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## Updated Long-Term Projections for Social Security

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## Updated Long-Term Projections for Social Security

### Abstract

[Excerpt] The Congressional Budget Office (CBO) regularly prepares long-term projections of the future paths of revenues and outlays for the Social Security program. This latest report presents projections for the 75-year period from 2008 through 2082. (All years referred to in this report are calendar years.) The projections differ somewhat from earlier results because of newly available programmatic and economic data, updated assumptions about future demographic and economic trends, and improvements in CBO's models. Such long-term projections are necessarily uncertain; nevertheless, the general conclusions presented here hold true under a wide range of assumptions.

### Keywords

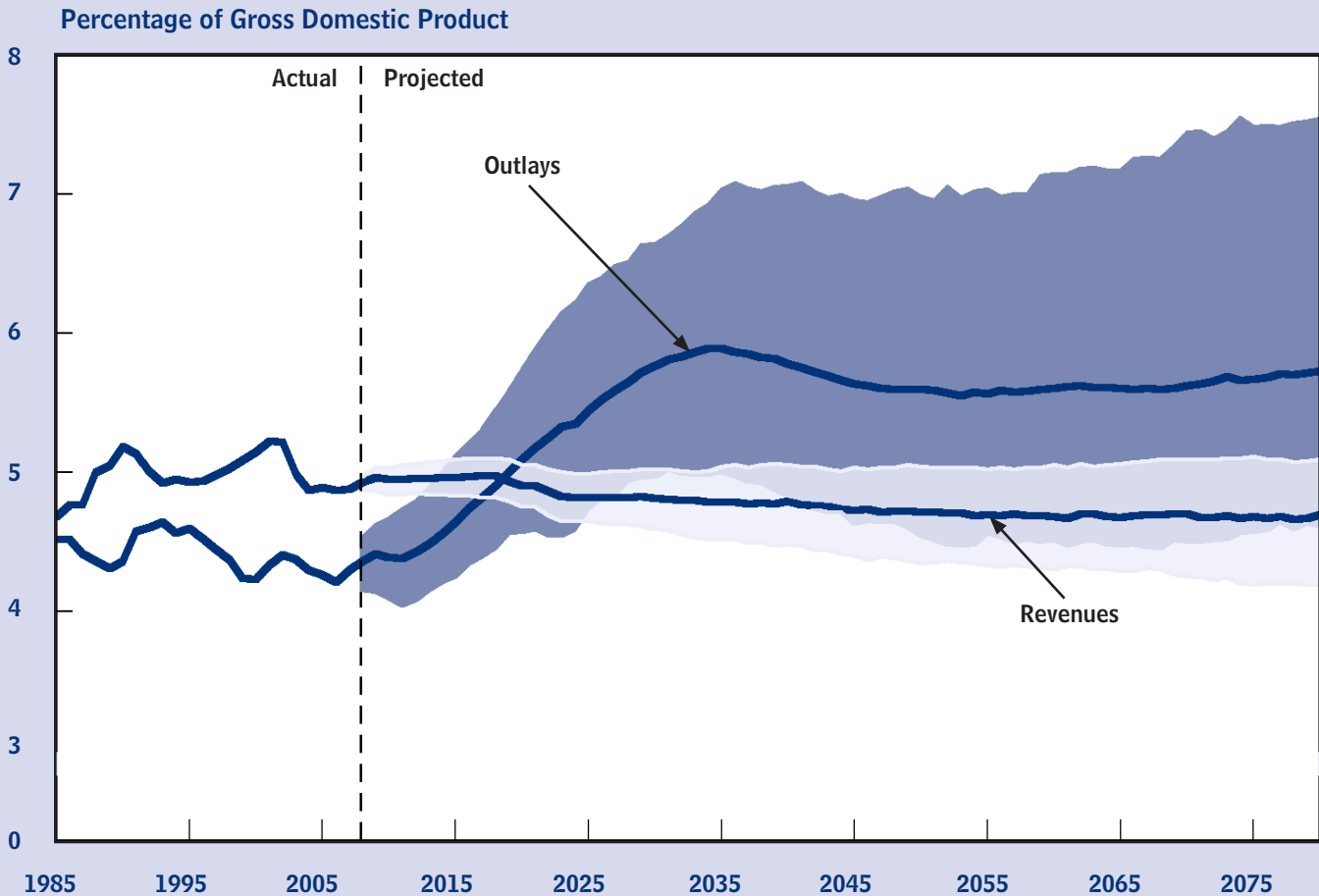
Social Security, revenues, projections, trends, Congressional Budget Office

### Comments

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# Updated Long-Term Projections for Social Security

## Potential Range of Scheduled Social Security Outlays and Revenues



AUGUST 2008





# **Updated Long-Term Projections for Social Security**

August 2008

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## **Notes**

All of the years referred to in this paper are calendar years.

Numbers in the text and tables may not add up to totals because of rounding.

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## Preface

**T**his Congressional Budget Office (CBO) paper updates CBO's previously published long-term projections of the Social Security program's finances. The projections cover the 75-year period spanning 2008 to 2082. The paper was prepared by Noah Meyerson, Jonathan Schwabish, Michael Simpson, and Julie Topoleski of CBO's Long-Term Modeling Division under the supervision of Joyce Manchester. Charles Pineles-Mark provided computer programming support.

Leah Mazade edited the paper, and Kate Kelly proofread it. Maureen Costantino designed the cover and prepared the paper for publication. Lenny Skutnik printed copies of the paper, Linda Schimmel handled the print distribution, and Simone Thomas produced the electronic version for CBO's Web site.



Peter R. Orszag  
Director

August 2008







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# Updated Long-Term Projections for Social Security

**T**he Congressional Budget Office (CBO) regularly prepares long-term projections of the future paths of revenues and outlays for the Social Security program.<sup>1</sup> This latest report presents projections for the 75-year period from 2008 through 2082. (All years referred to in this report are calendar years.) The projections differ somewhat from earlier results because of newly available programmatic and economic data, updated assumptions about future demographic and economic trends, and improvements in CBO's models. Such long-term projections are necessarily uncertain; nevertheless, the general conclusions presented here hold true under a wide range of assumptions.

Today, Social Security's revenues each year are greater than its outlays, but as the baby-boom generation (people born between 1946 and 1964) continues to age, growth in the number of Social Security beneficiaries will accelerate, and outlays will grow substantially faster than revenues. CBO projects that outlays will first exceed revenues in 2019 and that the Social Security trust funds will be exhausted in 2049.<sup>2</sup> If the law remains unchanged, the Social Security Administration (SSA) will then no longer have the legal authority to pay full benefits.

In this analysis, CBO presents its projections of future Social Security benefits under two scenarios.<sup>3</sup> In the "pay-

able benefits" scenario, outlays include only those benefits that SSA will have the legal authority to pay under current law. That scenario incorporates the assumption that once the Social Security trust funds are exhausted, SSA will reduce all benefits by a percentage that varies each year, so that the program's total outlays equal its total available revenues. CBO assumes that such a reduction will apply to all benefits—those paid to both existing and new beneficiaries. In the other scenario, termed the "scheduled benefits" scenario, outlays include the full benefits as calculated under current law, regardless of the amounts available in the trust funds.

CBO's projections indicate that future Social Security beneficiaries will receive larger benefits in retirement—and will have paid higher payroll taxes—than current beneficiaries do, even after adjustments have been made for inflation and even if the scheduled payments are reduced because the trust funds are exhausted. However, CBO estimates that under both scenarios, those benefits

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1. CBO first released long-term Social Security projections in *The Outlook for Social Security* (June 2004). It published updated projections in March 2005 and June 2006 and in December 2007, as part of *The Long-Term Budget Outlook*. Those projections will now be updated annually. Appendix A reviews the changes in CBO's projections since the end of 2007, and Appendix B presents the differences between CBO's current projections and the 2008 projections of the Social Security trustees (formally, the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds).

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2. The Social Security trust funds (the Old-Age and Survivors Insurance Trust Fund and the Disability Insurance Trust Fund) serve mainly as an accounting mechanism to track revenues and outlays for Social Security. The trust funds' balance summarizes the cumulative accounting history of the Social Security program in a single number, because the balance equals the present value of all past revenues minus the present value of all past outlays. The funds' balance also represents the total amount that the government is legally authorized to spend on Social Security. See Congressional Budget Office, *Federal Debt and the Commitments of Federal Trust Funds*, Issue Brief (October 24, 2002; revised May 6, 2003).

3. Those scenarios are distinct from the extended-baseline scenario and the alternative fiscal scenario presented in *The Long-Term Budget Outlook*. In this report, the assumptions embodied in the payable benefits and scheduled benefits scenarios are consistent with those underlying the extended-baseline scenario, which adheres closely to current law.

will represent a smaller percentage of beneficiaries' pre-retirement earnings than is the case now.

## The Finances of the Social Security Program

The Social Security system is currently running an annual surplus. In 2007, the program's total outlays (benefits and administrative costs) measured relative to the size of the economy equaled 4.3 percent of gross domestic product (GDP), whereas the program's dedicated revenues equaled 4.9 percent of GDP. (Dedicated revenues comprise Social Security payroll taxes and the portion of income taxes on benefits that is credited to the Social Security trust funds. Such revenues exclude interest credited to the funds.)

As the baby boomers retire, the number of Social Security beneficiaries will grow considerably, and absent legislative changes, spending for the program will climb to nearly 6 percent of GDP in 2035, CBO projects. Spending will decline slightly over the following 20 years, to about 5.6 percent of GDP, as an increasing number of baby boomers die. However, demographers generally expect life expectancy to continue to increase, and scheduled Social Security outlays are projected to resume their upward trajectory after 2055, reaching 5.8 percent of GDP in 2082.

The amount of dedicated revenues credited to the Social Security trust funds, however, is likely to shrink somewhat as a share of GDP, from 4.9 percent of GDP today to 4.7 percent in 2082. Social Security benefits are funded primarily through payroll taxes, with a small portion of revenues derived from income taxes on the benefits of higher-income beneficiaries. CBO projects that although total earnings will remain a nearly constant share of GDP, taxable earnings will decline as a share of GDP because a growing share of compensation will be paid in the form of nontaxable health benefits. Thus, in the absence of changes to the program, revenues from payroll taxes will decline as a share of GDP over the 75-year projection period, falling from 4.8 percent in 2008 to 4.2 percent in 2082.

In contrast, revenues credited to the Social Security trust funds from taxes on benefits are projected to grow in the

coming decades. Under current law, receipts from income taxes will increase as a share of the economy because existing reductions in income tax rates expire, more taxpayers become subject to the alternative minimum tax, and taxpayers move into higher tax brackets because of economic growth.<sup>4</sup> As a result, under current law, the revenues credited to the Social Security trust funds from taxes on benefits are also projected to increase, from 0.1 percent of GDP today to 0.5 percent in 2082. (For projections under an alternative assumption about future revenues from income taxes on benefits, see Box 1.) Nevertheless, total revenues credited to the trust funds are projected to decline slightly as a percentage of GDP.

Consequently, CBO projects that beginning in 2019, annual outlays for Social Security will exceed the program's revenues (see Figure 1 on page 9).<sup>5</sup> Even if spending for the program ends up being lower and revenues higher than expected, a gap between the program's income and outgo is likely to remain for the indefinite future.<sup>6</sup>

That gap will ultimately eliminate the balances in the trust funds and make it impossible, under current law, to pay the full amount of scheduled benefits. Payable benefits will equal scheduled benefits until the trust funds are exhausted (see Figure 2 on page 10); thereafter, they will equal the Social Security program's revenues. In 2049—CBO's projected date for the trust funds' exhaustion—revenues will equal only 84 percent of scheduled outlays. Thus, payable benefits will be 16 percent lower than scheduled benefits. Beginning in about 2070, the gap between scheduled and payable benefits will begin to grow, and by 2082, CBO projects, payable benefits will be 19 percent less than scheduled benefits.

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4. For details, see Chapter 5, "The Long-Term Outlook for Revenues," in Congressional Budget Office, *The Long-Term Budget Outlook* (December 2007).
  5. The data underlying all figures as well as other related projections are available in a supplementary data file on CBO's Web site ([www.cbo.gov](http://www.cbo.gov)).
  6. CBO generally presents outlays and revenues relative to GDP, but another common practice is to show them relative to taxable payroll. Those projections are presented in Table W-2 of the supplementary data file.

**Box 1.****Comparing Revenues from Income Taxes on Benefits Under Two Long-Term Fiscal Scenarios**

In *The Long-Term Budget Outlook*, published in December 2007, the Congressional Budget Office (CBO) developed its long-term projections of the Social Security program's finances under two scenarios that incorporated different assumptions about future income tax receipts. The first was the so-called extended-baseline scenario, which extends CBO's current-law baseline concept and is the basis for the projections in this update. (CBO's 10-year baseline is a benchmark for measuring the budgetary effects of proposed changes in federal revenues or spending. As such, the estimates that make up the baseline largely reflect current law.)

