United States Government Accountability Office

Report to the Ranking Member, Subcommittee on Primary Health and Retirement Security, Committee on Health, Education, Labor, and Pensions, U.S. Senate

March 2016

RETIREMENT SECURITY

Shorter Life Expectancy Reduces Projected Lifetime Benefits for Lower Earners

Accessible Version

GAO-16-354

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GAO Highlights

Highlights of GAO-16-354, a report to the Ranking Member, Subcommittee on Primary Health and Retirement Security, Committee on Health, Education, Labor, and Pensions, U.S. Senate

Why GAO Did This Study

An increase in average life expectancy for individuals in the United States is a positive development, but also requires more planning and saving to support longer retirements. At the same time, as life expectancy has not increased uniformly across all income groups, proposed actions to address the effects of longevity on programs and plan sponsors may impact lower-income and higher-income individuals differently. GAO was asked to examine disparities in life expectancy and the implications for retirement security.

In this report, GAO examined (1) the implications of increasing life expectancy for retirement planning, and (2) the effect of life expectancy on the retirement resources for different groups, especially those with low incomes. GAO reviewed studies on life expectancy for individuals approaching retirement, relevant agency documents, and other publications; developed hypothetical scenarios to illustrate the effects of differences in life expectancy on projected lifetime Social Security retirement benefits for lower-income and higher-income groups based on analyses of U.S. Census Bureau and Social Security Administration (SSA) data; and interviewed SSA officials and various retirement experts.

GAO is making no recommendations in this report. In its comments, SSA agreed with our finding that it is important to understand how the life expectancy in different income groups may affect retirement income.

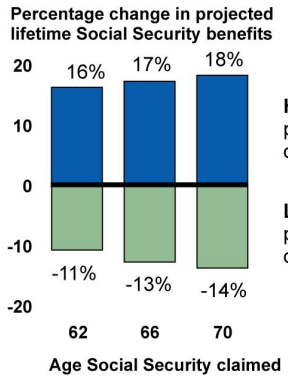
View GAO-16-354. For more information, contact Charles Jeszeck at (202) 512-7215 or jeszeckc@gao.gov.

What GAO Found

The increase in average life expectancy for older adults in the United States contributes to challenges for retirement planning by the government, employers, and individuals. Social Security retirement benefits and traditional defined benefit (DB) pension plans, both key sources of retirement income that promise lifetime benefits, are now required to make payments to retirees for an increasing number of years. This development, among others, has prompted a wide range of possible actions to help curb the rising future liabilities for the federal government and DB sponsors. For example, to address financial challenges for the Social Security program, various options have been proposed, such as adjusting tax contributions, retirement age, and benefit amounts. Individuals also face challenges resulting from increases in life expectancy because they must save more to provide for the possibility of a longer retirement.

Life expectancy varies substantially across different groups with significant effects on retirement resources, especially for those with low incomes. For example, according to studies GAO reviewed, lower-income men approaching retirement live, on average, 3.6 to 12.7 fewer years than higher-income men. GAO developed hypothetical scenarios to calculate the projected amount of lifetime Social Security retirement benefits received, on average, for men with different income levels born in the same year. In these scenarios, GAO compared projected benefits based on each income groups' shorter or longer life expectancy with projected benefits based on average life expectancy, and found that lower-income groups' shorter-than-average life expectancy reduced their projected lifetime benefits by as much as 11 to 14 percent. Effects on Social Security retirement benefits are particularly important to lower-income groups because Social Security is their primary source of retirement income.

Disparities in Life Expectancy Affect Lifetime Social Security Retirement Benefits



Higher-income men (with incomes at about the 75th percentile): projected benefits were increased by as much as 16-18%, on average, due to this groups' longer-than-average life expectancy

Lower-income men (with incomes at about the 25th percentile): projected benefits were reduced by as much as 11-14%, on average, due to this groups' shorter-than-average life expectancy

Source: GAO analysis of Social Security Administration data. | GAO-16-354

Social Security's formula for calculating monthly benefits is progressive—that is, it provides a proportionally larger monthly earnings replacement for lower-earners than for higher-earners. However, when viewed in terms of benefit received over a lifetime, the disparities in life expectancy across income groups erode the progressive effect of the program.

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Abbreviations

AIME	average indexed monthly earnings
CBO	Congressional Budget Office

CDC	Centers for Disease Control and Prevention
Census	U.S. Census Bureau
DB	defined benefit
DC	defined contribution
DI	Disability Insurance
ERISA	Employee Retirement Income Security Act of 1974
IRA	individual retirement account
IRS	Internal Revenue Service
OCACT	Office of the Chief Actuary
OASI	Old-Age and Survivors Insurance
PBGC	Pension Benefit Guaranty Corporation
SSA	Social Security Administration

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March 25, 2016

The Honorable Bernard Sanders
Ranking Member
Subcommittee on Primary Health and Retirement Security
Committee on Health, Education, Labor, and Pensions
United States Senate

Dear Senator Sanders:

The increase in average national life expectancy over the past several decades is a positive development, but also requires more planning and saving to support longer retirements with effects on the government, employers, and individuals. However, life expectancy has not increased uniformly across all income groups. People who have lower incomes, for example, can expect to have shorter lives, on average, compared to those with higher incomes. As a result, some proposed actions to address the fiscal effects of longevity on retirement programs and plan sponsors may impact lower-income and higher-income individuals differently. In light of this situation, you asked us to examine disparities in life expectancy and the implications for our nation's policies with respect to retirement security. This report provides information on the following:

1. The implications of increasing life expectancy for retirement planning.
2. The effect of life expectancy on the retirement resources for different groups, especially those with low incomes.

To explore the implications of increasing life expectancy for retirement planning, we reviewed existing publications, including federal agency documentation and studies on life expectancy for individuals around retirement age conducted by various researchers and federal agencies. We also interviewed agency officials and retirement experts, including researchers and academics we identified through our review of longevity studies and through expert referral. In addition, to examine the effect of life expectancy on the retirement resources for different groups, especially those with lower incomes, we developed scenarios to illustrate how disparities in average life expectancy by income group can affect the

average amount of lifetime Social Security retirement benefits received by different income groups.[1] To determine our scenario assumptions, we reviewed relevant longevity studies.[2] For our life expectancy estimates, we relied primarily on a 2007 Social Security Administration (SSA) study by Hilary Waldron.[3] To inform the income groupings in our scenarios (based on the 25th and 75th individual income percentiles), we analyzed 2015 data from the U.S. Census Bureau's (Census) Current Population Survey. We obtained estimated monthly Social Security benefits using SSA's quick calculator,[4] and we estimated average lifetime Social Security benefits by applying life expectancy estimates from SSA and Waldron. While our report discusses various forms of retirement resources, for our scenarios we compare only lifetime Social Security retirement benefits against current income. We do not factor in other retirement resources, which could include, but are not limited to, future payments from employer-sponsored defined benefit plans, retirement savings accounts, or housing equity. (For details on the methodology for our scenarios, see appendix II.) We assessed the reliability of the data we used in our scenarios by reviewing relevant documentation and interviewing knowledgeable agency officials. We found the data to be reliable for the purposes used in this report.

We conducted this performance audit from December 2014 to March 2016 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

[1]Social Security retirement benefits are based on covered earnings from work (such as wages and salaries). Earnings from work generally make up the bulk of income prior to retirement. For our purposes, we grouped our scenarios by individual income rather than earnings.

[2]See appendix I for the list of relevant studies we reviewed.

[3]Hilary Waldron, "Trends in Mortality Differentials and Life Expectancy for Male Social Security-Covered Workers, by Socioeconomic Status," *Social Security Bulletin*, vol. 67, no. 3 (2007).

[4]http://www.ssa.gov/oact/quickcalc/, accessed December 10, 2015.

Demographic Shifts and Life Expectancy

Because Americans are, on average, living longer and having fewer children, the average age of the population is rising and that trend is expected to continue. As of 2015, people age 65 and over accounted for 15 percent of the population, but by 2045 they are expected to comprise more than 20 percent of the population.[5]

Life expectancy is the average estimated number of years of life for a particular demographic or group of people at a given age.[6] Life expectancy can be expressed in two different ways: (1) as the average number of years of life remaining for a group, or (2) as the average age at death for a group. Life span for a particular individual within a group may fall above or below this average. Researchers use a variety of statistical methods and assumptions in making their estimates, such as how longevity trends are expected to change in the future. Researchers also may use different data sources to develop life expectancy estimates. For example, some may use death data maintained by SSA, while others may use Centers for Disease Control and Prevention (CDC) mortality data or Census data.[7]

As noted, life expectancy can be estimated from different initial ages, such as from birth or from some older age. For a given population, the earlier the starting age, the greater the remaining years of life expectancy,

[5]Based on the 2015 Social Security Trustees' Report (intermediate assumptions).

[6]Life expectancy is an average for the given group, and it can be actuarially calculated from an underlying "mortality table," which typically consists of a "mortality rate"—the estimated probability of death within one year at a given age—for each age. Mortality rates can be used to estimate the number of individuals who will live to various ages: in a typical group, individuals can be expected to live to different ages, some dying prior to life expectancy and some living beyond life expectancy. The exact proportion of individuals who fall short of or exceed their life expectancy is generally not 50/50, because life expectancy is a mean, not a median. While life expectancy and mortality are related concepts, throughout this report we discuss life expectancy because it is more relevant to individuals' retirement planning than the probability that they may die in a particular year.

[7]SSA maintains death data—including names, Social Security numbers, dates of birth, and dates of death—for millions of deceased Social Security number-holders. SSA receives death reports from a variety of sources, including states, family members, funeral directors, post offices, financial institutions, and other federal agencies. SSA shares its full set of death data with certain agencies that pay federally-funded benefits, for the purpose of ensuring the accuracy of those payments. For other users of SSA's death data, SSA extracts a subset of records, which, to comply with the Social Security Act, excludes state-reported death data. See 42 U.S.C. § 405(r). SSA makes this subset available via the Department of Commerce's National Technical Information Service, from which any member of the public can purchase the data.

but the lower the average age at death. This is because, when projected from birth, measures of life expectancy reflect the probability of death over one's entire lifetime, including from childhood infectious diseases. In contrast, life expectancy calculated at older ages, such as age 65, generally predicts that individuals will live to an older age than when life expectancy is calculated at birth, since the averages for older persons do not include those who have died before that age. As a result, the average age that will be reached from birth will be lower than the average age that will be reached by those who have already reached age 65.

Studies have found various factors associated with disparities in life expectancy. For example, women tend to live longer than men, although that gap has been getting smaller, according to SSA data.[8] In addition, 65-year-old men could expect to live until age 79.7 in 1915, on average; in 2015, they could expect to live until age 86.1—an increase of about 6.4 years. Meanwhile, 65-year-old women could expect to live until age 83.7 in 1915, on average; in 2015, they could expect to live until age 88.7—an increase of about 5 years. Other factors that have been shown to be associated with differences in life expectancy include income, race, education, and geography. A recent study examined trends in life expectancy at the county level from 1985 to 2010 and found increasing disparities across counties over the 25-year period, especially in certain areas of the country.[9] The lowest life expectancy for both men and women was found in the South, the Mississippi basin, West Virginia, Kentucky, and selected counties in the West and Midwest. In contrast, substantial improvements in life expectancy were found in multiple locations: parts of California, most of Nevada, Colorado, rural Minnesota, Iowa, parts of the Dakotas, some Northeastern states, and parts of Florida. The study found that while income, education, and economic inequality are likely important factors, they are not the only determinants of the increasing disparity across counties. Certain environmental factors, such as lack of access to health

[8]Social Security Administration, Office of the Chief Actuary, "Life Tables for the United States Social Security Area 1900 to 2100," Actuarial Study number 120, SSA pub. No. 11-11536 (August 2005).

[9]Haidong Wang et al., "Left Behind: Widening Disparities for Males and Females in U.S. County Life Expectancy, 1985-2010"; *Population Health Metrics*, vol. 11 no. 8 (2013). For example, for men, the highest county life expectancy at birth steadily increased from 75.5 years in 1985 to 81.7 years in 2010, while the lowest county life expectancy remained under 65. For women, the highest county life expectancy at birth increased from 81.1 years to 85.0 years, and the lowest county life expectancy remained around 73 years.

care, and behaviors such as smoking, poor diet, and lack of exercise, have also been shown to be associated with shorter life expectancy.[10]

The U.S. Retirement System

In the United States, income in retirement may come from multiple sources, including (1) Social Security retirement benefits, (2) payments from employer-sponsored defined benefit (DB) plans, and (3) retirement savings accounts, including accounts in employer-sponsored defined contribution (DC) plans, such as 401(k) plans; and individual retirement accounts (IRA).[11]

[10]Another recent study found that between 1999 and 2013, there was a marked increase in the all-cause mortality of middle-aged white non-Hispanic men and women in the United States, largely due to increasing death rates from drug and alcohol poisonings, suicide, and chronic liver diseases and cirrhosis, especially among those with less education. Anne Case and Angus Deaton, *Rising morbidity and mortality in midlife among white non-Hispanic Americans in the 21st century* (Princeton, NJ: Woodrow Wilson School of Public and International Affairs and Department of Economics, Princeton University, September 17, 2015). A subsequent study age-adjusted the mortality rates published in the Case and Deaton paper and found that the study's results held for women but not for men. Andrew Gelman and Jonathan Auerbach, "Age-Aggregation Bias in Mortality Trends," *Proceedings of the National Academy of Sciences of the United States of America*, vol. 113 no. 7 (National Academy of Sciences, February 16, 2016).

[11]Income in retirement may also come from other sources, such as non-retirement savings, home equity, wages, and federal assistance programs.

Social Security

Social Security pays retirement benefits to eligible individuals and family members such as their spouses and their survivors, as well as other benefits to eligible disabled workers and their families.[12] According to SSA, in 2014 about 39 million retired workers received Social Security retirement benefits. Individuals are generally eligible to receive these benefits if they meet requirements for the amount of time they have worked in covered employment—i.e., jobs through which they have paid Social Security taxes. This includes jobs covering about 94 percent of U.S. workers in 2014, according to SSA.[13] Social Security retirement benefits offer two features that offset some key risks people face in retirement: (1) they provide a monthly stream of payments that continue until death, so that there is no risk of outliving a person's benefits; and (2) they are generally adjusted annually for cost-of-living increases, so there is less risk of inflation eroding the value of a person's benefits.

Social Security Benefit Formula

Social Security retirement benefits are generally derived from an individual's average indexed monthly earnings (AIME). For retirement benefits, the AIME is based on the worker's highest 35 years' earnings for which they paid Social Security taxes, and those earnings are indexed to changes in average wages over the worker's career.

For 2016, the benefit formula replaces:

- 90% of the first $856 of AIME,
- 32% of AIME over $856 and up to $5,157, and
- 15% of AIME over $5,157.

These "bend points" are also indexed for changes in average wages.

Source: GAO analysis of Social Security Administration documents. | GAO-16-354

Social Security retirement benefits are based on a worker's earnings history in covered employment. The formula for calculating monthly benefits is progressive, which means that Social Security replaces a higher percentage of monthly earnings for lower-earners than for higher-earners. As we reported in 2015, retired workers with relatively lower average career earnings receive monthly benefits that, on average, equal about half of what they made while working, whereas workers with relatively high career earnings receive benefits that equal about 30 percent of earnings.[14] In 2013, SSA reported that the program provided at least

[12]We use the term "Social Security retirement benefits" to refer to benefits provided under the Old-Age and Survivors Insurance (OASI) program. While SSA administers other programs, including Disability Insurance and Supplemental Security Income, our focus is on retirement benefits. For more about Social Security programs, see GAO, *Social Security's Future: Answers to Key Questions*, GAO-16-75SP (Washington D.C.: October 2015). In this report, for ease of reference, we use the term "worker;" however, many individuals may no longer be working at the time they receive benefits and others, such as dependents and survivors of workers who contributed to Social Security, may never have worked in covered employment.

