Social Security, which was created in 1935, is the largest single program in the federal budget. The program’s two components pay benefits to more than 60 million beneficiaries in all. The larger of the two, Old-Age and Survivors Insurance (OASI), pays benefits to retired workers, to their eligible dependents, and to some survivors of deceased workers. The smaller, Disability Insurance (DI), makes payments to disabled workers and to their dependents until those workers are old enough to claim full retirement benefits under OASI. The Congressional Budget Office estimates that the program’s mandatory outlays will total $911 billion in fiscal year 2016, accounting for almost one-quarter of all federal spending.1

During the program’s first five decades, Social Security spending grew from less than 1 percent of gross domestic product (GDP) in the early years to nearly 5 percent of GDP by 1983. That rise was attributable mainly to program expansions, particularly the 1956 creation of the DI program. From 1984 to 2008, Social Security spending averaged 4.2 percent of GDP. During the 2007–2009 recession, GDP shrank, and the number of OASI and DI claimants rose unusually rapidly as the job market deteriorated. That set of conditions, along with the higher-than-average cost-of-living adjustment that was applied to benefits in January 2009, resulted in Social Security’s outlays reaching 4.7 percent of GDP in 2009.

For several reasons, spending has remained at about that level since then. The weakness in the economy resulting from the recession was temporary, but the burgeoning rate of retirement among baby-boom generation workers is having a lasting effect. In 2016, CBO estimates that Social Security outlays will be 4.9 percent of GDP.

In coming decades, as more members of the baby-boom generation reach retirement age, a larger proportion of the population will receive benefits; as life expectancy continues to increase, those beneficiaries will collect benefits for a longer time. If full benefits were paid under the formulas specified in current law, CBO projects, Social Security spending would rise steadily, reaching 5.9 percent of GDP in 2026 and 6.3 percent of GDP in 2046 (see Figure 2-1).

How Social Security Works
Because 72 percent (or 43 million) of its beneficiaries are retired workers or the spouses and children of those recipients, Social Security is often characterized as a retirement program.2 In general, workers qualify for Social Security retirement benefits if they are age 62 or older and have paid sufficient Social Security taxes for at least 10 years.

Social Security also provides other benefits, including payments to the survivors of deceased workers—currently 10 percent of beneficiaries. In addition, workers who have not reached the full retirement age (FRA) and who are judged unable to perform “substantial” work because of a physical or mental disability can qualify for DI benefits, in many cases after a shorter period of employment than is required to collect retirement benefits. (DI beneficiaries become retired-worker beneficiaries at the FRA with no change in benefit amounts.) Disabled workers and their spouses and children account for 18 percent of beneficiaries.3 In dollar terms, 71 percent of Social Security benefits are paid to retired workers and their dependents.

1. That amount consists of about $906 billion in benefits, about $5 billion in transfers to the Railroad Retirement Board, and less than $1 billion in payments to the Treasury for administrative costs. CBO estimates that another $6 billion—classified as discretionary spending—will be spent to administer the program. In this report, spending for Social Security generally refers to mandatory outlays.


survivors receive 13 percent, and disabled workers and their spouses and children receive 16 percent.4

**Benefits**

Retired workers and those who collect disabled worker benefits receive initial benefits that are based on their individual earnings histories, indexed to changes in average annual earnings for the U.S. workforce (including earnings that are not subject to taxation under Social Security). After the first year of benefit eligibility, a cost-of-living adjustment is applied to account for annual growth in consumer prices.

A worker’s birth year determines the age of eligibility to receive full OASI payments. For example, any eligible worker born before 1938 could have claimed full retirement benefits at the age of 65. (Under current law, upon reaching the early eligibility age of 62, any eligible worker may claim reduced benefits.) According to a schedule enacted in the Social Security Amendments of 1983, the FRA is rising incrementally: For workers born between 1938 and 1942, it increased by two months for each successive birth year, reaching 66 for workers who were born between 1943 and 1954. The FRA will continue to rise gradually, starting at 66 and 2 months for workers who were born in 1955 (who will turn 62 in 2017) and eventually reaching 67 for people born after 1959 (the youngest of whom will turn 62 in 2022).

