit and benefits for spouses and surviving spouses, a worker must earn at least 40 quarters of coverage based on work in covered employment. In 2006, a quarter of coverage is credited for each $970 in annual covered earnings, up to a maximum of four quarters of coverage for the year. The amount of earnings required for a quarter of coverage is adjusted automatically each year in proportion to increases in the average wage level.

Benefit Computation and Automatic Adjustment Provisions

The first step in the benefit computation procedure is to calculate the worker's Average Indexed Monthly Earnings. Average Indexed Monthly Earnings is computed as follows. Annual taxable earnings through age 60 are indexed, using the Social Security average annual wage series, to wage levels as of the year the worker reaches age 60; annual earnings after age 60 are not wage-indexed. The sum of the 35 highest earnings is divided by 420 (35×12) to get Average Indexed Monthly Earnings. Annual taxable earnings (wages and self-employment income) are those below the annual taxable maximums. In recent years about 94 percent of covered workers have covered earnings less than the taxable maximums. Each year the taxable maximum is increased by the percentage increase in the SSA average annual wage.

The next step in the benefit computation procedure is to calculate the worker's Primary Insurance Amount. The Primary Insurance Amount is the monthly benefit amount payable to the worker upon retirement at the Full Retirement Age. The Primary Insurance Amount is also the base figure from which monthly benefit amounts payable to the worker's spouse or surviving spouse are determined. For persons reaching age 62 prior to 2000, the Full Retirement Age was 65. Increases in the Full Retirement Age are phased in, starting with persons reaching age 62 in 2000 (a 2-month increase to 65 years and 2 months), and continuing through those reaching age 62 in 2022 (a 2-year increase to 67). For our youngest cohort members who reach age 62 in 2005, there is a 12-month increase to age 66.

The worker's Primary Insurance Amount is a function of the worker's Average Indexed Monthly Earnings. The 3-bracket benefit formula is such that Primary Insurance Amount increases as Average Indexed Monthly Earnings increases, but the ratio of Primary Insurance Amount to Average Indexed Monthly Earnings declines as Average Indexed Monthly Earnings increases. In other words, the benefit formula is progressive.

The benefit formula applicable to a worker is the one for the year the worker reaches age 62. Each year the bend points of the benefit formula are increased by

the percentage increase in the SSA average annual wage. The Primary Insurance Amount derived from that formula is then increased each year by the applicable Cost-of-Living Adjustment to offset increases in the Consumer Price Index.

Benefit Types and Levels

Persons can receive benefits based on their own Primary Insurance Amounts (worker benefits) or based on the Primary Insurance Amounts of their spouses or deceased spouses (auxiliary benefits). The person will receive the larger of the worker benefit or the auxiliary benefit.

A person's monthly benefit amount is a proportion of the Primary Insurance Amount that produces the largest monthly benefit amount. As we discuss below, this proportion depends on: (1) the type of benefit (worker, spouse or surviving spouse); and (2) the age at which the person starts receiving monthly benefits.

Retired Workers

A worker who first takes worker benefits at the Full Retirement Age receives a monthly benefit equal to 100 percent of his or her Primary Insurance Amount. Workers who start benefits before reaching the Full Retirement Age receive reduced monthly benefits, i.e. benefits less than their Primary Insurance Amounts. A worker can start receiving worker benefits as early as age 62; the longer the time between first early benefit receipt and reaching the Full Retirement Age, the smaller the monthly benefit.

Spouses

A spouse who first takes spouse benefits at the Full Retirement Age receives a monthly benefit equal to 50 percent of the worker's Primary Insurance Amount (regardless of the worker's actual benefit amount). A spouse can start receiving spouse benefits as early as age 62; the longer the time between first early benefit receipt and reaching the Full Retirement Age, the smaller the monthly benefit. Note that divorced spouses, if not remarried before age 60, are entitled to full spouse and survivor benefits as long as the marriage lasted 10 years.

Surviving Spouses

A surviving spouse who first takes spouse benefits at the Full Retirement Age receives a monthly benefit equal to at least 82.5 percent of the worker's Primary Insurance Amount. A surviving spouse can start receiving surviving spouse benefits as early as age 60; generally the longer the time between first early benefit receipt and reaching the Full Retirement Age, the smaller the monthly benefit.

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