[13]According to SSA, workers excluded from coverage include certain employees of federal, state, and local governments, certain workers with very low net earnings from self-employment, and railroad workers. About one-fourth of public-sector employees do not pay Social Security taxes on the earnings from their government jobs and are not entitled to any Social Security benefits based on this work.

[14]This example is based on hypothetical workers born in 1985 and retiring at age 65 in 2050. The career-average level of earnings for each hypothetical worker was based on a percentage of Social Security's national average wage index. The low and high earners had earnings about 45 percent and 160 percent of the national average wage index ($21,054 and $74,859, respectively, for 2014). See GAO-16-75SP.

half of retirement income for 64 percent of beneficiaries age 65 or older in 2011 and that 35 percent of beneficiaries in this age range received 90 percent or more of their income from Social Security.

For retired workers, Social Security pays full (unreduced) benefits at the full retirement age, which ranges from 65 to 67 depending on an individual's birth year. Workers can claim Social Security retirement benefits as early as age 62, resulting in a reduced monthly benefit, or can delay claiming after they reach full retirement age, resulting in an increased monthly benefit until age 70 (i.e., no further increases are provided for delayed claiming after age 70). According to SSA documentation, the Social Security benefit formula adjusts the amount of monthly benefits to reflect the average remaining life expectancy at each claiming age. More specifically, benefits are adjusted up or down based on claiming age so that, on average, the actuarial present value of a beneficiary's total lifetime benefits is about the same regardless of claiming age.[15] For example, workers currently age 62 who would reach full retirement age at 66 would receive a monthly benefit about 25 percent lower if claiming early, at age 62, compared with the benefit that would be paid at their full retirement age. Those delaying claiming until age 70 would receive about 32 percent more per month than their full retirement age benefit, according to SSA.

Despite higher monthly benefits for those who delay claiming, in 2014, age 62 was the most prevalent age to claim Social Security retirement benefits: About 37 percent of total retired worker benefits awarded were awarded at age 62.[16] When workers die before reaching age 62, they may not receive any of the Social Security retirement benefits that they would have been entitled to receive had they lived longer.[17] In cases where a worker dies before

[15]An actuarial present value takes into account both life expectancy and the time value of money (payments sooner are worth more than payments later). For more on these adjustment factors, see GAO-16-75SP.

[16]Total benefits awarded include disability benefits that convert to retirement benefits at the worker's full retirement age. Calculated from the Annual Statistical Supplement to the Social Security Bulletin, 2015, table 6.A4. The share of people claiming at age 62 varies by birth cohort, and while age 62 remains the most prevalent claiming age, the share of people claiming at age 62 has decreased with successive birth cohorts. See GAO, *Retirement Security: Challenges for Those Claiming Social Security Benefits Early and New Health Coverage Options,* GAO-14-311 (Washington, D.C.: Apr. 23, 2014).

[17]The CDC reported that nearly 25 percent of the U.S. deaths in 2011 were among people age 25 to 65.

or during retirement, there are survivors benefits that provide widows and widowers up to 100 percent of the deceased spouse's benefit.[18]

Defined Benefit Plans

Defined benefit (DB) plans are generally tax-advantaged retirement plans that typically provide a specified monthly benefit at retirement, known as an annuity, for the lifetime of the retiree.[19] Qualified private sector DB plans may be single-employer or multiemployer plans.[20] Single-employer plans make up the majority of private sector DB plans (about 94 percent) and cover the majority of private sector DB participants (75 percent of about 41.2 million workers and retirees in 2014).[21] The amount of the annuity provided by a DB plan is determined according to a formula specified by the plan, and is typically based on factors such as salary, years of service, and age at retirement. Plan sponsors generally bear the risks associated with investing the plan's assets and ensuring that sufficient funds are available to pay the benefits to plan participants as they come due.[22] As indicated in figure 1, over the past several decades employment-based retirement plan coverage, especially in the private sector, has shifted away from DB plans to defined contribution (DC) plans, which generally require participants to bear the risks of managing their assets.[23]

[18]Children meeting certain eligibility criteria, including those who are under 18 or disabled, may also receive survivors benefits.

[19]To receive tax-advantaged treatment, DB and DC plans must meet certain requirements specified in the Internal Revenue Code and the Employee Retirement Income Security Act of 1974, as amended (ERISA). Such plans are called qualified plans. Qualified DB plans also generally must provide for an annuity for an eligible surviving spouse. In general, ERISA applies only to plans sponsored by private sector employers.

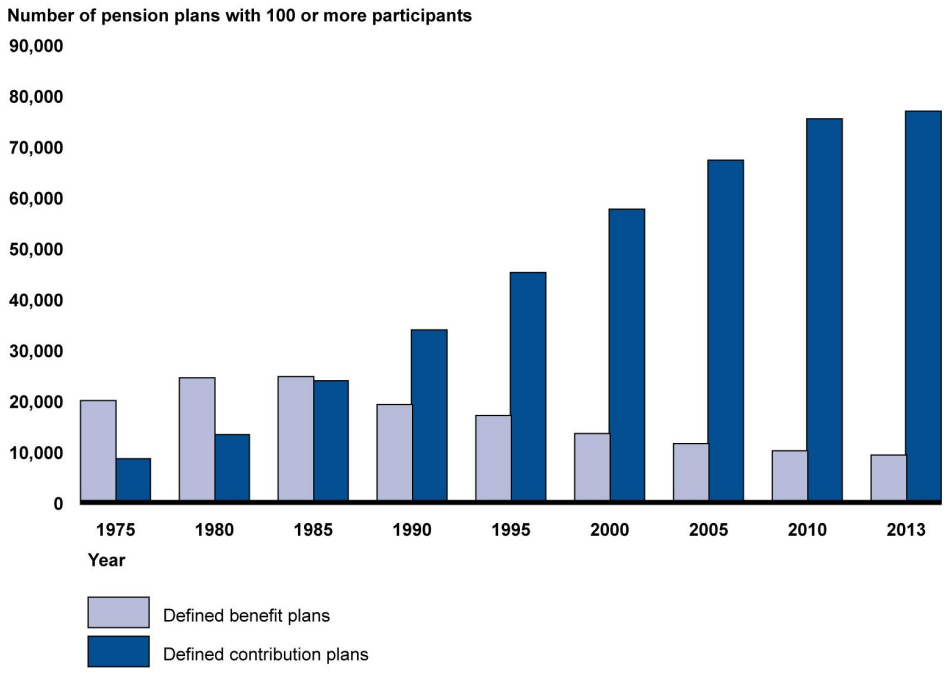
[20]Multiemployer plans are established through collective bargaining agreements between labor unions and two or more employers, and plan assets are maintained in a single account. Multiemployer plans should not be confused with multiple-employer plans, which are a category of single-employer plans. Multiple-employer plans are typically established without collective bargaining agreements. Multiple-employer DB plans must be funded as if each participating employer were maintaining a separate plan.

[21]PBGC, *2013 Pension Insurance Data Tables*, see http://www.pbgc.gov/prac/data-books.html

[22]To reduce plan liabilities, some DB plan sponsors have offered participants the option of replacing their annuity with a lump sum payment, so that the participants assume the risks of managing the funds, and outliving the funds, themselves. See GAO, *Private Pensions: Participants Need Better Information When Offered Lump Sums That Replace Their Lifetime Benefits,* GAO-15-74 (Washington, D.C.: Jan. 27, 2015).

[23]While figure 1 describes pension plans with 100 or more participants, the trend is similar when comparing all pension plans.

Figure 1: Trends in Number of Private Sector Defined Benefit and Defined Contribution Plans, 1975-2013



Source: GAO analysis of U.S. Department of Labor data. | GAO-16-354

Retirement Savings Accounts

Retirement savings accounts can provide individuals with a tax-advantaged way to save for retirement, but, unlike DB plans, they generally require individuals to manage their own assets. There are two primary types of retirement savings vehicles: employer-sponsored DC plans, such as 401(k)s, and individual retirement accounts (IRA).[24] DC plans' benefits are based on contributions made by workers (and sometimes by their employers) and the performance of the investments in participants' individual accounts. Workers are generally responsible for determining their

[24]As previously mentioned, qualified DC plans must meet certain requirements in ERISA and the Internal Revenue Code. In addition, to receive tax-advantaged treatment, IRAs must meet certain requirements in the Internal Revenue Code.

contribution rate, managing their savings and investments, and deciding how to draw down their assets after retirement.[25]

There are also tax-advantaged retirement savings accounts that are not employer-sponsored, such as traditional IRAs and Roth IRAs. Eligible individuals may make contributions to traditional IRAs with pre-tax earnings and any savings in traditional IRAs are tax-deferred—that is, taxed at the time of distribution. Eligible individuals' contributions to Roth IRAs are made with after-tax earnings and are generally not taxed at the time of distribution.[26] Individuals may choose to roll over their employer-sponsored DC plans into an IRA when they leave employment.[27]

Increasing Life Expectancy Adds to Challenges for Retirement Planning

The projected continuing increase in life expectancy for both men and women in the United States contributes to longevity risk in retirement planning. For the Social Security program and employer-sponsored defined benefit plans, longevity risk is the risk that the program or plan assets may not be sufficient to meet obligations over their beneficiaries' lifetimes. For individuals, longevity risk is the risk that they may outlive any retirement savings they are responsible for managing, such as in a DC plan.

Increasing Life Expectancy Adds to Challenges for Social Security

Increasing life expectancy adds to the long-term financial challenges facing Social Security by contributing to the growing gap between annual program costs and revenues.[28] Although life expectancy is only one factor contributing to this gap, as individuals live longer, on average, each year there are more individuals receiving benefits, adding to the upward pressure on program costs.

[25]However, employers that sponsor tax-qualified plans are subject to requirements in administering the plan, including certain fiduciary responsibilities.

[26]Both traditional and Roth IRAs are subject to various requirements such as annual contribution limits, and Roth IRAs are subject to annual income limits.

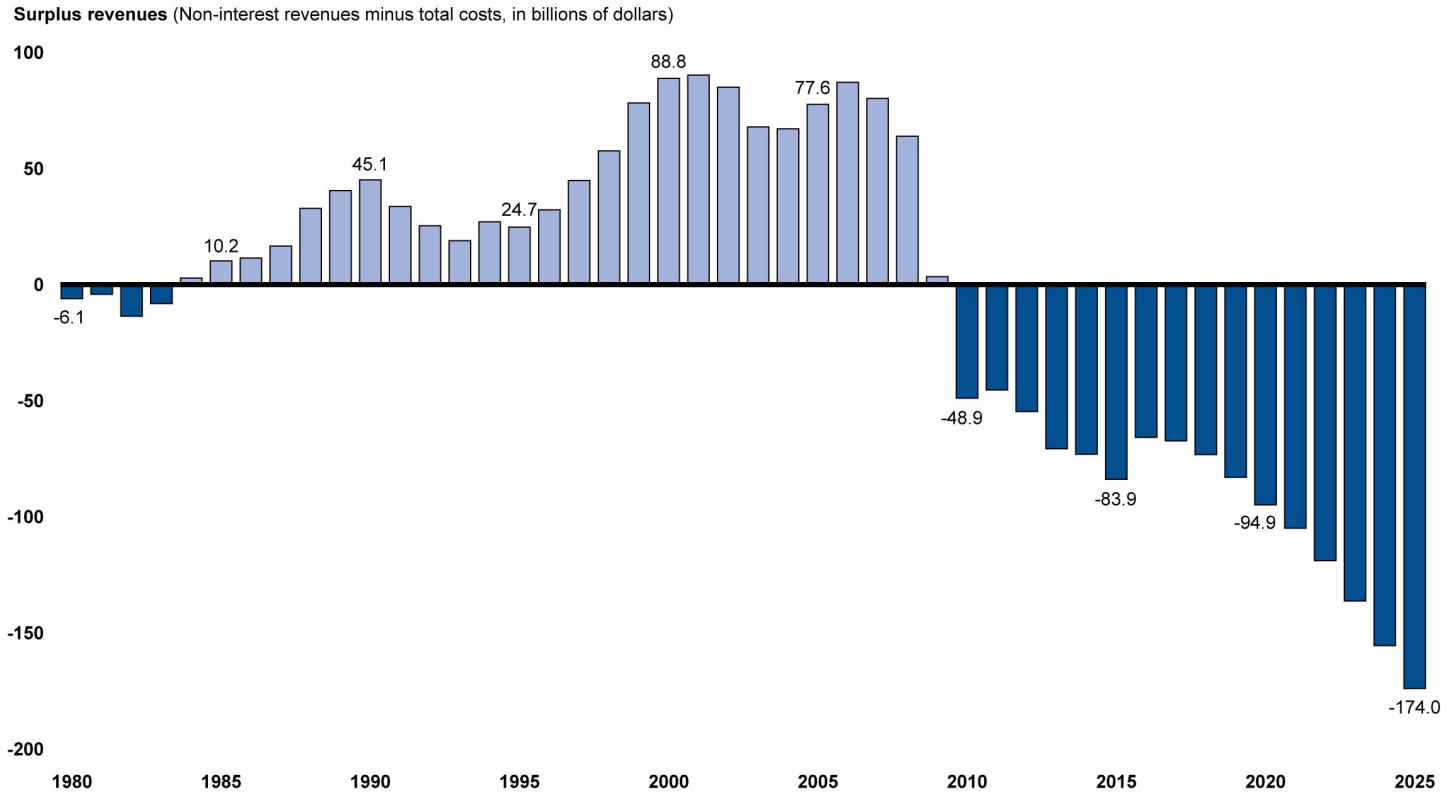
[27]For more information about 401(k) rollovers, see GAO, *401(K) Plans: Labor and IRS Could Improve the Rollover Process for Participants*, GAO-13-30 (Washington, D.C.: Mar. 7, 2013).

[28]We recently examined the challenges facing the Social Security retirement and disability programs. GAO-16-75SP.

According to the 2015 report from the Board of Trustees of the Federal Old-Age and Survivors Insurance (OASI) and Federal Disability Insurance (DI) Trust Funds, the Social Security OASI trust fund is projected to have sufficient funds to pay all promised benefits for nearly two decades, but continues to face long-term financial challenges. In 2010, program costs for the combined OASI and DI trust funds began exceeding non-interest revenues and are projected to continue to do so into the future (see fig. 2). The 2015 Trustees Report projected that the OASI trust fund would be depleted in 2035, at which point continuing revenue would be sufficient to cover 77 percent of scheduled benefits.[29]

[29]*The 2015 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds* (Washington D.C.: July 22, 2015).

Figure 2: Trend in the Annual Net Cash Flow of Social Security's Combined Old-Age and Survivors Insurance and Disability Insurance Trust Funds, 1980 through 2025 (projected)



Source: GAO analysis of data from the 2015 Social Security Trustees' Report. | GAO-16-354

Notes: Non-interest revenues are revenues from payroll taxes, taxation of benefits, and reimbursements from the general fund of the U.S. Department of the Treasury. Total costs include benefit payments, administrative costs, and Railroad Retirement Board interchange costs. (Interest revenue is excluded.) Changes made by the Social Security Benefit Protection and Opportunity Enhancement Act of 2015 may affect these figures. For further information about operations of the combined trust fund, see *The 2015 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*, 158-159, https://www.socialsecurity.gov/OACT/TR/2015/.

