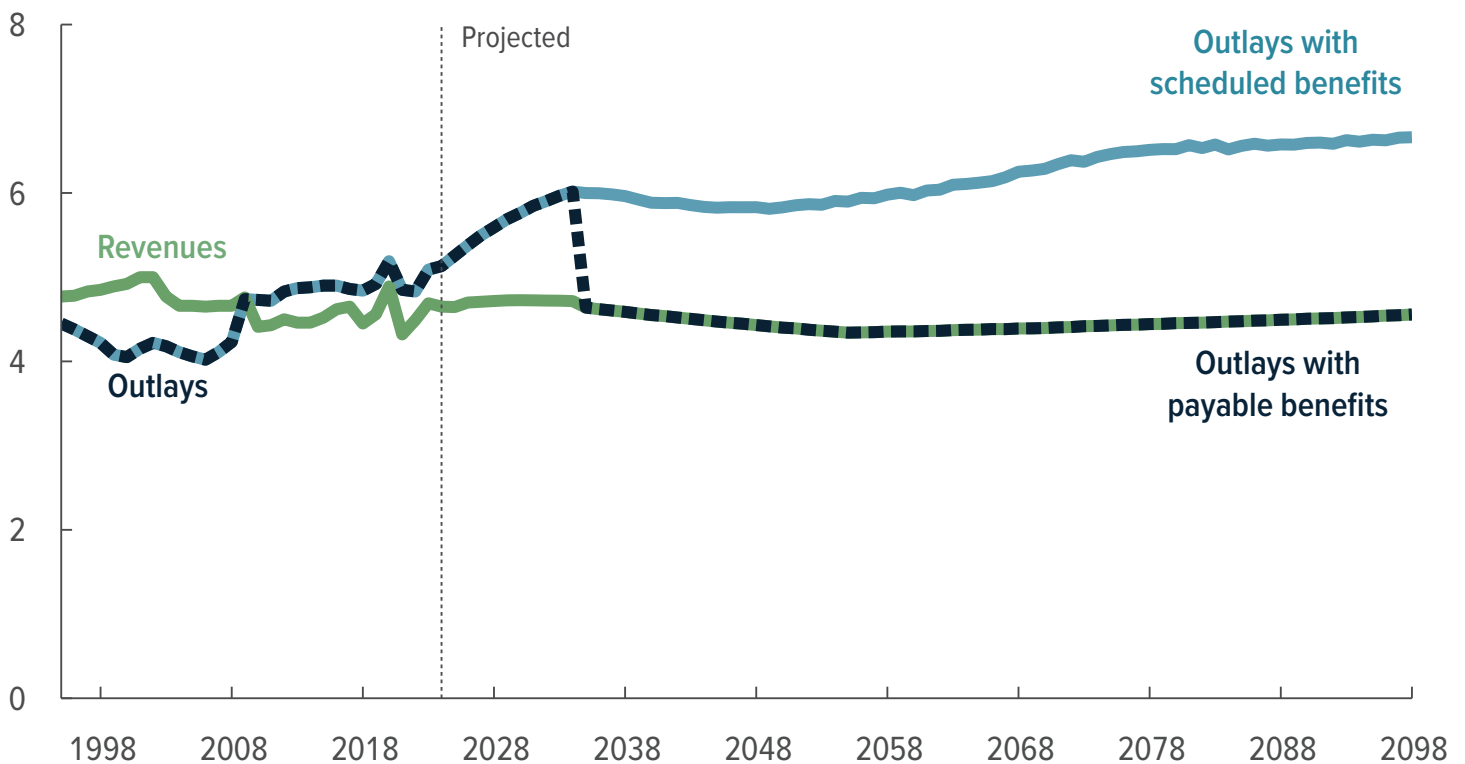




CBO's 2024 Long-Term Projections for Social Security

Percentage of gross domestic product



At a Glance

In this report, the Congressional Budget Office describes its 75-year projections for the Social Security program. One set of projections reflects a scenario in which the program continues to pay retirement, disability, and related benefits as scheduled under current law, regardless of whether the program's two trust funds have sufficient balances to cover those payments. The second set of projections reflects a scenario in which Social Security's outlays are limited to the amounts that can be paid from the program's annual revenues after the combined balance of the trust funds is exhausted—which is now projected to occur in fiscal year 2034.

- **Social Security's Finances, With Scheduled Benefits.** CBO projects that if Social Security paid benefits as scheduled, spending on the program would increase from 5.1 percent of gross domestic product (GDP) in 2024 to 6.7 percent in 2098. That increase is attributable to the growing share of the population age 65 or older. The program's revenues would remain near 4.5 percent of GDP during that 75-year period. After 2098, the gap between revenues and outlays as a percentage of GDP would widen, and shortfalls would continue to grow.

In CBO's projections, the balance of the Old-Age and Survivors Insurance Trust Fund is exhausted in fiscal year 2033, and the balance of the Disability Insurance Trust Fund is exhausted in 2064. Social Security's actuarial deficit over the next 75 years, a summary measure of the program's sustainability, is equal to 1.5 percent of GDP or 4.3 percent of taxable payroll (total earnings subject to the Social Security payroll tax).

- **Distribution of Scheduled Benefits and Payroll Taxes.** Average initial benefits are projected to increase over time in real terms (that is, after adjustments to remove the effects of inflation). For people born from the 1950s to the 1990s, those initial benefits replace more than one-third of preretirement earnings for retired workers and more than half of average recent earnings for disabled workers. Within a cohort of Social Security recipients who were born in the same decade, people with higher earnings generally receive larger benefits than people with lower earnings, but those larger benefits replace a smaller share of their previous earnings. People with higher earnings also generally pay a larger dollar amount—but a smaller share of their lifetime earnings—in Social Security payroll taxes. The Social Security program is progressive in that lifetime benefits tend to be larger relative to lifetime payroll taxes for people with lower earnings than for people with higher earnings.
- **Social Security's Finances, With Payable Benefits.** If Social Security's outlays were limited to the amounts that could be paid from annual revenues after the combined balance of the trust funds was exhausted in fiscal year 2034, benefits would be about 23 percent smaller than scheduled benefits in 2035, CBO projects. Payable benefits would be about 28 percent smaller than scheduled benefits in 2098.
- **Distribution of Payable Benefits.** In the payable-benefits scenario, average initial retirement benefits resume growing over time after the combined balance of the trust funds is exhausted. But those benefits are smaller than scheduled benefits for people born after 1969 (who turn 65 after 2034).

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Notes About This Report

The Congressional Budget Office's long-term projections for Social Security follow CBO's 10-year baseline budget projections and then extend most of the concepts underlying those projections. The long-term budget projections in this report are based on CBO's June 2024 baseline budget and economic projections and January 2024 demographic projections. The budget projections incorporate the effects of legislation enacted through May 12, 2024, and the economic projections reflect economic developments and information as of May 2, 2024. The demographic projections reflect developments through November 21, 2023.

The budget projections in this report reflect the effects of increasing government borrowing on private investment through 2054. After that year, the projections do not account for additional government borrowing. For more discussion of CBO's projections for the 2024–2054 period, see Congressional Budget Office, *The Long-Term Budget Outlook: 2024 to 2054* (March 2024), www.cbo.gov/publication/59711.

Some projections in this report are based on a scheduled-benefits scenario in which Social Security continues to pay benefits as scheduled under current law, regardless of the status of the program's trust funds. That approach is consistent with statutory requirements governing CBO's baseline projections and reflects the assumption that funding for such programs will be adequate to make all payments required by law. See section 257(b)(1) of the Balanced Budget and Emergency Deficit Control Act of 1985, Public Law 99-177 (codified at 2 U.S.C. § 907(b)(1) (2016)).

Other projections in this report reflect a payable-benefits scenario. In the years after the trust funds' balances were exhausted, revenues would be insufficient to pay the benefits specified in law, so the Social Security Administration would be unable to pay beneficiaries the full amounts to which they were entitled. In that scenario, CBO assumes that after the balances' exhaustion, annual outlays for Social Security would be limited to the annual revenues credited to the program.