The second scenario, an "alternative fiscal scenario," deviates from CBO's baseline projections even during the next 10 years, incorporating some changes in policy that are widely expected to occur and that policy-makers have regularly undertaken in the past. Under that scenario, none of the currently scheduled changes to tax law (for example, the expiration at the end of 2010 of the tax changes enacted in 2001 and 2003) would take effect, and the alternative minimum tax would be indexed to inflation.

CBO's long-term projections of outlays for the Social Security program as well as the revenues the program is likely to receive from payroll taxes are identical under both the extended-baseline and the alternative fiscal scenarios. However, income tax receipts under the alternative scenario would be lower than under the extended-baseline scenario, as would revenues from income taxes on benefits. As a result, projections of Social Security finances are somewhat less favorable under the tax assumptions of the alternative fiscal scenario. Revenues from the taxation of benefits would equal 0.3 percent of GDP in 2082 rather than the 0.5 percent projected under the extended-baseline scenario, CBO estimates. In addition, under the alternative fiscal scenario, 75-year summarized revenues would be 5.0 percent of GDP or 13.9 percent of taxable payroll, instead of 5.1 percent of GDP or 14.2 percent of taxable payroll. The 75-year summarized balance (that is, the summarized deficit in the Social Security trust funds) under the alternative scenario would be -0.47 percent of GDP or -1.30 percent of taxable payroll rather than -0.38 percent of GDP or -1.06 percent of taxable payroll under the extended-baseline concept.

**The Uncertainty of Projections of Social Security's Finances**

Many of the factors that will affect Social Security's long-term finances are subject to significant uncertainty, and a full exposition of projected finances includes both the expected outcomes and the inherent uncertainty surrounding such estimates. CBO therefore calculated ranges of possible outcomes associated with its projections for the program. To do that, it used standard statistical techniques to analyze patterns of past variation in most of the demographic and economic factors that underlie the analysis—for example, fertility and mortality rates, interest rates, and the rate of growth of productivity. CBO then ran 500 simulations, each time randomly changing the assumed values for those factors to reflect the historical variations. Individually, the simulations

have little meaning, but together, they compose a distribution of possible outcomes.<sup>7</sup>

For this analysis, CBO displays those distributions of outcomes with an 80 percent range of uncertainty—that is, by CBO's estimate, there is an 80 percent chance that the actual value will fall within that range. For example, although CBO projects that Social Security outlays will equal about 5.8 percent of GDP in 2032, its

7. CBO's analysis includes effects of the uncertainty of a number of assumptions about future economic and demographic trends. Uncertainty about fertility rates and productivity growth causes the most variation in long-term Social Security projections. For more details, see Congressional Budget Office, *Quantifying Uncertainty in the Analysis of Long-Term Social Security Projections* (November 2005), especially pages 29 and 34.

uncertainty analysis indicates a 10 percent chance that outlays will be less than 5.0 percent of GDP in that year and a 10 percent chance that they will exceed 6.8 percent of GDP (see Table 1 on page 22). In any case, outlays are virtually certain to be notably higher than their current share of 4.3 percent of GDP.

### Summarized Outlays and Revenues

Long-term projections of annual outlays and revenues present the overall magnitude and timing of the budgetary effects of the Social Security program under current law. To present the results more succinctly, analysts frequently summarize the program's scheduled outlays and revenues in a single number for a given period (for example, total outlays over 75 years).

Summarizing outlays or revenues by taking a simple average of projected annual values would be misleading because it would not take into account the fact that, even after adjustments for inflation, a dollar today is more valuable than a dollar in the future. CBO thus summarizes the data by computing the present value of outlays or revenues for a given period and dividing that figure by the present value of the stream of GDP (or taxable payroll) over that same period.<sup>8</sup> In calculating the summarized measures, CBO makes two other adjustments as well. First, it adds the current trust fund balance to summarized revenues to reflect Social Security's financial history (incorporating the net effect of the program's past annual surpluses and deficits). Second, it adds an additional year's worth of projected outlays to summarized outlays to reflect the goal of having a "cushion" in the trust funds at the end of the period being considered.

In CBO's projections, Social Security's 75-year summarized outlays under the scheduled benefits scenario come to 5.45 percent of GDP, and summarized revenues equal 5.07 percent, resulting in a summarized deficit of 0.38 percent of GDP—or, when calculated as a share of taxable payroll, 1.06 percent (see Table 2 on page 23). In other words, CBO projects that if payroll tax rates were

increased immediately and permanently by 1.06 percentage points—from the current rate of 12.40 percent to 13.46 percent—then at the end of 2082, the trust fund balance would equal projected outlays for 2083.

The 75-year summarized balance, however, may be much greater or smaller than -0.38 percent of GDP. In CBO's estimation, there is a 10 percent chance of a deficit of more than 0.9 percent of GDP and also about a 10 percent chance that the 75-year summarized balance will be positive—that is, a surplus.

For another perspective on Social Security's finances, CBO estimated the probability that total outlays would exceed total revenues by a given amount in a particular year (see Table 3 on page 24). The likelihood that outlays will exceed revenues in 2030 is about 97 percent, CBO projects, and there is almost a 50 percent chance that the gap will be larger than 1 percentage point of GDP; the chance of its being 2 percentage points (or more) of GDP is only 6 percent. The probability that outlays will exceed revenues is slightly lower after 2035, following the deaths of the baby boomers, but it still remains in the vicinity of 90 percent. The probability of a gap of 2 percentage points or more grows in later years, however, reaching almost 25 percent by 2080.

### Trust Fund Ratios

Another common measure of Social Security's finances is the ratio of the balance in the Social Security trust funds to the program's annual outlays. That calculation indicates how many years' worth of benefits could be financed by a given balance.

The trust fund ratio for 2008—the balance in the Social Security trust funds at the beginning of the year divided by projected outlays for the program for that year—equals 3.6, according to CBO's estimates. The ratio is projected to peak at 4.1 in 2016 and then decline quickly (see Figure 3 on page 11).

CBO has projected that 2049 is the year in which the balance in the trust funds, and thus the trust fund ratio, will fall to zero. But, as shown in Figure 3, there is a 10 percent chance that the trust funds will be exhausted in 2034 or earlier and a greater than 10 percent chance that they will not be exhausted before 2082. The negative balances shown in Figure 3 for 2050 and beyond represent CBO's estimates of the cumulative amount of scheduled benefits that cannot be paid out of the program's current-law

8. The present value is a single number that expresses a flow of current and future income (or payments) in terms of an equivalent lump sum received (or paid) today. The present value depends on the rate of interest used (the discount rate). For example, if \$100 is invested on January 1 at an annual interest rate of 5 percent, it will grow to \$105 by January 1 of the next year. Hence, at an annual 5 percent interest rate, the present value of \$105 payable a year from today is \$100.

revenues. (The negative balances could also be interpreted as the amount that the program would need to borrow to pay scheduled benefits, but the Social Security program does not have the legal authority to borrow money.)

Another way to consider the data that underlie Figure 3 is to examine the probability that the trust funds will be exhausted by a given year (see Figure 4 on page 12). By CBO's estimates, there is an 11 percent chance of the funds' being exhausted before 2035, a 54 percent chance of exhaustion by 2050, and an 86 percent chance of exhaustion by 2082.

## The Distribution of Social Security Taxes and Benefits

Grouping Social Security participants by age or by other characteristics and examining how taxes and benefits are distributed among those groups can illuminate the program's effects on people and the economy. CBO used several measures to present the Social Security payroll taxes paid and benefits received by people in different age and income categories, grouping individuals by their 10-year birth cohort—for example, people born in the 1940s—and by the quintile (fifth) of their lifetime household earnings. (The top fifth of earners, for instance, makes up the highest earnings quintile.) Those measures include the initial annual benefit received, the ratio of that benefit to average lifetime earnings, the lifetime benefits received, and the lifetime taxes paid. CBO presents benefits net of the income taxes that higher-income beneficiaries pay on benefits and that are credited to the Social Security trust funds.

### First-Year Benefits

CBO's analysis indicates that, in general, future Social Security beneficiaries are likely to receive higher real first-year annual benefits than today's beneficiaries, even under the payable benefits scenario. Furthermore, each birth cohort is projected to receive higher real benefits than the preceding one.

The initial annual benefit that a retired worker (a beneficiary aged 62 or older who receives benefits on the basis of his or her own work history) receives calculated in real (inflation-adjusted) dollars is a measure of his or her purchasing power.<sup>9</sup> The initial benefit amount depends in part on when an individual decides to claim benefits—the later the age, the greater the annual benefit. Thus, any

changes over time in the age at which most people first claim benefits will result in changes in average initial benefits. To ensure that the data are comparable over time, CBO in this analysis considered a hypothetical benefit amount: the median benefit that a worker would receive if everyone claimed benefits at age 65.

The initial annual benefit that a worker is scheduled to receive depends on the formula used to compute benefit levels, which is specified by law, and on his or her history of earnings. The growth of average earnings will generally cause average scheduled first-year benefits to rise over time (see Figure 5 on page 13 and Table 4 on page 25). However, under current law, the growth of first-year benefits will be partially offset by the scheduled increase in the normal retirement age, which is gradually rising from 65 for people born in 1937 and earlier to 67 for those born after 1959. That increase is effectively equivalent to a reduction in benefits, regardless of the age at which benefits are claimed. Payable benefits are projected to fall by 16 percent in the year that the trust funds are exhausted but then to resume their upward path (from that lower point) as earnings grow.

The trends for first-year benefits for disabled workers (disabled beneficiaries who receive benefits on the basis of their work histories) are similar to those discussed above. However, the scheduled increase in the normal retirement age will have no direct effect on those benefits. CBO thus projects that real first-year disability benefits will increase steadily over time under both scenarios (see Figure 6 on page 14 and Table 5 on page 28).

### First-Year Replacement Rates

The replacement rate—the ratio of first-year benefits to average career earnings—provides a different perspective on the benefits that various groups of retired-worker beneficiaries receive.<sup>10</sup> The scheduled increase in the normal retirement age will lower the replacement rate for future

9. At the end of each year, the Social Security Administration adjusts benefits by the amount of any increase in the consumer price index, so in real terms, an individual's benefit remains constant.

10. In such calculations, "average career earnings" refers to the average of a retired worker's highest 35 years of covered earnings as indexed to compensate for past inflation and for real growth in average earnings nationwide. (Covered earnings may be greater than the earnings that are subject to the Social Security payroll tax because covered earnings include those above the maximum taxable amount.)

beneficiaries (no matter when they claim benefits) compared with the rate for people who are claiming benefits now. If Social Security benefits are paid as scheduled, the median replacement rate for beneficiaries born in the 1990s will be slightly less than the rate for beneficiaries born in the 1940s, CBO estimates (see Table 4 on page 25). For individuals in the lowest earnings quintile, the replacement rates for the 1990s birth cohort will be higher than for individuals born in the 1940s, but the reverse will occur for those in the highest earnings quintile, CBO projects. Under the payable benefits scenario, the replacement rate will drop noticeably at all earnings levels for cohorts that receive benefits after the trust funds are exhausted (see Figure 7 on page 15).

The progressive nature of Social Security's benefit formula means that replacement rates are higher for workers who have lower earnings. And because disabled workers tend to have lower earnings than retired workers have, replacement rates for disabled workers tend to be higher than those for retired workers (see Table 5 on page 28 and Figure 8 on page 16).<sup>11</sup>

### Lifetime Benefits

Another way to measure the income that retired-worker beneficiaries receive from Social Security is to look at lifetime retirement benefits—that is, the present value of all benefits that a worker gets from the program. By CBO's estimate, it is likely that benefits received by each birth cohort will be greater, on average, than those received by the preceding cohort even under the payable benefits scenario. The trend in median lifetime retirement benefits (shown in Figure 9 on page 17) differs from the trend in median first-year benefits (shown in Figure 5 on page 13), for two reasons. First, as life expectancy increases, beneficiaries will collect benefits for longer periods, and scheduled lifetime benefits will grow faster than scheduled first-year benefits. Second, cohorts that begin receiving benefits before the trust funds are exhausted will collect the full amount of their scheduled first-year benefits. However, some cohorts will still be receiving benefits when the trust funds become exhausted, and as a result, their payable lifetime benefits will be lower than their scheduled lifetime benefits (see Table 4 on page 25).

11. For disabled-worker beneficiaries, average career earnings are calculated not over 35 years but over the same number of years that is used in calculating benefits. For example, in the case of a worker who became disabled at age 50, average earnings would be calculated over the highest 23 years of earnings.

The present value of the median lifetime benefits paid to disabled-worker beneficiaries, including the retirement benefits they receive after reaching the normal retirement age, is much greater than the present value of lifetime benefits paid to retired-worker beneficiaries. Disabled workers receive larger lifetime benefits than do retired workers because they tend to receive benefits longer and because those benefits are paid earlier in their lifetime, which increases the benefits' present value (see Figure 10 on page 18 and Table 5 on page 28). As with retirement benefits, projected lifetime disability benefits are greater for each birth cohort than for the preceding one.