To help address the long-term financial challenges facing the Social Security retirement program, various changes have been made over the years. For example, the Social Security Amendments of 1983 established a phased-in increase in the full retirement age, gradually raising it from age 65 (for workers born in 1937 or earlier) to age 67 (for workers born in

1960 and later).[30] Also, challenges facing the DI trust fund have affected OASI. For example, in late 2015, Congress passed a law that reallocates some tax revenue from the OASI trust fund to the DI trust fund, thus delaying benefit reductions to DI beneficiaries that were projected to occur in 2016 until 2022.[31]

In addition, a wide range of options to adjust Social Security further have been proposed. To illustrate this range of options, table 1 provides examples from among the options and summarizes their effect according to SSA's Office of the Chief Actuary (OCACT).[32] Some options would reduce benefit costs, such as by making adjustments to the retirement age. Other options would increase revenues, such as by making adjustments to payroll tax contributions.[33] The table shows the most recent OCACT analysis, which is based on the intermediate assumptions of the 2015 Trustees Report and reflects the impact on both the OASI and DI trust funds combined over the next 75 years. The trustees estimate that, using intermediate projections, the shortfall toward the end of their 75-year projections would reach 4.65 percent of taxable payroll for 2089. The options are based on proposals introduced in Congress or suggested by experts, but are not exhaustive.[34] Each has advantages and disadvantages, and

[30]According to SSA, throughout the program's history there have been many changes intended to increase revenues or reduce expenditures and thereby secure the program. For example, according to SSA, the tax contribution rate for employees, employers, or self-employed workers has increased more than 20 times. In addition, changes have been made to benefits and to cost-of-living adjustments, such as those made by the Social Security Amendments of 1977 and 1983.

[31]The Social Security Benefit Protection and Opportunity Enhancement Act of 2015, among other things, increased the proportion of the employer and employee tax contributions to the trust funds that specifically go to the DI trust fund from 1.8 percent to 2.37 percent starting in 2016 through the end of 2018. Pub. L. No. 114-74, tit. VIII, 129 Stat. 584, 601-20. The combined payroll tax remains at 12.4 percent of covered earnings.

[32]Social Security Administration Office of Chief Actuary, *Summary of Provisions That Would Change the Social Security Program* (Sept. 16, 2015).

[33]For more information on payroll tax contributions, see appendix III.

[34]Readers interested in a more detailed compendium of proposed changes to the Social Security programs may refer to the website of the Social Security Administration Office of the Chief Actuary. The Office of the Chief Actuary has prepared memoranda for many of the policy options, which include analyses showing the estimated effect of the changes on the financial status of the Social Security programs. See http://www.ssa.gov/OACT/solvency/provisions/index.html.

GAO is not recommending or endorsing the adoption of any of the specific options presented.[35]

Table 1: Selected Proposals to Adjust the Social Security Retirement Program and the Projected Effect on Social Security's Combined Old-Age and Survivors Insurance and Disability Insurance Trust Funds

Adjustments to the retirement age	• Continue to increase the full retirement age. According to the Office of the Chief Actuary's (OCACT) most recent estimates, raising the full retirement age, beginning in 2022, by one additional month every 2 years until the retirement age reaches 68 would eliminate 13 percent of the shortfall over the next 75 years. • Increase the age at which early claiming can take place. OCACT estimates that raising the early retirement age, starting in 2017, by 2 months each year and ending in 2034 (ending with the early retirement age at 65) would increase the shortfall by 2 percent over 75 years, due to a corresponding rise in costs for the disability program.
Adjustments to the structure of retirement benefits	• Reduce monthly retirement benefits for all retirees. OCACT estimates that reducing benefits by 3 percent for newly eligible beneficiaries, beginning in 2016, would eliminate 14 percent of the shortfall over 75 years. • Reduce initial monthly retirement benefits for those with higher lifetime earnings. OCACT provides estimates for several progressive price indexing proposals that reduce benefits for the top category of earnings, for example, reducing the rate at which benefits are awarded for earnings over the 30th, 40th, 50th or 60th percentile. The effect of such proposals depends upon the reduction in rate and the point at which that reduction is applied. OCACT estimates that the proposals they examined would eliminate 26 to 55 percent of the shortfall over the next 75 years.
Adjustments to payroll tax contributions	• Increase the combined payroll taxes for employers and employees (currently 12.4 percent of covered earnings). OCACT examines several options for increasing the payroll tax rate, with the most significant effect coming from raising the tax rate to 15.2 percent in 2028-2057 and to 18 percent in 2058 and later. That proposal is estimated to eliminate 110 percent of the shortfall over the next 75 years. • Eliminate the maximum taxable earnings (currently set at $118,500). OCACT also examines a number of options for eliminating the taxable maximum. For example, eliminating the taxable maximum, beginning in 2016, and providing benefit credit for earnings above the current maximum would eliminate 71 percent of the shortfall over the next 75 years.

Source: GAO analysis of Social Security Office of Chief Actuary report, 2015. | GAO-16-354

Notes: Estimates of effects are based on the intermediate assumptions of the 2015 Trustees Report and reflect the impact on the combined trust funds over the next 75 years. We are not recommending or endorsing the adoption of any particular policy option or package of options.

[35]For example, in 2010, we reported that raising the age for early claiming of the Social Security retirement benefit may put additional stress on the DI trust fund. See GAO, *Social Security Reform: Raising the Retirement Ages Would Have Implications for Older Workers and SSA Disability Rolls*, GAO-11-125 (Washington, D.C.: Nov. 18, 2010).

Increasing Life Expectancy Adds to Challenges for Defined Benefit Plans

Although there are many factors at play in the decline of defined benefit (DB) plans, increasing life expectancy adds to the challenges these plans face by increasing the financial obligations needed to make promised payments for their beneficiaries' lifetimes.[36] For example, plan sponsors and industry experts estimate that the Society of Actuaries' 2014 revised mortality tables, if adopted for DB plans, would increase plan obligations by 3.4 to 10 percent, depending on the characteristics of a plan's participants.[37] As of 2012, more than 85 percent of single-employer DB plans were underfunded by a total of more than $800 billion, according to the most recent data available from the Pension Benefit Guaranty Corporation (PBGC).[38] DB plan sponsors have increasingly been taking steps, known as "de-risking," to either reduce risk or shift risk away from sponsors, often to participants. De-risking can be classified as internal or external.[39]

Internal de-risking approaches include reducing risk by (1) shifting plan assets into safer investments that better match certain characteristics of a plan's benefit liabilities, and (2) restricting growth in the size of the plan by restricting future plan participation or benefit accruals, such as by "freezing" the plan (variations of which include closing the plan to newly-hired workers or eliminating the additional accrual of benefits by those already participating in the plan). In 2012, more than 40 percent of single-employer DB plans were frozen in some form, according to the most recent data available from PBGC, and many frozen plans are ultimately terminated, which can shift the risk of ensuring an adequate lifetime retirement income to individuals, as discussed below.

[36]Sponsors of DB plans are also responsible for managing financial risks, such as fluctuations in the value of plan assets and in interest rates, either of which can cause volatility in the plan's funded status and plan contributions.

[37]The Internal Revenue Service (IRS) prescribes and periodically revises mortality tables to be used by qualified DB plans to calculate the plans' funding target and other funding calculations. The current mortality tables are based, in part, on mortality tables developed by the Society of Actuaries in 2000. IRS expects to issue proposed regulations revising the mortality tables for future years and has solicited comments on this issue, including on the 2014 revised Society of Actuaries tables. IRS Notices 2013-49 and 2015-53.

[38]Single-employer plans covered 75 percent of DB participants in 2014. PBGC, *2013 Pension Insurance Data Tables*, http://www.pbgc.gov/prac/data-books.html.

[39]For qualified DB plans, any de-risking actions must comply with requirements in ERISA and the Internal Revenue Code in order to maintain their tax-advantaged status.

External de-risking involves closing the plan completely (referred to as terminating the plan) or reducing the size of the plan by transferring a portion of plan liabilities, plan assets, and their associated risk to external parties—typically either to participants or to an insurance company. For example, an employer may terminate its DB plan, if it can fund all of the benefits owed through the purchase of a group annuity contract from an insurance company (sometimes called a "group annuity buy-out").[40] Short of termination, an employer can also transfer a portion of plan assets and liabilities to an insurance company for a certain group of plan participants, such as former employees with vested benefits.[41] Alternatively, an employer may, under certain circumstances, terminate its DB plan by paying all the benefits owed in another form, such as by providing a lump sum to each participant or beneficiary of the plan, if the plan permits. The employer could also opt to make a lump sum buy-out offer only to certain plan participants.[42] When such an offer is made, plan participants have a specified amount of time, known as the lump sum "window," to choose between keeping their lifetime annuity or taking a lump sum. Participants who

[40]Such actions are referred to as "standard terminations."

[41]Once responsibility is transferred to an insurance company, the participant's rights and protections are circumscribed by the annuity contract, the financial status of the issuer, and state guarantees, rather than the protections under ERISA, although in some cases, ERISA provisions may be incorporated into the annuity contract. In general, once the transaction is complete, the participant will receive an annuity certificate from the insurance company, and then will receive payments from that insurer, with protections from the state insurance system and state guaranty associations. See 2013 ERISA Advisory Council Report, *Private Sector Pension De-risking and Patient Protections*.

[42]Until recently, DB plan sponsors were offering lump sum payments to participants who were receiving annuity payments (known as "lump sum window offers"). On July 9, 2015, IRS issued a notice stating its intent to prohibit these lump sum window offers, effective as of the date of the notice, and stating that the regulations would be amended accordingly. According to agency officials, other instances of accelerated benefit payments, including lump sum buyouts to participants who were separating from employment but had not yet begun collecting their benefits, and those allowed pursuant to the regulations under Internal Revenue Code section 401(a)(9), were unaffected by the notice. The notice also allowed for the continuation of certain lump sum window offers already in process. IRS Notice 2015-49.

accept the lump sum assume all of the risk of managing the funds for the remainder of their lives.[43]

Increasing Life Expectancy Adds to Challenges for Individuals' Retirement Planning

A key reason that individuals face challenges in planning for retirement is that many people do not understand their life expectancy, the number of years they will likely spend in retirement, or the amount they should save to support their retirement. For example, a survey conducted by the Society of Actuaries showed that there is a greater tendency for retired respondents to underestimate rather than overestimate their life expectancy.[44] In addition, many individuals will live beyond their life expectancy in any case, since it is an average. Further, as we reported in 2015, older workers tend to retire sooner than they expected. Coupled with increasing life expectancy, this means they will likely spend more years in retirement than anticipated.[45] In 2015, more than a third of workers surveyed by the Employee Benefit Research Institute reported that they expected to retire at age 66 or later and an additional 10 percent expected to never retire; however, only 14 percent of current retirees reported that they retired after age 65. Similarly, 9 percent of workers said they expected to retire before age 60, while 36 percent of current retirees reported they retired earlier. The median age of retirement reported was age 62.[46] Additionally, only 48 percent of those surveyed had calculated how much in savings they would need for retirement.[47]

[43]In a previous report, we found that while comprehensive data on lump sum window offers were not available, experts generally agreed that use of such offers was becoming more frequent. GAO-15-74. Since this report was published, IRS issued a notice, described previously, that generally prohibits lump sum window offers for those participants already receiving benefits from a DB plan, without affecting other allowed lump sum payments from a DB plan. Thus, any current expectation of future lump sum window offers would likely be limited to separated vested employees (i.e., former employees) who are not currently receiving benefits under a DB plan. IRS Notice 2015-49.

[44]Society of Actuaries, *Key Findings and Issues: Longevity, 2011 Risks and Process of Retirement Survey Report* (June 2012).

[45]GAO, *Retirement Security: Most Households Approaching Retirement Have Low Savings*, GAO-15-419 (Washington, D.C.: May 12, 2015).

[46]This broadly aligns with SSA data on when individuals claim Social Security retirement benefits. See GAO-14-311.

[47]Employee Benefit Research Institute, *The 2015 Retirement Confidence Survey: Having a Retirement Savings Plan a Key Factor in Americans' Retirement Confidence* (April 2015).

Beyond underestimating life expectancy, individuals preparing for retirement face a number of additional challenges in accumulating retirement savings sufficient to sustain them for their lifetime. In previous work we found that many households near or in retirement have little or no retirement savings (see table 2).[48] Nearly 30 percent of households headed by individuals age 55 and older have neither retirement savings nor a DB plan.

Table 2: Retirement Savings Held by Households Headed by Individuals near or in Retirement, 2013

	Households headed by individuals age 55-64	Households headed by individuals age 65-74	Households headed by individuals age 75 and older
Percent with no retirement savings	41	52	71
Percent with retirement savings	59	48	29
median amount saved	$104,000	$148,000	$69,000
equivalent inflation-adjusted annuity	$310 per month (for a 60-year-old)	$649 per month (for a 70-year-old)	$467 per month (for an 80-year-old)

Source: GAO analysis of 2013 Survey of Consumer Finances data. | GAO-16-354

About half of private sector employees do not participate in any employer-sponsored retirement plan.[49] In previous work, we found that among those not participating, 84 percent reported that their employer did not offer a plan or they were not eligible for the program their employer offered.[50] Those that do participate in employer-sponsored retirement plans are increasingly offered access only to DC plans, which—unlike DB plans—do not typically provide a guaranteed monthly benefit for life. For many of these participants, the level of savings accumulated in their DC retirement accounts at the time they leave the workforce will not be sufficient to

[48]We also found that more than 70 percent of households headed by individuals age 55-64 also carry debt. GAO-15-419.

[49]U.S. Bureau of Labor Statistics, *National Compensation Survey: Employee Benefits in the United States* (March 2015).

[50]See GAO, *Retirement Security: Federal Action Could Help State Efforts to Expand Private Sector Coverage*, GAO-15-556 (Washington, D.C.: Sept. 10, 2015).

sustain their retirement.[51] Moreover, employer-sponsored DC plans typically offer only an account balance at retirement, leaving participants to identify longevity risks and manage how they will draw down their funds over the course of their retirement.[52]

To help address individuals' difficultly in estimating their life expectancy and the resources needed to avoid outliving their savings, the federal government, plan sponsors, and others have developed certain tools to aid with retirement planning. For example, benefits calculators assist participants in translating their savings into potential annual retirement income. One such calculator, available on the U.S. Department of Labor's website, assumes survival to age 95, which is beyond the average life expectancy for individuals currently age 65.[53] To encourage saving among those who lack access to employer-sponsored plans, in November 2015, myRA, a federal government-managed retirement savings program, was opened to individuals below a certain income threshold.[54] Also, as we reported in 2015, a number of states are exploring strategies to expand private sector coverage for

[51]Women are particularly at risk of outliving their savings because they live longer, on average, than men, although the gap between the sexes is diminishing. Additionally, as discussed in previous reports, women who participate in DC plans contribute less to their plans. Women age 65 and over have less retirement income, on average, and live in higher rates of poverty than men in that age group. See GAO, *Retirement Security: Women Still Face Challenges*, GAO-12-699 (Washington, D.C.: July 19, 2012) and GAO *Retirement Security: Older Women Remain at Risk,* GAO-12-825T (Washington, D.C.: July 25, 2012).

[52]In 2012, we reported that annuities are complex, represent some risks to consumers, and require them to make multiple complex decisions. See GAO, *Retirement Security: Annuities with Guaranteed Lifetime Withdrawals Have Both Benefits and Risks, but Regulation Varies across States,* GAO-13-75 (Washington, D.C.: Dec. 10, 2012).