Tax revenues shown in the figure “Social Security's Outlays and Revenues, With Scheduled and Payable Benefits” (which appears on the cover) are consistent with projected tax revenues under the payable-benefits scenario. They would be slightly larger if scheduled benefits were paid, because revenues from income taxes paid on those benefits would be greater.

Birth cohorts are groups of Social Security participants who were born in the same decade.

Projections of the distribution of initial benefits and initial replacement rates in this report exclude disabled workers born in the 1950s. No data are available for people who died before 1984, which means the data for that cohort are incomplete.

Unless this report indicates otherwise, the years referred to are calendar years. When fiscal years are mentioned, they are federal fiscal years, which run from October 1 to September 30 and are designated by the calendar year in which they end.

Numbers in the text, table, and figures may not add up to totals because of rounding.

Supplemental data for this analysis are available at www.cbo.gov/publication/60392.

CBO’s 2024 Long-Term Projections for Social Security

Overview of the Social Security Program

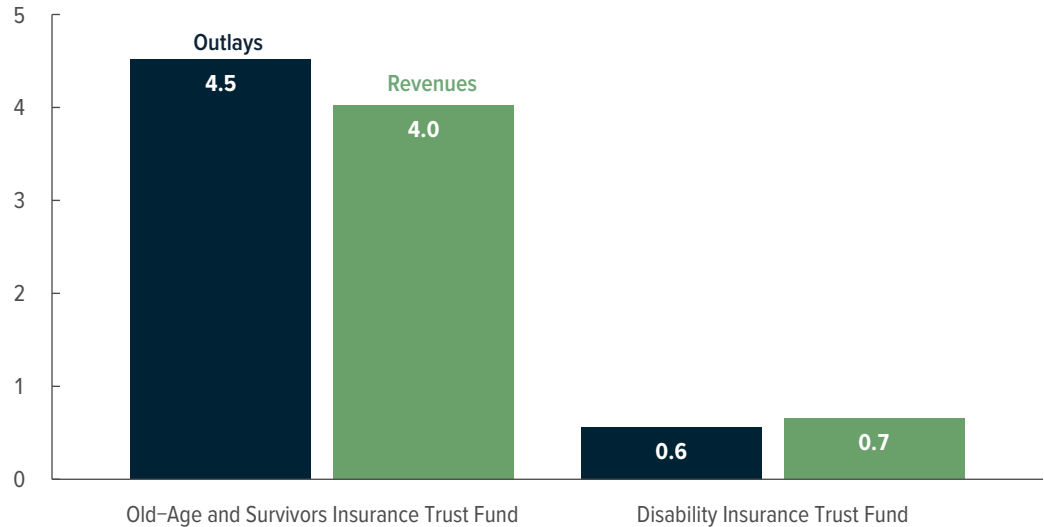
Social Security—the largest single program in the federal budget—has two components. Old-Age and Survivors Insurance (OASI) provides benefits to retired workers, their eligible dependents, and some survivors of deceased workers. Disability Insurance (DI) provides benefits to disabled workers and their dependents.

The program is financed by payroll taxes and income taxes on benefits. Revenues from those taxes are credited to the OASI and DI trust funds. The payroll tax, which accounts for 96 percent of Social Security’s revenues, is generally 12.4 percent of a person’s earnings up to a maximum annual amount (\$168,600 in 2024). Employees and their employers each pay half of the tax; self-employed people pay the entire amount. In addition, up to 85 percent of a recipient’s benefits are subject to income tax, depending on their overall income. CBO estimates that about half of Social Security beneficiaries paid income tax on their benefits in 2021, the most recent year for which data are available. Besides tax revenues, the OASI and DI trust funds receive intragovernmental interest payments on the Treasury securities they hold. Although the two trust funds are legally separate, in some of its analyses, the Congressional Budget Office considers them as combined trust funds, known as the Old-Age, Survivors, and Disability Insurance (OASDI) trust funds.

Outlays for Social Security consist of benefit payments, transfers to the Railroad Retirement program (which pays retirement benefits to railroad workers and their families), and the Social Security program’s administrative costs. The revenues discussed in this report consist of receipts from the Social Security payroll tax and the income tax on benefits, as well as any transfers from the general fund of the Treasury. Revenues do not include interest credited to the Social Security trust funds.

Social Security’s Outlays and Revenues in 2023

Percentage of gross domestic product



In 2023, outlays from the OASI trust fund exceeded revenues. For the DI trust fund, outlays were smaller than revenues.

The Outlook for Social Security, With Scheduled Benefits: 2024 to 2098

CBO's long-term projections of Social Security's finances under a scheduled-benefits scenario reflect the assumption that benefits will be paid as scheduled under the provisions of the Social Security Act, regardless of balances in the trust funds. (For details about the basis for those projections, see Notes About This Report. For more information about what would happen to benefit payments if the trust funds' balances were exhausted, see Appendix A.)

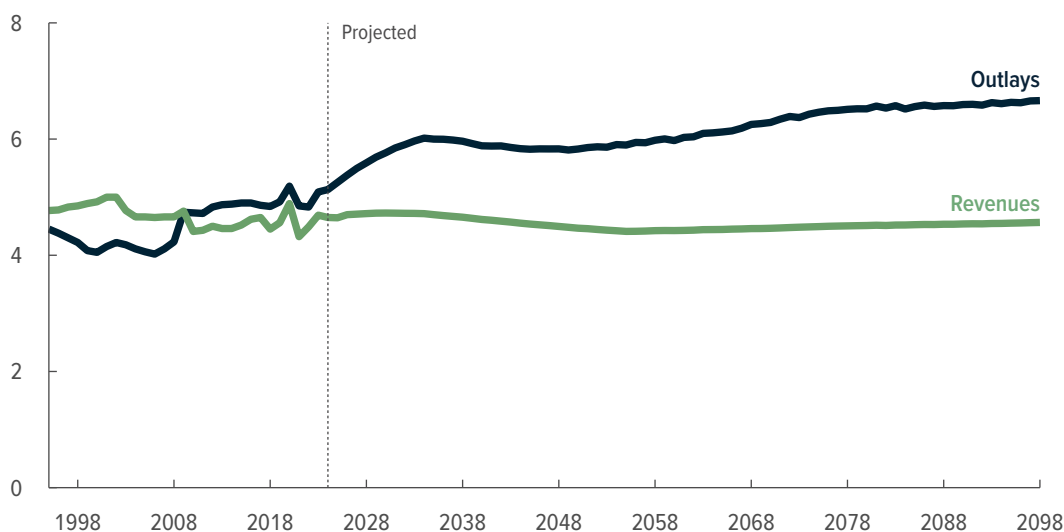
Relative to the size of the economy, spending for Social Security is projected to rise from 5.1 percent of gross domestic product (GDP) in 2024 to 6.7 percent of GDP in 2098 under the scheduled-benefits scenario. Most of that projected increase occurs over the next decade, as the baby boom generation retires. The rise in Social Security beneficiaries slows after 2034, when the youngest baby boomers turn 70 (the age by which nearly all recipients claim Social Security benefits). Nevertheless, outlays for Social Security continue to grow as a percentage of GDP, albeit slowly, through 2098 and beyond because of projected increases in life expectancy.

Unlike outlays, revenues for Social Security are projected to change little in relation to GDP over 75 years, remaining close to their average of 4.5 percent of GDP from 2024 to 2098. In CBO's projections, a slight decline in payroll tax revenues is offset by a slight increase in revenues from income taxes on Social Security benefits, leaving total revenues for the program fairly stable during that period, a trend that would continue after 2098. Payroll taxes decrease slightly relative to GDP because earnings grow more quickly for higher earners than for lower earners, causing the amount of earnings below the maximum taxable amount to decline as a percentage of GDP over the next three decades. (That percentage is projected to remain stable thereafter.) Revenues from income taxes on Social Security benefits increase slightly as a percentage of GDP because the structure of the individual income tax means that, over time, the percentage of benefits that are taxed increases, as does the average tax rate they are subject to.

CBO's projections of spending and revenues for Social Security are highly uncertain. If demographic and economic trends differed from what CBO projects, spending and revenues for Social Security would differ as well. Those differences could be especially large later in the 75-year projection period because differences from CBO's projections would compound over time.