### Lifetime Payroll Taxes and Lifetime Benefits for Workers, Dependents, and Survivors

The three measures discussed above cover only benefits for retired- and disabled-worker beneficiaries. A more comprehensive perspective comes from considering the present value of the total amount of Social Security payroll taxes paid over a lifetime and the present value of the total amount of Social Security benefits—payments to retired and disabled workers as well as to dependents and survivors—received over a lifetime. (Measures of taxes comprise all Social Security payroll taxes levied on individual earnings—both the employer's and employee's shares.) CBO has estimated ranges of uncertainty (specifically, the range within which 80 percent of the possible values are likely to fall) for lifetime measures of taxes and benefits to reflect the inherent uncertainty in the demographic and economic assumptions that CBO used for its projections (see the later discussion).

CBO projected measures of lifetime payroll taxes, lifetime benefits, and the ratio of lifetime benefits to taxes by 10-year birth cohort:

- Figure 11 on page 19 shows the 80 percent range of uncertainty for the projected lifetime payroll taxes that individuals within a particular birth cohort will pay under the scheduled benefits scenario. Projected increases in real taxable earnings result in proportional increases in lifetime payroll tax levels. In dollar terms, the uncertainty is greatest for workers in the highest quintile of lifetime earners. However, when the range of uncertainty for lifetime taxes paid is measured as a percentage of median lifetime taxes paid for each quintile and cohort, the range is approximately equal across quintiles.



- Figure 12 on page 20 presents equivalent projections for average lifetime benefits, which comprise all benefits received by individuals within a birth cohort (including retired-worker, disabled-worker, dependent, and survivor benefits) minus the income taxes paid on those benefits and credited to the Social Security trust funds. Results are shown under the scenarios for both scheduled and payable benefits.
- Figure 13 on page 21 presents the ratio of those two measures: the present value of total net benefits received over a lifetime divided by the present value of total Social Security payroll taxes paid over a lifetime. (For example, a benefit-to-tax ratio of 150 percent means that benefits are 50 percent greater than taxes.) Scheduled taxes are not sufficient to pay for full scheduled benefits, so those ratios are unrealistically high. The ratio is higher for those in the lowest earnings quintiles and lower for those with higher earnings, in part because the Social Security benefit formula is progressive and in part because those with low household earnings are more likely to receive disability or dependent benefits, or both.

The uncertainty regarding future benefits can be presented in a different way as well—by showing the likelihood that a cohort will receive a specified percentage of scheduled benefits (see Table 6 on page 29). According to CBO’s projections, the 1940s cohort, for example, is virtually certain to receive all of its scheduled first-year benefit. The 1990s cohort, under the payable benefits scenario, has only a 32 percent chance of receiving all of its scheduled first-year benefit but an 84 percent chance of receiving at least 70 percent of that benefit.

The trust funds’ exhaustion may occur after a group has begun collecting benefits, so the odds of collecting a given percentage of first-year benefits are generally higher than the odds of collecting the same proportion of lifetime benefits. For example, although the 1940s cohort has a 100 percent chance of collecting virtually all of its first-year benefits, under the payable benefits scenario it has an 89 percent chance of receiving all of its scheduled lifetime benefits. Still, the cohort has a 99 percent chance of receiving at least 95 percent of its scheduled benefits. The 1990s cohort, in contrast, has only a 13 percent chance of receiving all of its scheduled lifetime benefits

under the payable benefits scenario and a 55 percent chance of receiving at least 85 percent of them.

### Assumptions Used in CBO’s Analysis

A number of basic assumptions underlie all long-term projections of the Social Security program’s finances.<sup>12</sup> To project overall trends in demographics and disability, CBO adopts the assumptions of the Social Security trustees—specifically, for this analysis, the assumptions in the 2008 trustees’ report on the aggregate fertility rate, the rate of decline in mortality, the level of immigration, and the rates of disability incidence and termination. CBO’s long-term economic assumptions are based on the assumptions used in its baseline budget projections. Thus, for the first 10 years of the 2008–2082 projection period, CBO used assumptions based on the values of the variables in its February 2008 economic forecast.<sup>13</sup> The assumptions for later years are based on the baseline’s underlying economic assumptions for 2018. (CBO used no specific assumptions about the growth of GDP or taxable payroll but instead computed projected levels of those variables on the basis of more basic economic and demographic assumptions.)

The two most important economic variables for Social Security projections are the rate of growth of earnings and the rate of interest on the U.S. Treasury bonds credited to the trust funds. CBO projects that real earnings will grow at an average annual rate of 1.4 percent over the projection period, an estimate based on four underlying assumptions:

- **Growth of Labor Productivity.** CBO assumed that over the long term, total factor productivity (average real output per unit of combined labor and capital “services”) would grow at a rate of 1.3 percent annually. It then used an economic model to compute the resulting growth in labor productivity (measured as growth in output per hour worked), which is projected to average 1.9 percent annually.

12. For a more detailed explanation of these assumptions, see Congressional Budget Office, *The Outlook for Social Security*, Chapter 3.

13. See Congressional Budget Office, *An Analysis of the President’s Budgetary Proposals for Fiscal Year 2009* (March 2008).

■ **Changes in the Ratio of Taxable Earnings to Total Compensation.** CBO assumed that the share of compensation that workers receive as nontaxable health benefits would continue to increase during the 2008–2082 projection period, which would reduce the average rate of growth of taxable earnings. Specifically, CBO assumed that the long-term annual rate of decline in earnings as a share of compensation would slow from about -0.25 percent to about -0.05 percent in 2082, for an average -0.13 percent, a pace that would reduce the projected growth of real wages by the same amount.

■ **Difference Between Growth in the Consumer Price Index and the GDP Deflator.** The consumer price index (CPI) and the GDP deflator are two different measures of inflation. The GDP deflator is used for computing measures of total economic growth and therefore the growth of the taxable wage base. However, Social Security benefits are adjusted yearly for inflation by the growth in the CPI for urban wage earners and clerical workers (CPI-W). As a result, when the GDP deflator grows more slowly than the

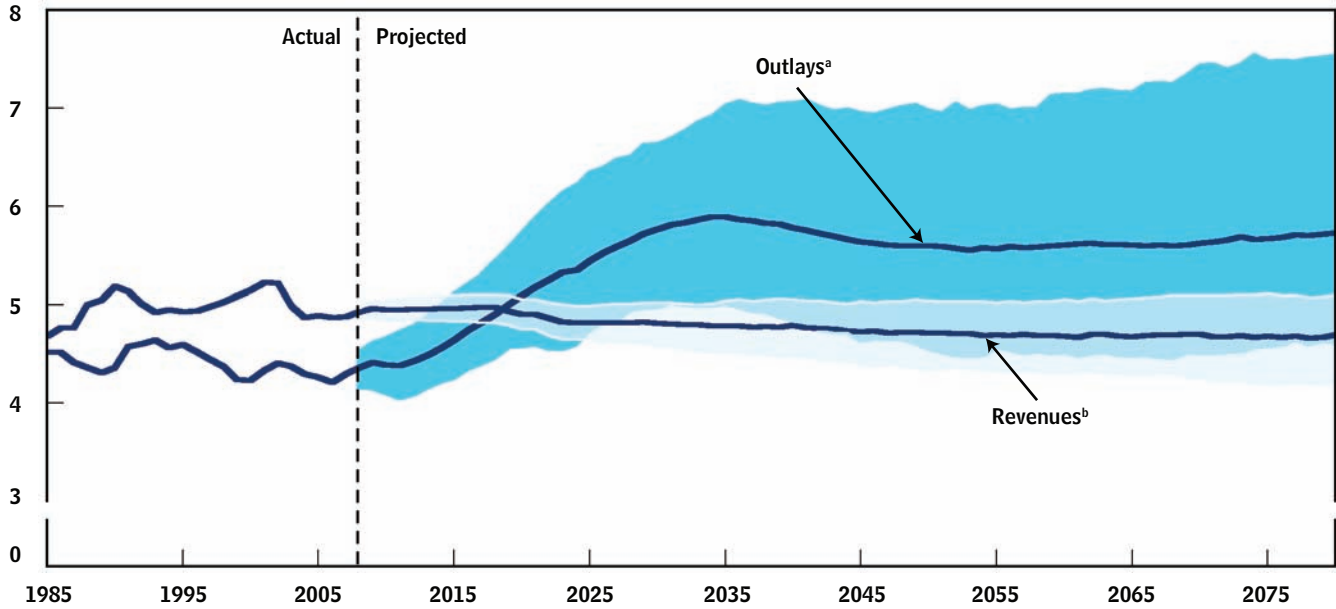
CPI-W, the growth of real earnings is reduced. CBO assumes that the gap, and thus the reduction in real earnings growth, will average 0.3 percentage points.

■ **Growth in Average Hours of Work.** CBO assumed that, in general, the number of hours worked by people in the labor force would remain constant. However, different segments of the population work, on average, different numbers of hours. (For example, men tend to work more hours than women, and people in their 30s tend to work more hours than people in their 50s.) As a result, projections of total average hours worked varied slightly because of projected changes in the composition of the labor force.

CBO assumed that the real rate of interest on the bonds credited to the Social Security trust funds would be 3.0 percent a year, a figure that it also used for the discount rate in its present-value calculations. In addition, CBO assumed that annual inflation—as measured by growth in the CPI-W—would be 2.2 percent and that the unemployment rate would be 4.8 percent.

**Figure 1.**

**Potential Ranges of Social Security Outlays and Revenues as a Percentage of GDP Under the Scheduled Benefits Scenario, 1985 to 2082**



Source: Congressional Budget Office.

Notes: The dark lines indicate CBO’s projections of expected outcomes. Shaded areas indicate the 80 percent range of uncertainty around each projection based on a distribution of 500 simulations from CBO’s long-term model. (An 80 percent range means that there is a 10 percent chance that actual values will be above that range, a 10 percent chance that they will be below it, and an 80 percent chance that they will fall within the range.)

In the scheduled benefits scenario, workers each year receive full benefits as calculated under current law.

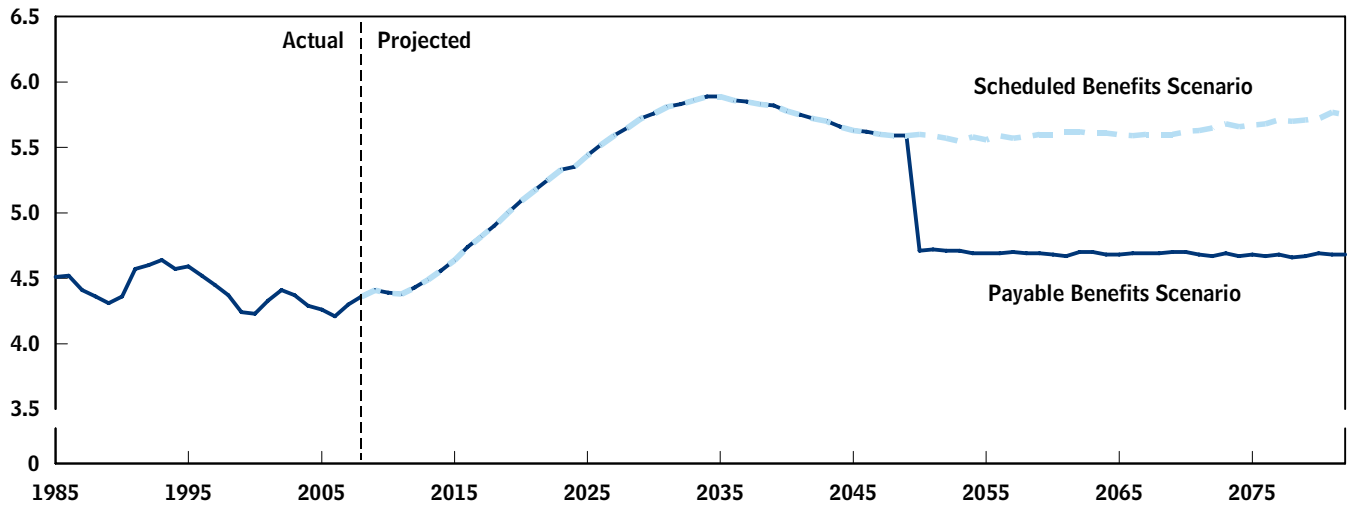
CBO projects that under current law, outlays will begin to exceed revenues in 2019 and that starting in 2049, scheduled benefits cannot be paid in full.

GDP = gross domestic product.

- a. Includes scheduled benefits and administrative costs.
- b. Includes payroll taxes and revenues from the taxation of benefits.

