Congressional Budget Office

OCTOBER 2017

Changes to CBO's Long-Term Social Security Projections Since 2016

Projections of Social Security's long-term financial outlook depend critically on estimates of key demographic and economic variables. Each year, the Congressional Budget Office updates its projections of the Social Security system's finances to incorporate newly available data and information from the research community. The agency also updates its models to incorporate improvements in methods and feedback on its analytical approach.

Compared with the long-term budget projections CBO made last year, the agency's latest projections, published in March, indicate a slight improvement in the financial outlook for the Social Security system.[1] The projected 75-year actuarial balance, a commonly used measure of the system's financial condition, has improved from –1.6 percent of gross domestic product (GDP) to –1.5 percent of GDP (see Table 1).[2] As a percentage of taxable payroll, the projected 75-year actuarial balance has improved from –4.7 percent to –4.5 percent.

Since last year, CBO has made changes to its projections of five key inputs: productivity in the economy, interest rates, the population, the labor force participation rate, and the share of earnings that is subject to Social Security payroll taxes.[3] The changes to the first three of those inputs worsen the Social Security system's projected finances, whereas the changes to the last two improve them. Moreover, an additional year of deficit—2091—is now included in the calculation of the actuarial balance, which worsens the 75-year outlook.

CBO projects larger deficits in Social Security's finances than do the Social Security Trustees. That difference is largely explained by CBO's and the trustees' different projections of several major inputs into estimates of the system's finances: earnings subject to the Social Security payroll tax, components of GDP growth, the population, and real interest rates (that is, interest rates adjusted to remove the effects of inflation).

What Is the Effect of Changes in Projected Productivity?

CBO's estimate of total factor productivity (TFP) growth is lower in this year's long-term projections than last year's, which worsens the projected actuarial balance. TFP growth is one component of real growth in the nation's economic output—the residual growth that reflects all economic development that is not attributable to the growth of capital services or labor. That development can include technological progress, changes in the rate at which capital is utilized (which are not captured in CBO's measure of capital input), changes in the quality of labor (for example, the overall level of workers' educational attainment and experience), institutional change, spillovers from investments in capital, and

1. For the 2016 projections and additional information, see Congressional Budget Office, *The 2016 Long-Term Budget Outlook* (July 2016), www.cbo.gov/publication/51580, and Congressional Budget Office, *CBO's 2016 Long-Term Projections for Social Security: Additional Information* (December 2016), www.cbo.gov/publication/52298. For the current projections and additional information, see Congressional Budget Office, *The 2017 Long-Term Budget Outlook* (March 2017), www.cbo.gov/publication/52480, and "CBO's 2017 Long-Term Projections for Social Security: Additional Information" (October 2017), www.cbo.gov/publication/53245.

2. The actuarial balance 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 a given period, divided by the present value of GDP or taxable payroll. 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. When the discount rate is positive, dollars in the future are worth less than dollars today.

3. For more details about changes to CBO's long-term projections, see Congressional Budget Office, *The 2017 Long-Term Budget Outlook* (March 2017), Appendix A, www.cbo.gov/publication/52480.

Table 1.

Changes to the 75-Year Actuarial Balance

	As a Percentage of	
	GDP	Taxable Payroll
July 2016 Projection	**-1.6**	**-4.7**
Estimated Effects of Revisions to Factors Worsening the Actuarial Balance		
Productivity	-0.1	-0.4
Interest Rates	-0.1	-0.2
Population	*	-0.1
Valuation Period	*	-0.1
Sum	-0.2	-0.8
Estimated Effects of Revisions to Factors Improving the Actuarial Balance		
Labor Force Participation	0.2	0.6
Taxable Share	0.1	0.3
Sum	0.3	0.9
Overall Improvement	*	0.2
March 2017 Projection	**-1.5**	**-4.5**

Source: Congressional Budget Office.

These projections incorporate the assumption that spending for Social Security continues as scheduled even if the Social Security trust funds are exhausted.

The actuarial balance 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 a given period, divided by the present value of GDP or taxable payroll. 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 75-year projection period for the financial measures reported here begins in 2017 and ends in 2091.

Numbers may not sum to totals because of rounding.

GDP = gross domestic product; * = between –0.05 and 0.05 percentage points.

fluctuations in demand. Because it contributes to overall output growth, and therefore to the growth of income from labor, the TFP growth rate affects both payroll tax revenues and benefits.

CBO projects that TFP growth will average 1.2 percent over the next 30 years, down from last year's projection of 1.3 percent (see Figure 1). That revision largely reflects methodological changes in the way CBO accounts for business-cycle effects in estimating potential TFP (which is the TFP consistent with the maximum sustainable output of the economy): Compared with last year, the agency attributes less of the slow growth of TFP since 2007 to cyclical weakness and more to underlying trends, resulting in a lower estimate of growth in potential TFP during the 2000s. That lower estimate modestly reduces the projected growth rate of both potential and actual TFP.

In CBO's calculation, slower projected TFP growth leads to taxable wages, and therefore payroll tax revenues, that are about 3 percent lower in 2033 than they would have been using last year's projection. Slower TFP growth also implies lower benefits, but that effect would be delayed because benefits are not paid until a worker retires (or becomes disabled). For example, it would take until 2047 for spending on benefits to be 3 percent lower than it would have been using last year's projected TFP growth. In addition, because earlier years receive greater weight than later years in the calculation of the system's actuarial balance, the effect of lower revenues outweighs the delayed effect of lower benefits, leading to an overall negative effect on the Social Security system's finances.