Social Security's Outlays and Revenues, With Scheduled Benefits

Percentage of gross domestic product



In CBO's projections, the gap between Social Security's outlays and revenues widens over the long term because of an increase in outlays as a percentage of GDP—driven mainly by increases in the number of new beneficiaries and in average life expectancy.

Social Security’s Finances, With Scheduled Benefits

Several measures are commonly used to assess the finances of the Social Security program. The actuarial balance summarizes the current balance of a trust fund and annual streams of revenues and outlays over a future period, such as 75 years, as a single number. (When an actuarial balance is negative, it is called an actuarial deficit.) Sustainability is also an important measure, because policies that would eliminate a 75-year actuarial deficit might not ensure a program’s solvency after that period. The trust fund ratio—the balance of a trust fund divided by its expected outlays in a given year—indicates the amount of scheduled benefits that could be paid from the balance at the beginning of the year. Another common measure of Social Security’s financial position is the dates by which the trust funds’ balances would be exhausted if current laws did not change. (For more detailed definitions of those measures and other terms used in this report, see Appendix B.)

Actuarial Balance

The Social Security program as a whole has a 75-year actuarial deficit equal to 1.5 percent of GDP or 4.3 percent of taxable payroll (the total payroll subject to the Social Security tax), CBO projects. Those figures are smaller than the 75-year actuarial deficit that CBO projected last year, which equaled 1.7 percent of GDP or 5.1 percent of taxable payroll. (For more information about changes in CBO’s long-term projections for Social Security since last year, see Appendix C.)

That actuarial deficit implies that the federal government could pay the Social Security benefits prescribed by current law through 2098 and have trust fund balances equal to a year’s benefits at the end of that period if the payroll tax rate was raised immediately and permanently by 4.3 percentage points (or 35 percent)—from the current rate of 12.4 percent of taxable earnings to 16.7 percent. Other ways to maintain the necessary trust fund balances include reducing scheduled benefits by 24 percent (an amount equivalent to 4.3 percent of taxable payroll), combining tax increases with benefit reductions, or transferring money to the trust funds. (This analysis excludes the effects of changes in taxes or spending on people’s behavior and the economy. Those effects, which would depend on the specifics of the policy change, would alter the size of the tax increase or benefit reduction needed to eliminate the actuarial deficit.)

Summarized 75-Year Financial Measures for Social Security, With Scheduled Benefits

Trust fund	As a percentage of GDP			As a percentage of taxable payroll		
	Income rate	Cost rate	Actuarial balance (difference)	Income rate	Cost rate	Actuarial balance (difference)
Old-Age and Survivors Insurance	4.1	5.5	-1.4	11.9	16.1	-4.2
Disability Insurance	0.6	0.7	*	1.8	2.0	-0.1
Old-Age, Survivors, and Disability Insurance	4.7	6.2	-1.5	13.8	18.1	-4.3

* = between zero and -0.05 percent.

The income rate for Social Security measures the program’s income from taxes as a percentage of gross domestic product or taxable payroll over a given period. The cost rate measures the program’s cost as a percentage of GDP or taxable payroll. (For more details, see Appendix B.)



Sustainability

A policy that increased revenues or reduced outlays by the same percentage of taxable payroll each year (or made an equivalent combination of such changes) to eliminate the 75-year shortfall would not ensure Social Security's solvency after 2098. Estimates of the actuarial deficit do not account for revenues or outlays after the 75-year projection period. CBO projects that the gap between Social Security's revenues and outlays would widen thereafter. Although a policy to eliminate the 75-year actuarial deficit would create annual surpluses in the next three decades, it might result in growing annual deficits later and might not leave Social Security on a sustainable financial path beyond 2098.

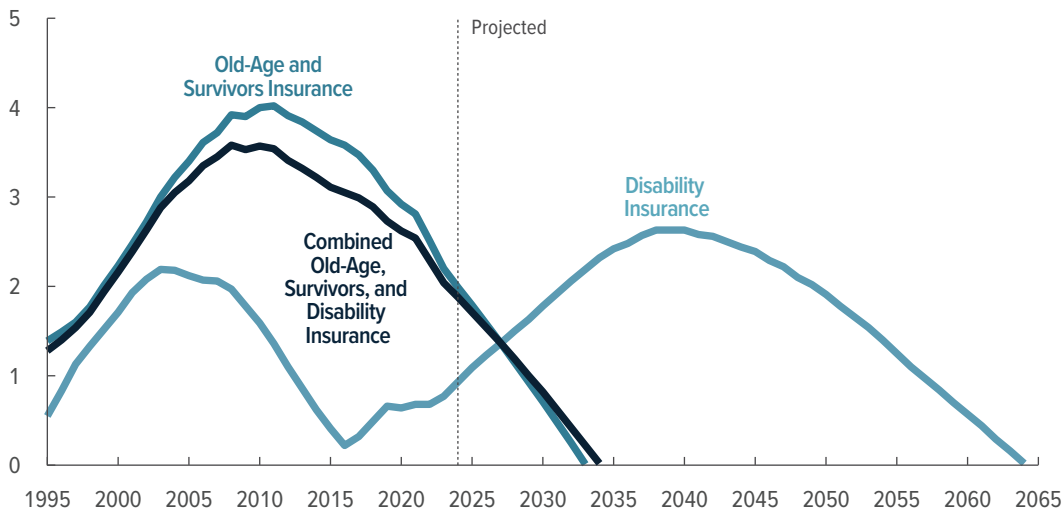
Trust Fund Ratios and Exhaustion

In CBO's projections, the amount in the OASI trust fund continues to decline steadily in relation to annual outlays in the coming years as spending outpaces income to the trust fund. The flow of income to the DI trust fund, by contrast, increases in relation to outlays in each of the next 14 years as income exceeds spending. The ratio of the DI trust fund's balance to its projected annual outlays starts to decline around 2040.

The balance of the OASI trust fund made up 95 percent of the total balance of the combined OASDI trust funds at the beginning of 2024, and OASI outlays account for about 90 percent of total Social Security outlays. Thus, the ratio for the combined trust funds tends to follow trends in the ratio for the OASI trust fund.

Social Security Trust Fund Ratios

Ratio of trust fund balance to scheduled payments



A trust fund's balance is exhausted when it reaches zero. In CBO's projections, the balance of the OASI trust fund is exhausted in fiscal year 2033, and the balance of the DI trust fund is exhausted in 2064. If the balances of the OASDI trust funds were combined, they would be exhausted in fiscal year 2034.

The Distribution of Scheduled Benefits and Payroll Taxes

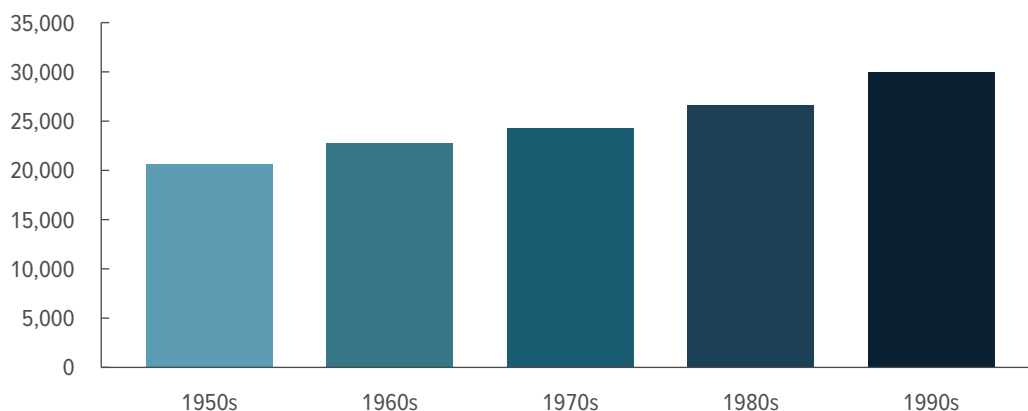
Benefits for Retired Workers

In the scheduled-benefits scenario, the average retirement benefits that people receive in their first full year of claiming benefits are projected to be larger for each successive cohort of recipients, even after adjustments to remove the effects of inflation, because of increases over time in real (inflation-adjusted) earnings. That growth in initial benefits is partly offset for some cohorts because the full retirement age increased from 66 (for people born from 1943 to 1954) to 67 (for people born after 1959), which reduces those younger cohorts' initial benefits. (Beneficiaries can choose to start receiving Social Security retirement benefits as early as 62; the age at which they claim benefits affects the amount of their annual benefits. For consistency, CBO's analysis of initial benefits reflects the assumption that all eligible beneficiaries claim benefits at age 65.)