**Figure 2.**

**Social Security Outlays as a Percentage of Gross Domestic Product Under the Scheduled Benefits and Payable Benefits Scenarios, 1985 to 2082**

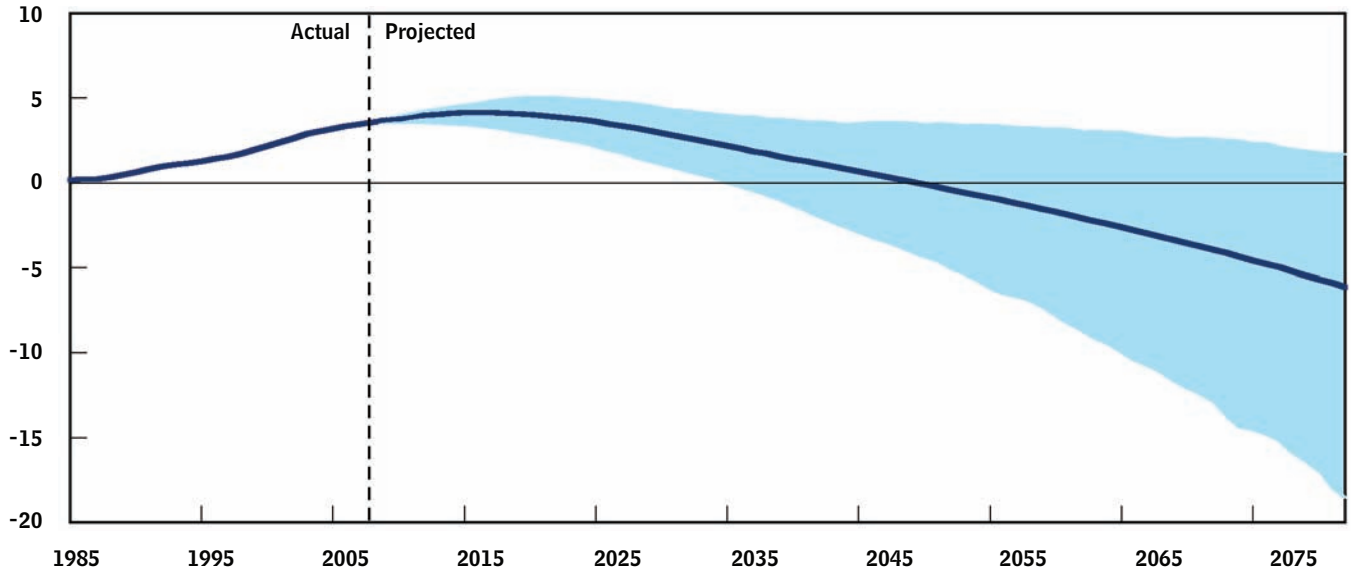


Source: Congressional Budget Office.

Note: In the scheduled benefits scenario, workers receive full benefits as calculated under current law. In the payable benefits scenario, workers receive full benefits until the trust funds are exhausted. Then benefits are subjected to an across-the-board cut each year so that total projected benefits equal projected revenues.

**Figure 3.**

**Potential Range of the Social Security Trust Fund Ratio Under the Scheduled Benefits Scenario, 1985 to 2082**



Source: Congressional Budget Office.

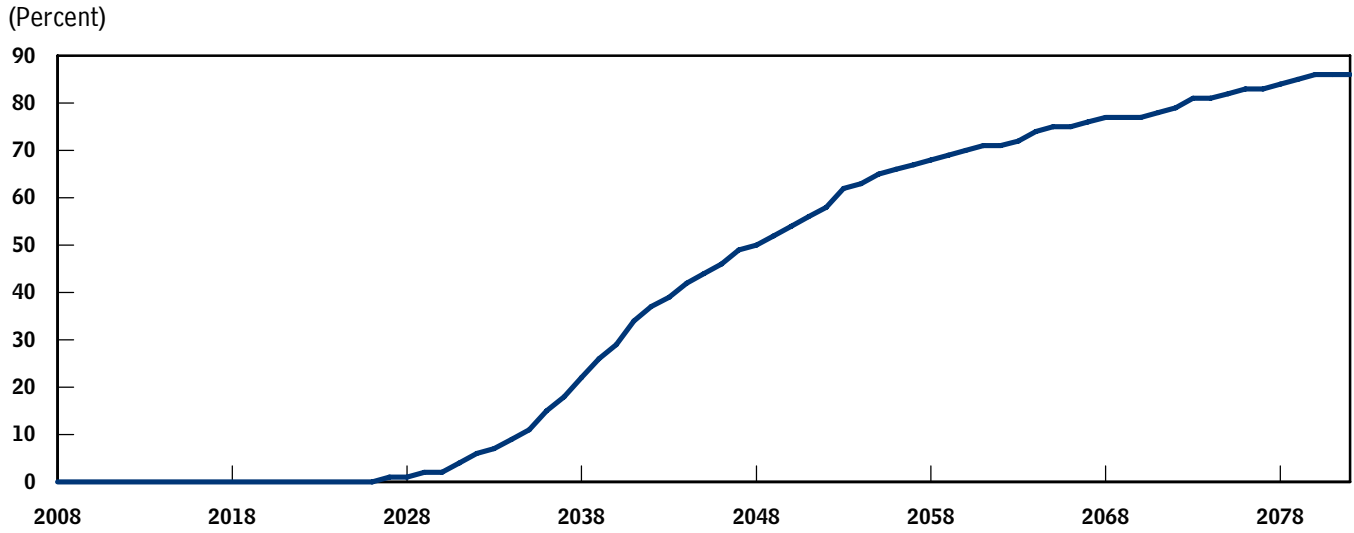
Notes: The trust fund ratio is the ratio of the total balance in the Social Security trust funds (the Old-Age and Survivors Insurance and the Disability Insurance Trust Funds) at the beginning of a calendar year to total Social Security outlays during that year.

The dark line indicates CBO's projection of expected outcomes; the shaded area indicates the 80 percent range of uncertainty around the projection based on a distribution of 500 simulations from CBO's long-term model. (An 80 percent range means that there is a 10 percent chance that actual values will be above that range, a 10 percent chance that they will be below it, and an 80 percent chance that they will fall within the range.)

In the scheduled benefits scenario, workers each year receive full benefits as calculated under current law.

**Figure 4.**

**Probability That the Social Security Trust Funds Will Have Been Exhausted, by Year, 2008 to 2082**



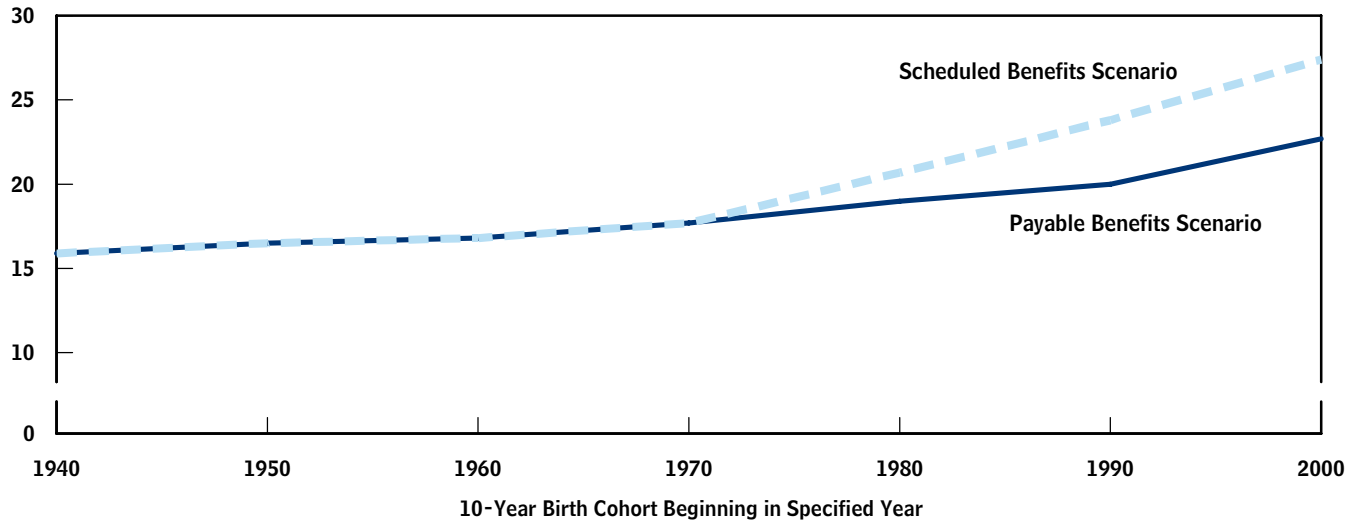
Source: Congressional Budget Office.

Note: The Social Security trust funds are the Old-Age and Survivors Insurance and Disability Insurance Trust Funds.

**Figure 5.**

**Median First-Year Social Security Retirement Benefits Under the Scheduled Benefits and Payable Benefits Scenarios, by Birth Cohort**

(Thousands of 2008 dollars)



Source: Congressional Budget Office.

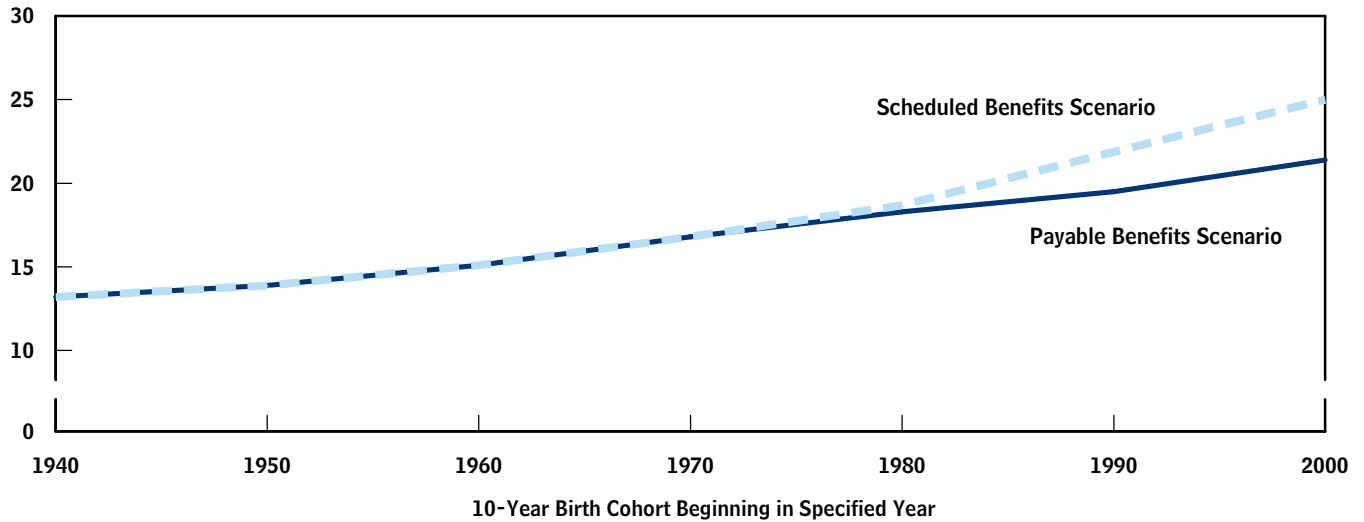
Notes: First-year benefits are projected by assuming that all workers claim benefits at age 65. Values are net of income taxes paid on benefits and credited to the Social Security trust funds (the Old-Age and Survivors Insurance and Disability Insurance Trust Funds).

In the scheduled benefits scenario, workers receive full benefits as calculated under current law. In the payable benefits scenario, workers receive full benefits until the trust funds are exhausted. Then benefits are subjected to an across-the-board cut each year so that total projected benefits equal projected revenues.

**Figure 6.**

**Median First-Year Social Security Disability Benefits Under the Scheduled Benefits and Payable Benefits Scenarios, by Birth Cohort**

(Thousands of 2008 dollars)



Source: Congressional Budget Office.

