

# Updated Long-Term Projections for Social Security

June 2006

The Congressional Budget Office (CBO) first released long-term (100-year) Social Security projections in *The Outlook for Social Security* (June 2004). Those projections were updated in March 2005 (see *Updated Long-Term Projections for Social Security*). This report and the attached tables and figures present the agency's latest long-term Social Security projections, which differ slightly from the earlier results because of newly available data, updated assumptions, and improved modeling.<sup>1</sup> Such long-term projections are necessarily uncertain, but the general conclusions presented in this report hold true under a wide range of assumptions about future demographic and economic trends.

In this analysis, CBO presents future Social Security benefits under two scenarios. In the “payable benefits” scenario, outlays include only those benefits that the Social Security Administration (SSA) has legal authority to pay under current law. That scenario assumes all benefits will be reduced once the trust funds are exhausted so that total outlays equal available revenues.<sup>2</sup> In the other scenario, termed the “scheduled benefits” scenario, outlays include the full benefits as currently calculated.

At the present time, Social Security revenues are greater than outlays, but as the baby-boom generation continues to age, outlays will grow substantially faster than revenues. CBO projects that outlays will begin to exceed revenues in 2019 and that the Social Security trust funds will be exhausted in 2046. (All years referred to in this report are calendar years.) SSA would then no longer have the legal authority to pay full benefits. In the years following trust fund exhaustion, payable benefits would be substantially lower than scheduled benefits because annual outlays would be constrained to equal annual revenues.

CBO's projections of benefit levels indicate that future beneficiaries will receive higher retirement benefits—and pay higher Social Security taxes—than current beneficiaries do, even after adjustments for inflation and for the reductions that occur after the trust funds are exhausted. However, those benefits will represent a smaller percentage of their preretirement earnings than is the case now.

## Social Security Finances

Social Security is currently running an annual surplus, which, on net, offsets a portion of the deficit in the rest of the budget and thus reduces the total federal budget deficit. In 2005, total outlays (benefits and administrative costs) equaled 4.24 percent of gross domestic product (GDP), whereas dedicated revenues (Social Security payroll taxes and income taxes on benefits

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<sup>1</sup>Appendix A reviews the changes since the March 2005 update.

<sup>2</sup>In the June 2004 report, this scenario was described as the “trust fund financed” scenario.

that are credited to the Social Security trust funds, but not interest credited to the trust funds) equaled 4.87 percent of GDP. As members of the baby-boom generation retire, the number of Social Security beneficiaries will rise considerably. Absent legislative changes, spending for the program will rise to more than 6 percent of GDP in 2030, CBO projects. With life expectancy continuing to increase, outlays in later years will grow steadily as a share of GDP, though at a slower pace.

Benefits are funded primarily through payroll taxes, with a small portion of revenues derived from income taxes on the benefits of higher-income beneficiaries. Because earnings are projected to be a relatively constant share of GDP, and payroll taxes are a relatively constant share of earnings, Social Security revenues will remain close to their current level—about 5 percent of GDP—in the absence of changes to the program.

Beginning in 2019, annual outlays for Social Security are projected to exceed revenues. At that time, the Social Security system will no longer, on net, offset a portion of the deficit in the rest of the budget but instead will increase the total deficit (or reduce the total surplus, if one materializes). Even if spending ends up being lower than expected and revenues are higher than expected, a gap between the two is likely to remain for the indefinite future.

According to CBO's estimates, in the years after 2035, paying Social Security benefits as currently scheduled would require economic resources totaling more than 6.5 percent of GDP. (Note that scheduled benefits can be paid in full only if sufficient balances are available in the Social Security trust funds. As previously stated, CBO projects that the trust funds will be exhausted in 2046, after which scheduled benefits cannot be paid in full.) Table 1-1 shows annual scheduled outlays and revenues for selected years. Figure 1-1 shows annual scheduled outlays and revenues from 1985 through 2105. 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).

CBO generally presents outlays and revenues relative to GDP, but another common practice is to compare outlays and revenues relative to taxable payroll. Projections of annual outlays and revenues as a share of taxable payroll are presented in Table W-2 of the supplementary data file.

### **The Uncertainty of Social Security Projections**

The uncertainty that surrounds Social Security poses an important economic and policy consideration for both individuals and policymakers. To display the uncertainty inherent in long-term projections, CBO calculates ranges of possible outcomes associated with its basic projections for Social Security. To do that, CBO uses standard statistical techniques to analyze patterns of past variation in most of the demographic and economic factors—such as fertility and mortality rates, interest rates, and the rate of productivity growth—that underlie the analysis. The agency then runs 500 projections, each time with random variations in the assumed values for those factors that reflect the variation observed historically. Individually, those simulations have

little meaning, but together they compose a distribution of possible outcomes.<sup>3</sup>

That distribution is shown in this analysis with an 80 percent range of uncertainty—the range within which there is an 80 percent chance that the actual value will fall. For example, although Social Security outlays are projected to equal about 5.7 percent of GDP in 2025, CBO’s uncertainty analysis indicates that there is a 10 percent chance that outlays will be less than 4.9 percent of GDP in that year and a 10 percent chance that they will exceed 6.6 percent of GDP (see Table 1-1). In any case, they are virtually certain to be notably higher than current outlays of roughly 4.2 percent of GDP.

### **Summarized Outlays and Revenues**

Long-term projections of annual outlays and revenues provide a comprehensive presentation of the overall magnitude and timing of the economic and budgetary implications of the Social Security program as governed by current law. For narrower purposes, analysts frequently summarize the program’s scheduled outlay and revenue data in a single number for a given period (for example, total outlays over 50 or 100 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 adjustment for inflation, a dollar today is more valuable than a dollar in the future. Thus, the data are summarized 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. Calculating the summarized measures involves making two other adjustments as well. First, the current trust fund balance is added to summarized revenues to reflect Social Security’s financial history (incorporating the net effect of past annual Social Security surpluses and deficits). Second, an additional year’s worth of projected outlays is added to summarized outlays to reflect the goal of having a “cushion” in the trust funds at the end of the period being considered.

CBO projects Social Security’s summarized outlays under the scheduled benefits scenario over 100 years at 6.04 percent of GDP and summarized revenues at 5.26 percent, resulting in a summarized deficit of 0.78 percent of GDP; as a share of taxable payroll, the 100-year summarized deficit is 2.06 percent (see Table 1-2).<sup>4</sup> There is a greater than 99 percent probability that total outlays over 100 years will exceed total revenues (that is, the summarized balance will be less than zero), CBO projects. In addition, the 100-year summarized deficit may be much greater than 0.78 percent of GDP; there is a 10 percent chance that it will exceed 1.46 percent of GDP.

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<sup>3</sup>For more details, see Congressional Budget Office, *Quantifying Uncertainty in the Analysis of Long-Term Social Security Projections* (November 2005).

<sup>4</sup>Another commonly referenced measure of Social Security finances is the 75-year summarized deficit as a share of taxable payroll, which CBO projects to be 1.54 percent.

## **Trust Fund Ratios**

Another common measure of Social Security's finances is the ratio of the trust fund balance to annual outlays, which indicates how many years' worth of benefits could be funded with a given balance. The trust fund balance summarizes the cumulative accounting history of the Social Security program in a single number, because it equals the present value of all past revenues minus the present value of all past outlays. That measure is also important from a policy perspective, because the program's spending authority under current law is limited to the balance of the trust funds.

Trust fund holdings are invested in Treasury bonds. In effect, the Social Security trust funds make loans to the federal government's general fund, which will need to pay for the bonds when they are redeemed. Thus, such holdings are not assets of the government as a whole.

The 2006 trust fund ratio—the balance at the beginning of the year divided by projected outlays for that year—equals 3.3, according to CBO's estimates. That ratio is projected to rise to 4.4 in 2017 and then decline quickly (see Figure 1-2).

As previously stated, the expected trust fund exhaustion date—the year in which the trust fund balance and thus the trust fund ratio fall to zero—is 2046 in CBO's projection. But there is a 10 percent chance that the exhaustion date will be 2035 or earlier and a 10 percent chance that it will be after 2074 (as the uncertainty range in Figure 1-2 shows). Although the figure shows negative trust fund ratios after the exhaustion date, the trust fund balances cannot be negative because the Social Security program does not have the legal authority to borrow money. Thus, those negative balances represent the cumulative amount of scheduled benefits that cannot be paid out of current-law Social Security revenues.

## **Alternative Measures of Outlays**

To reflect the fact that the Social Security Administration does not have the legal authority to pay full benefits after the trust funds are exhausted, CBO generally specifies two scenarios in long-term Social Security analyses. In the scheduled benefits scenario, outlays are assumed to represent the full benefits as currently calculated, even after the trust funds are exhausted. In the payable benefits scenario, outlays include only those benefits that SSA is authorized to pay under current law. Thus, the second scenario assumes that once the trust funds are exhausted, all benefits—those paid both to existing beneficiaries as well as to new beneficiaries—are reduced so that total outlays equal available revenues. The analysis assumes that all scheduled benefit payments are reduced by a fixed percentage that changes each year.

Payable benefits equal scheduled benefits until the trust funds are exhausted and equal Social Security revenues thereafter. In 2047, revenues will equal only 79 percent of scheduled outlays, so payable benefits will be 21 percent lower than scheduled benefits (see Figure 1-3). The difference continues to grow: by 2100, payable benefits will be only 69 percent of scheduled benefits, CBO projects.

## **The Distribution of Taxes and Benefits**

An important part of understanding the Social Security's effects on the economy is examining the distribution of taxes and benefits among groups of participants. This analysis provides several measures of projected Social Security taxes paid and benefits received by people in various age and income groups.

### *First-Year Benefits*

The initial level of benefits that a retired worker receives in real (inflation adjusted) dollars is a measure of his or her purchasing power.<sup>5</sup> A worker's scheduled benefit level depends both on the program's benefit structure, which is specified by Social Security law, and on the worker's earnings history. Growth in average earnings will generally cause scheduled benefits to increase over time. However, benefit growth will be partially offset by the scheduled increase in the normal retirement age, which is rising from 65 for people born in 1937 and earlier to 67 for those born after 1959. That increase is effectively equivalent to a benefit reduction (see Figure 2-1 and the first column of Table 2-1). Payable benefits are projected to fall by 21 percent in the year the trust funds are exhausted but then resume their increase from that lower level as earnings grow. Even with that drop, CBO projects that future retirees will earn higher real median benefits than today's retirees.

The trends are similar for first-year disability benefits. However, because the scheduled increase in the normal retirement age will have no effect on those benefits, CBO projects that first-year disability benefits will increase steadily over time (see Figure 2-1a and the first column of Table 2-1a<sup>6</sup>).