In addition to age, people's Social Security benefits are based on their earnings history. As a result, initial Social Security benefits are larger, on average, for retired workers with higher lifetime household earnings than for those with lower lifetime earnings.

Average Initial Annual Benefits for Retired Workers, by Birth Cohort

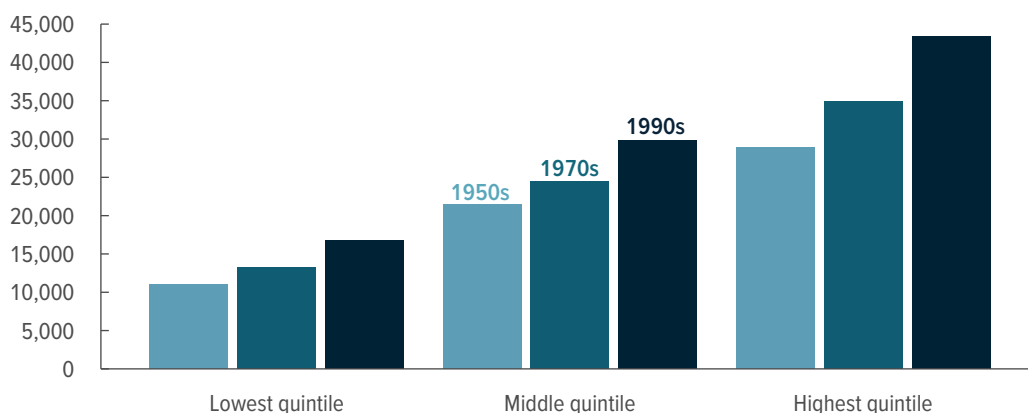
2024 dollars



In CBO's projections, average initial scheduled benefits for retired workers increase for successive cohorts—for example, from an annual average of \$20,700 for people born in the 1950s to \$30,000 for people born in the 1990s.

Average Initial Annual Benefits for Retired Workers, by Birth Cohort and Earnings Quintile

2024 dollars



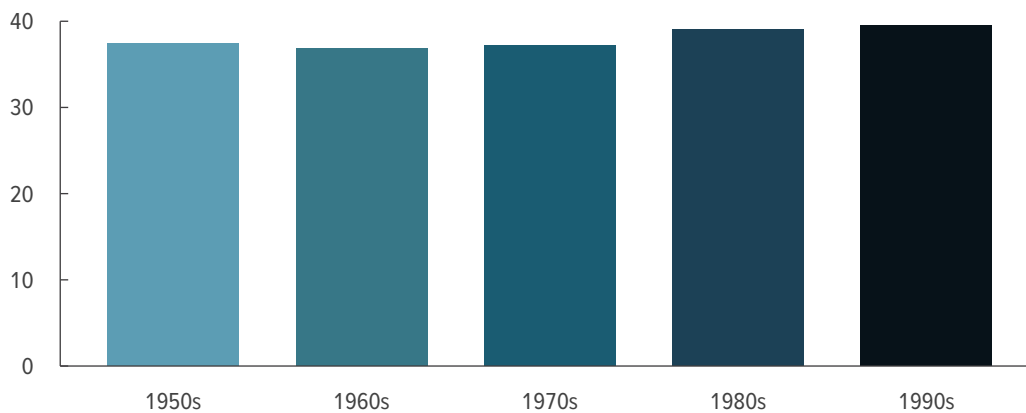
Within a given birth cohort, retired workers in the highest quintile (or one-fifth) of the distribution of lifetime household earnings receive much larger initial benefits than those with lower lifetime earnings. Average initial benefits are projected to increase for successive cohorts in all earnings quintiles (three of which are shown here).

Replacement Rates for Retired Workers

In CBO's projections, initial benefits replace more than one-third of average preretirement earnings for retired workers. Social Security's formula for retirement benefits is progressive: People who have lower lifetime earnings receive benefits that are a larger percentage of their average preretirement earnings than people with higher lifetime earnings do. Accordingly, initial replacement rates are higher, on average, for retired workers with lower earnings—that is, initial benefits replace a larger share of past earnings for those workers. (For details about how CBO calculates initial replacement rates for retired workers, see Appendix B.)

Average Initial Replacement Rates for Retired Workers, by Birth Cohort

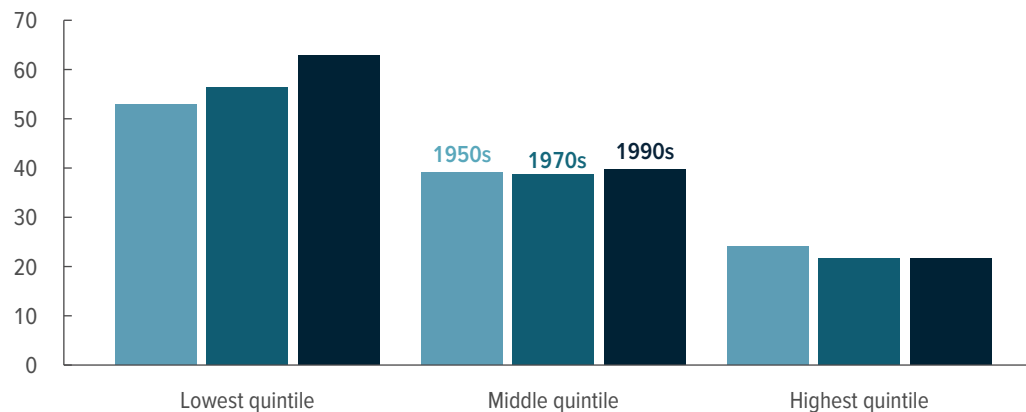
Percent



In CBO's projections, average initial Social Security benefits replace between 36 percent and 40 percent of preretirement earnings for retired workers in all birth cohorts from the 1950s to the 1990s.

Average Initial Replacement Rates for Retired Workers, by Birth Cohort and Earnings Quintile

Percent



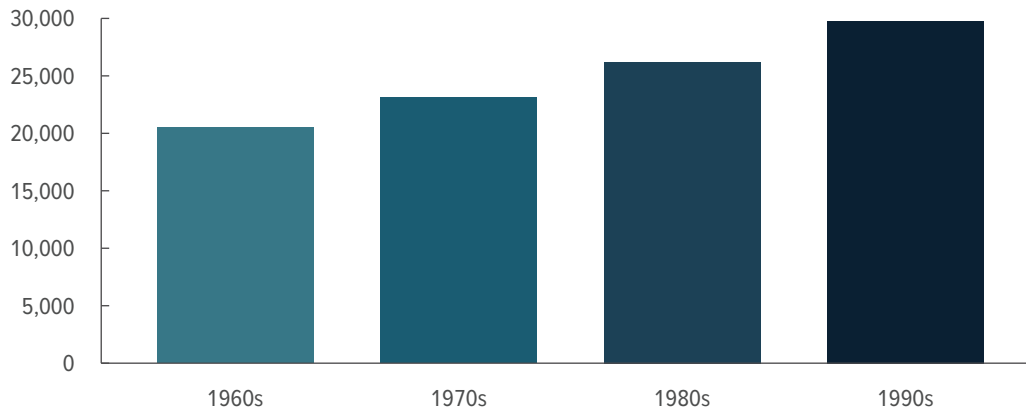
For the one-fifth of people with the lowest lifetime household earnings, initial replacement rates are higher for later cohorts than for earlier cohorts. The reason is that earnings for low earners are projected to grow more slowly than average wages (which determine the growth of Social Security benefits over time).