According to CBO’s current estimates, the initial average annual benefit for a retired worker born in the 1940s and claiming benefits at age 65 (that is, between 2005 and 2014) was about $17,000 in 2015 dollars. For claimants with at least 20 years of earnings, those benefits replaced, on average, about 43 percent of their preretirement earnings (defined as the average of the final five years of a worker’s substantial earnings before age 62).5 Over time, according to CBO’s current estimates, the initial average annual benefit for a retired worker born in the 1940s and claiming benefits at age 65 (that is, between 2005 and 2014) was about $17,000 in 2015 dollars. For claimants with at least 20 years of earnings, those benefits replaced, on average, about 43 percent of their preretirement earnings (defined as the average of the final five years of a worker’s substantial earnings before age 62).5 Over time, according to CBO’s current estimates, the initial average annual benefit for a retired worker born in the 1940s and claiming benefits at age 65 (that is, between 2005 and 2014) was about $17,000 in 2015 dollars. For claimants with at least 20 years of earnings, those benefits replaced, on average, about 43 percent of their preretirement earnings (defined as the average of the final five years of a worker’s substantial earnings before age 62).5 Over time, according to CBO’s current estimates, the initial average annual benefit for a retired worker born in the 1940s and claiming benefits at age 65 (that is, between 2005 and 2014) was about $17,000 in 2015 dollars. For claimants with at least 20 years of earnings, those benefits replaced, on average, about 43 percent of their preretirement earnings (defined as the average of the final five years of a worker’s substantial earnings before age 62).5

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4. The categorizations of benefits and beneficiaries are not completely consistent—some people receive benefits in more than one category. For instance, in the calculations of the numbers of beneficiaries by category, retired workers who also receive survivors’ benefits are counted as retired. But in the calculation of the distribution of benefits, their benefit payments are prorated to the retired-worker and survivor categories.

5. Earnings are substantial if they amount to at least half of a worker’s average indexed earnings. Workers with fewer than 20 years of earnings above 10 percent of average annual earnings for the U.S. workforce are excluded from this calculation. See Congressional Budget Office, *CBO’s 2015 Long-Term Projections for Social Security: Additional Information* (December 2015), www.cbo.gov/publication/51047. CBO will publish updated estimates of benefits and replacement rates later in 2016.
the real (inflation-adjusted) value of initial benefits for retirees is likely to rise because initial benefits are based on beneficiaries’ previous earnings, indexed to average wage growth in the United States, and because over the long term, growth in wages is expected to outpace inflation.

**Taxes**

The Social Security program is funded by dedicated tax revenues from two sources. Currently, 96 percent comes from a payroll tax—generally, 12.4 percent of earnings that are subject to that tax. Workers and their employers each pay half; self-employed people pay the entire amount. Earnings up to a maximum annual amount—$118,500 in calendar year 2016—are subject to the payroll tax. That taxable maximum generally increases each year at the same rate as average earnings in the United States, and it has remained a nearly constant proportion of the average wage since the early 1980s. Because earnings have grown more for high earners than for others, the portion of earnings on which Social Security payroll taxes are paid has fallen from 90 percent in 1983 to 82 percent in 2016. CBO expects that disparity in growth in earnings to continue for at least the next decade, causing the portion of earnings that is subject to the Social Security tax to fall to below 78 percent by 2026 and to remain near that level thereafter.

The remaining share of tax revenues—4 percent—is collected from income taxes on Social Security benefits. Recipients who file individual income tax returns must pay taxes on their benefits if the sum of their non–Social Security income (generally, adjusted gross income plus nontaxable interest income) and half of their benefits exceeds $25,000; the threshold for joint filers is $32,000. Under current law, those thresholds will remain the same over time—no adjustments are made to account for earnings growth or for inflation.