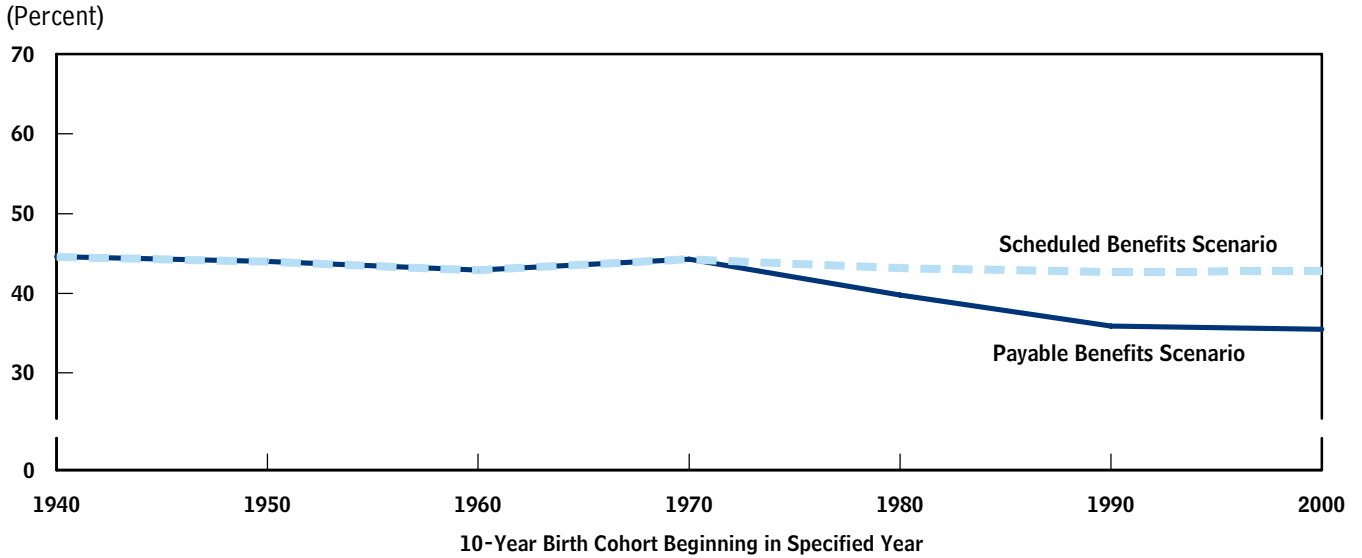
Notes: Values are net of income taxes paid on benefits and credited to the Social Security trust funds (the Old-Age and Survivors Insurance and Disability Insurance Trust Funds).

In the scheduled benefits scenario, workers receive full benefits as calculated under current law. In the payable benefits scenario, workers receive full benefits until the trust funds are exhausted. Then benefits are subjected to an across-the-board cut each year so that total projected benefits equal projected revenues.



**Figure 7.**

**Median Replacement Rates for Retired-Worker Social Security Beneficiaries Under the Scheduled Benefits and Payable Benefits Scenarios, by Birth Cohort**



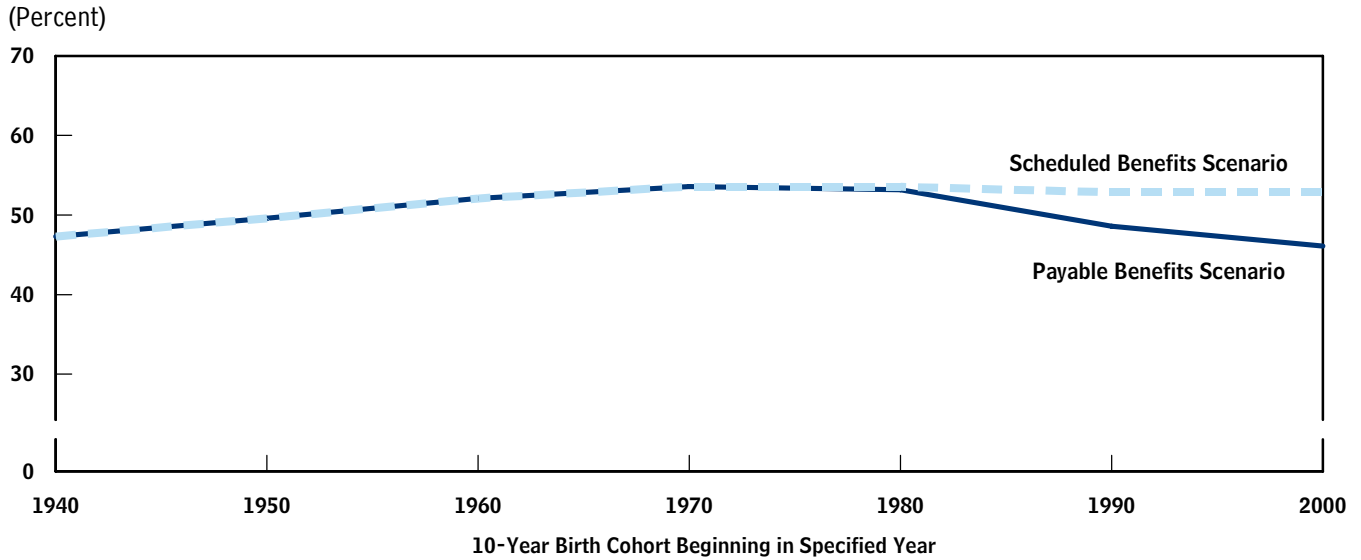
Source: Congressional Budget Office.

Notes: Replacement rates are first-year benefits as a percentage of average career earnings. (First-year benefits are calculated net of income taxes paid on benefits and credited to the Social Security trust funds—that is, the Old-Age and Survivors Insurance and Disability Insurance Trust Funds.)

In the scheduled benefits scenario, workers receive full benefits as calculated under current law. In the payable benefits scenario, workers receive full benefits until the trust funds are exhausted. Then benefits are subjected to an across-the-board cut each year so that total projected benefits equal projected revenues.

**Figure 8.**

**Median Replacement Rates for Disabled-Worker Social Security Beneficiaries Under the Scheduled Benefits and Payable Benefits Scenarios, by Birth Cohort**



Source: Congressional Budget Office.

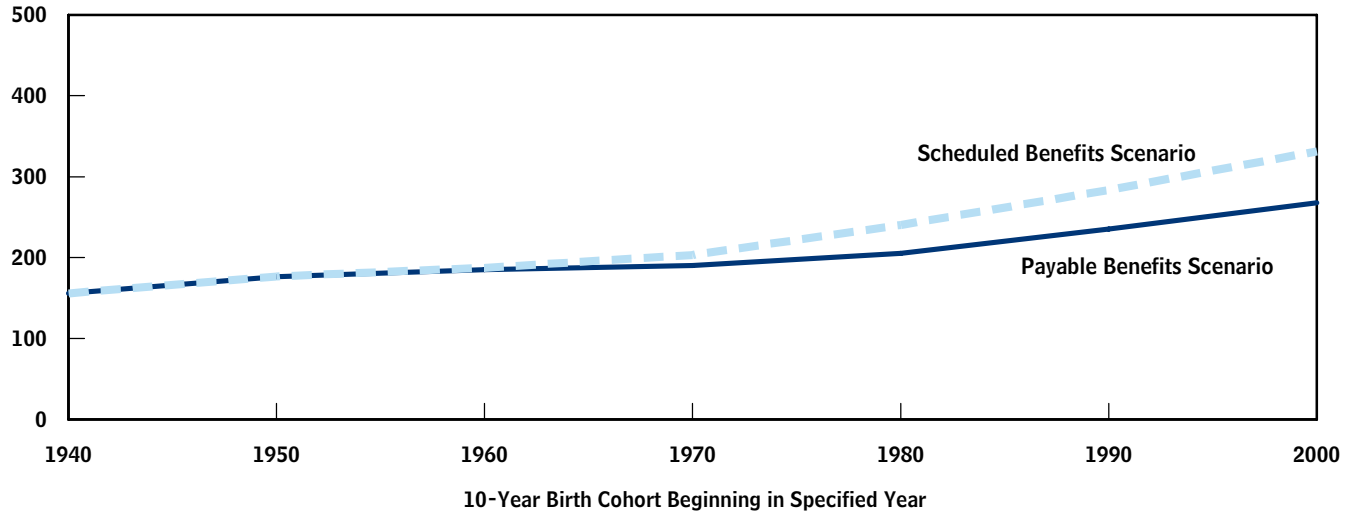
Notes: Replacement rates are first-year benefits as a percentage of average career earnings. (First-year benefits are calculated net of income taxes paid on benefits and credited to the Social Security trust funds—that is, the Old-Age and Survivors Insurance and Disability Insurance Trust Funds.)

In the scheduled benefits scenario, workers receive full benefits as calculated under current law. In the payable benefits scenario, workers receive full benefits until the trust funds are exhausted. Then benefits are subjected to an across-the-board cut each year so that total projected benefits equal projected revenues.

**Figure 9.**

**Median Lifetime Social Security Retirement Benefits Under the Scheduled Benefits and Payable Benefits Scenarios, by Birth Cohort**

(Thousands of 2008 dollars)



Source: Congressional Budget Office.

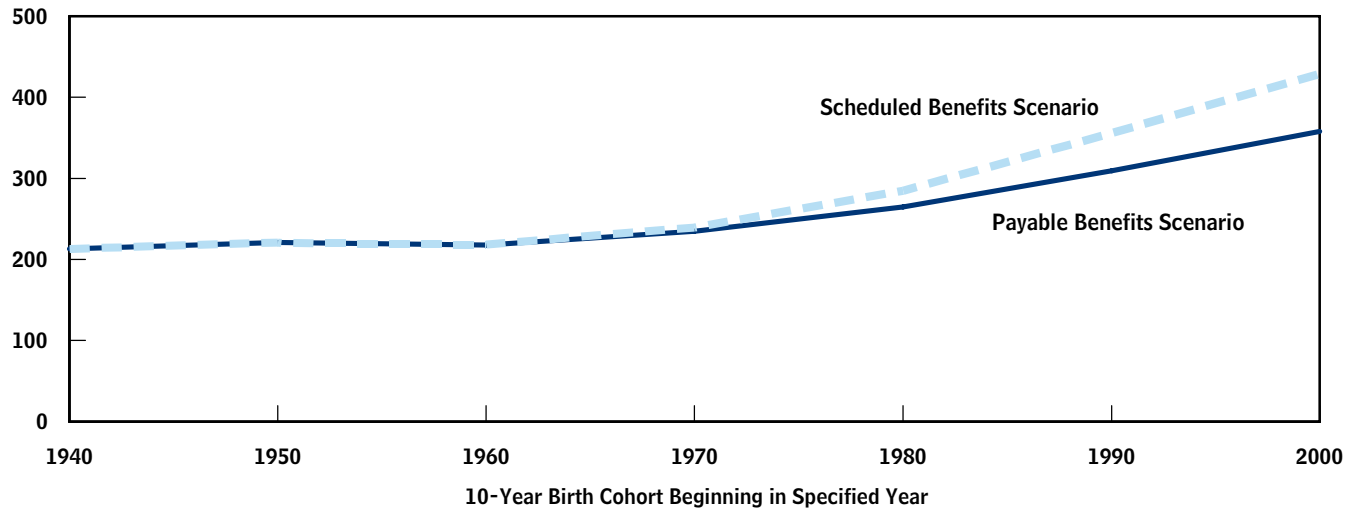
Notes: To calculate their present value, lifetime retirement benefits have been adjusted for inflation (to produce constant dollars) and discounted to age 60. Values are net of income taxes paid on benefits and credited to the Social Security trust funds (the Old-Age and Survivors Insurance and Disability Insurance Trust Funds).

In the scheduled benefits scenario, workers receive full benefits as calculated under current law. In the payable benefits scenario, workers receive full benefits until the trust funds are exhausted. Then benefits are subjected to an across-the-board cut each year so that total projected benefits equal projected revenues.

**Figure 10.**

**Median Lifetime Social Security Disability Benefits Under the Scheduled Benefits and Payable Benefits Scenarios, by Birth Cohort**

(Thousands of 2008 dollars)



Source: Congressional Budget Office.