Benefits and Replacement Rates for Disabled Workers

If benefits are paid as scheduled, inflation-adjusted initial benefits for disabled workers will be larger in the future than they are today, CBO projects, because of increases in real earnings. On average, initial DI benefits replace more than half of recent substantial earnings for those workers (see Appendix B). Replacement rates are higher for disabled workers than for retired workers because disabled workers tend to have lower earnings overall.

Average Initial Annual Benefits for Disabled Workers, by Birth Cohort

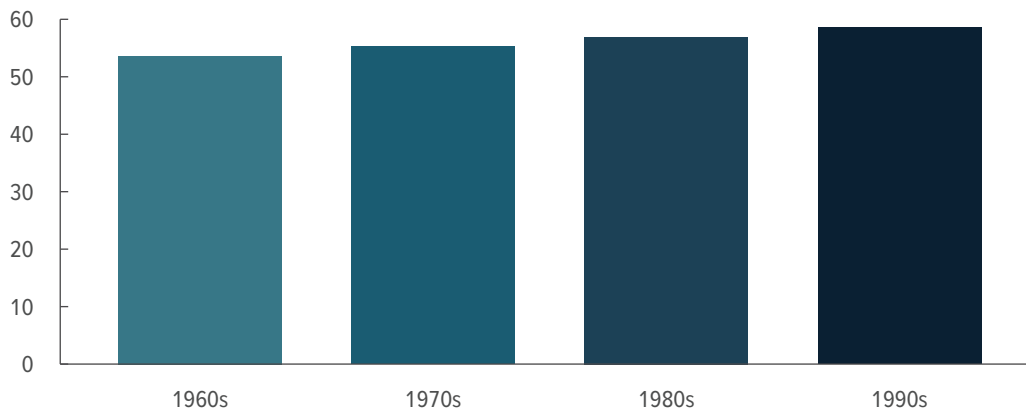
2024 dollars



In CBO's projections, average initial scheduled DI benefits increase for successive cohorts—for example, from an annual average of \$20,500 for disabled workers born in the 1960s to \$29,800 for those born in the 1990s.

Average Initial Replacement Rates for Disabled Workers, by Birth Cohort

Percent



Initial DI benefits are projected to replace a slightly larger share of disabled workers' previous earnings for each successive cohort, on average, because those workers' earnings are projected to grow more slowly than average wages.

Social Security Benefits Over People's Lifetime

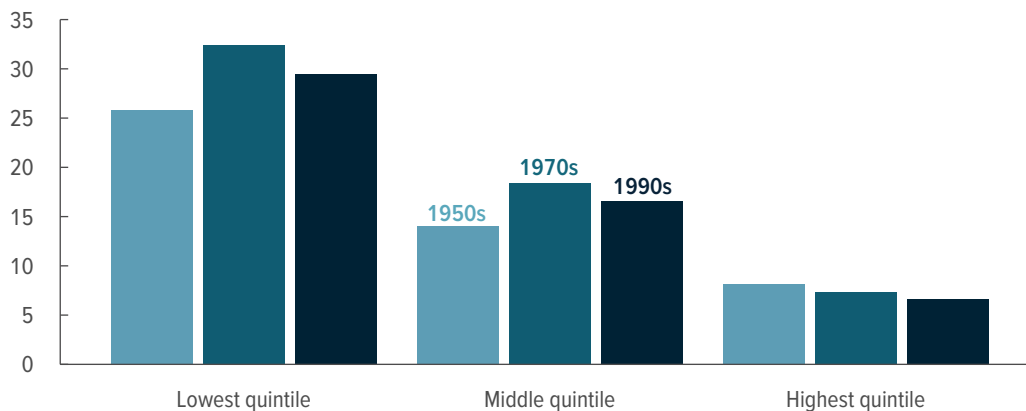
Under the scheduled-benefits scenario, the total Social Security benefits (OASI and DI) that people receive during their life equal about one-eighth of their lifetime earnings, on average, CBO projects. Lifetime Social Security benefits tend to equal a larger percentage of lifetime earnings for people with lower household earnings than for people with higher household earnings.

Two factors contribute to the progressivity of Social Security benefits: First, the benefit formula replaces a larger share of earnings for people with lower lifetime earnings; and second, people with lower lifetime earnings are more likely than average to receive disability benefits. Those factors are partially offset by the fact that people with higher earnings tend to live longer than average, which means they collect retirement benefits for more years.

Although people with lower earnings tend to receive lifetime Social Security benefits that equal a larger percentage of their lifetime earnings, people with higher earnings collect more in total benefits, on average.

Average Lifetime Social Security Benefits as a Percentage of Lifetime Earnings, by Birth Cohort and Earnings Quintile

Percent



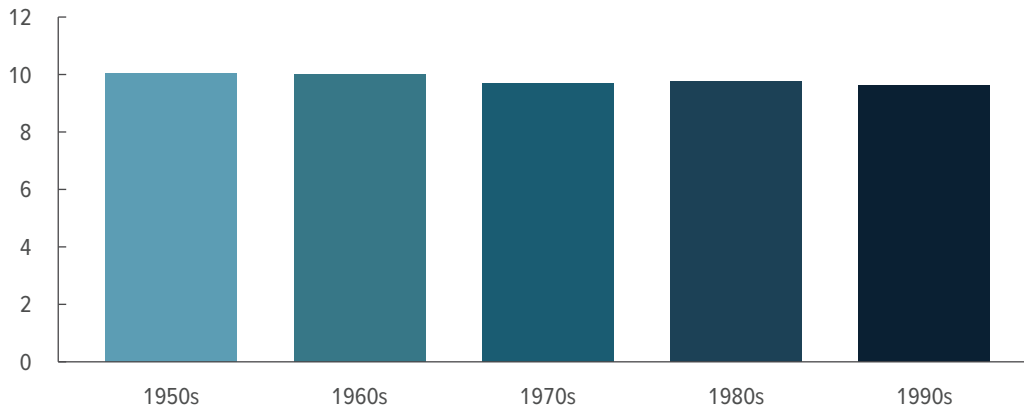
For the one-fifth of people with the lowest lifetime household earnings, total Social Security benefits over a lifetime generally equal a higher percentage of people's lifetime earnings for later cohorts than for the 1950s cohort.

Social Security Payroll Taxes Over People's Lifetime

The total Social Security payroll taxes paid over a lifetime tend to equal a smaller percentage of lifetime earnings for people in the highest earnings quintile than for people with lower earnings. The reason is that annual earnings in excess of the maximum taxable amount (\$168,600 in 2024) are not subject to the Social Security payroll tax. (Earnings above the taxable maximum are also excluded from calculations of Social Security benefits.)

Average Lifetime Social Security Taxes as a Percentage of Lifetime Earnings, by Birth Cohort

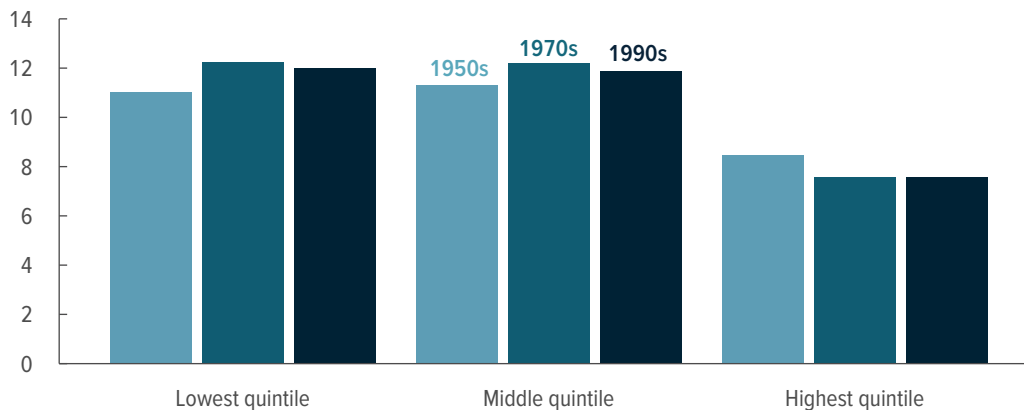
Percent



In CBO's projections, about 10 percent of people's lifetime earnings go toward Social Security payroll taxes. That percentage is lower than the current tax rate of 12.4 percent because some people have earnings above the maximum annual amount that is subject to the tax and because the payroll tax rate was lower before 1990.