### *First-Year Replacement Rates*

A different perspective on benefit levels is given by the replacement rate—the ratio of first-year benefits to average career earnings.<sup>7</sup> The scheduled increase in the normal retirement age lowers the replacement rate for future retirees compared with the rate for people retiring now. If benefits are paid as scheduled, the median replacement rate for retirees born in the 1990s will be 2 percentage points lower than the rate for retirees born in the 1940s (see the third column in Table 2-1). In the case of payable benefits, the replacement rate will drop dramatically after the trust funds are exhausted (see Figure 2-2).

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<sup>5</sup>That level depends in part on when the retiree decides to claim benefits—the later the claiming age, the higher the benefits. Thus, changes in claiming age over time would result in apparent changes in benefit levels. To ensure that the data are comparable over time, this analysis considers a hypothetical benefit amount: the median benefit that workers would receive if everyone claimed benefits at age 65.

<sup>6</sup>Distributional results for disabled beneficiaries are shown in Table 2-1a and Figures 2-1a, 2-2a, and 2-3a. Those data were not included in *The Outlook for Social Security* or the March 2005 update.

<sup>7</sup>In that calculation, “average career earnings” refers to the average of a retired worker's highest 35 years of covered earnings, indexed to compensate both for past inflation and for real growth in average earnings nationwide. (Covered earnings may be higher than taxable earnings because they incorporate all earnings, including amounts above the maximum level of earnings subject to the Social Security payroll tax.)

The progressive nature of Social Security’s benefit formula means that replacement rates are higher for workers with lower earnings. And because disabled workers tend to have lower earnings than retired workers do, their replacement rates tend to be higher (see the third column in Table 2-1a and Figure 2-2a.)<sup>8</sup>

### *Lifetime Benefits*

Another way to measure the income that retirees receive from Social Security is to look at lifetime retirement benefits—the present value of all of the benefits that a worker gets from the program during retirement. The trend in lifetime retirement benefits (shown in Figure 2-3) differs from the trend in first-year benefits (shown in Figure 2-1). Two factors explain that difference. First, as life expectancy increases, retirees will collect benefits for a longer period, and scheduled lifetime benefits will rise faster than scheduled first-year benefits. Second, cohorts who retire before the trust funds are exhausted will collect the full amount of their scheduled first-year benefits, but some will still be receiving benefits when the trust funds become exhausted. As a result, their payable lifetime benefits will be lower than their scheduled lifetime benefits (see the last two columns of Table 2-1). However, even payable lifetime benefits will increase for every cohort.

The present value of median lifetime benefits paid to disabled workers, including the retirement benefits they receive after reaching the normal retirement age, is much higher. They receive higher benefits than retired workers both because they tend to receive benefits for a greater number of years and because those benefits are paid earlier in their lifetime, which increases the present value (see Figure 2-3a and the last two columns of Table 2-1a).

### *Total Lifetime Social Security Payroll Taxes and Benefits*

For simplicity, the three measures discussed above include only worker benefits. A more comprehensive perspective comes from considering the present value of total Social Security payroll taxes paid over a lifetime and the present value of total Social Security benefits—payments to retired workers, disabled workers, dependents, and survivors—received by individuals over a lifetime.

Recipients prefer higher benefits, of course, but they also prefer more certainty. To reflect both factors, CBO presents ranges of uncertainty for lifetime measures of taxes and benefits.

Figure 2-4 shows the 80 percent range of uncertainty for the projected lifetime payroll taxes that individuals will pay under current law, broken down by 10-year birth cohort and quintile of lifetime household earnings. Those taxes comprise all Social Security payroll taxes levied on individual earnings (both the employer and employee shares).

Figure 2-5 presents equivalent projections for average lifetime benefits, which comprise all

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<sup>8</sup>For disabled-worker beneficiaries, average career earnings are calculated not over 35 years but over the same number of years that are used in calculating benefits. For example, in the case of workers who became disabled at age 50, average earnings would be calculated over the highest 23 years of earnings.

benefits received by individuals within a birth cohort (including retired-worker, disabled-worker, dependent, and survivor benefits) minus 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.

Finally, Figure 2-6 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.

### **Assumptions**

A number of basic assumptions underlie all long-term Social Security projections.<sup>9</sup> CBO adopts the assumptions of the Social Security trustees to project overall demographic and disability trends.<sup>10</sup> Specifically, the assumptions for the aggregate fertility rate, the rate of decline in mortality, the level of immigration, and the rates of disability incidence and disability termination are the same as those used in the trustees' 2006 report.

For Social Security projections, the two most important economic variables are the rate of earnings growth and the interest rate on Treasury bonds held in the trust funds. Under CBO's assumptions, real earnings grow by an average of 1.16 percent annually.<sup>11</sup> CBO assumes a real interest rate of 3.0 percent a year. That rate also serves as the discount rate used in present-value calculations.

In addition, CBO assumes that annual inflation—as measured by the growth in the consumer price index for urban wage earners and clerical workers, or CPI-W—will be 2.2 percent and that the unemployment rate will be 5.2 percent.

Note that there are no specific assumptions for growth in GDP or taxable payroll. CBO computes projected levels of GDP and taxable payroll on the basis of the assumptions described above.

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<sup>9</sup>For a more detailed explanation of these assumptions, see Chapter 3 of *The Outlook for Social Security*.

<sup>10</sup>Social Security Administration, *The 2006 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds* (May 1, 2006), Section V.A., pp.70-82 and 113-120.

<sup>11</sup>CBO does not make a specific assumption about the growth of labor productivity but instead assumes that total factor productivity will grow at 1.25 percent annually. On that basis, CBO then computes the effective growth rate of real earnings, which varies but averages 1.16 percent annually after 2020.

## Appendix A Changes in Projections Since the March 2005 Update

The Congressional Budget Office's long-term Social Security projections have changed slightly since the March 2005 update. The changes stem from newly available data, updated assumptions, and improved modeling. Projections of the summarized 100-year revenues have increased by 1 percent, from 5.20 percent of gross domestic product (GDP) to 5.26 percent, while projections of the summarized 100-year outlays have increased by about 5 percent, from 5.77 percent of GDP to 6.04 percent. As a result, the projected 100-year summarized deficit has increased from 0.57 percent of GDP to 0.78 percent.

About a quarter of the increase in the summarized deficit is attributable simply to the shift in the 100-year period being considered. The current projections consider the period through 2105, which adds the relatively larger deficits in 2104 and 2105 to the computations.

Of the remainder of the increase, about half is attributable to a decrease in the assumption for the long-term interest rate—which is also the discount rate—from 3.3 percent to 3.0 percent. In the computation of the summarized measures, that decrease puts relatively greater weight on later years, when the system will be running larger deficits.

Two methodological improvements account for the remainder of the increase in the summarized deficit. First, CBO has increased estimates of the difference between expected mortality rates of retirees with high earnings and those with low earnings. As a result, average retiree benefits for a given cohort grow more quickly over time (though projections of benefit levels at retirement are unchanged). Second, CBO adjusted its modeling of individual earnings patterns; as a result, the projected portion of earnings that is taxable and thus total revenues have decreased.

Other changes—including two additional years of historical data,<sup>1</sup> an increase in the assumed fertility rate,<sup>2</sup> improvements in the modeling of auxiliary beneficiaries, and improvements in the modeling of labor force participation—resulted on net in a lower summarized deficit, slightly offsetting the factors described above.

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<sup>1</sup>CBO's March 2005 projections were released before the release of the Social Security trustees 2005 report, so it relied on historical data underlying their 2004 report. The current projections incorporate historical data underlying their 2006 report.

<sup>2</sup>See Social Security Administration, *The 2006 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds* (May 1, 2006), p.65.



**Table 1-1.**


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**Social Security Revenues and Outlays as a Percentage of Gross Domestic Product  
in Selected Years Under the Scheduled Benefits Scenario, 2005 to 2100**


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|  | <b>Actual<br/>2005</b> | <b>2025</b>   | <b>2050</b>    | <b>2075</b>    | <b>2100</b>    |
|--|------------------------|---------------|----------------|----------------|----------------|
| Revenues   | 4.87                   | 5.09          | 5.10           | 5.01           | 4.90           |
| Outlays  | 4.24                   | 5.68          | 6.50           | 6.85           | 7.09           |
| Annual Balance                                     | 0.62                   | -0.59         | -1.40          | -1.84          | -2.19          |
| <b>80 Percent Range of Uncertainty<sup>a</sup></b> |                        |               |                |                |                |
| Revenues   | 4.87                   | 4.91 to 5.29  | 4.70 to 5.40   | 4.56 to 5.41   | 4.30 to 5.46   |
| Outlays  | 4.24                   | 4.91 to 6.57  | 5.16 to 8.48   | 5.46 to 9.42   | 5.55 to 10.01  |
| Annual Balance                                     | 0.62                   | -1.54 to 0.04 | -3.53 to -0.21 | -4.44 to -0.78 | -5.14 to -0.86 |

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Source: Congressional Budget Office.

Notes: Revenues equal payroll taxes and income taxes on benefits as a share of gross domestic product (GDP) in the specified year.

Outlays equal scheduled Social Security benefits and administrative costs as a share of GDP in the specified year.

The balance is the difference between revenues and outlays as a share of GDP in the specified year and may not equal the difference between the preceding two rows because of rounding.

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). The balances shown do not equal the difference between the outlays and revenues displayed because each value is obtained from a different simulation.