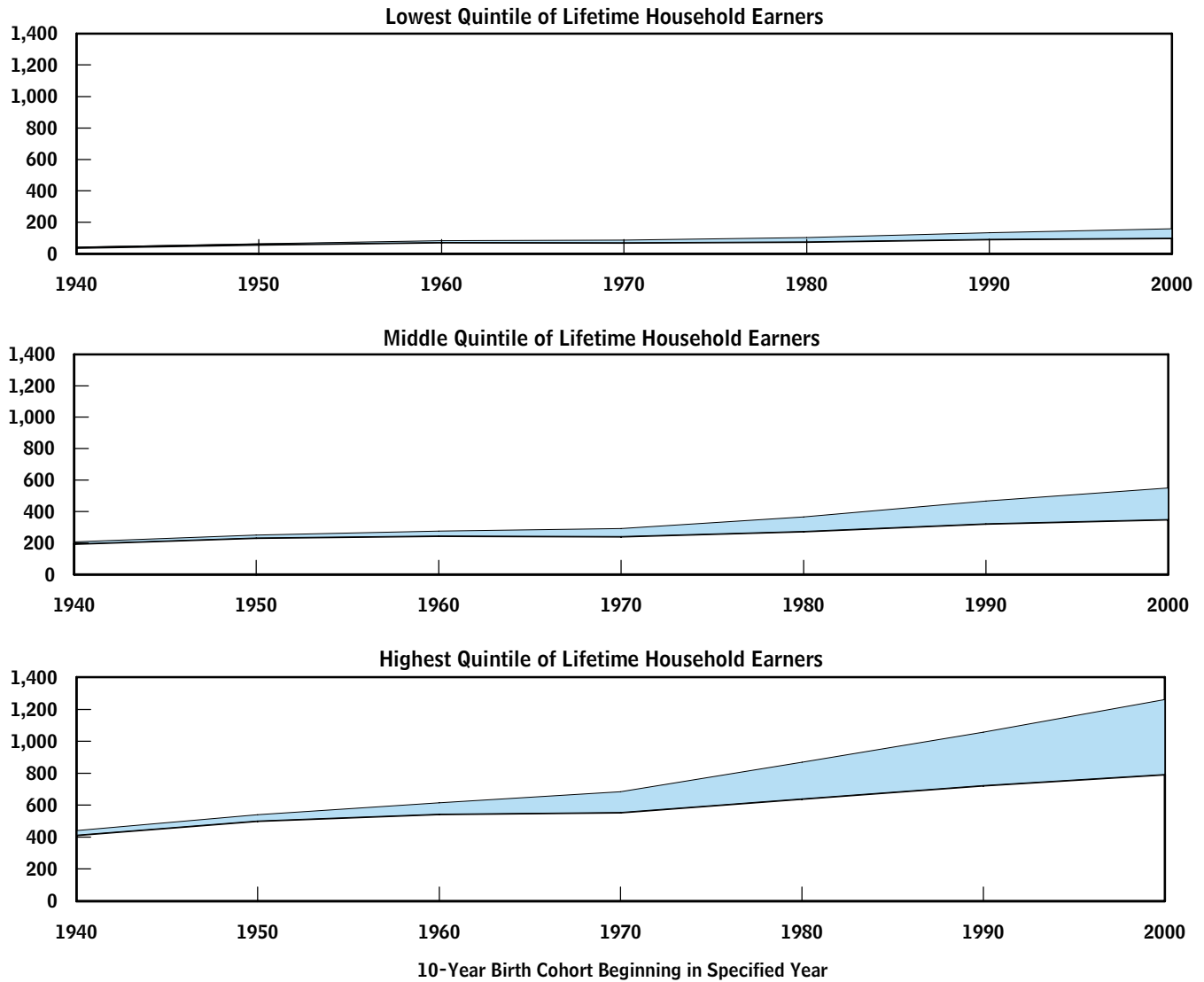
Notes: Lifetime benefits include disability benefits and retirement benefits paid to disabled workers who have reached the normal retirement age designated by law. To calculate their present value, benefits have been adjusted for inflation (to produce constant dollars) and discounted to age 60. Values are net of income taxes paid on benefits and credited to the Social Security trust funds (the Old-Age and Survivors Insurance and Disability Insurance Trust Funds).

In the scheduled benefits scenario, workers receive full benefits as calculated under current law. In the payable benefits scenario, workers receive full benefits until the trust funds are exhausted. Then benefits are subjected to an across-the-board cut each year so that total projected benefits equal projected revenues.

**Figure 11.**

**Potential Range of Lifetime Social Security Payroll Taxes Under the Scheduled Benefits Scenario, by Birth Cohort and Lifetime Earnings**

(Thousands of 2008 dollars)



Source: Congressional Budget Office.

Notes: Taxes comprise both the employer’s and employee’s share of Social Security payroll taxes. To calculate their present value, amounts have been adjusted for inflation (to produce constant dollars) and discounted to age 60.

In the scheduled benefits scenario, workers each year receive full benefits as calculated under current law.

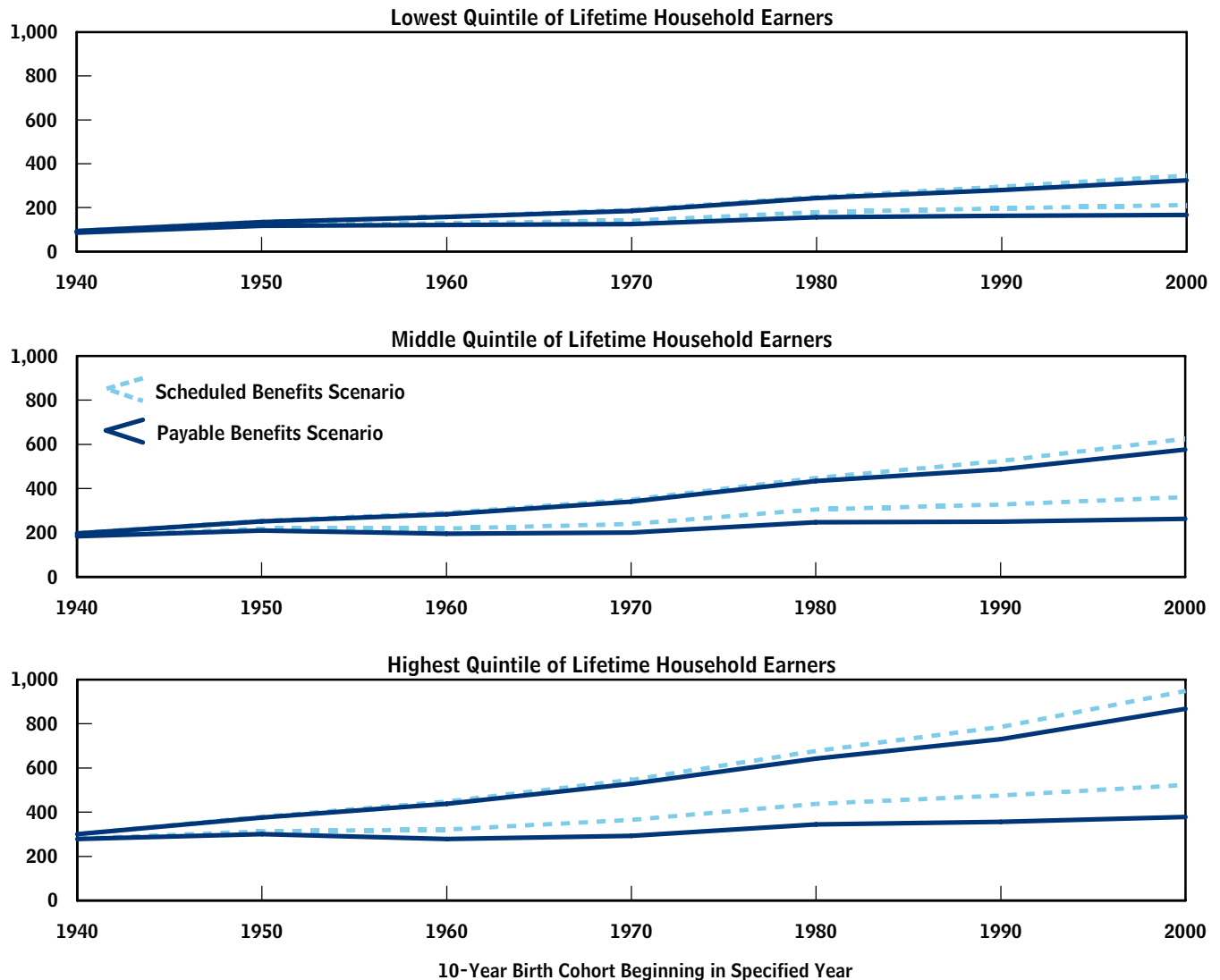
Shaded areas indicate the 80 percent range of uncertainty around each projection based on a distribution of 500 simulations from CBO’s long-term model. (An 80 percent range means that there is a 10 percent chance that actual values will be above that range, a 10 percent chance that they will be below it, and an 80 percent chance that they will fall within the range.)

The distribution of lifetime household earners comprises only those who live to at least age 45. The distribution is divided into fifths, or quintiles, for presentation.

**Figure 12.**

**Potential Range of Lifetime Social Security Benefits Under the Scheduled Benefits and Payable Benefits Scenarios, by Birth Cohort and Lifetime Earnings**

(Thousands of 2008 dollars)



Source: Congressional Budget Office.

Notes: Benefits comprise Social Security benefits (including retired-worker, disabled-worker, spousal, and survivor benefits) net of income taxes paid on benefits and credited to the Social Security trust funds (the Old-Age and Survivors Insurance and Disability Insurance Trust Funds). To calculate their present value, amounts have been adjusted for inflation (to produce constant dollars) and discounted to age 60.

In the scheduled benefits scenario, workers receive full benefits as calculated under current law. In the payable benefits scenario, workers receive full benefits until the trust funds are exhausted. Then benefits are subjected to an across-the-board cut each year so that total projected benefits equal projected revenues.

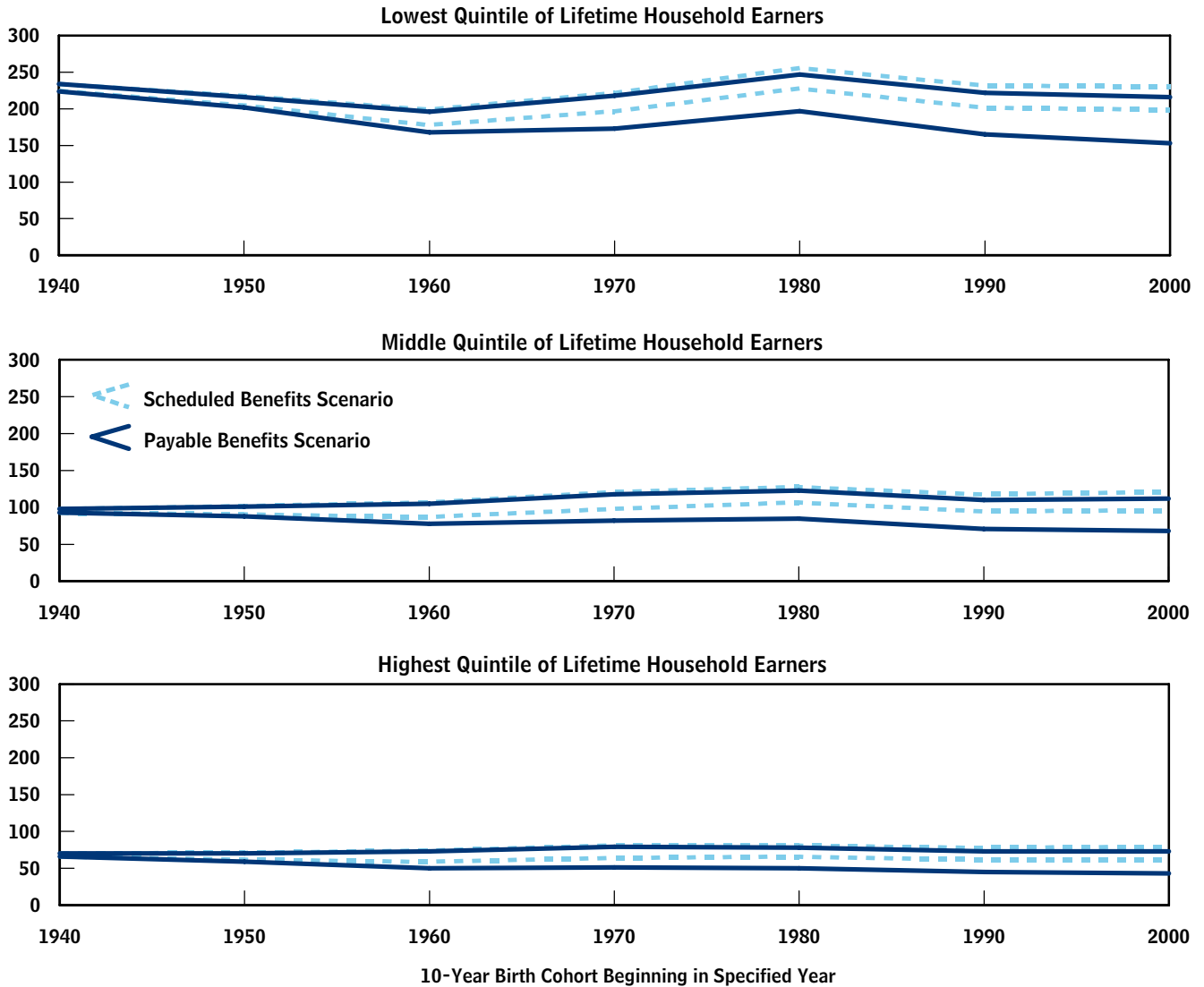
The areas encompassed by the solid and dotted lines indicate the 80 percent range of uncertainty around each projection based on a distribution of 500 simulations from CBO's long-term model. (An 80 percent range means that there is a 10 percent chance that actual values will be above that range, a 10 percent chance that they will be below it, and an 80 percent chance that they will fall within the range.)

The distribution of lifetime household earners comprises only those who live to at least age 45. The distribution is divided into fifths, or quintiles, for presentation.

**Figure 13.**

**Potential Range of the Ratio of Lifetime Social Security Benefits to Lifetime Taxes Under the Scheduled Benefits and Payable Benefits Scenarios, by Birth Cohort and Lifetime Earnings**

(Percent)



Source: Congressional Budget Office.

Notes: Benefits comprise Social Security benefits net of income taxes (as shown in Figure 11); taxes comprise the employer’s and employee’s shares of Social Security payroll taxes (as shown in Figure 12).

In the scheduled benefits scenario, workers receive full benefits as calculated under current law. In the payable benefits scenario, workers receive full benefits until the trust funds are exhausted. Then benefits are subjected to an across-the-board cut each year so that total projected benefits equal projected revenues.