**Trust Funds**

Revenues from the payroll tax and the tax on benefits are credited to the Old-Age and Survivors Insurance Trust Fund and the Disability Insurance Trust Fund, which finance the program’s benefits. Social Security benefits account for 99 percent of total outlays from those two funds; the remaining 1 percent covers administrative costs. Interest on the balances is credited to the trust funds, but because the interest transactions represent payments from one part of the government (the general fund of the Treasury) to another (the trust funds), they do not affect federal budget deficits or surpluses. Over the history of the trust funds, receipts—tax revenues, interest payments, and occasional transfers from the general fund—have exceeded outlays. The trust funds’ balances stood at $2.8 trillion at the end of May 2016.

**The Outlook for Social Security Spending and Revenues**

For some time, both the Social Security Administration and CBO have projected that, if full benefits were paid under the formulas specified in current law, the program’s spending would rise significantly during the coming decades. Average benefits per recipient are expected to continue to increase because the earnings that are the basis of those benefits will increase. Other things being equal, that relationship would tend to keep total benefits roughly stable as a percentage of GDP. However, as a larger share of the baby-boom generation reaches retirement age and as longer life spans lead to longer retirements, a significantly larger portion of the population will draw benefits. Those developments will combine to cause the total amount of benefits scheduled to be paid under current law to grow faster than the economy. In contrast, total revenues for the program are anticipated to decline slightly as a percentage of GDP. The faster growth projected for total benefits than for total revenues would create a shortfall in the program’s finances. The amounts of Social Security benefits received and taxes paid, and the resulting gap between total revenues and benefits, will depend on changes in life expectancy, conditions in the labor market, and other factors.

CBO’s extended baseline, which encompasses the period from 2016 through 2046, generally reflects the provisions of current law. In keeping with the rules specified in the Balanced Budget and Emergency Deficit Control Act of 1985, however, CBO’s extended baseline incorporates the assumption that scheduled payments will continue to

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6. CBO’s Social Security projections extend for 75 years, from 2016 to 2090. However, the agency uses separate methods to make budgetary projections for the periods before and after 2046. Through 2046, the extended baseline accounts for the effects of fiscal policy (notably, rising federal debt and marginal tax rates; see Chapter 6). Projections for the period after 2046 are governed by two assumptions: that federal debt remains constant as a share of GDP and that marginal tax rates remain unchanged from their 2046 values.
be made in full after a trust fund has been exhausted, although there is no current legal authority to make such payments. The agency’s projections for Social Security spending and revenues are based on a detailed microsimulation model, which starts with data about individuals from a representative sample of the population and projects demographic and economic outcomes for that sample through time. For each individual in the sample, the model simulates birth, death, immigration and emigration, marital status and changes to it, fertility, labor force participation, hours worked, earnings, and payroll taxes, along with Social Security retirement, disability, and dependents’ and survivors’ benefits.\(^7\)

Demographic Changes

According to CBO’s projections, the number of people who are age 65 or older will increase by 37 percent between now and 2026, and it will increase by 75 percent between now and 2046 as the baby-boom generation ages and life expectancy increases (for more information on CBO’s demographic projections, see Appendix A). In comparison, CBO anticipates increases of just 3 percent and 14 percent in the population between the ages of 20 and 64 over those same periods. Today, that older group is one-quarter of the size of the younger group. The proportion is expected to increase to 33 percent by 2026 and to 38 percent by 2046 (see Figure 2-2). If current laws remained in place, more than 78 million people would collect benefits in 2026 and almost 100 million people would do so in 2046; currently, Social Security has more than 60 million beneficiaries.