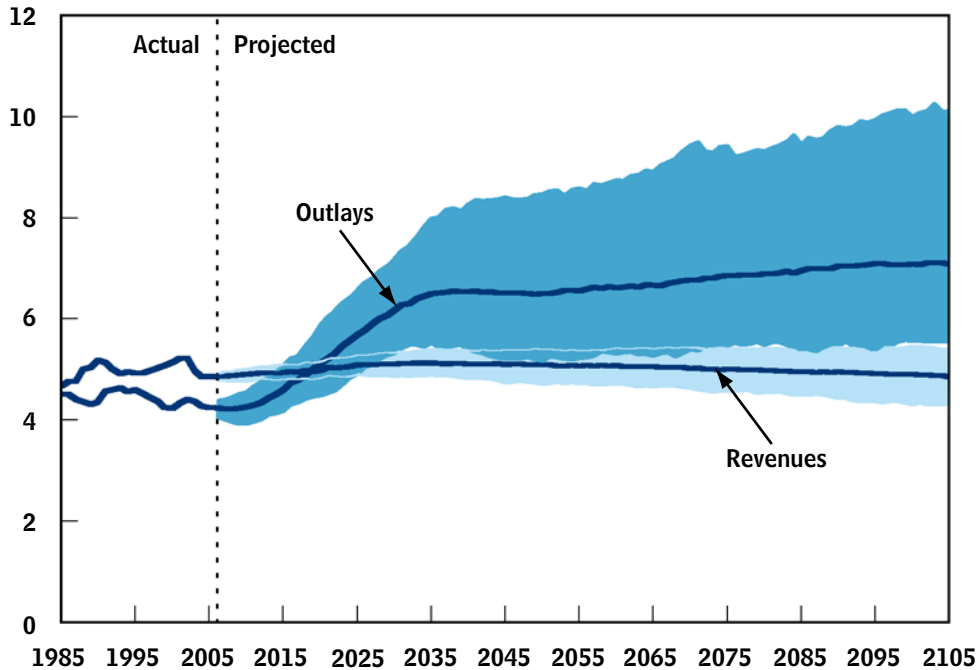
**Figure 1-1.**

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## Potential Range of Social Security Revenues and Outlays Under the Scheduled Benefits Scenario, 1985 to 2105

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(Percentage of gross domestic product)



Source: Congressional Budget Office.

Note: Revenues include payroll taxes and income taxes on benefits; outlays include scheduled Social Security benefits and administrative costs. Under current law, CBO projects that outlays begin to exceed revenues in 2019 and that starting in 2047 scheduled benefits cannot be paid in full.

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**Table 1-2.**


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**Summarized Social Security Revenues, Outlays, and Balances Under the Scheduled Benefits Scenario**


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|  | Revenues       | Outlays        | Balance        |
|--|----------------|----------------|----------------|
| <b>As a Percentage of Gross Domestic Product</b> |                |                |                |
| 50 years<br>(2006-2055)                          | 5.39           | 5.68           | -0.29          |
| 100 years<br>(2006-2105)                         | 5.26           | 6.04           | -0.78          |
| 80 Percent Range<br>of Uncertainty <sup>a</sup>  |                |                |                |
| 50 years<br>(2006-2055)                          | 5.20 to 5.55   | 5.19 to 6.27   | -0.89 to 0.13  |
| 100 years<br>(2006-2105)                         | 5.04 to 5.47   | 5.57 to 6.73   | -1.46 to -0.41 |
| <b>As a Percentage of Taxable Payroll</b>        |                |                |                |
| 50 years<br>(2006-2055)                          | 14.03          | 14.80          | -0.76          |
| 100 years<br>(2006-2105)                         | 13.84          | 15.90          | -2.06          |
| 80 Percent Range<br>of Uncertainty <sup>a</sup>  |                |                |                |
| 50 years<br>(2006-2055)                          | 13.82 to 14.25 | 13.50 to 16.38 | -2.38 to 0.33  |
| 100 years<br>(2006-2105)                         | 13.66 to 14.07 | 14.68 to 17.72 | -3.88 to -1.07 |

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Source: Congressional Budget Office.

Note: Summarized revenues and outlays are the present values of annual revenues and outlays over the relevant time period divided by the present value of gross domestic product or taxable payroll over that period. The summarized balance is the present value of revenues minus the present value of outlays, divided by the present value of GDP or taxable payroll over that period.

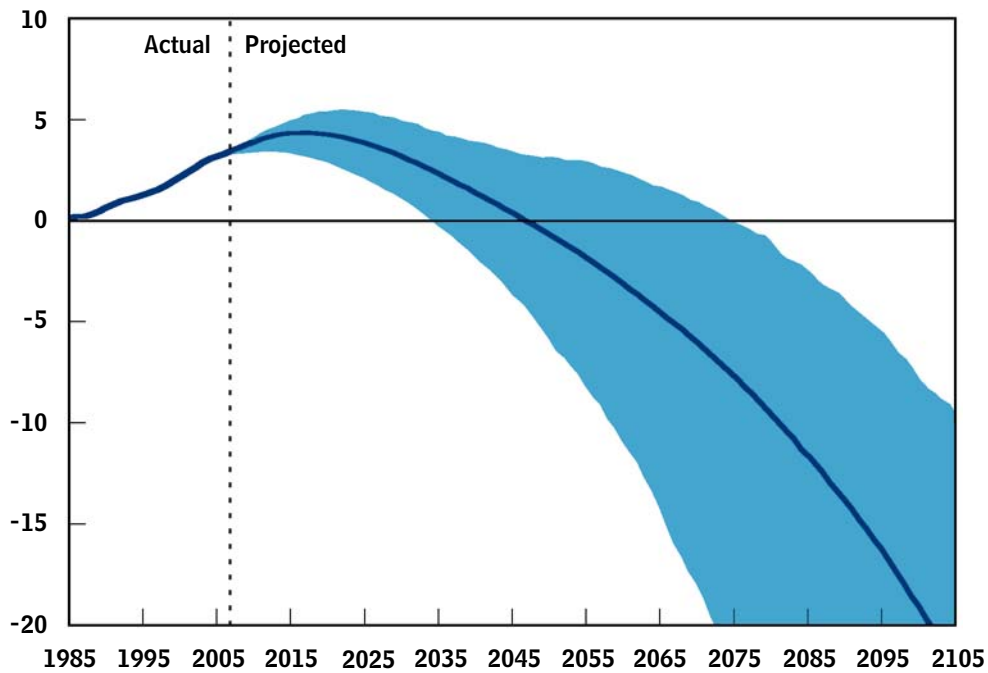
a. The range within which there is an 80 percent probability that the actual value will fall (that is, the range between the 10th and 90th percentiles for each measure based on a distribution of 500 simulations from CBO's long-term model). The balances displayed do not equal the difference between the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

**Figure 1-2.**

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**Potential Range of the OASDI Trust Fund Ratio Under the Scheduled Benefits Scenario, 1985 to 2105**

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Source: Congressional Budget Office.

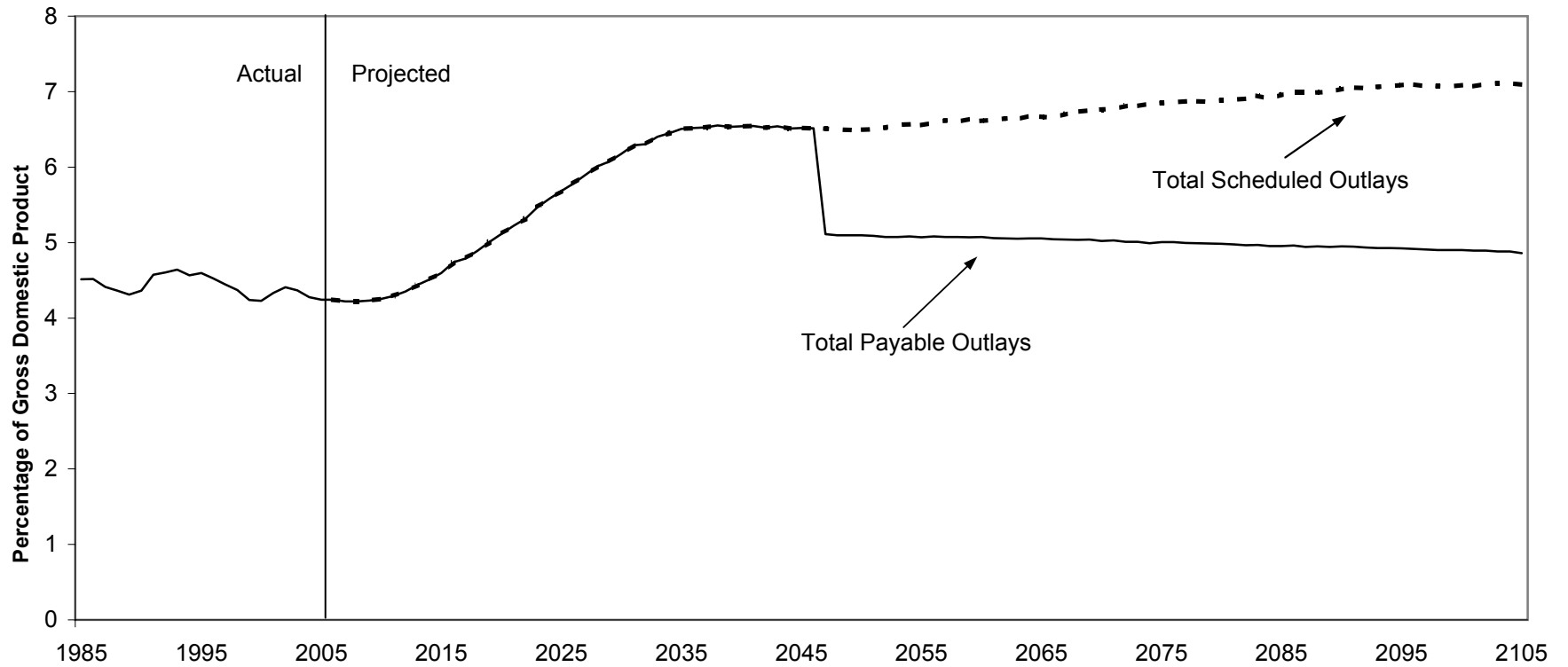
Notes: OASDI = Old-Age, Survivors, and Disability Insurance.

The trust fund ratio is the ratio of the total trust fund balance at the beginning of a calendar year to total Social Security outlays in that year.

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**Figure 1-3.**

**Outlays Under the Scheduled Benefits and Payable Benefits Scenarios, 1985 to 2105**



Source: Congressional Budget Office.