The areas encompassed by the solid and dotted lines indicate the 80 percent range of uncertainty around each projection based on a distribution of 500 simulations from CBO’s long-term model. (An 80 percent range means that there is a 10 percent chance that actual values will be above that range, a 10 percent chance that they will be below it, and an 80 percent chance that they will fall within the range.)

The distribution of lifetime household earners comprises only those who live to at least age 45. The distribution is divided into fifths, or quintiles, for presentation.

**Table 1.**

**Social Security Revenues and Outlays as a Percentage of Gross Domestic Product in Selected Years Under the Scheduled Benefits Scenario**

	Actual 2007	2032	2057	2082
<b>CBO's Projections</b>				
Revenues	4.87	4.80	4.70	4.68
Outlays	4.30	5.83	5.57	5.75
Annual Surplus or Deficit (-)	0.58	-1.03	-0.87	-1.07
<b>80 Percent Range of Uncertainty for CBO's Projections<sup>a</sup></b>				
Revenues	4.87	4.6 to 5.0	4.3 to 5.0	4.2 to 5.1
Outlays	4.30	5.0 to 6.8	4.5 to 7.0	4.6 to 7.7
Annual Surplus or Deficit (-)	0.58	-2.0 to -0.4	-2.3 to 0.1	-3.1 to -0.1

Source: Congressional Budget Office.

Notes: Revenues include payroll taxes and income taxes on benefits as a share of GDP in the specified year, and outlays equal scheduled benefits and administrative costs.

In the scheduled benefits scenario, workers each year receive full benefits as calculated under current law.

- a. The range within which there is an 80 percent probability that the actual value will fall (that is, the range between the 10th and 90th percentiles for each measure based on a distribution of 500 simulations from CBO's long-term model). Balances (surpluses or deficits) do not equal the difference between the outlays and revenues displayed because each value is drawn from a different simulation.



**Table 2.**

**Summarized Social Security Revenues, Outlays, and Surpluses or Deficits for Selected Periods Under the Scheduled Benefits Scenario**

Period	Revenues	Outlays	Surplus or Deficit (-)
<b>As a Percentage of Gross Domestic Product</b>			
<i>CBO's Projections</i>			
25 Years (2008–2032)	5.56	5.24	0.32
50 Years (2008–2057)	5.20	5.41	-0.20
75 Years (2008–2082)	5.07	5.45	-0.38
<i>80 Percent Range of Uncertainty for CBO's Projections<sup>a</sup></i>			
25 Years (2008–2032)	5.4 to 5.7	4.8 to 5.7	-0.1 to 0.6
50 Years (2008–2057)	5.0 to 5.4	4.9 to 5.9	-0.7 to 0.2
75 Years (2008–2082)	4.8 to 5.3	5.0 to 6.0	-0.9 to 0
<b>As a Percentage of Taxable Payroll</b>			
<i>CBO's Projections</i>			
25 Years (2008–2032)	14.82	13.97	0.86
50 Years (2008–2057)	14.28	14.84	-0.56
75 Years (2008–2082)	14.16	15.22	-1.06
<i>80 Percent Range of Uncertainty for CBO's Projections<sup>a</sup></i>			
25 Years (2008–2032)	14.5 to 15.1	12.9 to 15.1	-0.3 to 1.7
50 Years (2008–2057)	14.0 to 14.5	13.5 to 16.3	-2.0 to 0.5
75 Years (2008–2082)	13.9 to 14.4	13.9 to 16.9	-2.7 to 0.1

Source: Congressional Budget Office.

Notes: Summarized revenues are the present value of annual revenues over the relevant period plus the trust fund balance at the beginning of the period divided by the present value of GDP or taxable payroll over that period. Summarized outlays are the present value of annual outlays, plus an adjustment to cover one more year of outlays at the end of the projection period, divided by the present value of GDP or taxable payroll over the period. The summarized balance (surplus or deficit) is the present value of revenues minus the present value of outlays, divided by the present value of GDP or taxable payroll over the period.

In the scheduled benefits scenario, workers each year receive full benefits as calculated under current law.

- a. The range within which there is an 80 percent probability that the actual value will fall (that is, the range between the 10th and 90th percentiles for each measure based on a distribution of 500 simulations from CBO's long-term model). Balances (surpluses or deficits) do not equal the difference between the outlays and revenues displayed because each value is drawn from a different simulation.

**Table 3.**


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**Probability That Social Security Outlays Will Exceed Revenues by Specified Percentages in Selected Years Under the Scheduled Benefits Scenario**


---

Year	Probabilities, by Percentage of GDP by Which Outlays Exceed Revenues					
	0 Percent or More	1 Percent or More	2 Percent or More	3 Percent or More	4 Percent or More	5 Percent or More
2010	0	0	0	0	0	0
2020	73	5	0	0	0	0
2030	97	49	6	1	0	0
2040	93	53	16	3	0	0
2050	87	44	15	3	1	0
2060	88	49	16	3	1	0
2070	87	52	23	7	1	0
2080	90	59	24	10	3	1

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Source: Congressional Budget Office.

Notes: Revenues include payroll taxes and income taxes on benefits as a share of GDP in the specified year, and outlays equal scheduled benefits and administrative costs.

In the scheduled benefits scenario, workers each year receive full benefits as calculated under current law.

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**Table 4.**

**Social Security Benefits Received by Retired Workers Under the Scheduled and Payable Benefits Scenarios, by Birth Cohort, Lifetime Earnings Level, and Sex**

10-Year Birth Cohort Starting in Year	First-Year Benefits (2008 Dollars)		First-Year Replacement Rate (Percent) <sup>a</sup>		Present Value of Lifetime Benefits (2008 Dollars) <sup>b</sup>	
	Scheduled	Payable	Scheduled	Payable	Scheduled	Payable
<b>All Retired Workers</b>						
<i>Median for All Workers</i>						
1940	20,300	20,300	39.8	39.8	182,000	182,000
1950	20,500	20,500	39.8	39.8	206,800	206,500
1960	20,100	20,100	39.2	39.2	214,700	211,800
1970	20,800	20,800	40.6	40.6	228,800	213,900
1980	24,500	22,400	39.5	36.3	270,800	230,900
1990	27,900	23,500	39.1	33.0	318,800	263,700
2000	31,800	26,500	39.3	32.6	370,600	298,800
<i>Median for Those in the Lowest Household Earnings Quintile</i>						
1940	9,800	9,800	63.6	63.6	83,000	83,000
1950	10,500	10,500	62.7	62.7	96,500	96,500
1960	11,100	11,100	61.2	61.2	106,500	106,500
1970	11,800	11,800	65.3	65.4	112,500	107,700
1980	13,200	12,100	66.7	60.6	127,300	110,300
1990	15,000	12,700	66.2	56.0	152,500	125,600
2000	17,400	14,600	65.6	54.8	176,900	143,500
<i>Median for Those in the Middle Household Earnings Quintile</i>						
1940	21,000	21,000	39.1	39.1	210,300	210,300
1950	21,300	21,300	39.3	39.3	232,600	232,600
1960	20,800	20,800	38.7	38.7	235,900	233,800
1970	21,700	21,700	40.0	40.0	247,100	233,000
1980	25,500	23,300	38.9	35.6	302,000	255,700
1990	29,300	24,700	38.6	32.4	354,700	293,100
2000	33,600	27,900	38.5	31.9	413,600	333,700
<i>Median for Those in the Highest Household Earnings Quintile</i>						
1940	25,200	25,200	23.8	23.8	302,600	302,600
1950	27,600	27,600	22.7	22.7	354,400	354,200
1960	29,300	29,300	21.7	21.7	389,900	383,400
1970	32,300	32,300	22.2	22.2	435,000	402,000
1980	37,400	34,300	20.6	18.8	512,400	432,900
1990	42,300	35,900	20.3	17.1	584,500	487,300
2000	49,000	41,000	20.3	17.0	681,400	551,800

Continued

Table 4.

Continued

### Social Security Benefits Received by Retired Workers Under the Scheduled and Payable Benefits Scenarios, by Birth Cohort, Lifetime Earnings Level, and Sex

10-Year Birth Cohort Starting in Year	First-Year Benefits (2008 Dollars)		First-Year Replacement Rate (Percent) <sup>a</sup>		Present Value of Lifetime Benefits (2008 Dollars) <sup>b</sup>	
	Scheduled	Payable	Scheduled	Payable	Scheduled	Payable
<b>Male Retired Workers</b>						
<i>Median for All Male Workers</i>						
1940	20,300	20,300	39.8	39.8	182,000	182,000
1950	20,500	20,500	39.8	39.8	206,800	206,500
1960	20,100	20,100	39.2	39.2	214,700	211,800
1970	20,800	20,800	40.6	40.6	228,800	213,900
1980	24,500	22,400	39.5	36.3	270,800	230,900
1990	27,900	23,500	39.1	33.0	318,800	263,700
2000	31,800	26,500	39.3	32.6	370,600	298,800
<i>Median for the Lowest Household Earnings Quintile of Men</i>						
1940	9,800	9,800	63.6	63.6	83,000	83,000
1950	10,500	10,500	62.7	62.7	96,500	96,500
1960	11,100	11,100	61.2	61.2	106,500	106,500
1970	11,800	11,800	65.3	65.4	112,500	107,700
1980	13,200	12,100	66.7	60.6	127,300	110,300
1990	15,000	12,700	66.2	56.0	152,500	125,600
2000	17,400	14,600	65.6	54.8	176,900	143,500
<i>Median for the Middle Household Earnings Quintile of Men</i>						
1940	21,000	21,000	39.1	39.1	210,300	210,300
1950	21,300	21,300	39.3	39.3	232,600	232,600
1960	20,800	20,800	38.7	38.7	235,900	233,800
1970	21,700	21,700	40.0	40.0	247,100	233,000
1980	25,500	23,300	38.9	35.6	302,000	255,700
1990	29,300	24,700	38.6	32.4	354,700	293,100
2000	33,600	27,900	38.5	31.9	413,600	333,700
<i>Median for the Highest Household Earnings Quintile of Men</i>						
1940	25,200	25,200	23.8	23.8	302,600	302,600
1950	27,600	27,600	22.7	22.7	354,400	354,200
1960	29,300	29,300	21.7	21.7	389,900	383,400
1970	32,300	32,300	22.2	22.2	435,000	402,000
1980	37,400	34,300	20.6	18.8	512,400	432,900
1990	42,300	35,900	20.3	17.1	584,500	487,300
2000	49,000	41,000	20.3	17.0	681,400	551,800

Continued

**Table 4.** **Continued**  
**Social Security Benefits Received by Retired Workers Under the Scheduled and Payable Benefits Scenarios, by Birth Cohort, Lifetime Earnings Level, and Sex**

10-Year Birth Cohort Starting in Year	First-Year Benefits (2008 Dollars)		First-Year Replacement Rate (Percent) <sup>a</sup>		Present Value of Lifetime Benefits (2008 Dollars) <sup>b</sup>	
	Scheduled	Payable	Scheduled	Payable	Scheduled	Payable
<b>Female Retired Workers</b>						
<i>Median for All Female Workers</i>						
1940	12,700	12,700	50.6	50.6	136,700	136,700
1950	13,600	13,600	49.5	49.5	153,800	153,700
1960	14,300	14,300	47.5	47.5	167,900	164,900
1970	15,400	15,400	48.7	48.7	183,200	171,100
1980	17,700	16,400	47.5	43.9	217,100	185,800
1990	20,700	17,400	46.5	39.2	256,500	212,000
2000	23,800	19,700	46.7	38.7	300,700	242,400
<i>Median for the Lowest Household Earnings Quintile of Women</i>						
1940	7,900	7,900	80.9	80.9	78,200	78,200
1950	9,000	9,000	76.3	76.3	89,700	89,600
1960	9,700	9,700	72.2	72.2	100,600	99,900
1970	10,400	10,400	73.2	73.2	104,100	99,000
1980	11,600	10,600	72.4	65.0	118,200	101,700
1990	13,500	11,400	71.5	59.9	144,600	120,000
2000	15,300	12,700	71.3	59.5	165,200	132,500
<i>Median for the Middle Household Earnings Quintile of Women</i>						
1940	13,300	13,300	49.0	49.0	149,600	149,600
1950	14,700	14,700	47.5	47.5	167,200	167,200
1960	15,500	15,500	45.2	45.2	185,800	182,900
1970	16,800	16,800	45.9	45.9	199,500	185,900
1980	19,500	17,900	44.9	42.0	238,700	202,400
1990	22,700	19,200	44.3	37.3	284,200	235,700
2000	26,000	21,400	44.6	36.8	331,600	266,400
<i>Median for the Highest Household Earnings Quintile of Women</i>						
1940	18,400	18,400	40.2	40.2	206,500	206,500
1950	21,600	21,600	37.7	37.7	254,600	254,100
1960	22,300	22,300	35.9	35.9	265,400	259,900
1970	23,700	23,700	36.3	36.3	293,000	272,100
1980	29,400	27,000	34.2	31.3	359,700	304,800
1990	33,800	28,400	33.8	28.4	419,200	347,700
2000	38,600	32,200	33.5	28.0	486,900	391,300

Source: Congressional Budget Office.