CBO expects that future increases in life expectancy will be larger for people with higher lifetime earnings; that expectation is consistent with the pattern of past increases.\(^8\) Retirees with higher lifetime earnings receive larger benefits than do their lower-earning counterparts, so their

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greater increase in life expectancy will raise total future benefits, all else being equal. Similarly, the greater increase in life expectancy of high earners will boost the ratio of lifetime Social Security benefits to lifetime Social Security taxes for high earners relative to that of low earners, reducing the progressivity of the system.9

Projected Spending and Revenues
If current laws generally remained in place, spending for Social Security would rise from 4.9 percent of GDP in 2016 to 5.9 percent in 2026 and to 6.3 percent in 2046, CBO projects. The share of Social Security spending for disability benefits would fall from 16 percent today to 13 percent in 2046. Most disabled beneficiaries are between age 50 and the FRA. As the baby-boom generation ages, the share of the population in that range will fall, and the share of the population over the FRA, most of whom receive OASI benefits, will rise.

In contrast, taxes credited to the Social Security program would decline slightly as a share of GDP, according to projections in CBO’s extended baseline. Because Social Security payroll tax receipts constitute a fixed share of taxable earnings, and because taxable earnings are projected to decline as a share of GDP, payroll taxes also would decline as a share of GDP—from 4.3 percent in 2016 to 4.1 percent in 2046 (see Appendix A). However, CBO projects increases in the number of Social Security recipients whose benefits are subject to taxation, the taxable share of their benefits, and their average income tax rates. (CBO’s tax projections are discussed in Chapter 5.) Income taxes on Social Security benefits that are credited to the Social Security trust funds would grow from about 0.2 percent of GDP today to 0.3 percent of GDP in 2046 under those circumstances. By 2046, total Social Security tax revenues—from payroll taxes and taxes on benefits—would equal 4.4 percent of GDP, 0.1 percentage point below the current amount.

In 2010, for the first time since the enactment of the Social Security Amendments of 1983, annual outlays for the program exceeded annual receipts, excluding interest credited to the trust funds. A gap between those amounts has persisted since then, and in 2015, outlays exceeded receipts, excluding interest, by about 8 percent. CBO projects that, as more people in the baby-boom generation retire over the next 10 years, that gap would widen. According to CBO’s extended baseline projections, Social Security outlays would exceed the program’s revenues by 31 percent in 2026 and by 44 percent in 2046.

Financing of Social Security
A common measure of the sustainability of a program that has a trust fund and a dedicated revenue source is its estimated actuarial balance over a given period—that is, the sum of the present value of projected tax revenues and the current trust fund balance minus the sum of the present value of projected outlays and a year’s worth of benefits at the end of the period.10 For Social Security, that difference is traditionally presented as a percentage of the present value of taxable payroll.11

Over the next 75 years, if current laws remained in place, the program’s actuarial shortfall would be 4.7% of taxable payroll, or 1.6 percent of GDP, CBO projects.

9. The ratio of lifetime benefits to taxes in Social Security depends on the number of years that a recipient collects benefits, the annual benefit amount, the number in years of which that recipient paid Social Security taxes, and the amount of taxes paid each year. In general, payments to beneficiaries with low lifetime earnings replace more of their average lifetime earnings than do payments to higher-earning beneficiaries. But because low earners tend to have a shorter life expectancy than higher earners do, low earners tend to collect benefits for fewer years. All told, lifetime Social Security benefits as a share of lifetime earnings decrease as earnings increase, but estimates of that effect vary and depend on whether disabled and survivor beneficiaries are included, how spousal benefits are accounted for, and how married couples are treated. See, for example, Barry P. Bosworth and Kathleen Burke, Differential Mortality and Retirement Benefits in the Health and Retirement Study (April 2014), pp. 5–6, http://tinyurl.com/nq1hpyt.

10. A present value is a single number that expresses a flow of past and future income (in taxes) or payments (in benefits) in terms of an equivalent lump sum received or paid at a specific time. The value depends on the rate of interest, known as the discount rate, used to translate past and future cash flows into current dollars at that time. To account for the difference between the trust fund’s current balance and the balance desired for the end of the period, the balance at the beginning is added to the projected tax revenues and an additional year of costs at the end of the period is added to projected outlays.

11. Taxable payroll is total earnings (wages and self-employment income) for employment covered by Social Security that is below the applicable annual taxable maximum.