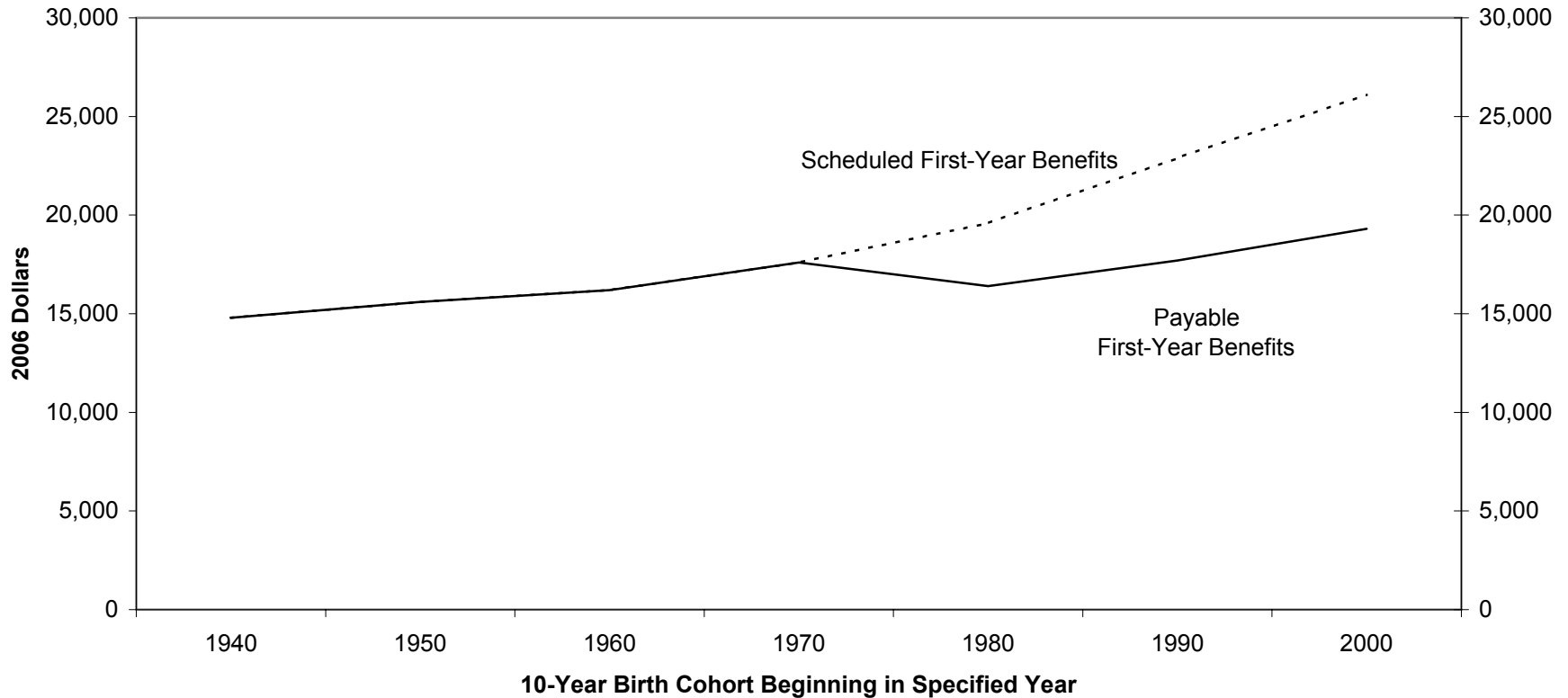
Note: Outlays under the payable benefits scenario (those financed by legal spending authority) are projected to fall below scheduled outlays in 2047, when the trust funds have been exhausted. Thereafter, outlays equal annual Social Security revenues.

**Figure 2-1.**

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**Median First-Year Retirement Benefits, by Birth Cohort**

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Source: Congressional Budget Office.

Notes: First-year benefits are projected 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.

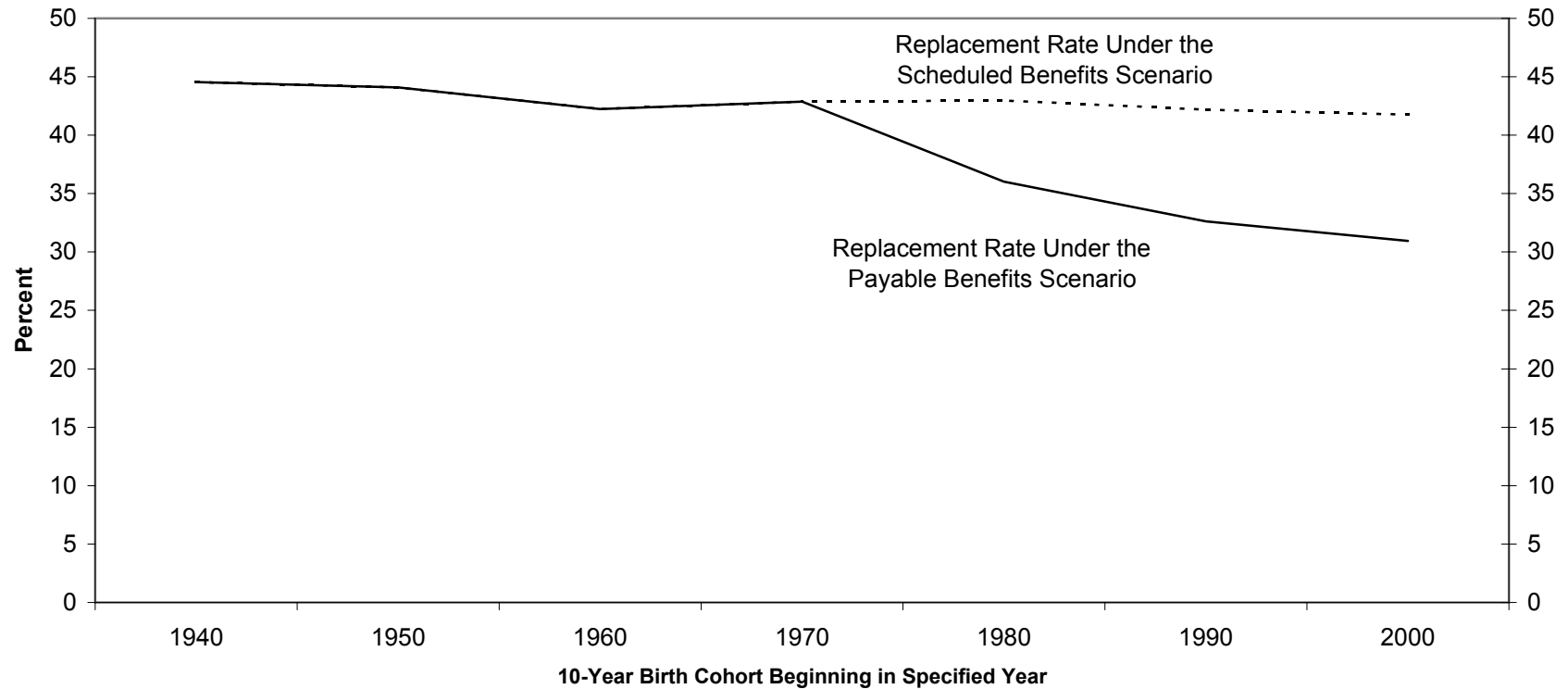
Payable benefits fall below scheduled benefits beginning in 2047, following trust fund exhaustion. Thereafter, benefits are projected by assuming an across-the-board cut in benefits each year so that total annual benefits are limited to total annual revenues. The reduction attributable to trust fund exhaustion in this measure is less dramatic than the reduction for annual outlays (as shown in Figure 1-3) because this figure shows average benefits for 10-year cohorts.

**Figure 2-2.**

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**Median Replacement Rates for Retired-Worker Beneficiaries, by Birth Cohort**

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Source: Congressional Budget Office.

Notes: Replacement rates are first-year benefits (net of income taxes paid on benefits and credited to the Social Security trust funds) as a percentage of average career earnings.

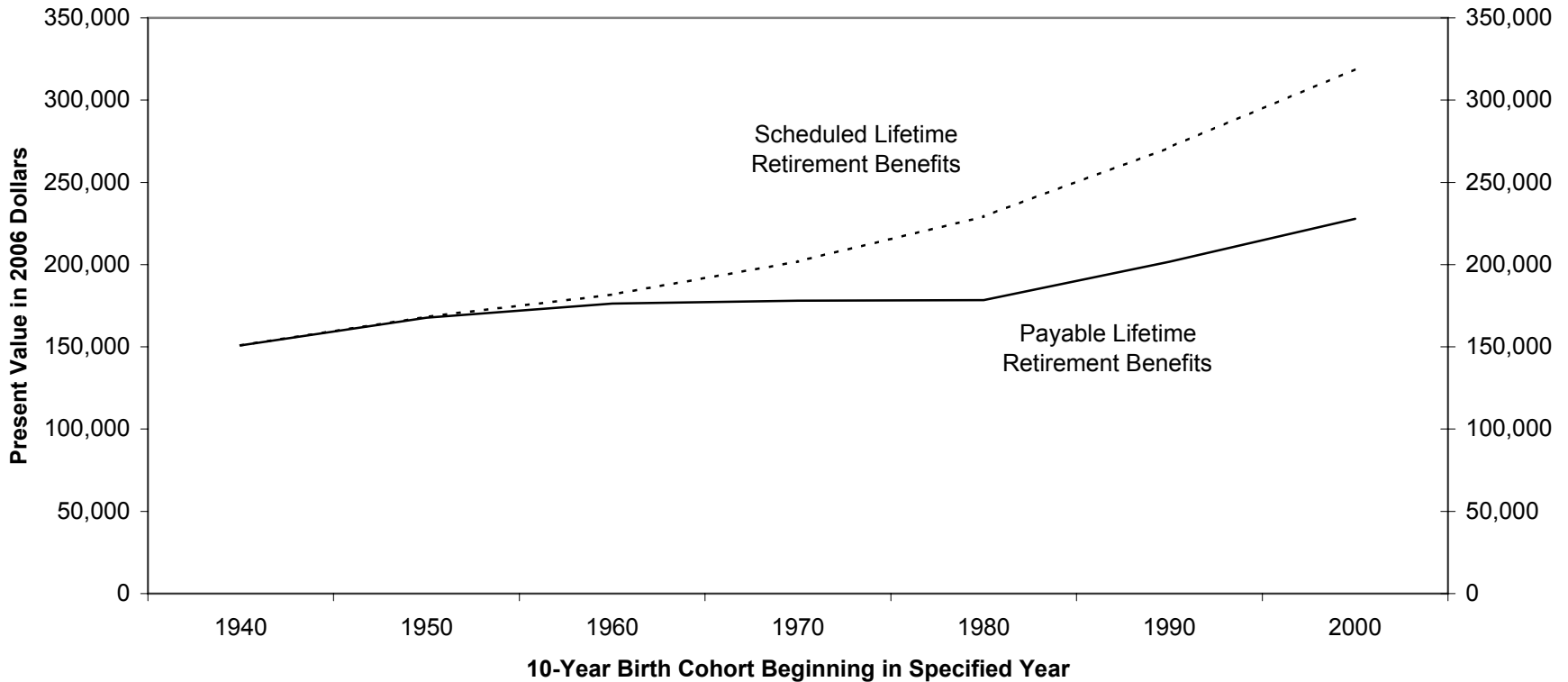
Payable benefits fall below scheduled benefits beginning in 2047, following trust fund exhaustion. Thereafter, benefits are projected by assuming an across-the-board cut in benefits each year so that total annual benefits are limited to total annual revenues. The reduction attributable to trust-fund exhaustion in this measure is less dramatic than the reduction for annual outlays (as shown in Figure 1-3) because this figure shows average replacement rates for 10-year cohorts.