[53]The U.S. Department of Labor offers two calculators: http://askebsa.dol.gov/retirementcalculator/ui/general.aspx and http://www.dol.gov/ebsa/regs/lifetimeincomecalculator.html. More calculators are available from financial services companies and others. We recently recommended that the Secretary of Labor take action to help workers make appropriate adjustments to the replacement rates used in calculating their specific retirement income needs. This included modifying the U.S. Department of Labor's retirement planning tools. See GAO, *Retirement Security: Better Information on Income Replacement Rates Needed to Help Workers Plan for Retirement*, GAO-16-242 (Washington, D.C.: Mar. 1, 2016).

[54]The U.S. Department of the Treasury created a new nonmarketable, electronic savings bond for the *my*RA program, which allows eligible individuals to establish Roth IRAs. *My*RA allows individuals to make one-time contributions or set up recurring contributions (which can be deducted from their wages) that will be invested in these savings bonds.

people who otherwise do not have access to a plan.[55] In addition, for those with employer-sponsored plans, the Pension Protection Act of 2006 included provisions that made it easier for certain DC plan sponsors to implement automatic enrollment and automatic escalation so that workers can be defaulted into plan participation with rising contributions over time.[56] Default investment arrangements, including target date funds which invest according to length of time until retirement, can also help participants to maintain a balanced investment portfolio with a level of risk that is appropriate to their retirement dates. Moreover, to provide greater assurance that individuals with DC plans will not outlive their savings, some plan sponsors are adding an annuity option at retirement.[57] In addition, Internal Revenue Service (IRS) regulations that went into effect in July 2014 allow for a Qualified Longevity Annuity Contract whereby participants in 401(k) and other qualified DC plans and traditional IRAs may use a portion of their accounts to purchase annuities that begin payout no later than age 85.[58]

In sum, despite the efforts by the federal government, plan sponsors, and others to encourage greater retirement savings, many individuals may not be adequately prepared for retirement. The trend toward increasing life expectancy may mean that more individuals outlive their savings, with only their Social Security benefits to rely on.

[55]GAO-15-556.

[56]Pub. L. No. 109-280, 120 Stat. 780. Among other things, the Act exempted "automatic contribution arrangements" that meet certain criteria from ERISA nondiscrimination testing requirements. The Act also provided for qualifying automatic contribution arrangements to receive protection from fiduciary liability for their default investments, if they meet certain notice requirements and other conditions established by the U.S. Department of Labor. See 29 C.F.R. § 2550.404c-5. In addition, in September 2009, the U.S. Department of the Treasury announced IRS actions designed to further promote automatic enrollment and the use of automatic escalation policies. These IRS actions included Revenue Ruling 2009-30, which demonstrates ways a 401(k) plan sponsor can include automatic contribution increases in its plan, and Notice 2009-65, which includes sample automatic enrollment plan language that a 401(k) plan sponsor can adopt with automatic IRS approval.

[57]Although the market remains relatively small, certain annuity contracts for retirees have been increasing in recent years, growing by 16 percent in 2012 alone. See *Variable Annuity Guaranteed Living Benefits Utilization, 2012 Experience*, A Joint Study by the Society of Actuaries and LIMRA.

[58]The regulations require that the qualified longevity annuity contract meet various requirements, such as limitations on premiums and certain disclosure and annual reporting requirements. The regulations also provide that the maximum age to begin payout may be adjusted to reflect changes in mortality. 26 C.F.R. § 1.401(a)(9)-6.

Life Expectancy Disparities Negatively Affect Retirement Resources for Lower-Income Groups

Lower-income individuals have shorter-than-average life expectancy, which means that they can expect to receive Social Security retirement benefits for substantially fewer years than higher-income individuals who have longer-than-average life expectancy. As a result, when disparities in life expectancy are taken into account, our analysis indicates that, on average, projected lifetime Social Security retirement benefits are reduced for lower-income individuals but are increased for higher-income individuals, relative to what they would have received if they lived the average life expectancy for their cohort.[59] Also, our analysis indicates that one frequently suggested change to address Social Security's financial challenges, raising the retirement age, would further reduce projected lifetime benefits for lower-income groups proportionally more than for higher-income groups.

Lower-Income Groups' Life Expectancy Has Not Increased as Much as Higher-Income Groups' Life Expectancy

People with lower incomes can expect to live substantially fewer years as they approach retirement than those with higher incomes, on average, according to studies we identified and reviewed. For example, these studies estimate that lower-income men approaching retirement live between 3.6 and 12.7 fewer years than those in higher-income groups, on average, depending on birth year and other factors such as whether income groups were calculated by top or bottom half, quartile, quintile, or decile (see table 3).[60] Similarly, studies we reviewed found that lower-income women also live fewer years than higher-income women, on average, with the

[59]As noted earlier, life expectancy can be expressed in two different ways: (1) as the average number of years of life remaining for a group, or (2) as the average age at death for a group. For simplicity, in this report, we generally use the term to mean the latter expression (average age at death), and use the phrase "years of life remaining" when referring to the former expression.

[60]We reviewed selected longevity studies published in the past 10 years (see appendix I).

differences ranging more widely, from 1.5 years to 13.6 years.[61] However, there are factors that make projecting life expectancy for women by income more difficult than for men.[62] It is not unexpected for life expectancy estimates to vary as they depend, among other things, on the particular data sources, populations, and age ranges analyzed. While the studies we reviewed found a range of life expectancy differences by income, each of them finds that disparities exist.[63]

[61]The Population Health Metrics study of U.S. life expectancy, 1985-2010, that found significant county level differences in life expectancy, by sex (described earlier in the background), reported finding effectively "no relationship" between life expectancy and county level per capita income. See Haidong Wang et al., 2013. However, another study that looked at county level mortality rates in 2010 found that the lower the household income, the higher the risk of premature death. See E.R. Cheng and D.A. Kindig, "Disparities in Premature Mortality between High- and Low-Income U.S. Counties," *Centers for Disease Control and Prevention* (Mar. 28, 2012). A subsequent study by the same authors found that mortality among women rose in 43 percent of counties over two decades. The factors found to be most significantly associated with reductions in county level mortality rates for both men and women were: percentage of Hispanic residents, adults with a college degree, population density, and median household income. See David A. Kindig and Erika R. Cheng, "Even As Mortality Fell in Most U.S. Counties, Female Mortality Nonetheless Rose in 42.8 Percent of Counties from 1992 to 2006," *Health Affairs*, Vol 32, No 3 (March 2013).

[62]According to studies we reviewed, developing life expectancy estimates for women by income is more difficult than for men, in part because women's income, on average, makes up a smaller share of household income. For example, women are more likely to work part time and earn less than men. Some studies have attempted to overcome this by using income calculations other than individual income for women—for example, using household income or using their spouses' income. While these measures of income may alleviate some challenges, some experts believe estimates of life expectancy by income for women are still less reliable than such estimates for men. Further, it is difficult to assess changes in women's life expectancy by income because women's participation in the labor force and individual earnings have grown over the last several decades.

[63]Two of the studies we reviewed calculated mortality rates rather than life expectancy. While the results are not directly comparable, these studies found that individuals with lower incomes have higher mortality rates and therefore shorter life expectancy than those with higher incomes.

Table 3: Selected Studies' Projected Life Expectancy over Time for Men Approaching Retirement, by Income Group

Author (year)	Lifetime income groupings for comparison (lower-income to higher-income)	Age at which projected life expectancy calculated	Projected life expectancy for men by income group:		Difference between lower- and higher-income groups	Difference compared to prior cohort (birth cohorts compared)
			Lower-income	Higher-income		
Bosworth, Burke (2014)	Second decile to second-highest decile	55	80.7 years	87.1 years	6.4 years	Increased by 4 years (between the 1920 and 1940 cohorts, for the top and bottom deciles)
Congressional Budget Office (2014)	Bottom quintile to top quintile[a]	65	89.5 years	95.7 years	6.2 years	Increased by 2.8 years (between the 1949 and 1974 cohorts)
Cristia (2009)	Bottom quintile to top quintile	35 to 76	n/a	n/a	3.6 years	Increased by 0.9 years (between the 1983-1997 and 1998-2003 periods)
Goldman, Orszag (2014)	Bottom quartile to top quartile	65	80.2 years	85.7 years	5.5 years	Increased by 2.4 years (between the 1928 and 1960 cohorts)
National Academy of Sciences (2015)	Bottom quintile to top quintile	50	76.1 years	88.8 years	12.7 years	Increased by 7.6 years (between the 1930 and 1960 cohorts)
Waldron (2007)	Bottom half to top half	65	81.1 years	86.5 years	5.3 years	Increased by 4.7 years (between 1912 and 1941 cohorts)

Source: GAO analysis of studies listed above. | GAO-16-354

Notes: This table includes studies we reviewed that estimate life expectancy by income over time for individuals approaching retirement age (see appendix I for full list of studies we reviewed). It excludes one study that estimates period life expectancy over time for white males and females only. Other studies we excluded that do not estimate life expectancy over time include two studies that estimate mortality rates, one study that estimates life expectancy for a hypothetical 1920 cohort and does not provide information on all races together, and one study that estimates life expectancy at age 25 by poverty threshold.

[a]These estimates do not include Disability Insurance beneficiaries, who tend to have higher mortality rates than the general population.

Moreover, disparities in life expectancy by income have grown, according to the studies that examined trends over time (see table 3).[64] Specifically, all of the six studies we reviewed that examined trends over time found growth in life expectancy differences, ranging from 0.9 to 7.6 years for men, depending on

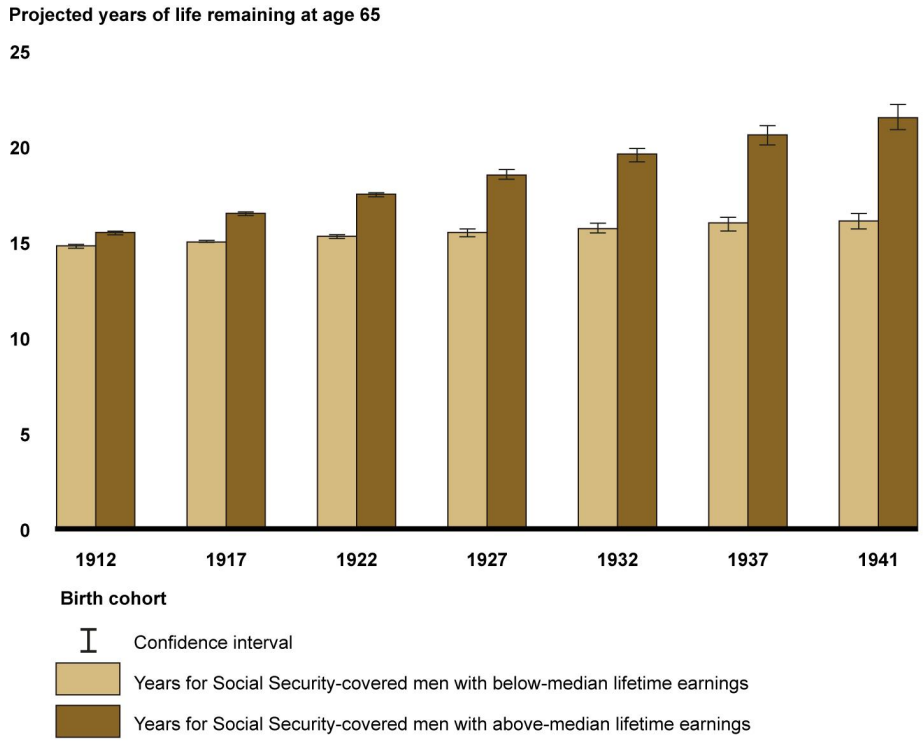
[64]One additional study examined changes over time, but the projections were based on period life expectancy rather than cohort estimates, so we do not include them here.

the age, birth years, and measure of income used. For example, a 2007 study by SSA's Hilary Waldron found that for men age 65 who were born in 1912, there was only a 0.7 year difference in expected years of life remaining between top and bottom earners, but for those born in 1941, the expected difference grew to 5.3 years (see fig. 3).[65] Similarly, for women, the studies we reviewed found differences in life expectancy by income were greater in more recent years, and the range in years was wider than for men. This is perhaps unsurprising, as some analysts have noted that disparities in household income also increased over time. According to a 2014 Congressional Budget Office (CBO) report, between 1979 and 2011, average real after-tax earnings for the top one percent of households grew about four times as fast as those in the lowest fifth.[66]

[65]This estimate was for Social Security-covered males. Hilary Waldron, "Trends in Mortality Differentials and Life Expectancy for Male Social Security-Covered Workers, by Socioeconomic Status," *Social Security Bulletin,* vol. 67, no. 3 (2007).

[66]Congressional Budget Office, *The Distribution of Household Income and Federal Taxes, 2011* (Washington, D.C.: November, 2014). See also DeNavas-Walt, Carmen, and Proctor, Bernadette D., *Income and Poverty in the United States: 2014* (Washington, D.C.: U.S. Census Bureau, September 2015).

Figure 3: Differences in Projected Years Remaining for Men, by Income Group



Source: Hilary Waldron's analysis of Social Security Administration data, 2007. | GAO-16-354

While higher-income groups have experienced significant growth in their life expectancy at older ages, lower-income groups have either experienced less growth or declines in recent decades, according to studies we reviewed. For example, Waldron's 2007 study projected that 65-year-old men born in 1941 with below-median earnings would live 1.3 years longer than their counterparts born in 1912, while 65-year-old men born in 1941 with above-median earnings would live 6 years longer than their counterparts born in 1912. Some other studies estimate that life expectancy declined for those in the bottom of the income distribution. For instance, a 2015 study by the National Academy of Sciences found that life expectancy at age 50 has declined for both men and women in

the bottom income quintile.[67] Specifically, men and women in the bottom income quintile saw life expectancy decreases of 0.5 and 4 years, respectively, when comparing the 1930 and 1960 cohorts. While the studies we reviewed do not all agree about whether life expectancy is decreasing or increasing slightly for the lowest earners, they all agree that the higher-income groups are gaining more years than the lower-income groups.[68]

Some studies show that there are disparities in life expectancy by other characteristics that have been linked with income, such as race and education. For example, the CDC reported that the life expectancy for 65-year-old black individuals was 1.2 years less than for their white counterparts in 2013.[69] Other studies have also examined links with education and found that individuals with a high school degree or less tend to have shorter

[67]National Academies of Sciences, Engineering, and Medicine, *The Growing Gap in Life Expectancy by Income: Implications for Federal Programs and Policy Responses* (Washington, D.C.: The National Academies Press, 2015).

[68]Some studies have found that higher-income individuals' life expectancy has benefitted most from health improvements, such as reduced smoking rates. For example, Bosworth, Burtless, and Zhang found a significant decline in the risk of dying from cancer or heart conditions for older Americans with above-average lifetime incomes but not for those with below-average incomes. See Barry P. Bosworth, Gary Burtless, and Kan Zhang, *Sources of Increasing Differential Mortality among the Aged by Socioeconomic Status* (Chestnut Hill, MA: Center for Retirement Research at Boston College, June 2015). For a related study by these authors, see also Barry Bosworth, Gary Burtless, and Kan Zhang*, Later Retirement, Inequality in Old Age, and the Growing Gap in Longevity between Rich and Poor* (Washington, D.C.: The Brookings Institution, Feb. 12, 2016).