[Value corrected on July 22, 2016]
Table 2-1.

Financial Measures for Social Security

<table>
<thead>
<tr>
<th>Projection Period (Calendar years)</th>
<th>Income Rate</th>
<th>Cost Rate</th>
<th>Actuarial Balance (Difference)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>As a Percentage of Taxable Payroll</td>
<td>As a Percentage of Gross Domestic Product</td>
<td></td>
</tr>
<tr>
<td>25 Years (2016 to 2040)</td>
<td>14.9 *</td>
<td>18.0</td>
<td>-3.1 *</td>
</tr>
<tr>
<td>50 Years (2016 to 2065)</td>
<td>14.1 *</td>
<td>18.3</td>
<td>-4.1 *</td>
</tr>
<tr>
<td>75 Years (2016 to 2090)</td>
<td>13.9 *</td>
<td>18.6</td>
<td>-4.7 *</td>
</tr>
</tbody>
</table>

Source: Congressional Budget Office.

These projections incorporate the assumption that spending for Social Security continues as scheduled even if its trust funds are exhausted. Through 2046, the projections incorporate macroeconomic feedback caused by rising federal debt and marginal tax rates. After 2046, they do not account for such feedback.

Over each projection period, the income rate is the present value of annual tax revenues plus the initial trust fund balance, and the cost rate is the present value of annual outlays plus the present value of a year’s worth of benefits as a reserve at the end of the period, each divided by the present value of taxable payroll or gross domestic product. (The present value of a flow of revenues or outlays over time is a single number that expresses that flow in terms of an equivalent sum received or paid at a specific time. The present value depends on a rate of interest, known as the discount rate, that is used to translate past and future cash flows into current dollars.) The actuarial balance is the difference between the income and cost rates.

To be consistent with the approach used by the Social Security trustees, the 25-, 50-, and 75-year projection periods for the financial measures reported here include 2016 and end in 2040, 2065, and 2090, respectively.

(see Table 2-1). In other words, it would be possible to pay the benefits prescribed by current law and maintain the necessary trust fund balances through 2090 if payroll taxes were raised immediately and permanently by about 4.7 percent of taxable payroll, scheduled benefits were reduced by an equivalent amount, or some combination of tax increases and spending reductions of equal present value was adopted.

The estimates of the actuarial shortfall do not account for revenues or outlays after the 75-year projection period. A policy that either increased revenues or reduced outlays by the same percentage of taxable payroll each year needed to eliminate the 75-year shortfall would not necessarily place Social Security on a permanently stable financial path. Because shortfalls are smaller earlier in the 75-year projection period than they are later on, such a policy would create surpluses in the next several decades but result in deficits later and leave the system financially unbalanced after calendar year 2090.

The measure of actuarial balance used here is called the 75-year open-group unfunded obligation because, without a change in law, the program would continue to admit new participants. The open-group measure accounts for taxes paid by workers annually until 2090 but does not consider the benefits that would be paid to those workers thereafter. Those new participants would originally receive.

12. To be consistent with the 75-year actuarial balance reported by the Social Security trustees, the 75-year projection period used here begins in calendar year 2016 and ends in calendar year 2090. The Social Security trustees have estimated that the program’s 75-year actuarial shortfall would be 2.7 percent of taxable payroll, 2.0 percentage points smaller than CBO’s projection. The larger shortfall projected by CBO primarily stems from differences in the projections of interest rates and taxable payroll. Differences in projections involving life expectancy, fertility, and growth in the consumer price index also contribute (see Appendix A). For details on the trustees’ projections, see Social Security Administration, The 2016 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds (June 2016), www.ssa.gov/oact/tr/2016.

13. The calculation of the actuarial balance excludes the effects of any macroeconomic feedback that would result from an increase in taxes or a reduction in benefits.

[*Values corrected on July 22, 2016]
pay much more in taxes over the next 75 years than they would receive in benefits during that period.