**Figure 2-3.**

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**Median Lifetime Retirement Benefits, by Birth Cohort**

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Source: Congressional Budget Office.

Notes: Lifetime retirement benefits have been adjusted for inflation (to put them in constant dollars) and discounted to age 60. Values are net of income taxes paid on benefits and credited to the Social Security trust funds.

Payable benefits fall below scheduled benefits beginning in 2047, following trust fund exhaustion. Thereafter, benefits are projected by assuming an across-the-board cut in benefits each year so that total annual benefits are limited to total annual revenues.

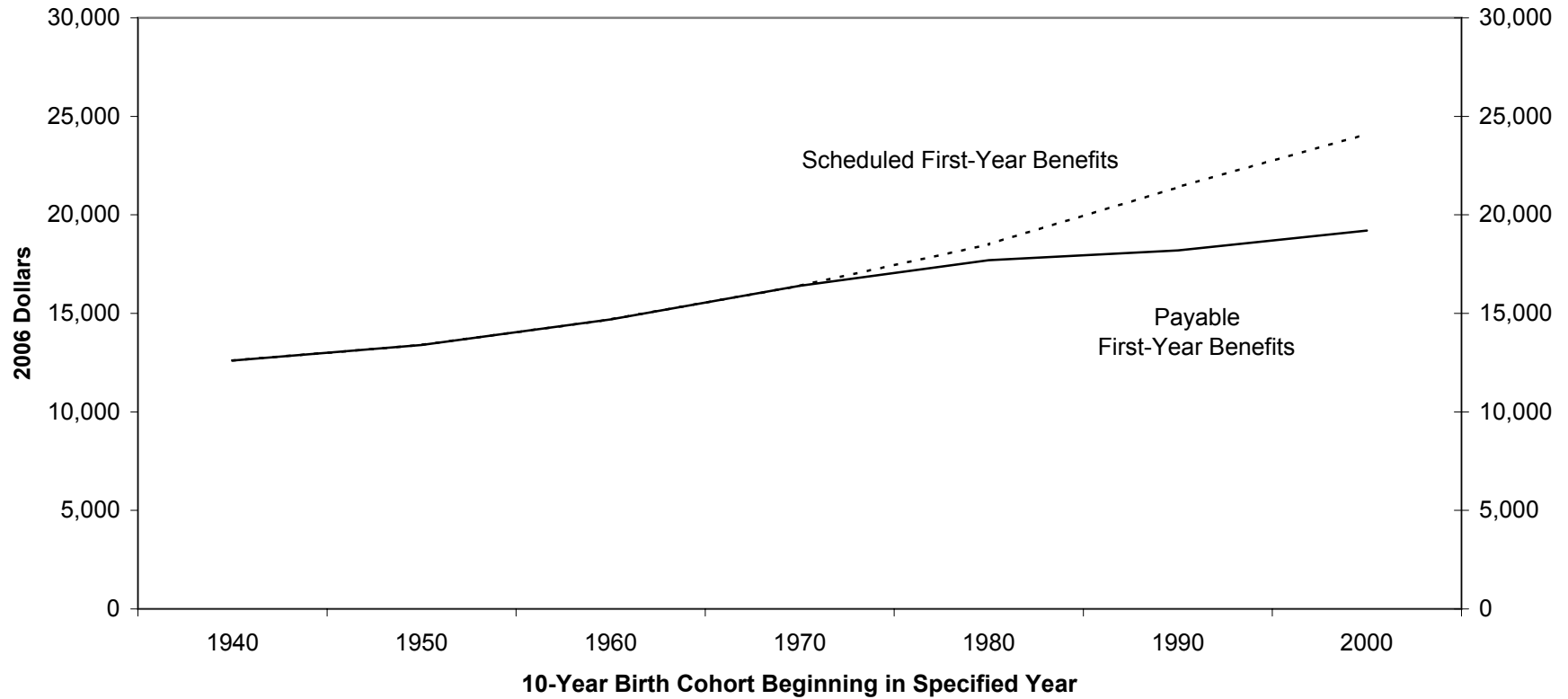


**Figure 2-1a.**

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**Median First-Year Disability Benefits, by Birth Cohort**

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Source: Congressional Budget Office.

Notes: Values are net of income taxes paid on benefits and credited to the Social Security trust funds.

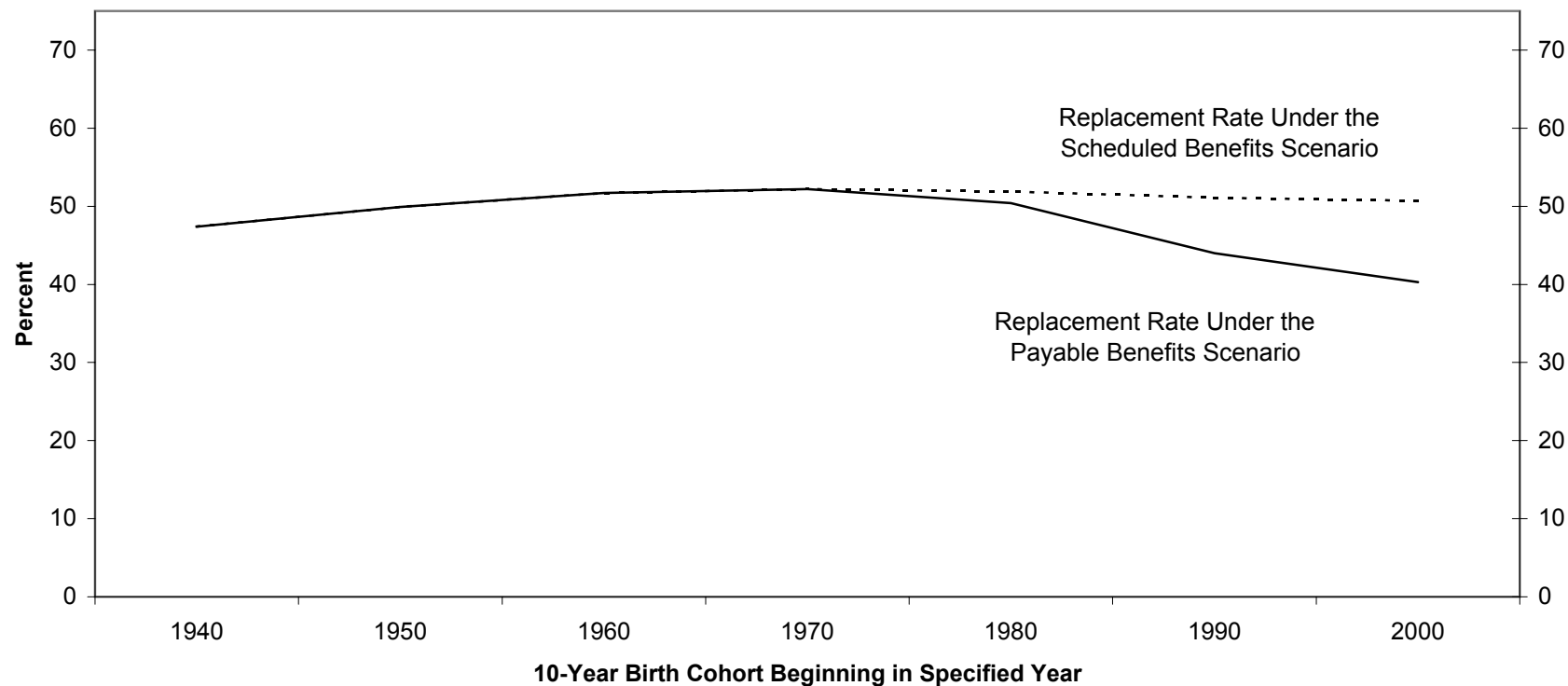
Payable benefits fall below scheduled benefits beginning in 2047, following trust fund exhaustion. Thereafter, benefits are projected by assuming an across-the-board cut in benefits each year so that total annual benefits are limited to total annual revenues.

**Figure 2-2a.**

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**Median Replacement Rates for Disabled-Worker Beneficiaries, by Birth Cohort**

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Source: Congressional Budget Office.

Notes: Replacement rates are first-year benefits (net of income taxes paid on benefits and credited to the Social Security trust funds) as a percentage of average career earnings.

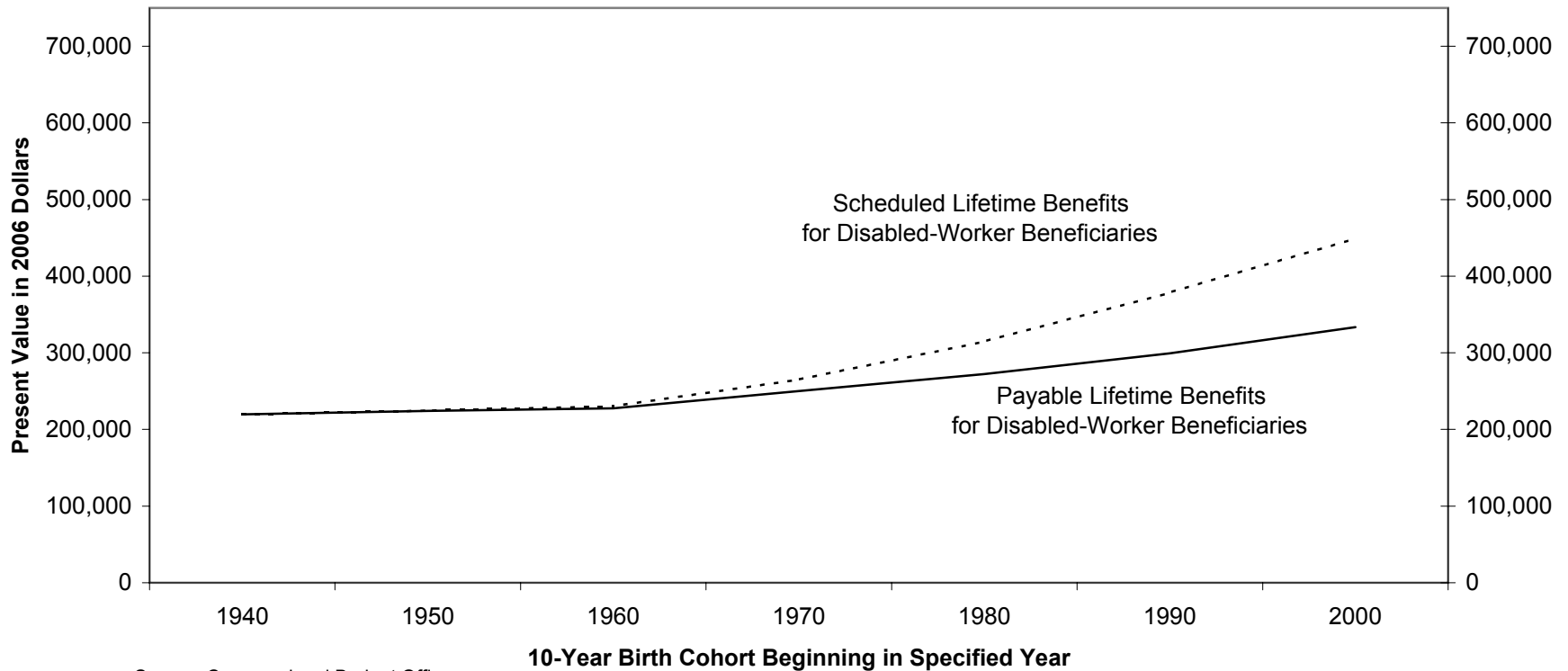
Payable benefits fall below scheduled benefits beginning in 2047, following trust fund exhaustion. Thereafter, benefits are projected by assuming an across-the-board cut in benefits each year so that total annual benefits are limited to total annual revenues.