Notes: In the scheduled benefits scenario, workers receive full benefits as calculated under current law. In the payable benefits scenario, workers receive full benefits until the trust funds are exhausted. Then benefits are subjected to an across-the-board cut each year so that total projected benefits equal projected revenues.

First-year benefits and replacement rates are computed for all individuals who are eligible to claim Old-Age Insurance benefits at age 62 and who have not yet claimed any other benefit. All workers are assumed to have claimed benefits at age 65. All values are net of income taxes paid on benefits and credited to the Social Security trust funds.

The median values for the categories of all workers, all female workers, and all male workers differ from the median values in the respective middle quintiles because individuals are sorted into quintiles on the basis of household earnings rather than benefits.

- a. First-year benefits as a percentage of average career earnings.
- b. The present value of all retired-worker benefits received. To calculate their present value, benefits have been adjusted for inflation (to produce constant dollars) and discounted to age 60. Values are net of income taxes paid on benefits and credited to the Social Security trust funds (the Old-Age and Survivors Insurance and Disability Insurance Trust Funds).

**Table 5.****Social Security Benefits Received by Disabled Workers Under the Scheduled and Payable Benefits Scenarios, by Birth Cohort and Age of Onset of Disability**

10-Year Birth Cohort Starting in Year	First-Year Benefits (2008 Dollars)		First-Year Replacement Rate (Percent) <sup>a</sup>		Present Value of Lifetime Benefits (2008 Dollars) <sup>b</sup>	
	Scheduled	Payable	Scheduled	Payable	Scheduled	Payable
<b>Median for All Disabled Workers</b>						
1940	13,200	13,200	47.3	47.3	213,000	213,000
1950	13,900	13,900	49.6	49.6	220,900	220,800
1960	15,100	15,100	52.1	52.1	218,600	217,600
1970	16,800	16,800	53.6	53.6	239,700	234,800
1980	18,700	18,300	53.6	53.2	285,200	264,900
1990	21,900	19,500	52.9	48.6	356,000	309,400
2000	25,000	21,400	52.9	46.1	429,000	358,100
<b>Median for Disabled Workers with Disability Onset Through Age 39</b>						
1940	c	c	c	c	c	c
1950	c	c	c	c	c	c
1960	9,200	9,200	59.1	59.1	317,500	317,500
1970	10,100	10,100	62.7	62.7	346,100	344,200
1980	12,000	12,000	61.1	61.1	422,000	417,000
1990	14,400	14,400	57.6	57.6	509,400	494,300
2000	16,200	16,200	58.0	58.0	603,100	560,700
<b>Median for Disabled Workers with Disability Onset from Ages 40 to 54</b>						
1940	c	c	c	c	c	c
1950	12,800	12,800	51.0	51.0	247,500	247,500
1960	13,700	13,700	53.2	53.2	242,700	242,200
1970	15,200	15,200	55.0	55.0	242,400	241,200
1980	17,000	17,000	55.2	55.2	278,100	273,000
1990	19,900	19,500	54.1	53.3	353,400	321,700
2000	22,600	20,000	54.3	48.1	433,800	364,300
<b>Median for Disabled Workers with Disability Onset from Ages 55 to the Normal Retirement Age</b>						
1940	14,700	14,700	47.5	47.4	196,100	196,100
1950	16,300	16,300	48.7	48.7	191,700	191,700
1960	18,000	18,000	50.0	50.0	189,300	188,500
1970	19,700	19,700	51.1	51.1	216,300	211,700
1980	22,800	22,200	50.9	50.2	265,400	238,000
1990	26,500	22,600	50.3	43.3	333,400	277,500
2000	30,500	25,400	50.5	42.1	400,500	325,500

Source: Congressional Budget Office.

Notes: In the scheduled benefits scenario, workers receive full benefits as calculated under current law. In the payable benefits scenario, workers receive full benefits until the trust funds are exhausted. Then benefits are subjected to an across-the-board cut each year so that total projected benefits equal projected revenues.

First-year annual benefits and replacement rates are computed for all individuals who are eligible to claim Disability Insurance benefits. All values are net of income taxes paid on benefits and credited to the Social Security trust funds.

- a. First-year benefits as a percentage of average career earnings.
- b. The present value of all disability benefits received and retired-worker benefits received after the normal retirement age (the age at which a worker becomes eligible for full retirement benefits). To calculate their present value, benefits have been adjusted for inflation (to produce constant dollars) and discounted to age 60. Values are net of income taxes paid on benefits and credited to the Social Security trust funds (the Old-Age and Survivors Insurance and Disability Insurance Trust Funds).
- c. Results are not presented for those groups because data are not available for people who died before 1984.

**Table 6.**

**Probability That the Social Security Trust Funds Will Be Sufficient to Pay Specified Percentages of Scheduled Benefits, by Birth Cohort**

10-Year Birth Cohort Starting in Year	Probabilities, by Percentage of Benefits Payable <sup>a</sup>									
	99 or More	95 or More	90 or More	85 or More	80 or More	75 or More	70 or More	65 or More	60 or More	55 or More
<b>First-Year Benefits</b>										
1940	100	100	100	100	100	100	100	100	100	100
1950	100	100	100	100	100	100	100	100	100	100
1960	93	95	98	99	99	99	100	100	100	100
1970	61	67	75	82	88	92	97	99	100	100
1980	41	48	54	64	75	84	89	94	97	98
1990	32	35	43	52	63	75	84	92	97	99
2000	25	31	40	48	58	67	77	86	93	97
<b>Lifetime Benefits</b>										
1940	89	99	100	100	100	100	100	100	100	100
1950	60	89	98	100	100	100	100	100	100	100
1960	39	63	82	92	98	99	100	100	100	100
1970	28	43	60	76	88	96	98	100	100	100
1980	20	34	49	65	79	93	98	99	100	100
1990	13	25	40	55	68	81	92	98	99	100
2000	7	18	29	43	58	74	87	94	97	99

Source: Congressional Budget Office.

a. The sum of all payable benefits for all individuals in a birth cohort divided by the sum of scheduled benefits for that cohort.





## Changes in CBO's Long-Term Social Security Projections Since December 2007

**T**he Congressional Budget Office's (CBO's) long-term projections of the finances of the Social Security program have changed since CBO released *The Long-Term Budget Outlook* in December 2007. CBO's current estimates cover the same period as those in the earlier report—2008 through 2082—but they make use of new data, more current assumptions about demographics and the economy, and improvements in modeling.

CBO's current estimates show a smaller shortfall than its 2007 projections. Projections of revenues as a share of gross domestic product (GDP) have decreased by 2 percent, from 5.15 percent to 5.07 percent. Projections of summarized 75-year outlays have declined by 6 percent, from 5.80 percent of GDP to 5.45 percent. As a result, the projected 75-year summarized deficit has decreased from 0.65 percent of GDP to 0.38 percent.

In CBO's new projections, the reductions in projected outlays as a share of GDP (compared with the 2007 estimates) grow steadily larger over the 2008–2082 projection period. In 2020, projected outlays as a share of GDP are 1 percent lower than in the 2007 projections; in 2025, they are 5 percent lower; and in 2050, they are 9 percent lower. CBO now estimates that by the end of the projection period, in 2082, Social Security outlays will equal 5.8 percent of GDP—11 percent lower than last year's projection of 6.4 percent of GDP.

A major reason for the change is a difference in CBO's long-term projections of GDP. CBO's new estimate of GDP over the 2008–2082 period is substantially higher than its 2007 projection, thus reducing the ratio of both revenues and outlays to GDP. The most important reason for the projection of higher GDP is the substantial alterations in the Social Security trustees' projections of immigration.<sup>1</sup> (As discussed in the main text, CBO adopts the trustees' assumptions to project overall trends in demo-

graphics and disability.) The trustees changed their assumption about future immigrants, boosting the net number; more important, they shifted their assumption about the number of people of different ages among that population to reflect more younger immigrants. (A younger immigrant population results in both more immigrant workers and additional births.)

Thus, the trustees' projection of the number of prime-age workers (ages 20 to 64) in 2060 is 8 percent higher than the projection published in their 2007 report on the Social Security system, whereas their projection of the number of people aged 65 and older is unchanged. By 2082, the number of people aged 65 and older in the trustees' new projections is 4 percent greater than in the 2007 projections, but the number of prime-age workers is 11 percent greater.

The changes in the estimated number of people of different ages in the immigrant population have implications for CBO's projection of GDP. Its new estimate of GDP over the 2008–2082 period is substantially higher than its 2007 projection, but CBO's estimate of total outlays for the Social Security program is almost unchanged—which accounts for much of the decline projected in outlays as a share of GDP.

Other factors also contribute to the increase in CBO's current projection of GDP. A small portion of that increase is attributable to a change in CBO's assumption about the average annual rate of growth of real (inflation-adjusted) wages. CBO now projects a growth rate of about 1.4 percent, compared with its estimate of 1.2 percent in December 2007.

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1. See Social Security Administration, *The 2008 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds* (March 25, 2008).

The decline in revenues as a percentage of GDP is smaller than the decline in outlays in part because of a conceptual shift. CBO's current projections of revenues from income taxes on Social Security benefits are consistent with the assumptions embodied in the extended-baseline scenario discussed in Box 1 on page 3. That change in the assumption about income tax receipts results in revenues from income taxes on benefits that are greater than those estimated under the assumptions used for earlier projections.<sup>2</sup>

Two additional changes in modeling since CBO last published its long-term Social Security projections affect estimates of revenues and outlays. First, CBO has improved

its modeling of immigration and emigration to incorporate some differences between the projected educational attainment of native-born citizens and that of immigrants. As a result, the projected taxable earnings of immigrants are lower, on average, than those of native-born citizens. (Future work will introduce other differences between citizens and immigrants into the model, such as those directly related to labor force participation and earnings.) Second, CBO has improved its modeling of differential mortality (that is, the lower mortality rates experienced by people who have higher household earnings as compared with the rates of those who have lower earnings). Differential mortality leads to increased Social Security outlays because high earners tend to live longer; if there were no differential mortality, total outlays would be about 1 percent lower.

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2. For details, see Congressional Budget Office, *The Outlook for Social Security* (June 2004), Box 3-1.

## Differences Between CBO's Long-Term Projections of Social Security's Finances and Those of the Social Security Trustees

**E**ach year, the Social Security trustees (in formal terms, the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds) publish long-term projections for the Social Security program.<sup>1</sup> The trustees' projections differ somewhat from the Congressional Budget Office's (CBO's), but both organizations conclude that under current law, the program's scheduled outlays will exceed its scheduled revenues during the next 75 years and the program's annual deficits will be large and growing over the long term. Both groups of estimators project that the program's outlays will rise to 5.8 percent of gross domestic product (GDP) in 2082. CBO's projection of revenues for that year is 4.7 percent of GDP; the trustees' projection of revenues equals 4.4 percent of GDP.

On a summarized basis, CBO's and the trustees' estimates are quite similar. The trustees project that summarized 75-year outlays will be 5.63 percent of GDP—or 3 percent greater than CBO's projection of 5.45 percent. The trustees' projection of summarized 75-year revenues is 5.02 percent of GDP—1 percent lower than CBO's projection of 5.07 percent. Yet despite the similarities, such small differences in CBO's and the trustees' projections of outlays and revenues can result in relatively large differences in their projections of long-term deficits. Thus, CBO estimates that the summarized 75-year shortfall will

be 0.38 percent of GDP, and the trustees project that the deficit will be 0.61 percent. As a percentage of taxable payroll, those figures are equivalent to projected deficits of 1.06 percent by CBO's calculations and 1.70 percent by the calculations of the trustees.

Those differences result in part from different assumptions about future tax and interest rates and the pace of growth of wages. CBO assumes that current income tax law will remain unchanged and that therefore, with the scheduled expiration of the tax reductions enacted in 2001 and 2003, effective income tax rates—and revenues to the Social Security trust funds from the taxation of benefits—will increase. The trustees, in contrast, assume that effective income tax rates during the 75-year projection period will be similar to current levels.

Another divergence between the two sets of assumptions is CBO's assumed real (inflation-adjusted) interest rate of 3.0 percent, which is slightly higher than the trustees' assumed rate of 2.9 percent. In calculations of present value, CBO's higher rate places less weight on the large deficits that occur in later years and results in smaller summarized deficits. CBO's projection of a faster rate of growth of wages—1.4 percent rather than the trustees' 1.1 percent—also leads to smaller summarized deficits.

A number of small differences in modeling further distinguish CBO's and the trustees' projections. The result is that CBO projects somewhat smaller average benefits, even after accounting for differences between its economic assumptions and those of the trustees.

1. The latest report (Social Security Administration, *The 2008 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*) was published on March 25, 2008.







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