Average Lifetime Social Security Taxes as a Percentage of Lifetime Earnings, by Birth Cohort and Earnings Quintile

Percent



Because earnings over a certain threshold are not taxed, people in the highest earnings quintile tend to pay a smaller share of their lifetime earnings in Social Security payroll taxes. In CBO's projections, that pattern does not change much for successive cohorts.

The Ratio of Social Security Benefits to Payroll Taxes Over People's Lifetime

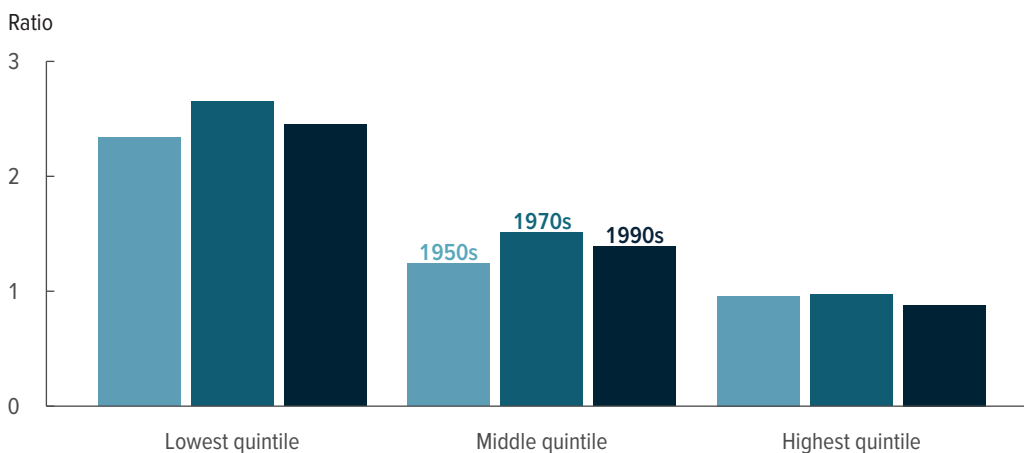
If benefits are paid as scheduled, Social Security participants, on average, will receive more in benefits over their lifetime than they pay in taxes, CBO projects. For example, for people born in the 1990s, the ratio of lifetime Social Security benefits (net of income taxes paid on those benefits) to payroll taxes paid is about 1.2 to 1, on average, meaning that lifetime benefits are about 20 percent larger than lifetime payroll taxes.

Considered in isolation, the Social Security payroll tax is regressive in that people with earnings above the maximum taxable amount pay a smaller percentage of their total earnings in payroll taxes than people with lower earnings do. However, the regressivity of the payroll tax is counterbalanced by the progressivity of Social Security benefits: The benefits that people with lower lifetime earnings receive tend to replace a larger percentage of their earnings.

Taken as a whole, the Social Security program is progressive—that is, the ratio of benefits received to payroll taxes paid over a lifetime tends to be higher for people with lower earnings than for people with higher earnings. Recipients with lower lifetime household earnings have higher benefit-to-tax ratios in part because of Social Security's progressive benefit formula and in part because people with lower earnings are more likely to receive disability benefits. However, higher earners tend to live longer than lower earners and thus receive benefits for a longer time. Increases in life expectancy also increase benefit-to-tax ratios for successive cohorts.

For people in the bottom fifth of the distribution of lifetime household earnings, average total Social Security benefits received are about 2.5 times average payroll taxes paid in their lifetime. Benefit-to-tax ratios are about 1.5 to 1 for people in the middle earnings quintile and about 1.0 to 1 for those in the highest quintile.

Ratio of Average Lifetime Social Security Benefits to Average Lifetime Taxes Paid, by Birth Cohort and Earnings Quintile



On average, people in the lowest and middle earnings quintiles will receive more in Social Security benefits over their lifetime than they will pay in Social Security payroll taxes. For people in the top earnings quintile, total Social Security benefits received will be about equal to total payroll taxes paid.

Social Security's Finances, With Payable Benefits

Like CBO's baseline budget projections, the Social Security projections discussed so far reflect the assumption that the program will continue to pay benefits as scheduled under the provisions of the Social Security Act, regardless of the balances in the Social Security trust funds. To show how the exhaustion of the trust funds' balances might affect benefits, CBO also projects Social Security benefits under the assumption that they would be limited to the amounts payable from the program's dedicated funding sources.

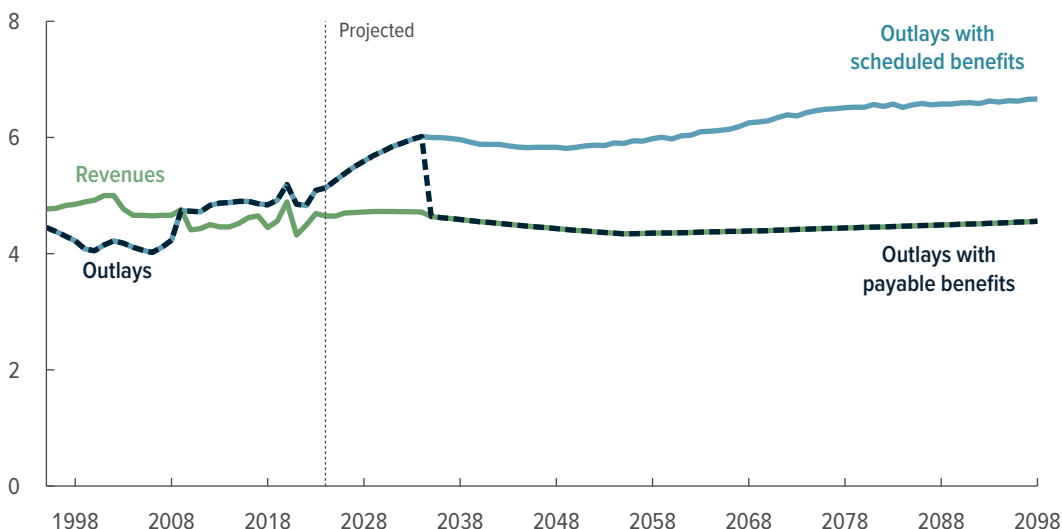
When the balances in the trust funds decline to zero, the Social Security Administration will no longer be able to pay full benefits when they are due (although beneficiaries will remain legally entitled to full benefits). Thereafter, annual outlays would be limited to annual revenues, and payments to beneficiaries would be reduced. (The method for reducing payments is not prescribed in current law.) Thus, in CBO's projections, payable benefits equal scheduled benefits until the combined trust funds' balance is exhausted in fiscal year 2034; after that, total payable benefits are the same as the program's annual revenues.

In 2035, Social Security's revenues are projected to equal 77 percent of the program's scheduled outlays. Thus, CBO estimates that Social Security benefits would be reduced by 23 percent in 2035 under the payable-benefits scenario. The gap between scheduled and payable benefits would equal 28 percent by 2098 and remain stable thereafter. (See Appendix A for more information.)

For that estimate, CBO treats the OASDI trust funds as a combined entity. If the two funds were treated as separate entities, as under current law, and the transfer of resources between them was not permitted, the reductions in scheduled benefits under the payable-benefits scenario would begin in 2034 for OASI and in 2065 for DI. CBO estimates that OASI benefits would have to be reduced by 25 percent in 2034, and DI benefits would have to be reduced by 13 percent in 2065. By 2098, the gap between scheduled and payable benefits would equal 30 percent for OASI and 6 percent for DI.

Social Security's Outlays and Revenues, With Scheduled and Payable Benefits

Percentage of gross domestic product



In CBO's projections, outlays for Social Security would total 4.6 percent of GDP in 2098 if the program could only pay benefits equal to its annual income after its trust fund balances were exhausted. Outlays would total 6.7 percent of GDP in 2098 if the program had enough resources to pay the full benefits scheduled under current law.