**Figure 2-3a.**

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**Median Lifetime Benefits for Disabled-Worker Beneficiaries, by Birth Cohort**

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Source: Congressional Budget Office.

Notes: Lifetime benefits include both disability benefits and retirement benefits paid to disabled workers who have reached the normal retirement age. Benefits have been adjusted for inflation (to put them in constant dollars) and discounted to age 60. Values are net of income taxes paid on benefits and credited to the Social Security trust funds.

Payable benefits fall below scheduled benefits beginning in 2047, following trust fund exhaustion. Thereafter, benefits are projected by assuming an across-the-board cut in benefits each year so that total annual benefits are limited to total annual revenues.

**Table 2-1.****Measures of the Benefits Received by the Median Retired Worker,  
by Birth Cohort and Lifetime Earnings Level**

| 10-Year<br>Birth Cohort<br>Starting in Year   | First-Year Benefits<br>(2006 Dollars) |         | First-Year Replacement<br>Rate (Percent) <sup>a</sup> |         | Present Value of Lifetime<br>Benefits (2006 Dollars) <sup>b</sup> |         |
|---|---------------------------------------|---------|---|---------|---|---------|
|   | Scheduled                             | Payable | Scheduled   | Payable | Scheduled   | Payable |
| Median for All Retired Workers                |                                       |         |   |         |   |         |
| 1940  | 14,800                                | 14,800  | 44.5  | 44.5    | 150,900   | 150,900 |
| 1950  | 15,600                                | 15,600  | 44.1  | 44.1    | 168,300   | 167,800 |
| 1960  | 16,200                                | 16,200  | 42.2  | 42.2    | 181,700   | 176,400 |
| 1970  | 17,600                                | 17,600  | 42.9  | 42.9    | 201,900   | 178,100 |
| 1980  | 19,600                                | 16,400  | 43.0  | 36.0    | 229,300   | 178,500 |
| 1990  | 22,900                                | 17,700  | 42.2  | 32.6    | 271,200   | 201,700 |
| 2000  | 26,100                                | 19,300  | 41.8  | 31.0    | 318,800   | 227,900 |
| Median in Lowest Household Earnings Quintile  |                                       |         |   |         |   |         |
| 1940  | 8,400                                 | 8,400   | 70.4  | 70.4    | 78,300  | 78,300  |
| 1950  | 9,200                                 | 9,200   | 69.4  | 69.4    | 88,500  | 88,400  |
| 1960  | 10,200                                | 10,200  | 62.7  | 62.7    | 100,600   | 99,300  |
| 1970  | 11,000                                | 11,000  | 66.2  | 66.2    | 107,400   | 97,800  |
| 1980  | 12,000                                | 10,000  | 68.9  | 57.1    | 119,000   | 93,700  |
| 1990  | 13,800                                | 10,700  | 66.3  | 51.2    | 140,300   | 104,900 |
| 2000  | 15,600                                | 11,500  | 66.4  | 49.6    | 161,600   | 115,200 |
| Median in Middle Household Earnings Quintile  |                                       |         |   |         |   |         |
| 1940  | 16,500                                | 16,500  | 42.9  | 42.9    | 169,400   | 169,400 |
| 1950  | 17,000                                | 17,000  | 42.6  | 42.6    | 186,600   | 186,000 |
| 1960  | 17,500                                | 17,500  | 40.8  | 40.8    | 199,600   | 194,500 |
| 1970  | 19,300                                | 19,300  | 41.3  | 41.3    | 223,800   | 196,500 |
| 1980  | 21,500                                | 17,800  | 41.4  | 34.5    | 255,800   | 198,900 |
| 1990  | 25,000                                | 19,300  | 40.7  | 31.4    | 300,400   | 224,100 |
| 2000  | 28,400                                | 21,100  | 40.4  | 29.9    | 350,900   | 249,800 |
| Median in Highest Household Earnings Quintile |                                       |         |   |         |   |         |
| 1940  | 22,000                                | 22,000  | 29.8  | 29.8    | 255,300   | 255,300 |
| 1950  | 24,300                                | 24,300  | 28.6  | 28.6    | 293,200   | 292,200 |
| 1960  | 25,600                                | 25,600  | 26.9  | 26.9    | 320,800   | 309,600 |
| 1970  | 28,200                                | 28,200  | 27.7  | 27.7    | 359,600   | 310,600 |
| 1980  | 32,200                                | 26,800  | 26.3  | 22.0    | 429,100   | 332,200 |
| 1990  | 36,400                                | 28,400  | 25.6  | 19.8    | 492,700   | 367,500 |
| 2000  | 41,000                                | 30,700  | 25.8  | 19.2    | 558,600   | 401,800 |

Source: Congressional Budget Office.

Notes: First-year annual benefits and replacement rates are computed for all individuals eligible to claim Old-Age Insurance benefits at age 62 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 payable benefits scenario subjects all beneficiaries to an across-the-board cut in benefits each year so that total projected benefits equal projected revenues once the Social Security trust funds have been exhausted.

The overall median values differ from the median values in the middle quintile because individuals are sorted into quintiles on the basis of household earnings rather than benefit levels.

- a. First-year benefits as a percentage of average career earnings.
- b. The present value of all retired-worker benefits received.

**Table 2-1a.****Measures of the Benefits Received by the Median Disabled Worker,  
by Birth Cohort and Age at Claim**

| 10-Year<br>Birth Cohort<br>Starting in Year                     | First-Year Benefits<br>(2006 Dollars) |         | First-Year Replacement<br>Rate (Percent) <sup>a</sup> |         | Present Value of Lifetime<br>Benefits (2006 Dollars) <sup>b</sup> |         |
|---|---------------------------------------|---------|---|---------|---|---------|
|   | Scheduled                             | Payable | Scheduled   | Payable | Scheduled   | Payable |
| Median for All Disabled Workers                                 |                                       |         |   |         |   |         |
| 1940  | 12,600                                | 12,600  | 47.4  | 47.4    | 219,600   | 219,600 |
| 1950  | 13,400                                | 13,400  | 49.9  | 49.9    | 224,400   | 224,100 |
| 1960  | 14,700                                | 14,700  | 51.7  | 51.7    | 230,100   | 227,700 |
| 1970  | 16,400                                | 16,400  | 52.2  | 52.2    | 265,100   | 250,100 |
| 1980  | 18,500                                | 17,700  | 51.9  | 50.4    | 314,900   | 272,300 |
| 1990  | 21,400                                | 18,200  | 51.1  | 44.0    | 378,500   | 299,400 |
| 2000  | 24,100                                | 19,200  | 50.7  | 40.3    | 449,300   | 333,400 |
| Median Disabled Worker with Disability Onset at Ages Through 39 |                                       |         |   |         |   |         |
| 1940  | —                                     | —       | —   | —       | —   | —       |
| 1950  | —                                     | —       | —   | —       | —   | —       |
| 1960  | 9,100                                 | 9,100   | 59.0  | 59.0    | 346,600   | 346,500 |
| 1970  | 10,100                                | 10,100  | 61.0  | 61.0    | 358,300   | 356,600 |
| 1980  | 11,600                                | 11,600  | 60.2  | 60.2    | 411,000   | 406,400 |
| 1990  | 13,900                                | 13,900  | 56.8  | 56.8    | 494,600   | 469,500 |
| 2000  | 16,000                                | 15,800  | 55.5  | 54.8    | 627,500   | 541,400 |
| Median Disabled Worker with Disability Onset at Ages 40 to 54   |                                       |         |   |         |   |         |
| 1940  | —                                     | —       | —   | —       | —   | —       |
| 1950  | 12,100                                | 12,100  | 51.2  | 51.2    | 237,200   | 236,700 |
| 1960  | 13,200                                | 13,200  | 53.2  | 53.2    | 242,000   | 241,500 |
| 1970  | 14,800                                | 14,800  | 53.7  | 53.7    | 273,900   | 268,400 |
| 1980  | 16,600                                | 16,600  | 53.7  | 53.7    | 321,700   | 298,600 |
| 1990  | 19,300                                | 17,900  | 52.7  | 49.8    | 385,000   | 321,300 |
| 2000  | 21,700                                | 17,400  | 52.6  | 42.2    | 467,300   | 353,700 |
| Median Disabled Worker with Disability Onset at Ages 55 to NRA  |                                       |         |   |         |   |         |
| 1940  | 14,600                                | 14,600  | 46.8  | 46.8    | 193,400   | 193,400 |
| 1950  | 15,800                                | 15,800  | 48.6  | 48.6    | 202,200   | 202,000 |
| 1960  | 17,100                                | 17,100  | 49.7  | 49.7    | 207,400   | 203,900 |
| 1970  | 19,300                                | 19,300  | 49.8  | 49.8    | 244,100   | 227,300 |
| 1980  | 22,200                                | 20,700  | 49.2  | 46.3    | 294,400   | 240,100 |
| 1990  | 25,800                                | 20,100  | 48.7  | 37.8    | 358,100   | 271,100 |
| 2000  | 28,900                                | 21,800  | 48.6  | 36.5    | 413,400   | 299,300 |

Source: Congressional Budget Office.

Notes: First-year annual benefits and replacement rates are computed for all individuals who to claim Disability Insurance benefits. All values are net of income taxes paid on benefits and credited to the Social Security trust funds. The payable benefits scenario subjects all beneficiaries to an across-the-board cut in benefits each year so that total projected benefits equal projected revenues once the Social Security trust funds have been exhausted.