[69]National Center for Health Statistics, *Health, United States, 2014: With Special Feature on Adults Aged 55-64* (Hyattsville, MD: 2015). In addition, in contrast to the findings for black individuals, according to studies we reviewed, Hispanic individuals tend to live longer than non-Hispanic individuals, even though they have lower average education and income, which are factors typically associated with shorter life expectancy. For example, the National Center for Health Statistics at the CDC estimates that in 2013, Hispanic men at age 65 could expect to live approximately 1 to 3 years longer than their white and black counterparts, respectively, while Hispanic women could expect to live nearly 2 to 3 years longer. (National Center for Health Statistics, 2015.) Though the cause is unclear, some research has suggested that their longer life expectancy is related to the health of immigrants (Hispanic immigrants are healthier, on average, than those who do not migrate) or cultural factors such as kinship networks, and that this anomaly will diminish with subsequent generations. "The Health and Life Expectancy of Older Blacks and Hispanics in the United States," *Today's Research on Aging*, Issue 28 (Population Reference Bureau, June 2013).

lives than those with a college education.[70] However, because the primary focus of our analysis was on life expectancy for adults approaching retirement by income group, we did not conduct a complete review of the studies related to other characteristics.

Differences in Life Expectancy Result in Reduced Projected Lifetime Social Security Benefits for Lower-Income Groups

Lower-income individuals generally rely on Social Security as their primary source of retirement income, so their retirement security is affected most by how that program is structured. We found that when differences in life expectancy by income are factored in, the amount of projected lifetime benefits received by lower-income individuals is reduced, while the amount of projected lifetime benefits received by higher-income individuals is increased. As a result, although the formula for calculating monthly Social Security retirement benefits is progressive—replacing a greater percentage of a lower-income than a higher-income worker's pre-retirement income on a monthly basis—differential life expectancy reduces the progressivity of Social Security benefits received over a lifetime.[71]

Lower-Income Groups Rely Primarily on Social Security

Social Security is the largest determinant of lower-income individuals' retirement security because, for most such individuals, it is the main source of their retirement income. In a previous report, we analyzed data from the 2013 Survey of Consumer Finances and estimated that 86 percent of recent retiree households in the lowest income quintile rely on

[70]For other studies that examine race and education, see S. Jay Olshansky et al., "Differences in Life Expectancy Due to Race and Educational Differences are Widening and Many May Not Catch Up," *Health Affairs*, 31, no. 8 (2012): 1803-1813; and John Bound et. al, *The Implications of Differential Trends in Mortality for Social Security Policy* (Ann Arbor, MI: Michigan Retirement Research Center, University of Michigan, October 2014). For example, the 2012 study found that a 65-year-old college-educated black man could expect to live, on average, 1.9 years less than a white man with the same age and education.

[71]We focused our analysis on Social Security because it is the main source of retirement income for most lower-income individuals. We did not analyze the effect of differential life expectancy on other retirement resources, such as retirement savings and DB plans, nor did we analyze the adequacy of these retirement resources.

Social Security for the majority of their income.[72] About half of recent retiree households in the lowest income quintile rely on Social Security for more than 90 percent of their income. Overall, in that report we found that those with lower incomes have more limited resources for retirement aside from Social Security.

Recent retiree households in the lowest income quintile are much less likely to have retirement savings and DB plans than those in higher quintiles.[73] Specifically, as we previously found, only 9 percent have any retirement savings (compared to 84 percent in the top income quintile) and 19 percent have a DB plan (compared to 65 percent in the top income quintile), which typically provides a monthly stream of retirement income for life. Households without retirement savings have few other resources, we found, which puts them at a high risk of outliving their non-Social Security resources. One reason for the lack of retirement savings among lower-income individuals is their lack of access to employer-sponsored retirement savings plans. As we reported in 2015, coverage by and participation in workplace retirement savings programs are also lower among lower-income workers. Specifically, workers in the lowest income quartile were nearly four times less likely than workers in the highest income quartile to work for an employer that offers a retirement savings program, after controlling for other factors.[74] Similarly, we found that approximately 14 percent of workers in the lowest income quartile participated in a workplace retirement savings program compared to 76 percent of those in the highest income quartile.

[72]See GAO-15-419. The Survey of Consumer Finances is a nationally representative study sponsored by the Board of Governors of the Federal Reserve. “Recent retiree households” refers to households headed by someone age 65 to 74. For the estimate of 86 percent, we are 95 percent confident that the percentage is between about 81 and 91 percent. Similarly, for the estimate of half in the next sentence, we are 95 percent confident that the percentage is between about 41 and 57 percent.

[73]GAO-15-419. For purposes of that report, “retirement savings” includes assets in DC plans, such as 401(k) plans, and IRAs. It does not include the value of DB plans unless the DB plan benefit has been taken as a lump sum and converted into an IRA or other account balance. It also does not include home equity or savings held outside of a retirement account.

[74]GAO-15-556. For purposes of that report, “workplace retirement savings program” includes employee benefit plans, such as 401(k) plans, and employer-provided IRAs, such as payroll deduction IRAs. It did not include IRAs that individuals may establish on their own outside the workplace.

Shorter Life Expectancy Results in Lower Projected Lifetime Benefits

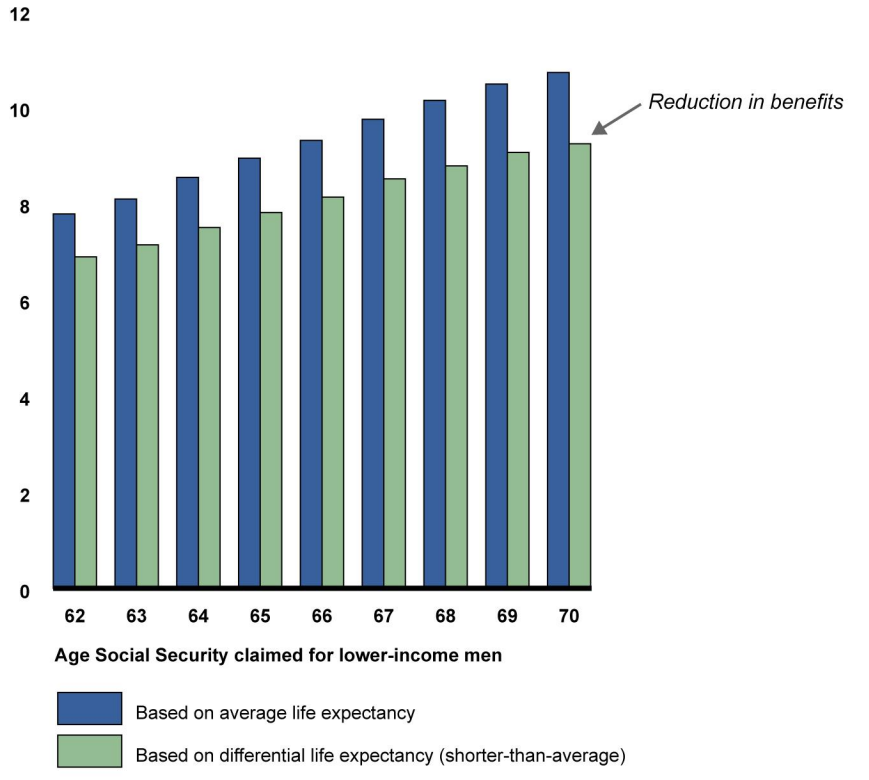
According to our analysis, shorter-than-average life expectancy for lower-income individuals results in a projected reduction in lifetime Social Security benefits received. We calculated the projected lifetime Social Security benefits that would be received for men in various hypothetical scenarios to illustrate the effect of lower-than-average life expectancy on lower-income groups (which we defined as those with individual annual incomes at the 25th percentile, or about $20,000, according to Census data).[75] Our analysis indicates that, on average, the projected lifetime benefits for these lower-income individuals would be reduced by as much as 11 to 14 percent due to their shorter-than-average life expectancy (or "differential" life expectancy) when compared to what they would receive if they had an average life expectancy (see fig. 4).[76]

[75]Our analysis looked at individual income groups at the 25th and 75th percentiles (which we refer to as lower- and higher-income in our scenarios) because Waldron's 2007 study produced estimates for the top and bottom half of lifetime income, and these percentiles represent the mid-point for each group. Based on this and an analysis of Census data, we used $20,000 as the lower income (which is roughly 160 percent of the U.S. Census Bureau's 2014 federal poverty threshold for a single householder under 65), and $80,000 as the higher income (which is roughly 650 percent of the same federal poverty threshold). For details on how we constructed our scenarios, see appendix II.

[76]Our analysis used two sets of life expectancy estimates: (1) Hilary Waldron's 2007 estimates of life expectancy by income for the 1941 cohort and (2) SSA's actuarially assumed (average) life expectancy for the 1941 cohort, based on the intermediate assumptions of the 2015 Trustees Report. For our purposes, we assigned a birth year of 1953 for our scenario individuals and assumed the life expectancy experiences of the 1941 cohort in order to incorporate the life expectancy estimates from Waldron's 2007 study. As most studies we reviewed found increasing disparities in life expectancy, our use of this study may underestimate the effect of life expectancy differences for more recent cohorts.

In addition, our analysis looked at life expectancy for men because we used Hilary Waldron's 2007 estimates of life expectancy by income, which did not include women. However, we believe the general conclusions we drew from our scenarios apply to all individuals, in part because studies we reviewed found that lower-income women also have shorter life expectancies than higher-income women.

Figure 4: Shorter Life Expectancy Leads to Reduced Projected Lifetime Social Security Retirement Benefits for Lower-Income Men



Source: GAO analysis of Social Security Administration data. | GAO-16-354

For example, our calculations show that for a hypothetical 62-year-old man **in the lower-income group**:

- If he were to claim Social Security benefits now, and **live to age 83 (the average life expectancy for men age 62 in the United States)**,

he would receive an estimated $156,000 over his lifetime, or about 7.8 times his current income.[77]

- If he were to claim Social Security benefits now, and **live to age 80 (the differential life expectancy for 62-year-old men in his income group),** he would receive an estimated $138,000 over his lifetime, or about 6.9 times his current income, a reduction of 11 percent.

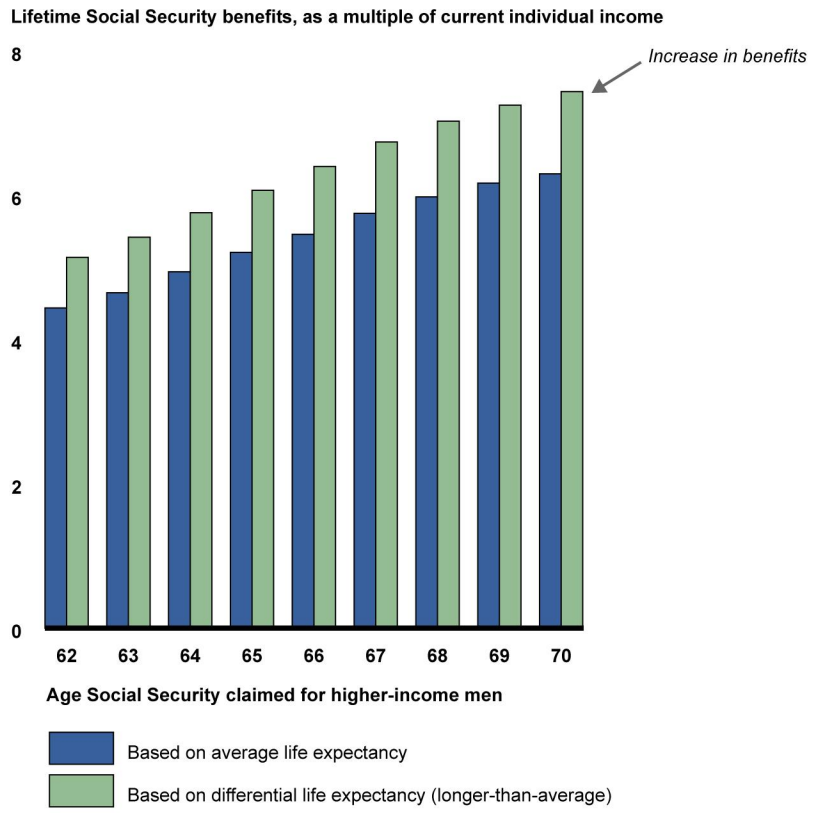
However, if a man in the lower-income group delayed claiming Social Security until age 70, the maximum age that will result in increased monthly benefits, and then lived until age 83 (the differential life expectancy for 70-year-old men in his income group), he would receive an estimated $185,000, or a 14 percent reduction in his lifetime benefits when compared to what he would receive if he lived until age 85 (the average life expectancy for 70-year-old men).[78]

We also calculated the projected lifetime Social Security benefits that would be received for men in the same hypothetical scenarios to illustrate the effects of differential life expectancy on higher-income groups (which we defined as those with individual annual incomes at the 75th percentile, or about $80,000, according to Census data). In contrast to lower-income individuals, higher-than-average life expectancy for higher-income individuals results in an increase in lifetime Social Security benefits received when compared to average life expectancy—as much as 16 to 18 percent (see fig. 5).

[77]These scenarios are illustrative in nature and should not be used to predict future outcomes. It is possible that the 1941 cohort, whose life expectancy data we used, are different than past or future cohorts. The dollar amounts are not adjusted for present value for simplicity and in order to focus on the effects of differential life expectancy. We also performed our calculations with adjustments for present value and found results consistent with our basic finding, in this case that shorter life expectancy results in reduced average present value of lifetime Social Security benefits. For present value adjusted figures, see appendix II.

[78]As noted in the background, life expectancy at an older age is greater than at a younger age, since the averages for older persons do not include those who have died before that age. Thus, for the purposes of our scenarios, when we describe projected lifetime benefits for an individual who delays claiming until a given age, we assume that the individual reached that claiming age and therefore has the corresponding longer life expectancy.

Figure 5: Longer Life Expectancy Leads to More Projected Lifetime Social Security Retirement Benefits for Higher-Income Men



Source: GAO analysis of Social Security Administration data. | GAO-16-354

For example, our calculations show that for a hypothetical 62-year-old man in the **higher-income group:**

- If he were to claim Social Security benefits now and **live to age 83 (the average life expectancy for men age 62 in the United States)**, he would receive an estimated $355,000 over his lifetime, or about 4.4 times his current income.

- If he were to claim Social Security benefits now and **live to age 86 (the differential life expectancy for 62-year-old men in his income group)**, he would receive an estimated $411,000 over his lifetime, or about 5.1 times his current income, an increase of 16 percent.

However, if a man in the higher-income group delayed claiming Social Security until age 70, the maximum age that will result in increased monthly benefits, and then lived until age 88 (the differential life expectancy for 70-year-old men in his income group), he would receive an estimated $595,000, or an 18 percent increase in his lifetime benefits when compared to what he would receive if he lived until age 85 (the average life expectancy for 70-year-old men).

Rather than claiming benefits when first eligible at age 62, it is often beneficial for individuals to delay claiming Social Security benefits because it results in larger monthly benefits.[79] However, lower-than-average life expectancy may reduce the value of delayed claiming of benefits for lower-income individuals. For example, in our scenarios, shorter life expectancy reduces the added lifetime benefit of delaying claiming until age 70 (compared to early claiming at age 62) by nearly two-thirds of one year's earnings for a lower-income man.[80] In addition, it may be more difficult for a low-income individual to delay claiming, for example, after a job loss or a depletion of retirement savings.[81] While many factors may influence someone's decision about when to claim benefits—such as when a spouse claims—deciding when to claim benefits may be particularly important for women, who tend to have lower earnings but longer lives than men.

Lower Projected Lifetime Benefits Result in Reduced Progressivity

Social Security's formula for calculating monthly benefits is progressive—that is, it provides a proportionally larger monthly earnings replacement for lower-earners than for higher-earners.[82] However, our analysis of SSA data indicates that life expectancy differences reduce the size of this progressivity

[79]GAO-14-311.

[80]These amounts could change using a different claiming age and comparison age.