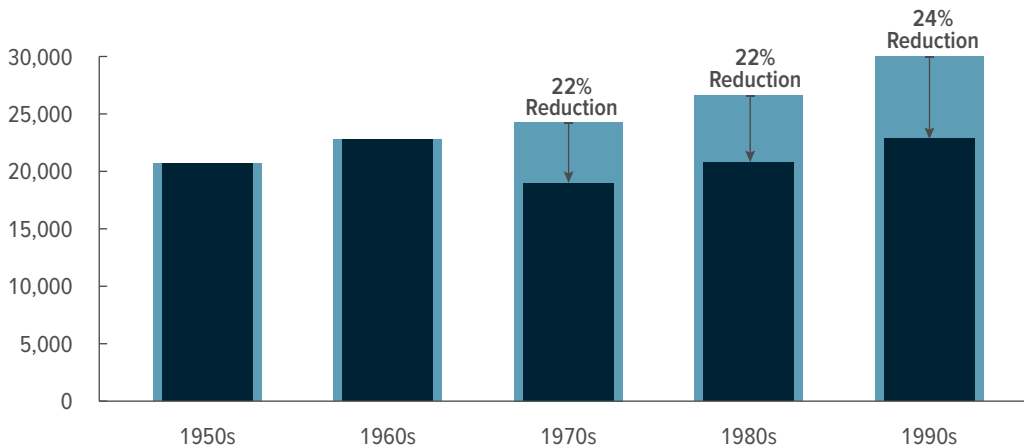
The Distribution of Payable Benefits

In the payable-benefits scenario, Social Security benefit payments are reduced after the combined trust funds' balance is exhausted in fiscal year 2034. As a result, initial benefits for people who begin collecting benefits after that date are smaller than in the scheduled-benefits scenario. In this analysis of initial benefits, people are assumed to claim Social Security retirement benefits at age 65, so those born before 1970 experience no change to their initial retirement benefits.

Members of earlier cohorts may receive Social Security benefits after the trust funds' balance is exhausted. Consequently, average lifetime benefits for all birth cohorts in this analysis are smaller in the payable-benefits scenario than in the scheduled-benefits scenario.

Reductions in Average Initial Benefits for Retired Workers in the Payable-Benefits Scenario, by Birth Cohort

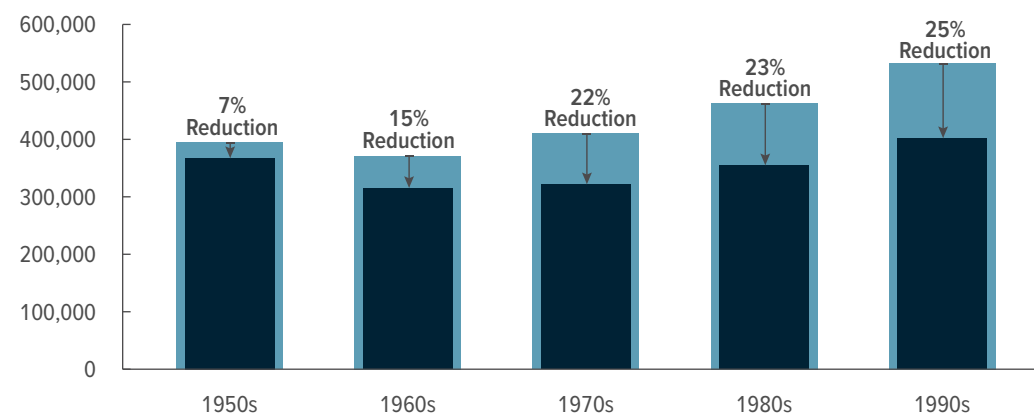
2024 dollars



The amount of benefits that can be paid from Social Security's revenues is projected to fall short of scheduled benefits beginning in 2035, when people born in 1970 turn 65. As a result, average initial retirement benefits would be lower for people born in the 1970s and later cohorts.

Reductions in Average Lifetime Social Security Benefits in the Payable-Benefits Scenario, by Birth Cohort

2024 dollars



Average lifetime Social Security benefits for all cohorts are smaller in the payable-benefits scenario because at least some members of every cohort experience benefit reductions in some years. The decline in lifetime benefits is smaller for earlier cohorts, who begin collecting benefits before the combined trust funds' balance is exhausted.

Appendix A: Scheduled Benefits Versus Payable Benefits

In accordance with statutory requirements, the Congressional Budget Office produces its baseline budget projections under the assumption that funding for entitlement programs will be adequate to make all payments required by law. Likewise, in this report, CBO's projections of Social Security's finances with scheduled benefits reflect the assumption that the Social Security Administration will pay benefits as scheduled under current law regardless of the status of the program's trust funds.

Without legislative action, the combined balance of the Old-Age, Survivors, and Disability Insurance trust funds would be exhausted in fiscal year 2034, CBO projects. Beyond that point, the trust funds' balance would no longer be sufficient to make up the gap between the benefits specified in current law and the trust funds' annual receipts.

If the balance of a Social Security trust fund was exhausted and the fund's expenditures continued to exceed its receipts, two federal laws would come into conflict. Under the Social Security Act, beneficiaries would remain legally entitled to full benefits. However, under the terms of the Antideficiency Act, the Social Security Administration would not have legal authority to pay those benefits on time. (That law prohibits government spending in excess of available funds.) It is unclear what specific actions the Social Security Administration would take if a trust fund was insolvent.

There are many ways to restore Social Security's solvency after the projected exhaustion of the trust funds' balances. For example, scheduled benefits could be reduced to decrease spending from the trust funds, payroll tax rates could be raised, or funds could be transferred from the Treasury's general fund to increase Social Security's income.

In CBO's projections of Social Security's finances with payable benefits, benefits are limited to the amounts payable from dedicated funding. Once the combined balance of the trust funds is exhausted, benefits are reduced as necessary to ensure that outlays do not exceed the Social Security system's revenues. Thus, in that scenario, the trust funds' annual income and expenditures are equal.

Because Social Security's outlays are smaller in the payable-benefits scenario than in the scheduled-benefits scenario, annual budget deficits and total federal debt are also smaller. CBO's projections incorporate the effects of government borrowing on private investment through 2054 and then hold that effect constant. As a result, the smaller deficits and debt in the payable-benefits scenario lead to faster economic growth and larger gross domestic product after the projected exhaustion of the trust funds' balances than in the scheduled-benefits scenario.

Appendix B: Explanations of Terms Used in This Analysis

The **actuarial balance** is a common measure of the sustainability of a program that has a trust fund and a dedicated revenue source. It summarizes the trust fund's current balance and future annual streams of revenues and outlays as a single number. The actuarial balance equals the sum of the present value of the fund's projected income over a given period and the fund's current balance, minus the sum of the present value of its projected outlays and a year's worth of benefits at the end of the period. (A present-value estimate translates a flow of current and future income or payments into an equivalent lump-sum value today.) For Social Security, the actuarial balance is traditionally presented as a percentage of the present value of gross domestic product (GDP) or of **taxable payroll** (total earnings subject to the Social Security payroll tax) over 75 years.

The actuarial balance is also the difference between the **income rate** and the **cost rate**. The income rate is the present value of a trust fund's annual income plus its initial balance, divided by the present value of GDP or of taxable payroll, over the 75-year projection period. The cost rate is the present value of annual outlays plus the present value of a year's worth of benefits at the end of the projection period, divided by the present value of GDP or of taxable payroll over the same period. A negative actuarial balance is called an **actuarial deficit**.

Discount rates are used in present-value estimates to capture the difference in value between a cash flow in the future and the same cash flow today. The discount rates that the Congressional Budget Office uses to calculate Social Security's actuarial balance, income rate, and cost rate are the average interest rates on all Treasury securities projected to be held by the trust funds until their combined balance is exhausted in fiscal year 2034. For years after that, CBO uses a discount rate based on its projection of the average interest rate on new special-issue Treasury bonds.

The Social Security Administration uses a formula to calculate the benefits paid to retired workers who

claim benefits at the **full retirement age** (the age at which people become eligible for full Social Security retirement benefits) or to calculate the benefits paid to disabled workers. That formula is applied to workers' **average indexed monthly earnings** (AIME)—a measure of their average taxable monthly earnings over their 35 highest-earning years. The AIME is separated into three brackets using two threshold amounts, or **bend points** (\$1,174 and \$7,078 in 2024). A worker's **primary insurance amount** (PIA) consists of 90 percent of the portion of the AIME in the lowest bracket plus 32 percent of the portion in the middle bracket plus 15 percent of the portion in the highest bracket. That benefit formula is **progressive**: Because those PIA factors are larger for lower earnings brackets, benefits replace a larger share of lifetime earnings for people with lower AIME than for people with higher AIME.