An alternative measure—sometimes called the closed-group unfunded obligation—shows the shortfall in the system that would occur if Social Security excluded anyone currently under the age of 15, thereby encompassing future taxes paid and benefits received only by people who are now age 15 or older. (Similar assessments are made of the financial outlook for private pension plans.) CBO estimates that, when measured as a percentage of taxable payroll, the 75-year closed-group shortfall as of 2016 is about two-thirds larger than the 75-year open-group shortfall.

Another commonly used measure of Social Security’s sustainability is a trust fund’s date of exhaustion. CBO projects that, under current law, the DI trust fund would be exhausted in fiscal year 2022 and the OASI trust fund would be exhausted in calendar year 2030. Because it is a common analytical convention to consider the DI and OASI trust funds as combined, even though legally they are separate, this discussion focuses on them as one entity. In CBO’s extended baseline, the combined OASDI trust funds are projected to be exhausted in calendar year 2029.

If a trust fund’s balance declined to zero and receipts were insufficient to cover benefits specified in law, the Social Security Administration would no longer have legal authority to pay full benefits when they were due. In the years after a trust fund’s exhaustion, annual outlays therefore could not exceed annual revenues. Under those circumstances, all receipts to the trust fund would be used and the trust fund balance would remain essentially at zero.14

Social Security benefits can be projected in two ways: as payable benefits, which conform to the limits imposed by a trust fund’s balance and annual revenues, or as scheduled benefits, which reflect the benefit formulas specified in law, regardless of a trust fund’s balance. This report uses the latter approach, which is consistent with a statutory requirement that CBO, in its 10-year baseline projections, assume that funding for entitlement programs is adequate to make all payments required by law.15 In 2030, the year after the combined trust funds are expected to be exhausted, revenues are projected to equal 71 percent of scheduled outlays. Under those circumstances, payable benefits would be 29 percent less than scheduled benefits.

Social Security Benefits and Payroll Taxes, Depending on Birth Cohort

The amount people pay in Social Security taxes and the amount they receive in benefits over a lifetime depend on when they were born.16 Under current law, taxes and benefits alike are anticipated to be higher for people in later birth cohorts because real earnings are projected to continue to rise. Continuing increases in life expectancy also would contribute to growth in lifetime benefits because later cohorts are projected to live to receive Social Security benefits for longer periods.

To compare Social Security benefits and taxes across generations for this analysis, CBO calculated lifetime Social Security benefits and payroll taxes as the present value—discounted to the year in which a beneficiary turns 65 and expressed in 2016 dollars—of all such benefits that workers would receive from the program or all payroll taxes they would pay to the program.17 CBO measured the present value of benefits or taxes relative to the present

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17. For this analysis, payroll taxes include the combined shares paid by employers and employees. Benefits are net of income taxes paid on those benefits. They include all benefits except those paid to young widows and children. For a discussion of methods, see Congressional Budget Office, CBO’s 2015 Long-Term Projections for Social Security: Additional Information (December 2015), Appendix, www.cbo.gov/publication/51047.
value of lifetime earnings, with all values adjusted for inflation (see Figure 2-3). That analysis led to the following conclusions:

- Real average lifetime scheduled benefits as a percentage of lifetime earnings will generally be greater for each birth cohort than for the preceding one because life expectancy is projected to increase. Thus, mean lifetime benefits for people born in the 1950s are projected to be about 11 percent of their lifetime earnings. For people born in the 1980s, that proportion will be 13 percent if they receive scheduled benefits.

- For two reasons, real average lifetime payroll taxes for each birth cohort relative to lifetime earnings will generally be slightly less than those for the preceding cohort: First, under current law, Social Security payroll taxes are a fixed share of earnings below the taxable maximum, and second, the portion of earnings that is subject to Social Security tax is projected to fall. Thus, the mean amount of lifetime payroll taxes for people born in the 1950s is projected to be 10 percent of their lifetime earnings. For people born in the 1980s, that amount will be 9 percent.