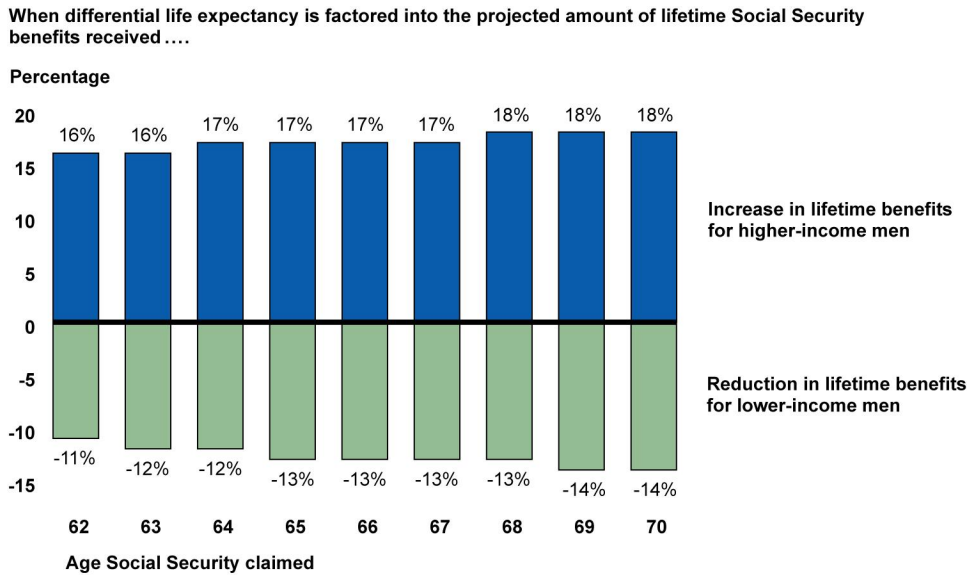
[81]Moreover, in a previous report, we found that a much smaller share of people in professional or managerial occupations claimed benefits prior to their full retirement age when compared to blue-collar and other workers. GAO-14-311.

[82]Retired workers with relatively lower average career earnings receive monthly benefits that, on average, equal about half of what they made while working, while workers with relatively higher career earnings receive benefits that equal about 30 percent of prior earnings. See the background section of this report for more information.

It is important to note that Social Security's progressive benefits formula cannot make up for all social inequalities, be they related to health, life expectancy, labor market forces, or other issues. Additionally, Social Security benefits are not adjusted for life expectancy differences by income or for "adverse selection," meaning the possibility that workers in good health may tend to commence benefits at a later age than workers in poor health.

over a beneficiary's lifetime (see fig. 6). Specifically, differential life expectancy results in reduced projected lifetime benefits for lower-income groups and increased projected lifetime benefits for higher-income groups, relative to average life expectancy, thereby decreasing the lifetime progressivity of the program. Moreover, studies we reviewed suggest the gap in life expectancy has grown. If the gap continues to grow, the progressivity in Social Security's lifetime benefits will likely continue to decrease.

Figure 6: Shorter Life Expectancy Leads to Proportionally Less Lifetime Social Security Retirement Benefits for Hypothetical Lower-Income Men



Source: GAO analysis of Social Security Administration data. | GAO-16-354

Although present value adjustments are an important economic tool to account for the time value of money, we chose to use unadjusted figures in our scenarios for several reasons, but primarily because of our focus on the effects of differential life expectancy, including the importance of benefits at older ages.[83] Our analysis shows that it is at these older ages when life expectancy differences predict that some income groups will receive, on average, more or fewer years of benefits. However, in

[83]For a more complete discussion of our reasons, see appendix II.

appendix II, we also provide calculations with adjustments for present value. These present value adjusted figures are consistent with our basic findings—that differential life expectancy reduces the lifetime progressivity of Social Security retirement benefits—though the magnitude of the reduction in progressivity is somewhat smaller because the adjustments discount the value of money received in the future.

Six studies we reviewed also examined the impact of life expectancy differences by income group, and they also generally found that differences in life expectancy by income erode the lifetime progressivity of Social Security benefits.[84] For example, the 2015 National Academy of Sciences study found that the lifetime retirement benefits advantage of the top income quintile over the bottom income quintile had grown by $70,000 (on a present value basis) because of increases in life expectancy differences between 1930 and 1960. Moreover, when considering lifetime benefits from additional government programs, the study found that the change in life expectancy has made these programs less progressive.[85] Another study, conducted for the National Bureau of Economic Research in 2011, indicated that when differences in life expectancy are taken into account, Social Security retirement benefits may have become regressive for some groups. For example, the study found that men in the 75th income percentile earned a higher rate of return from Social Security (based on benefits received compared to taxes paid) than do men in the 25th income percentile.[86]

[84]Three additional studies examined this topic but did not describe the distribution of Social Security benefits. See appendix I for relevant studies.

[85]The government programs in this study included Medicare, Medicaid, Social Security (including retirement and Disability Insurance), and Supplemental Security Income.

[86]Gopi Shah Goda, John B. Shoven, and Sita Nataraj Slavov, "Differential Mortality by Income and Social Security Progressivity," in *Explorations in the Economics of Aging*, ed. David A. Wise (Chicago, IL: March 2011). Another study concluded that life expectancy differences "work counter to Social Security's statutory redistribution," but it described the effects as "modest at best." Specifically, it found that the estimates of progressivity are more affected by methodological factors used to estimate redistribution, such as how one chooses to calculate net returns or classify subgroups. Amy Rehder Harris and John Sabelhaus, *How Does Differential Mortality Affect Social Security Finances and Progressivity*, Working Paper 2005-05 (Washington, D.C.: Congressional Budget Office, May 2005).

Raising the Retirement Age May More Negatively Affect Lower-Income Groups

One frequently-cited option to address increasing average life expectancy and Social Security's long-term financial challenges is increasing the early and full retirement ages.[87] While other options exist, such as changing payroll tax contributions or the structure of benefits , raising the retirement age can be considered a direct response to increasing life expectancy. [88] We adjusted our hypothetical scenario calculations to illustrate the effect of increasing these retirement ages and found that taking such action could more negatively affect lower-income individuals because of their shorter life expectancy. Specifically, we calculated the effect of increasing all retirement ages by 2 years and found that the overall projected lifetime benefit is reduced more for lower-income men than for higher-income men, given their different life expectancy.[89] For example, compared to the amount of benefits received under current program requirements, if retirement ages were increased by 2 years:

- A man in the **lower-income group** retiring at the increased full retirement age would receive lifetime benefits that are reduced by the equivalent of **over two-thirds of his current annual income**, assuming he lived to the average age expected for his income group.
- A man in the **higher-income group** retiring at the increased full retirement age would receive lifetime benefits that are reduced by the

[87]As we reported in 2015, raising the early retirement age alone could worsen solvency for the Social Security trust funds. GAO-16-75SP. In this report, we are not recommending or endorsing the adoption of any particular policy option or package of options. Rather, we identified options from existing literature and expert interviews as potential options that could be considered.

[88]We chose to examine increasing the retirement age in our scenarios for this reason and because it was methodologically feasible, whereas other options would have required a number of assumptions and calculations that we would not have been able to incorporate into our methodology.

[89]We adjusted our calculations so that the early and full retirement ages both increased by 2 years. For example, we assumed that the benefit amount received at age 62 (the current early retirement age) would now be received at age 64. The maximum age at which individuals could receive increased monthly benefits in this scenario increases from age 70 to age 72. Also, it is possible that, should the retirement ages be raised, there may be changes to other aspects of the formula, such as to the benefit reductions for early claiming or to the benefit increases for delayed claiming; however, for purposes of our analysis, we assumed no other changes to the monthly benefit formula. Further, we did not calculate changes to any retirement age in isolation because this was not possible using the quick calculator. Finally, we wanted to limit the number of assumptions about changes to the benefits formula that would be required by changing the early or full retirement age in isolation.

equivalent of **nearly half of his current annual income**, assuming he lived to the average age expected for his income group.

A 2014 CBO study also examined the effect of raising the full and early retirement ages and found that it would reduce lifetime benefits more for lower-income groups than for higher-income groups, relative to payroll taxes paid.[90] While the CBO study found that raising the early and full retirement ages together resulted in a slight benefit decrease both for lower- and higher-income individuals, it also found that, if life expectancy disparities continue to increase, raising the retirement ages would lead to larger declines in lifetime benefits for lower-income individuals than for higher-income individuals, relative to the Social Security taxes they pay.

The 2015 National Academy of Sciences study similarly found that raising the full retirement age would lead to proportionately lower lifetime benefits for lower-income groups because of life expectancy differences. Specifically, the study found that raising the full retirement age to 70 resulted in reducing lifetime benefits for men with income in the bottom quintile by 25 percent, while reducing lifetime benefits for men with income in the top quintile by 20 percent.[91] The National Academy of Sciences study further reported that raising the early retirement age together with the full retirement age would lead to similar results (a larger benefit decrease for lower-income groups than higher-income groups).[92]

While researchers sometimes suggest that workers could adjust to an increased retirement age by working longer, our prior work has shown that this may not be feasible for many who are low-income workers. In a

[90]This study calculated the ratio of mean lifetime benefits to mean lifetime payroll taxes (on a present value basis). Joyce Manchester, Michael Simpson, and Geena Kim, *Implications of Differential Mortality for Analyses of Social Security Policy Options*, Presentation to the 2014 Fall Research Conference of the Association of Public Policy and Management (Washington, D.C.: Congressional Budget Office, Nov. 7, 2014).

[91]This study calculated net present values of benefits (that is, benefits received minus taxes paid) adjusted to age 50. Also, instead of comparing benefits to income, as we did, this study examined progressivity by comparing the present value of net benefits to wealth. For life expectancy estimates used in this study, see table 3 earlier in this report. While these estimates differ from the estimates we used in our scenarios (Waldron, 2007), the results are consistent with our finding that raising the retirement age would lead to proportionately lower lifetime benefits for lower-income groups.

[92]With respect to the early retirement age, the National Academy of Sciences study found that raising it in isolation would make the Social Security retirement benefits slightly less progressive.

2014 report, we concluded that people who claim Social Security benefits early, such as those with physically-demanding blue collar jobs, may have done so because they faced challenges continuing to work at older ages.[93] Similarly, in a 2010 report, we noted that many older workers could face health or physical challenges that would prevent them from working longer.[94] For example, in that report we found that the workers who report more difficulty working longer and postponing retirement due to work-limiting health conditions tend to have less education and lower household income than those who do not report health limitations. For these individuals, raising the early or full retirement age could erode an important safety net.

Some policies have been proposed to mitigate the potential adverse effects of raising the early or full retirement age on those with lower incomes and shorter life expectancies.[95] For example, some researchers have suggested making early or full retirement ages lower for those with lower lifetime earnings, though others have suggested that this may be difficult to implement.[96] Some experts we spoke with also suggested that eligible, lower-income individuals could receive Disability Insurance to bridge the gap created by raising the early retirement age, though the Disability Insurance program is also under financial pressure.[97]

As we reported in 2009, concerns about vulnerable populations have led to proposals to restructure Social Security benefits to help these groups.[98] For example, we reported on proposals to guarantee a minimum benefit, supplement benefits for low-income single workers, or increase survivors benefits. Another identified proposal would provide an additional Social

[93]GAO-14-311.

[94]GAO-11-125.

[95]We did not evaluate these proposals or their effects, nor do we recommend or endorse the adoption of any particular policy option or package of options. Rather, we identified them from existing literature and expert interviews as potential options that could be considered.

[96]See for example Natalia Zhivan et al., *An 'Elastic' Earliest Eligibility Age for Social Security* (Chestnut Hill, MA: Center for Retirement Research at Boston College, February 2008). See also Hilary Waldron, "Mortality Differentials by Lifetime Earnings Decile: Implications for Evaluations of Proposed Social Security Law Changes," *Social Security Bulletin*, vol. 43, no. 1 (2013).

[97]GAO-16-75SP.

[98]GAO, *Social Security: Options to Protect Benefits for Vulnerable Groups When Addressing Program Solvency,* GAO-10-101R (Washington, D.C., Dec. 7, 2009).

Security benefit to those over the age of 80 or 85, which may be particularly helpful for low-income women.[99] These proposals could have a negative effect on the projected long-term solvency of Social Security, although compensating revisions could help moderate costs.

Therefore, in sum, proposals to address Social Security's financial challenges may affect different groups differently. Lower-income groups, in particular, may be more adversely affected by certain proposed changes because they are more reliant on Social Security retirement benefits and because they have shorter-than-average life expectancy. It is important that any proposals to change the Social Security program take into account how disparities in life expectancy affect the total benefits received by different groups over their lifetimes.

Agency Comments

We provided a draft of this report to the U.S. Department of Labor, the U.S. Department of the Treasury, the Internal Revenue Service, and the Social Security Administration for their review and comment. SSA provided comments, reproduced in appendix IV, agreeing with our finding that it is important to understand how the life expectancy in different income groups may affect retirement income. SSA also provided technical comments, as did each of the other agencies, which we incorporated as appropriate.

As agreed with your office, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies to appropriate congressional committees, the Secretary of Labor, the Secretary of the Treasury, the Commissioner of the Internal Revenue Service, the Acting Commissioner of Social Security, and other interested parties. In addition, the report will be available at no charge on the GAO website at http://www.gao.gov.

If you or your staff have any questions about this report, please contact me at (202) 512-7215 or jeszeckc@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix V.

[99]See also GAO-12-699.

Sincerely yours,

Charles A. Jeszeck
Director, Education, Workforce and Income Security

Appendix I: List of Selected Studies on Life Expectancy Differences, by Income

To examine the effect of life expectancy on the retirement resources for different groups, especially those with low incomes, we analyzed 11 studies that estimated life expectancy or mortality for different income groups and 9 studies that described the effect of these differences regarding Social Security retirement benefits, and in some cases, the studies also included Social Security disability benefits. These studies are listed in table 4 below. We selected these studies based on our review of longevity studies identified through expert referral and an Internet search, focusing on those that were published in the past 10 years and that included an analysis of effects by income groups. We limited our review to those that were published by government agencies, research organizations, or other scholarly publications, used data from accepted sources (such as the University of Michigan Health and Retirement Study or SSA administrative data), and had findings we determined were valid for our purposes.