The overall median values differ from the median values in the middle quintile because individuals are sorted into quintiles on the basis of household earnings rather than benefit levels. Results are not presented for some groups because data are not available for people who died before 1984.

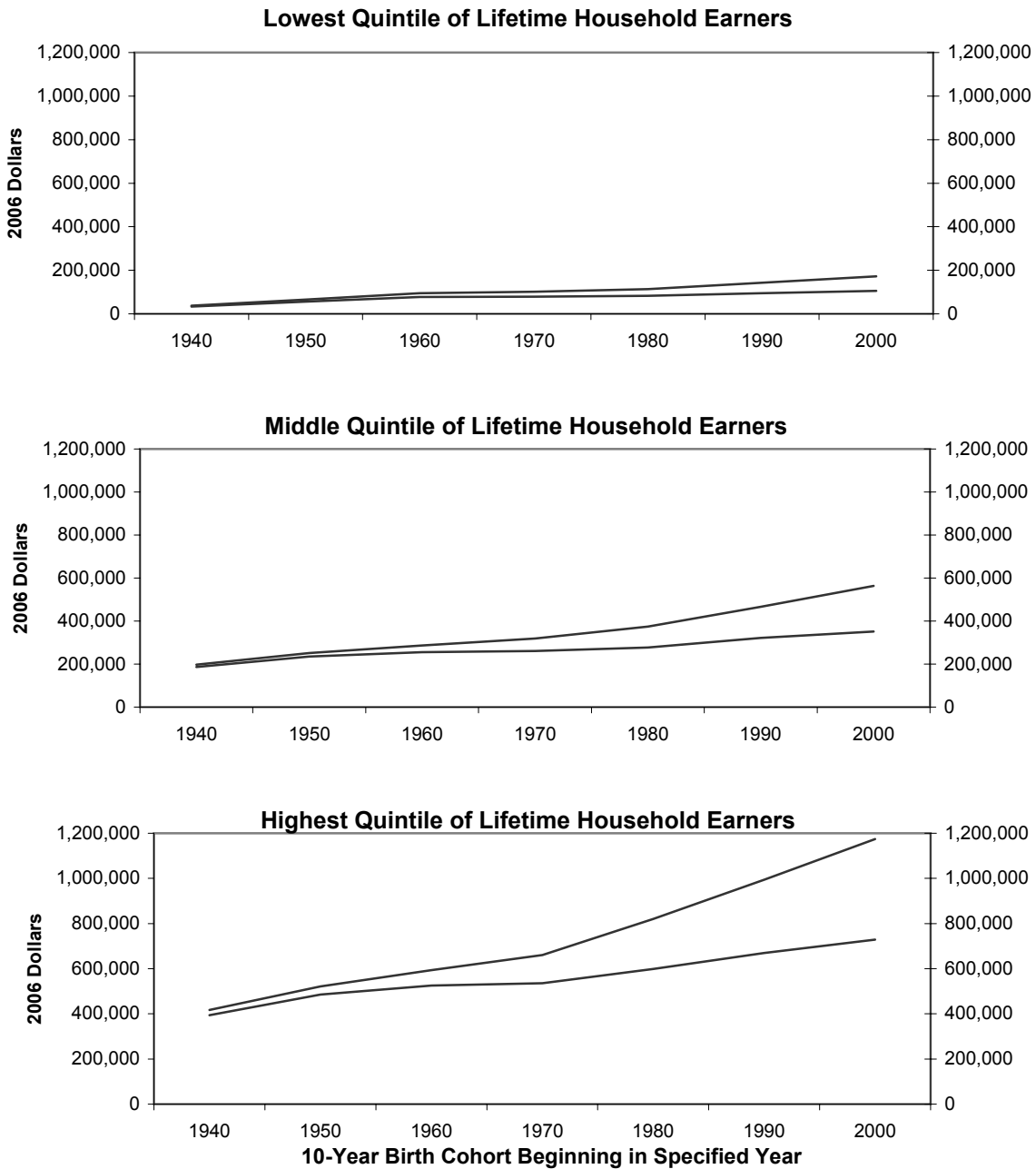
NRA = normal retirement age

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.

**Figure 2-4.**

**Potential Range of Lifetime Social Security Payroll Taxes Under Current Law,  
by Birth Cohort and Lifetime Earnings Level**

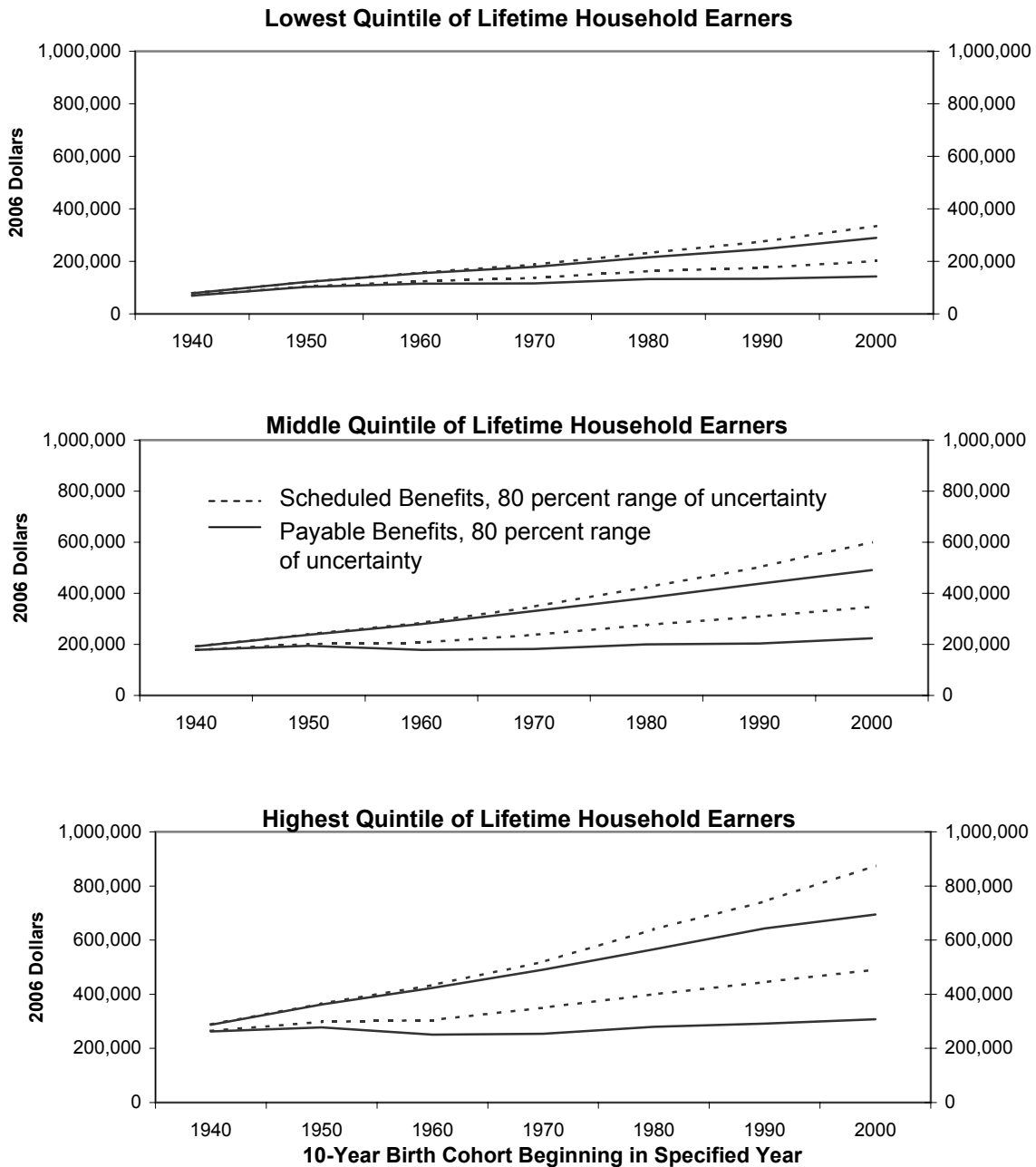


Source: Congressional Budget Office.

Note: Based on 500 simulations. Includes only individuals who live to at least age 45. The 80 percent range of uncertainty reflects the range in which the actual outcomes have an 80 percent chance of falling. Taxes include employer and employee Social Security payroll taxes. Values are adjusted for inflation and discounted to age 60.