Initial annual benefits for retired workers are the benefits people receive in the first year of claiming them. For this analysis, CBO computed initial retirement benefits for all people who will be eligible for them and who have not yet claimed any other Social Security benefits. To remove the effects of inflation on initial benefits, CBO used the GDP price index for all goods and services included in gross domestic product. For the analysis of initial benefits, all workers are assumed to claim retirement benefits at age 65, and all benefit amounts are net of income taxes paid on benefits and credited to the Old-Age and Survivors Insurance Trust Fund.

The **initial replacement rate for retired workers** is the initial annual benefit amount measured as a percentage of workers' preretirement earnings. For this report, preretirement earnings are defined as the average of the last five years of substantial earnings before age 62.¹ (Substantial earnings are annual earnings amounting to at least half of a worker's average indexed annual

1. For more information, see Congressional Budget Office, *Social Security Replacement Rates and Other Benefit Measures: An In-Depth Analysis* (April 2019), www.cbo.gov/publication/55038.

earnings—that is, average annual earnings over that person's lifetime, adjusted for changes in average wages.) Preretirement earnings are adjusted to account for price increases and thus reflect the purchasing power of earnings over time. Replacement rates are computed for all people who are eligible to claim retirement benefits at age 62 and who have not yet claimed other Social Security benefits. To include only people with significant attachment to the labor force, CBO excluded workers with fewer than 20 years of earnings equal to at least 10 percent of average wages in the total economy in each year.

Initial annual benefits for disabled workers are the benefits people receive in the first year after being awarded Disability Insurance (DI) benefits. CBO adjusted benefits to remove the effects of inflation by using the GDP price index. All benefit amounts are net of income taxes paid on benefits and credited to the DI trust fund.

The initial replacement rate for disabled workers is a worker's initial annual benefit amount measured as a percentage of the average of the worker's last five years of substantial earnings. Those past earnings are adjusted to account for price increases and thus reflect the purchasing power of earnings over time.

Lifetime earnings are the present value of real (inflation-adjusted) earnings over a person's lifetime at age 65, including earnings above the maximum amount subject to the Social Security payroll tax. CBO adjusted earnings to remove the effects of inflation by using the GDP price index. For someone who is single in all years, lifetime household earnings are the present value of real earnings over a lifetime. In any year in which a person is married, that person's earnings are measured as the average of their and their spouse's earnings, with adjustments to account for economies of scale in household consumption. Specifically, CBO calculated adjusted household earnings by dividing those earnings by the square root of the number of people in the household, which implies that a

married person would need about 30 percent less income than a single person living alone to maintain the same general standard of living.

CBO used lifetime earnings to estimate the shares of earnings paid in Social Security taxes for different **birth cohorts**, or groups of people born in the same decade. To examine differences among people at different earnings levels, CBO used lifetime household earnings to rank people in each cohort and divide them into **quintiles**, or fifths, of the earnings distribution.

Lifetime Social Security benefits are the present value of all Social Security benefits (except those received by young widows, young spouses, and children), net of income taxes that some recipients pay on their benefits. (Benefits received by young widows, young spouses, and children are excluded from that measure because of insufficient data for years before 1984.)

Lifetime Social Security taxes consist of the present value of the employer's and employee's shares of Social Security payroll taxes.

The **lifetime Social Security benefit-to-tax ratio** is a comparison of the present value of benefits received over a lifetime (net of income taxes paid on benefits) and the present value of payroll taxes paid over a lifetime.

To calculate the present values of Social Security benefits, taxes, and earnings over a lifetime, CBO discounted amounts to age 65 by using the average interest rate on outstanding federal debt as the **discount rate**.

The **trust fund ratio** is the balance of a trust fund at the beginning of the year divided by outlays (benefits and administrative costs) for that year. Exhaustion occurs when the balance of a trust fund, and thus the trust fund ratio, reaches zero. Under current law, a Social Security trust fund cannot incur negative balances.

Appendix C: Changes to CBO's Projections of the 75-Year Actuarial Deficit Since Last Year

The Congressional Budget Office is now projecting a smaller 75-year actuarial deficit for Social Security than it did last year.¹ CBO projects that if current laws remained in place, the program's actuarial deficit over the 2024–2098 period would equal 1.5 percent of gross domestic product (GDP) or 4.3 percent of taxable payroll—smaller than last year's estimate of 1.7 percent of GDP or 5.1 percent of taxable payroll over the 2023–2097 period.

The current projections of the actuarial deficit reflect several developments in the past year:

- CBO has reduced its projections of the number of Social Security beneficiaries after 2034, which lowers its projections of long-term outlays for Social Security and thus the actuarial deficit. That change mainly results from a technical change in CBO's model for projecting people's eligibility for benefits. CBO's modeling now takes into consideration the immigration status of beneficiaries. In particular, the agency now estimates that half (rather than all) of the people in the United States who are not citizens or legal permanent residents will be eligible for Social Security benefits on the basis of their own work record or that of their spouse. Like all Social Security beneficiaries, they must also work for enough years to qualify for benefits.
- CBO is projecting faster growth of real GDP (that is, GDP adjusted to remove the effects of inflation) over the 75-year projection period than it did last year.² As a result, its projections of revenues from Social

Security payroll taxes have increased. Faster GDP growth also increases outlays, but to a smaller extent. The increase in outlays occurs slowly because future beneficiaries would only gradually start to receive larger benefits—on the basis of higher earnings—than they would have otherwise. Earlier years, which are projected to have smaller financial shortfalls, receive more weight in present-value calculations, such as that of the actuarial balance, so the overall effect of faster GDP growth is to decrease the actuarial deficit.

- CBO now expects the U.S. population to be larger and to grow more quickly, on average, than it projected last year.³ Those changes result from the net effect of greater projected net immigration, lower projected fertility rates, and lower projected rates of mortality from COVID-19 than in last year's demographic outlook. As a result of those changes, the ratio of people in the 20–64 age group to people 65 or older is higher in CBO's current projections than it was in last year's projections from 2024 to 2065 and lower from 2065 to 2097. In other words, compared with last year's projections, there will be relatively more people ages 20 to 64 (who are more likely to work and pay payroll taxes) than older people (who are less likely to work and are generally eligible for Social Security benefits) between now and the mid-2060s. Because earlier years receive more weight in the calculation of the actuarial balance, the overall effect of CBO's updated demographic projections is to reduce the actuarial deficit.

Those effects are partly offset by the inclusion of an additional year (2098) with a large projected shortfall for the Social Security program, which increases the 75-year actuarial deficit.

1. The previous projections are described in Congressional Budget Office, *CBO's 2023 Long-Term Projections for Social Security* (June 2023), www.cbo.gov/publication/59184.

2. For more details about the changes in projections of GDP, see Congressional Budget Office, *The Long-Term Budget Outlook: 2024 to 2054* (March 2024), www.cbo.gov/publication/59711, and *An Update to the Budget and Economic Outlook: 2024 to 2034* (June 2024), www.cbo.gov/publication/60039.

3. Congressional Budget Office, *The Demographic Outlook: 2024 to 2054* (January 2024), www.cbo.gov/publication/59697.

About This Document

This volume is one of a series of reports on the state of the budget and the economy that the Congressional Budget Office issues each year. In keeping with CBO's mandate to provide objective, impartial analysis, the report makes no recommendations.

Xinzhe Cheng prepared the report with guidance from Molly Dahl and Julie Topoleski. Alia Abdelkader, Daniel Crown, Madeleine Fischer, Noah Meyerson, Charles Pineles-Mark, and Delaney Smith contributed to the analysis in this report. Madeleine Fischer fact-checked the report and the supplemental data. Noah Meyerson and Kurt Seibert provided comments on an earlier draft.

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CBO seeks feedback to make its work as useful as possible. Please send comments to communications@cbo.gov.



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