Table 4: Selected Studies on Life Expectancy Differences, by Income

	Estimated life expectancy or mortality for different income groups	Described the effect of these differences regarding Social Security
Baker, Dean, and Rosnick, David. "The Impact of Income Distribution on the Length of Retirement." (Washington, D.C.: Center for Economic and Policy Research, October 2010).	No	Yes
Bosworth, Barry P., and Burke, Kathleen. "Differential Mortality and Retirement Benefits in the Health and Retirement Study." (Chestnut Hill, MA: Center for Retirement Research at Boston College, April 2014).	Yes	Yes
Cristia, Julian P. *Rising Mortality and Life Expectancy Differentials by Lifetime Earnings in the United States*. Working Paper 665 (Washington, D.C.: Inter-American Development Bank, January 2009).	Yes	No
Congressional Budget Office. *The 2014 Long-Term Budget Outlook* (Washington, D.C.: July 2014).	Yes	No
Duggan, James E., Gillingham, Robert, and Greenlees, John S. *Mortality and Lifetime Income: Evidence from Social Security Records*, Research Paper No. 2007-01 (Washington, D.C.: U.S. Department of Treasury, December 2006).	Yes	No
Goda, Gopi Shah, Shoven, John B., and Slavov, Sita Nataraj. "Differential Mortality by Income and Social Security Progressivity," in *Explorations in the Economics of Aging*, edited by David A. Wise (Chicago, IL: University of Chicago Press, March 2011): 189-204.	No	Yes
Goldman, Dana P., and Orszag, Peter R. "The Growing Gap in Life Expectancy: Using The Future Elderly Model to Estimate Implications for Social Security and Medicare," *American Economic Review: Papers & Proceedings*, vol. 104, no. 5 (2014): 230-233.	Yes	Yes

	Estimated life expectancy or mortality for different income groups	Described the effect of these differences regarding Social Security
Harris, Amy Rehder, and Sabelhaus, John. "How Does Differential Mortality Affect Social Security Finances and Progressivity." Working Paper 2005-05 (Washington, D.C.: Congressional Budget Office, May 2005).	No	Yes
Manchester, Joyce, and Topoleski, Julie. "Growing Disparities in Life Expectancy." (Washington, D.C.: Congressional Budget Office, April 17, 2008).	No	Yes
Manchester, Joyce, Michael Simpson, and Geena Kim. "Implications of Differential Mortality for Analyses of Social Security Policy Options: Presentation to the 2014 Fall Research Conference of the Association of Public Policy and Management." (Washington, D.C.: Congressional Budget Office, Nov. 7, 2014).	No	Yes
National Academies of Sciences, Engineering, and Medicine. *The Growing Gap in Life Expectancy by Income: Implications for Federal Programs and Policy Responses*. Committee on the Long-Run Macroeconomic Effects of the Aging U.S. Population-Phase II. Committee on Population, Division of Behavioral and Social Sciences and Education. Board on Mathematical Sciences and Their Applications, Division on Engineering and Physical Sciences. (Washington, D.C.: The National Academies Press, 2015).	Yes	Yes
Pijoan-Mas, Josep and Ríos-Rull, José-Víctor. "Heterogeneity in Expected Longevities." *Demography*, vol 51 (November 2014): 2075-2102.	Yes	No
Robert Wood Johnson Foundation. *Overcoming Obstacles to Health* (Princeton, NJ: February 2008).	Yes	No
Society of Actuaries. *RP-2014 Mortality Tables Report* (Schaumburg, IL: November 2014).	Yes	No
Waldron, Hilary. "Trends in Mortality Differentials and Life Expectancy for Male Social Security-Covered Workers, by Socioeconomic Status." *Social Security Bulletin*, vol. 67, no. 3 (2007).	Yes	No
Waldron, Hilary. "Mortality Differentials by Lifetime Earnings Decile: Implications for Evaluations of Proposed Social Security Law Changes." *Social Security Bulletin*, vol. 73, no. 1 (2013).	Yes	Yes

Source: GAO analysis of studies published in the last 10 years. | GAO-16-354

Note: In some cases the studies included both Social Security retirement and disability benefits.

Appendix II: Scenario Calculation Methodology and Additional Examples

To examine the effect of life expectancy on the retirement resources for different groups, especially those with low incomes, we developed scenarios to illustrate how disparities in average life expectancy by income group affect the average amount of lifetime Social Security retirement benefits received. While our report discusses various forms of retirement resources, for our scenarios we compare only projected lifetime Social Security benefits against current income. We do not factor in other resources that an individual may draw upon in retirement, which could include (but are not limited to) future payments from employer-sponsored defined benefit plans, retirement savings accounts, or housing equity. Scenarios that included these other retirement resources could show different outcomes. However, we focused on Social Security because it is the primary source of income for most people with lower-incomes. Moreover, other retirement resources are much less prevalent in this population.[1] We reviewed relevant studies and U.S. Census Bureau (Census) data to determine our scenario assumptions, such as life expectancy by income group, and we calculated monthly Social Security benefits using the Social Security Administration's (SSA) quick calculator.[2] We chose to use the quick calculator because it is transparent, publicly available, and produces quick, approximate estimates using a methodology developed by SSA actuaries.

These scenarios are illustrative in nature and should not be used to determine future outcomes for a particular individual. In addition to gathering input from internal experts, we sought and incorporated feedback on our methodology from one of the co-chairs for a recent study on life expectancy by income by the National Academy of Sciences.[3] All figures are in 2015 dollars. We assessed the reliability of the data we used by reviewing relevant documentation and interviewing knowledgeable agency officials. We found the data to be reliable for the purposes used in this report.

[1] GAO-15-419.

[2] http://www.ssa.gov/oact/quickcalc/, accessed December 10, 2015.

[3] National Academies of Sciences, Engineering, and Medicine. *The Growing Gap in Life Expectancy by Income: Implications for Federal Programs and Policy Responses* (Washington, D.C.: The National Academies Press, 2015).

Life Expectancy Estimates by Income

We made several assumptions in our scenario calculations, the most important of which is the life expectancy estimate for income groups. We identified and reviewed 11 relevant studies published in the past decade (see app. I) and ultimately used the life expectancy estimates from a 2007 study by SSA's Hilary Waldron.[4] We chose this study primarily because it produced cohort life expectancy estimates at a number of ages at which an individual can claim Social Security retirement benefits.[5] Other advantages of the 2007 Waldron study are that it relies on comprehensive data on Social Security-covered workers that is not generally available to other researchers, it describes patterns over several decades, and it measures earnings over a multi-year period rather than just over a single year.[6] Moreover, the study's life expectancy estimates are in-line with other estimates[7] and they are used in two of nine studies we identified that describe the effects of life expectancy disparities.[8]

Although we found it sufficient for our purposes, the 2007 Waldron study had some notable drawbacks. First, it produces estimates only for Social Security-covered men. Despite this drawback, we believe the estimates are appropriate for our purposes because the vast majority (94 percent) of workers are covered by Social Security, according to SSA,[9] and because a number of researchers have raised questions about the reliability of life expectancy estimates by income group for women. Second, the estimates are

[4]Hilary Waldron, "Trends in Mortality Differentials and Life Expectancy for Male Social Security-Covered Workers, by Socioeconomic Status," *Social Security Bulletin*, vol. 67, no. 3 (2007).

[5]"Cohort life expectancy" can be distinguished from "period life expectancy." Period life expectancy is a based on a cross-section, by age, of the mortality rates of a population during a particular time period, and does not adjust for changes in mortality rates over time. In contrast, cohort life expectancy is based on longitudinal estimates of the mortality rates a population will experience over time, incorporating any expected improvements in mortality rates over time. Cohort life expectancy is generally considered a more appropriate estimate of how long a group can expect, on average, to live.

[6]The study describes lifetime earnings as individual earnings between ages 45 and 55.

[7]See table 3 in this report, which summarizes the life expectancy estimates of other studies we considered. A few additional studies produced mortality estimates, which we did not use in our scenario calculations.

[8]See appendix I.

[9]This is as of 2014, the most recent data available. Social Security Administration, *Annual Statistical Supplement to The Social Security Bulletin, 2014*, SSA Publication No. 13-11700 (Washington, D.C.: April 2015).

broken-out by those in the top and bottom half of the earnings distribution. While it would have been useful to have a finer break-out by earning groups, the estimates were sufficient for our purposes to describe the effects on individuals with income at the 25th and 75th percentiles (which we describe as lower- and higher- income, respectively). One final drawback is that the study produces life expectancy estimates for individuals born in 1941, who are now past retirement age. It is possible that this cohort is different than past or future cohorts. In particular, given that most studies we reviewed found increasing disparities in life expectancy, our use of this study may underestimate the effect of life expectancy differences for more recent cohorts.

Hypothetical Individuals' Characteristics and Analysis

In order to calculate lifetime benefits using SSA's quick calculator, we assumed a set of characteristics for two hypothetical individuals, both men (given the limitations of life expectancy estimates for women). One individual was assumed to have an income in the bottom half of the individual income distribution, and the other an income in the top half. For the mid-point of each half of the income distribution (i.e., the 25th and 75th percentiles), we estimated income for men approaching retirement age using Census's 2015 Current Population Survey, the most recent available.[10] Based on this, we used $20,000 annual income for our lower-income group and $80,000 annual income for the higher-income group, using income as a proxy for earnings.[11] The SSA quick calculator assumes a prior earnings history based on current earnings covered by Social Security, which we did not alter for transparency. Similarly, we assumed no future change in earnings. For both individuals, we assumed a birthday of 12/1/1953, which makes them 62 years old as of 12/1/2015.[12] Finally, for both individuals, we assumed a retirement date of December for a series of years beginning at age 62, the Social Security early retirement age.

[10]We estimated income for men ages 52 to 62 in order to capture multiple years of income approaching the early retirement age.

[11]Social Security retirement benefits are based on covered earnings from work (such as wages and salaries). Earnings from work make up the bulk of income prior to retirement. For our purposes, we grouped our scenarios by individual income rather than earnings.

[12]Although we assumed a birth year of 1953, we also assumed the life expectancy experiences of the 1941 cohort in order to incorporate the life expectancy estimates from Waldron's 2007 study, which examined the 1941 cohort.

In order to further understand the effects of life expectancy differences on income groups, we compared outcomes with and without taking life expectancy differences into account. Specifically, we further calculated lifetime benefits using SSA's actuarially assumed (average) life expectancy[13] and compared them to the benefits based on the life expectancies by lifetime earnings group from Waldron's 2007 study. We describe the difference between these two outcomes as the change in benefits due to differential life expectancy.

Lifetime Benefit Figures Adjusted for Present Value

For simplicity and in order to focus on the effects of life expectancy differences in the report, we did not adjust the lifetime Social Security benefits for present value.[14] Present value calculations reflect the time value of money, based on the assumption that a dollar in the future is worth less than a dollar today because the dollar today can be invested and earn interest. While present value adjustments are an important economic tool, we chose instead to report unadjusted figures for several reasons: for simplicity; so that average lifetime benefits could be viewed as a multiple of current income; and in order to focus on the effects of differential life expectancy, including the importance of benefits at older ages. It is at these older ages when life expectancy differences predict that some income groups will receive, on average, more or fewer years of benefits, which is the crux of our analysis. Further, present value adjustments were not incorporated by all of the studies we reviewed, and one expert we consulted suggested that it would be valuable to show both unadjusted and adjusted figures.

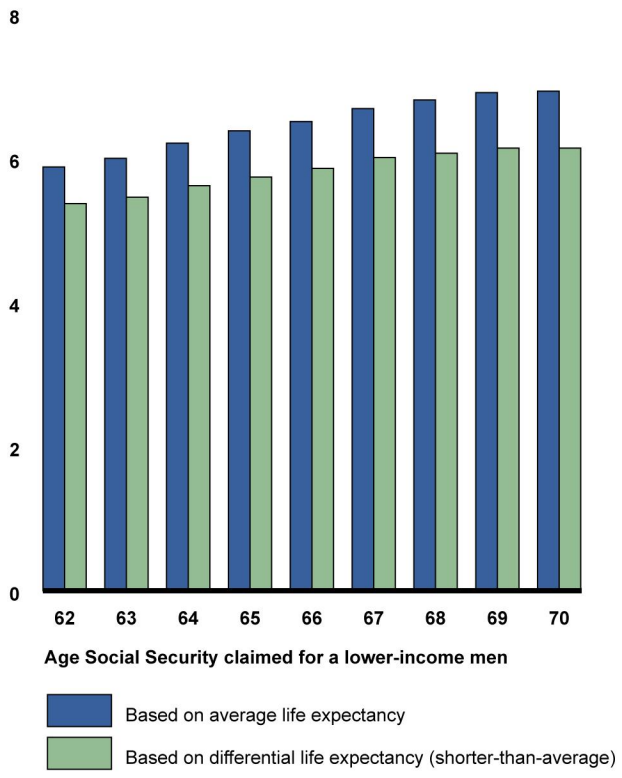
However, as a check on our analysis, and in order to provide more complete information, we also performed our calculations with adjustments for present value. The results of these calculations are consistent with our basic finding—that differential life expectancy reduces the progressivity of projected lifetime Social Security retirement benefits. The lifetime benefit figures adjusted for present value are presented below. The present value adjustments are based on an assumed real

[13]We used cohort life tables from SSA based on the intermediate assumptions of the 2015 Trustees Report. Specifically, we used the life expectancy estimates for the 1941 cohort in order to be consistent with the Waldron study.

[14]In addition, we did not compare benefits received to taxes paid. For more on payroll taxes, see appendix III.

(i.e., inflation-adjusted) interest rate of 2.9 percent, which is what SSA used as the intermediate long-range assumption for the Social Security trust funds in its 2015 Trustees Report.[15]

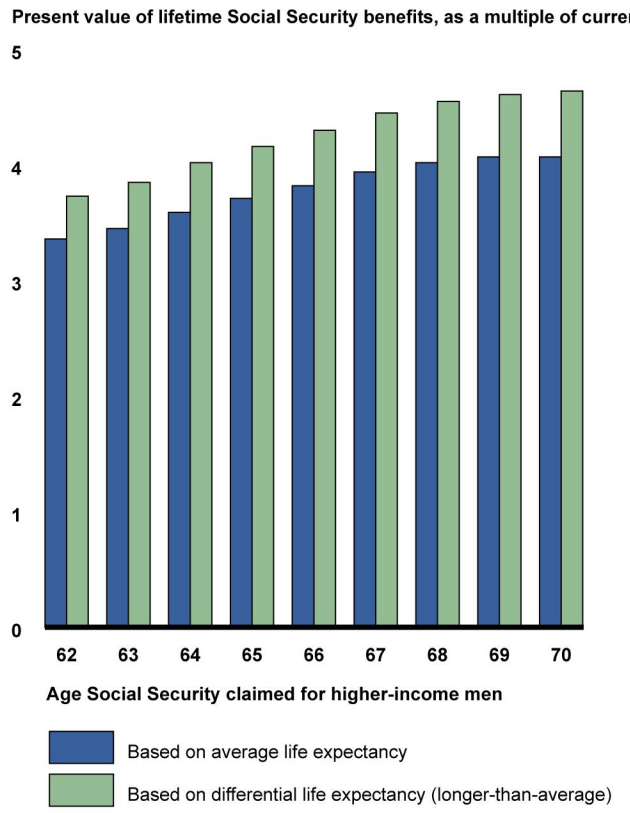
Figure 7: Present Value Adjusted Lifetime Social Security Retirement Benefits for Lower-Income Men



Source: GAO analysis of Social Security Administration data. | GAO-16-354

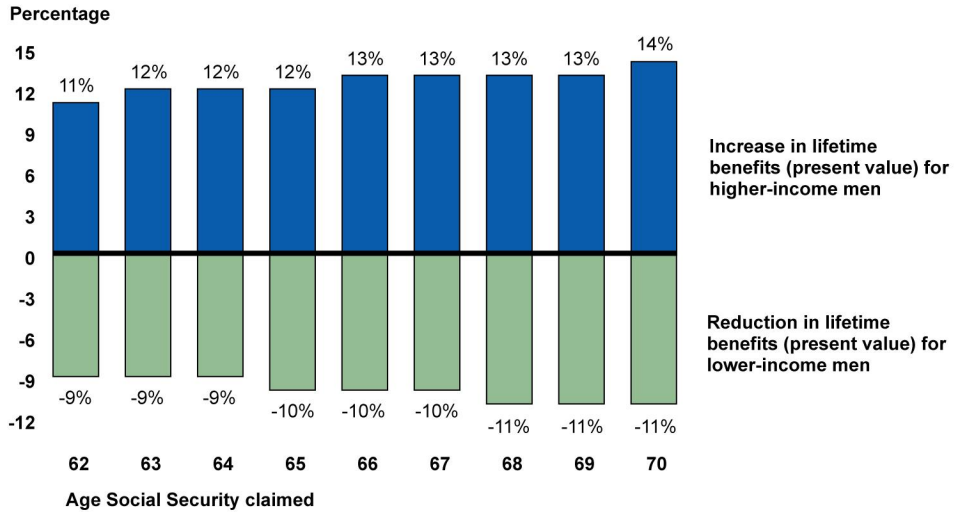
[15]*The 2015 Annual Report of the Board of Trustees of the Federal Old-Age And Survivors Insurance and Federal Disability Insurance Trust Funds* (Washington, D.C.: July 22, 2015).