**Figure 2-5.**

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

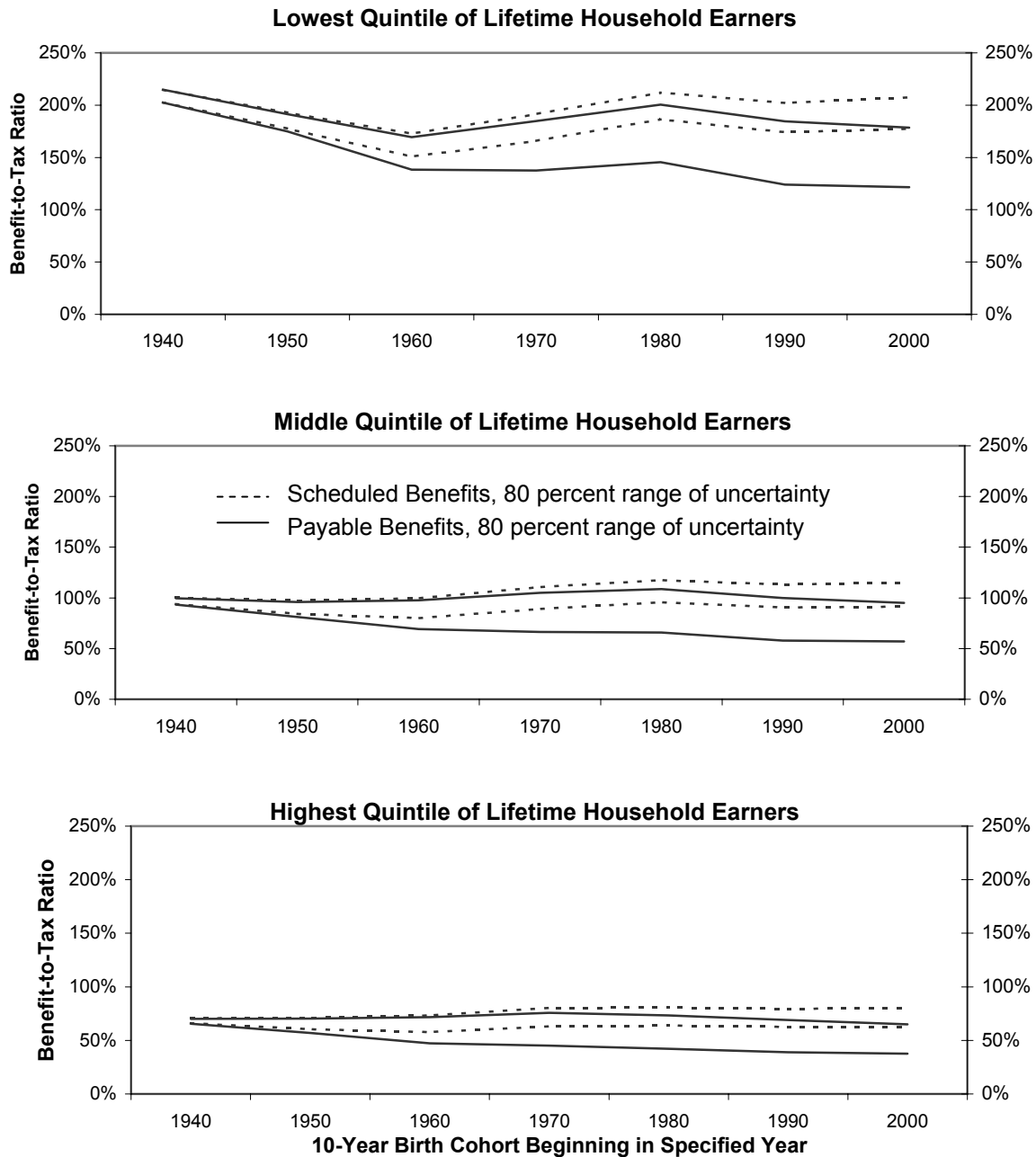


Source: Congressional Budget Office.

Note: Based on 500 simulations. Includes only individuals who live to at least age 45. The 80 percent range of uncertainty reflects the range in which the actual outcomes have an 80 percent chance of falling. Benefits include 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. Values are adjusted for inflation and discounted to age 60.

**Figure 2-6.**

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



Source: Congressional Budget Office.



**Table B-1.**


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**Measures of the Benefits Received by the Median Retired Worker,  
by Birth Cohort and Lifetime Earnings Level**


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| 10-Year<br>Birth Cohort<br>Starting in Year   | First-Year Benefits<br>(2006 Dollars) |         | First-Year Replacement<br>Rate (Percent) <sup>a</sup> |         | Present Value of Lifetime<br>Benefits (2006 Dollars) <sup>b</sup> |         |
|---|---------------------------------------|---------|---|---------|---|---------|
|   | Scheduled                             | Payable | Scheduled   | Payable | Scheduled   | Payable |
| <b>Males</b>                                  |                                       |         |   |         |   |         |
| Median for All Retired Workers                |                                       |         |   |         |   |         |
| 1940  | 18,800                                | 18,800  | 39.4  | 39.4    | 176,800   | 176,800 |
| 1950  | 18,900                                | 18,900  | 40.0  | 40.0    | 189,500   | 188,900 |
| 1960  | 19,300                                | 19,300  | 38.6  | 38.6    | 202,300   | 197,600 |
| 1970  | 20,500                                | 20,500  | 39.7  | 39.7    | 221,500   | 196,000 |
| 1980  | 23,100                                | 19,400  | 39.5  | 32.7    | 254,700   | 198,000 |
| 1990  | 26,400                                | 20,400  | 39.0  | 30.2    | 294,500   | 219,100 |
| 2000  | 30,200                                | 22,500  | 38.6  | 28.8    | 349,600   | 249,000 |
| Median in Lowest Household Earnings Quintile  |                                       |         |   |         |   |         |
| 1940  | 9,800                                 | 9,800   | 59.8  | 59.8    | 92,100  | 92,100  |
| 1950  | 10,200                                | 10,200  | 61.2  | 61.2    | 95,700  | 95,700  |
| 1960  | 10,900                                | 10,900  | 57.4  | 57.4    | 106,700   | 105,200 |
| 1970  | 11,500                                | 11,500  | 62.3  | 62.3    | 111,500   | 101,700 |
| 1980  | 12,700                                | 10,600  | 64.2  | 54.4    | 126,300   | 98,800  |
| 1990  | 14,300                                | 11,100  | 63.8  | 49.4    | 142,900   | 107,000 |
| 2000  | 16,400                                | 12,100  | 62.6  | 46.8    | 168,500   | 119,500 |
| Median in Middle Household Earnings Quintile  |                                       |         |   |         |   |         |
| 1940  | 19,500                                | 19,500  | 38.6  | 38.6    | 200,200   | 200,200 |
| 1950  | 19,800                                | 19,800  | 39.4  | 39.4    | 211,400   | 210,900 |
| 1960  | 20,100                                | 20,100  | 38.1  | 38.1    | 224,300   | 218,800 |
| 1970  | 21,700                                | 21,700  | 39.1  | 39.1    | 243,200   | 213,300 |
| 1980  | 24,400                                | 20,300  | 38.7  | 31.8    | 280,300   | 219,400 |
| 1990  | 27,700                                | 21,500  | 38.5  | 29.7    | 329,700   | 242,100 |
| 2000  | 31,600                                | 23,500  | 38.0  | 28.3    | 383,200   | 272,000 |
| Median in Highest Household Earnings Quintile |                                       |         |   |         |   |         |
| 1940  | 23,400                                | 23,400  | 22.5  | 22.5    | 284,000   | 284,000 |
| 1950  | 25,800                                | 25,800  | 23.1  | 23.1    | 319,000   | 318,100 |
| 1960  | 27,200                                | 27,200  | 21.7  | 21.7    | 348,800   | 336,100 |
| 1970  | 30,000                                | 30,000  | 22.8  | 22.8    | 391,500   | 335,900 |
| 1980  | 34,300                                | 28,500  | 21.1  | 17.5    | 465,000   | 359,000 |
| 1990  | 38,700                                | 30,200  | 20.6  | 16.0    | 533,100   | 397,800 |
| 2000  | 43,500                                | 32,500  | 20.9  | 15.7    | 603,200   | 432,800 |

(Continued)

| 10-Year<br>Birth Cohort<br>Starting in Year   | First-Year Benefits<br>(2006 Dollars) |         | First-Year Replacement<br>Rate (Percent) <sup>a</sup> |         | Present Value of Lifetime<br>Benefits (2006 Dollars) <sup>b</sup> |         |
|---|---------------------------------------|---------|---|---------|---|---------|
|   | Scheduled                             | Payable | Scheduled   | Payable | Scheduled   | Payable |
| <b>Females</b>                                |                                       |         |   |         |   |         |
| Median for All Retired Workers                |                                       |         |   |         |   |         |
| 1940  | 11,700                                | 11,700  | 51.0  | 51.0    | 131,200   | 131,100 |
| 1950  | 13,000                                | 13,000  | 49.2  | 49.2    | 149,300   | 148,900 |
| 1960  | 13,800                                | 13,800  | 46.6  | 46.6    | 163,400   | 158,200 |
| 1970  | 15,300                                | 15,300  | 46.6  | 46.6    | 186,000   | 164,200 |
| 1980  | 16,900                                | 14,200  | 46.9  | 39.5    | 209,800   | 163,100 |
| 1990  | 20,000                                | 15,500  | 45.4  | 35.0    | 251,200   | 186,800 |
| 2000  | 22,900                                | 17,000  | 44.8  | 33.2    | 292,200   | 209,700 |
| Median in Lowest Household Earnings Quintile  |                                       |         |   |         |   |         |
| 1940  | 7,700                                 | 7,700   | 80.0  | 80.0    | 69,100  | 69,100  |
| 1950  | 8,500                                 | 8,500   | 76.6  | 76.6    | 81,300  | 81,300  |
| 1960  | 9,500                                 | 9,500   | 68.1  | 68.1    | 95,800  | 94,300  |
| 1970  | 10,500                                | 10,500  | 70.1  | 70.2    | 103,900   | 94,800  |
| 1980  | 11,400                                | 9,500   | 72.0  | 59.5    | 112,900   | 88,400  |
| 1990  | 13,400                                | 10,400  | 68.9  | 53.0    | 138,000   | 102,900 |
| 2000  | 14,900                                | 11,100  | 70.1  | 52.0    | 154,300   | 110,400 |
| Median in Middle Household Earnings Quintile  |                                       |         |   |         |   |         |
| 1940  | 12,400                                | 12,400  | 49.1  | 49.1    | 143,900   | 143,900 |
| 1950  | 14,000                                | 14,000  | 47.0  | 47.0    | 163,200   | 162,600 |
| 1960  | 14,900                                | 14,900  | 44.4  | 44.4    | 178,700   | 174,000 |
| 1970  | 16,800                                | 16,800  | 44.2  | 44.1    | 206,900   | 183,200 |
| 1980  | 18,600                                | 15,500  | 44.2  | 37.7    | 231,500   | 181,100 |
| 1990  | 22,100                                | 17,200  | 43.0  | 33.1    | 276,000   | 205,700 |
| 2000  | 25,200                                | 18,700  | 42.9  | 31.7    | 322,500   | 229,200 |
| Median in Highest Household Earnings Quintile |                                       |         |   |         |   |         |
| 1940  | 16,900                                | 16,900  | 40.2  | 40.2    | 215,300   | 215,300 |
| 1950  | 20,100                                | 20,100  | 37.3  | 37.3    | 257,000   | 255,800 |
| 1960  | 21,100                                | 21,100  | 35.5  | 35.5    | 274,800   | 263,300 |
| 1970  | 23,400                                | 23,400  | 35.2  | 35.2    | 307,900   | 267,400 |
| 1980  | 27,000                                | 22,400  | 34.6  | 28.8    | 367,300   | 283,900 |
| 1990  | 30,900                                | 24,000  | 33.9  | 26.2    | 429,600   | 321,900 |
| 2000  | 35,400                                | 26,400  | 33.5  | 25.0    | 496,000   | 356,300 |

Source: Congressional Budget Office.

Notes: First-year annual benefits and replacement rates are computed for all individuals eligible to claim Old-Age Insurance benefits at age 62 and 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 payable benefits scenario subjects all beneficiaries to an across-the-board cut in benefits each year so that total projected benefits equal projected revenues once the Social Security trust funds have been exhausted.

The overall median values differ from the median values in the middle quintile because individuals are sorted into quintiles on the basis of household earnings rather than benefit levels.

a. First-year benefits as a percentage of average career earnings.

b. The present value of all retired-worker benefits received.