Figure 8: Present Value Adjusted Lifetime Social Security Retirement Benefits for Higher-Income Men



Source: GAO analysis of Social Security Administration data. | GAO-16-354

Figure 9: Change in Present Value Adjusted Lifetime Social Security Retirement Benefits



Source: GAO analysis of Social Security Administration data. | GAO-16-354

Appendix III: Trend in the Cap on Social Security Taxable Earnings

Workers pay a payroll tax of 6.2 percent of their covered earnings into the Social Security trust funds.[1] Their employers pay an equal amount, for a combined total rate of 12.4 percent.[2] This tax only applies to workers' earnings up to an annual limit; for 2016, it is $118,500. This cap is technically known as the "contribution and benefit base" because the same cap is used to limit the amount of earnings subject to the payroll tax, as well as the amount of earnings used in the formula to determine benefit levels.

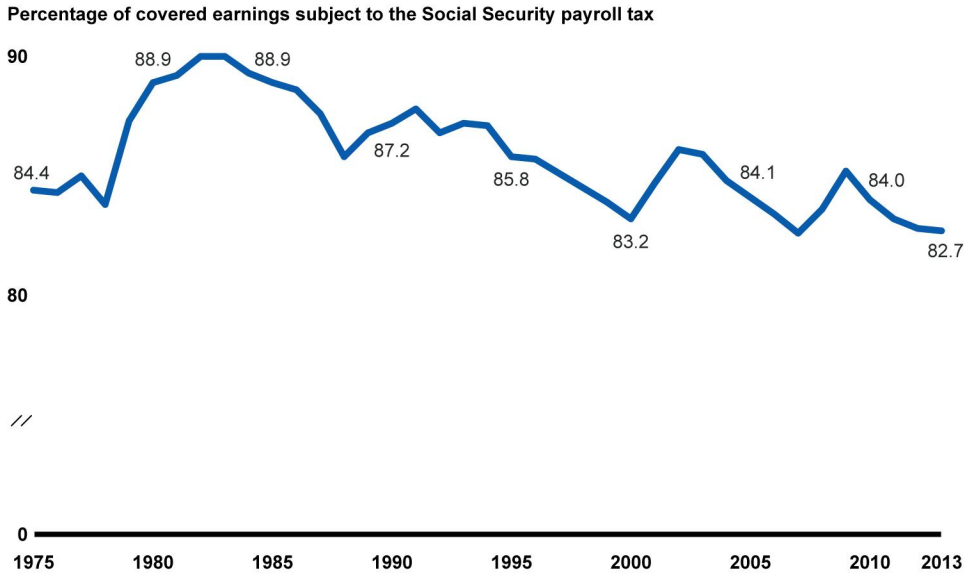
The cap on taxable earnings has changed over time. The maximum annual earnings subject to the payroll tax was $3,000 in 1937. However, in 1937, 97 percent of all covered workers had total earnings below that level. In recent years, about 94 percent have had total earnings below the taxable maximum. Meanwhile, the percentage of covered earnings that are subject to the payroll tax has fluctuated before generally declining since the mid-1980s, according to the most recent data available. In 1983, this figure was more than 90 percent, but it has declined since then and, in 2013, about 83 percent of earnings fell below the taxable maximum (see fig. 10). This percentage has declined because earnings among higher earners (those earning above the maximum) have grown faster than earnings among the rest of the working population.[3]

[1]Covered earnings include wages and salaries, but not earnings on investments. Also, a portion of the payroll tax is allocated to the Disability Insurance (DI) trust fund and the remaining portion is allocated to the Old-Age and Survivors Insurance trust fund. The Social Security Benefit Protection and Opportunity Enhancement Act of 2015 increased the proportion of these taxes that specifically go to the DI trust fund from 1.8 percent to 2.37 percent starting in 2016 through the end of 2018. Pub. L. No. 114-74, tit. VIII, 129 Stat. 584, 601-20.

[2]Self-employed workers pay 12.4 percent, but they are allowed an income tax deduction for half of the payroll tax.

[3]Kevin Whitman and Dave Shoffner, *The Evolution of Social Security's Taxable Maximum*, Policy Brief no. 2011-02 (Social Security Administration, September 2011).

Figure 10: Percentage of Covered Earnings Subject to the Social Security Payroll Tax, 1975-2013



Source: Social Security Administration, Annual Statistical Supplement, 2014. | GAO-16-354

Notes: According to SSA, from 1937 through 1975, the taxable maximum was increased on an ad-hoc basis and since 1975, the taxable maximum has generally increased at the same rate as average wages each year. Data from 2010 and 2011 are preliminary. Taxable earnings from 2012 are preliminary estimates based on Social Security data; employment data for that year are preliminary estimates based on data from the Bureau of Labor Statistics. Data from 2013 are preliminary estimates based on data from the Bureau of Labor Statistics and the Bureau of Economic Analysis.

Appendix IV: Comments from the Social Security Administration

SOCIAL SECURITY
Office of the Commissioner

March 10, 2016

Mr. Charles Jeszeck
Director, Education, Workforce, and Income Security Issues
United States Government Accountability Office
441 G. Street, NW
Washington, DC 20548

Dear Mr. Jeszeck:

Thank you for the opportunity to review the draft report, "RETIREMENT SECURITY: Lower-Income Groups' Shorter-than-Average Life Expectancy Results in Less Projected Lifetime Social Security Benefits" (GAO-16-354).

Social Security is an important part of the retirement plan for almost every American worker, and most important to those in lower income groups. We agree it is important to understand how the life expectancy in different income groups may affect retirement income. We strongly encourage financial literacy, as it is a key factor in preparing for a secured retirement. We do not have any additional comments.

If you have any questions, please contact me at (410) 965-0520. Your staff may contact Gary S. Hatcher, Senior Advisor for Records Management and Audit Liaison Staff, at (410) 965-0680.

Sincerely,

Frank Cristaudo
Executive Counselor to the Commissioner

SOCIAL SECURITY ADMINISTRATION BALTIMORE, MD 21235-0001

Appendix V: GAO Contact and Staff Acknowledgments

GAO Contact

Charles A. Jeszeck, (202) 512-7215 or jeszeckc@gao.gov

Staff Acknowledgments

In addition to the contact named above, Margie K. Shields (Assistant Director), Margaret Weber (Analyst-in-Charge), Laura Hoffrey, and Vincent Lui made key contributions to this report. Also contributing to this report were Susan Aschoff, Deborah Bland, Mindy Bowman, Alicia Puente Cackley, Sarah Cornetto, John Dicken, Jennifer Gregory, Kathy Leslie, Sheila McCoy, Drew Nelson, Mimi Nguyen, Susan Offutt, Rhiannon Patterson, Oliver Richard, Max Sawicky, Joseph Silvestri, Frank Todisco, and Walter Vance.

Appendix VI: Accessible Data

Agency Comment Letter

Text of Appendix IV: Comments from the Social Security Administration

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SOCIAL SECURITY

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BALTIMOR, MD 21235-0001

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Sincerely,

Frank Cristaudo

Executive Counselor to the Commissioner

Data Tables

Data Table for Highlights Figure: Disparities in Life Expectancy Affect Lifetime Social Security Retirement Benefits

	Percentage changes in projected lifetime Social Security benefits	
Age Social Security claimed	Higher-income men (with incomes at about the 75th percentile): projected benefits were increased by as much as 16-18%, on average, due to this groups' longer-than-average life expectancy	Lower-income men (with incomes at about the 25th percentile): projected benefits were reduced by as much as 11-14%, on average, due to this groups' shorter-than-average life expectancy
62	-11	16
66	-13	17
70	-14	18

Source: GAO analysis of Social Security Administration data. | GAO-16-354

Data Table for Figure 1: Trends in Number of Private Sector Defined Benefit and Defined Contribution Plans, 1975-2013

	Number of Pension Plans with 100 or More Participants	
Year	Defined benefit plans	Defined contribution plans
1975	20,035	8,587
1980	24,505	13,350
1985	24,742	23,917
1990	19,242	33,922
1995	17,087	45,200
2000	13,557	57,635
2005	11,557	67,278
2010	10,155	75,420
2013	9,324	76,892

Source: GAO analysis of U.S. Department of Labor data. | GAO-16-354

Data Table for Figure 2: Trend in the Annual Net Cash Flow of Social Security's Combined Old-Age and Survivors Insurance and Disability Insurance Trust Funds, 1980 through 2025 (projected)

Year	Surplus revenues (Non-interest revenues minus total costs, in billions of dollars)
1980	-6.1
1981	-4.2
1982	-13.6
1983	-8.2

Year	Surplus revenues (Non-interest revenues minus total costs, in billions of dollars)
1984	2.8
1985	10.2
1986	11.4
1987	16.6
1988	32.8
1989	40.5
1990	45.1
1991	33.6
1992	25.3
1993	18.9
1994	27
1995	24.7
1996	32.2
1997	44.8
1998	57.6
1999	78.2
2000	88.8
2001	90.2
2002	85
2003	67.9
2004	67.1
2005	77.6
2006	87.1
2007	80.2
2008	63.9
2009	3.4
2010	-48.9
2011	-45.4
2012	-54.7
2013	-70.7
2014	-73.1
2015	-83.9
2016	-65.8
2017	-67.3
2018	-73.2
2019	-83

Year	Surplus revenues (Non-interest revenues minus total costs, in billions of dollars)
2020	-94.9
2021	-104.9
2022	-118.9
2023	-136.3
2024	-155.5
2025	-174

Source: GAO analysis of data from the 2015 Social Security Trustees' Report. | GAO-16-354

Data Table for Figure 3: Differences in Projected Years Remaining for Men, by Income Group

	Projected years of life remaining at age 65	
Birth cohort	Years for Social Security-covered men with below-median lifetime earnings	Years for Social Security-covered men with above- median lifetime earnings
1912	14.8	15.5
1917	15	16.5
1922	15.3	17.5
1927	15.5	18.5
1932	15.7	19.6
1937	16	20.6
1941	16.1	21.5

Confidence intervals

Birth cohort	Years for Social Security-covered men with below-median lifetime earnings		Years for Social Security-covered men with above-median lifetime earnings	
1912	14.7	14.9	15.4	15.6
1917	15	15.1	16.4	16.6
1922	15.2	15.4	17.4	17.6
1927	15.3	15.7	18.3	18.8
1932	15.5	16	19.2	19.9
1937	15.6	16.3	20.1	21.1
1941	15.7	16.5	20.9	22.2

Source: Hilary Waldron's analysis of Social Security Administration data, 2007. | GAO-16-354

Data Table for Figure 4: Shorter Life Expectancy Leads to Reduced Projected Lifetime Social Security Retirement Benefits for Lower-Income Men

	Lifetime Social Security benefits, as a multiple of current individual income	
Age Social Security claimed for lower-income men	Based on average life expectancy	Based on differential life expectancy (shorter-than-average)
62	7.78	6.89
63	8.09	7.14
64	8.54	7.5
65	8.94	7.81
66	9.31	8.13
67	9.75	8.51
68	10.14	8.78
69	10.48	9.06
70	10.72	9.24

Source: GAO analysis of Social Security Administration data. | GAO-16-354

Data Table for Figure 5: Longer Life Expectancy Leads to More Projected Lifetime Social Security Retirement Benefits for Higher-Income Men

	Lifetime Social Security benefits, as a multiple of current individual income	
Age Social Security claimed for higher-income men	Based on average life expectancy	Based on differential life expectancy (shorter-than-average)
62	4.44	5.14
63	4.65	5.42
64	4.94	5.76
65	5.21	6.07
66	5.46	6.4
67	5.75	6.74
68	5.98	7.03
69	6.17	7.25
70	6.30	7.44

Source: GAO analysis of Social Security Administration data. | GAO-16-354

Data Table for Figure 6: Shorter Life Expectancy Leads to Proportionally Less Lifetime Social Security Retirement Benefits for Hypothetical Lower-Income Men

When differential life expectancy is factored into the projected amount of lifetime Social Security benefits received ….

	Percentage	
Age Social Security claimed	**Reduction in lifetime benefits for lower-income men**	**Increase in lifetime benefits for higher-income men**
62	-11%	16%
63	-12%	16%
64	-12%	17%
65	-13%	17%
66	-13%	17%
67	-13%	17%
68	-13%	18%
69	-14%	18%
70	-14%	18%

Source: GAO analysis of Social Security Administration data. | GAO-16-354

Data Table for Figure 7: Present Value Adjusted Lifetime Social Security Retirement Benefits for Lower-Income Men

	Present value of lifetime Social Security benefits, as a multiple of current individual income	
Age Social Security claimed for a lower-income men	**Based on average life expectancy**	**Based on differential life expectancy (shorter-than-average)**
62	5.88	5.37
63	6.00	5.46
64	6.21	5.62
65	6.38	5.74
66	6.51	5.86
67	6.69	6.01
68	6.81	6.07
69	6.91	6.14
70	6.93	6.14

Source: GAO analysis of Social Security Administration data. | GAO-16-354

Data Table for Figure 8: Present Value Adjusted Lifetime Social Security Retirement Benefits for Higher-Income Men

	Present value of lifetime Social Security benefits, as a multiple of current individual income	
Age Social Security claimed for a higher-income male	Based on average life expectancy	Based on differential life expectancy (longer-than-average)
62	3.36	3.73
63	3.45	3.85
64	3.59	4.02
65	3.71	4.16
66	3.82	4.30
67	3.94	4.45
68	4.02	4.55
69	4.07	4.61
70	4.07	4.64

Source: GAO analysis of Social Security Administration data. | GAO-16-354

Data Table for Figure 9: Change in Present Value Adjusted Lifetime Social Security Retirement Benefits

When differential life expectancy is factored into the projected amount of lifetime Social Security benefits received …

	Percentage	
Age Social Security claimed	Reduction in lifetime benefits (present value) for lower-income men	Increase in lifetime benefits (present value) for higher-income men
62	-9%	11%
63	-9%	12%
64	-9%	12%
65	-10%	12%
66	-10%	13%
67	-10%	13%
68	-11%	13%
69	-11%	13%
70	-11%	14%

Source: GAO analysis of Social Security Administration data. | GAO-16-354

Data Table for Figure 10: Percentage of Covered Earnings Subject to the Social Security Payroll Tax, 1975-2013

Year	Percentage of covered earnings subject to the Social Security payroll tax
1975	84.4
	84.3
	85
	83.8
	87.3
1980	88.9
	89.2
	90
	90
	89.3
1985	88.9
	88.6
	87.6
	85.8
	86.8
1990	87.2
	87.8
	86.8
	87.2
	87.1
1995	85.8
	85.7
	85.1
	84.5
	83.9
2000	83.2
	84.7
	86.1
	85.9
	84.8
2005	84.1
	83.4
	82.6
	83.6
	85.2

Year	Percentage of covered earnings subject to the Social Security payroll tax
2010	84
	83.2
	82.8
2013	82.7

Source: Social Security Administration, Annual Statistical Supplement, 2014. | GAO-16-354

Related GAO Products

Retirement Security: Better Information on Income Replacement Rates Needed to Help Workers Plan for Retirement. GAO-16-242. Washington, D.C.: March 1, 2016.

Social Security's Future: Answers to Key Questions. GAO-16-75SP. Washington, D.C.: October 2015.

Retirement Security: Federal Action Could Help State Efforts to Expand Private Sector Coverage. GAO-15-556. Washington, D.C.: September 10, 2015.

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