In CBO's calculation, slower TFP growth worsens the projected 75-year actuarial balance by about 0.1 percent of GDP, or by 0.4 percent of taxable payroll.

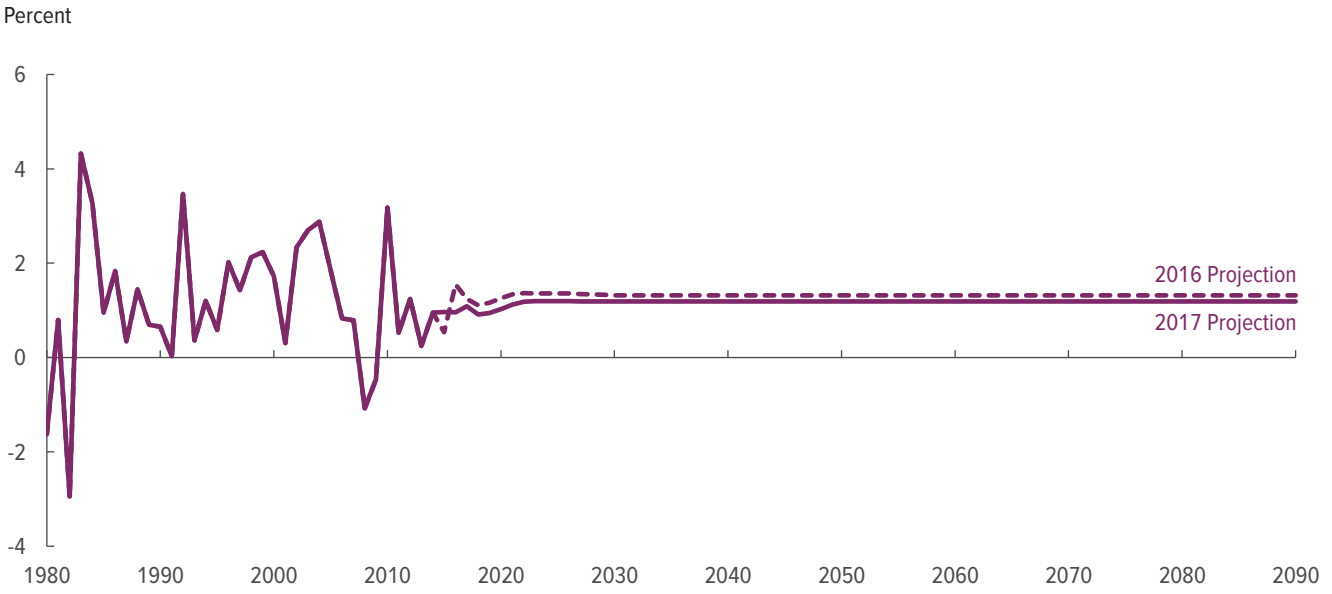
What Is the Effect of Changes in Projected Interest Rates?

CBO has lowered its projections of interest rates, which worsens the projected actuarial balance. In the calculation of the actuarial balance, the discount rate, which is based on projected interest rates, determines how much weight is given to each year's outcomes in the calculation of the present values of taxes and outlays; lower rates increase the weight of future income and payments. To calculate the Social Security system's actuarial balance, CBO first uses a discount rate based on the average interest rate on all bonds held by the Social Security trust funds. That rate is lower than the rate on new special-issue Treasury bonds because many of the outstanding bonds were issued at very low rates.[4] After the combined trust funds are exhausted, the agency uses a discount rate based on the interest rate on new

4. In the last few years before exhaustion of the trust funds, CBO projects that the average rate on all outstanding bonds moves toward the new issue rate.

Figure 1.

Growth in Total Factor Productivity



Source: Congressional Budget Office.

Total factor productivity growth is one component of real growth in the nation's economic output—the residual growth that reflects all economic development that is not attributable to the growth of capital services or labor.

special-issue Treasury bonds, which CBO takes to equal the rate on 10-year Treasury notes. In CBO's projections, Social Security's cost and income generally exhibit larger deficits over the longer term than over the shorter term. Because a lower projected interest rate puts more weight on those larger deficits, it has the effect of worsening the projected actuarial balance.

The interest rate CBO uses for the discount rate to calculate Social Security's 75-year actuarial balance in its current estimates is lower by about 0.7 percentage points, on average, over the next 30 years than it was in last year's projection but is nearly the same thereafter (see Figure 2). CBO's downward revisions to its projections of interest rates are rooted in several factors. CBO now projects that TFP will grow more slowly than the agency anticipated last year. Slower growth in TFP implies lower returns on capital and, in turn, lower interest rates. In addition, CBO anticipates that investors' willingness to assume risk over the next decade will be lower (and, consequently, that their demand for Treasury securities will be higher) than previously projected. CBO also expects that economic growth in other countries will be slower and, therefore, that both foreign and domestic demand for U.S. Treasury securities (relative to foreign securities) will be higher than previously estimated. CBO's revisions to those factors imply higher prices for Treasury securities and, therefore, lower interest rates for them. Beyond the next decade, CBO expects the effects of lower tolerance for risk among investors and slower foreign growth to dissipate, but at a slower pace than previously projected.

In addition, in its 2016 long-term projections for Social Security, CBO used the interest rate on new special-issue bonds, which was projected to match the rate on 10-year Treasury notes, in the calculation of the actuarial balance. The substitution of the average rate on all bonds held by the trust funds in the years before the trust funds' exhaustion accounts for about one-third of the change in the projected actuarial balance resulting from the change in interest rates.

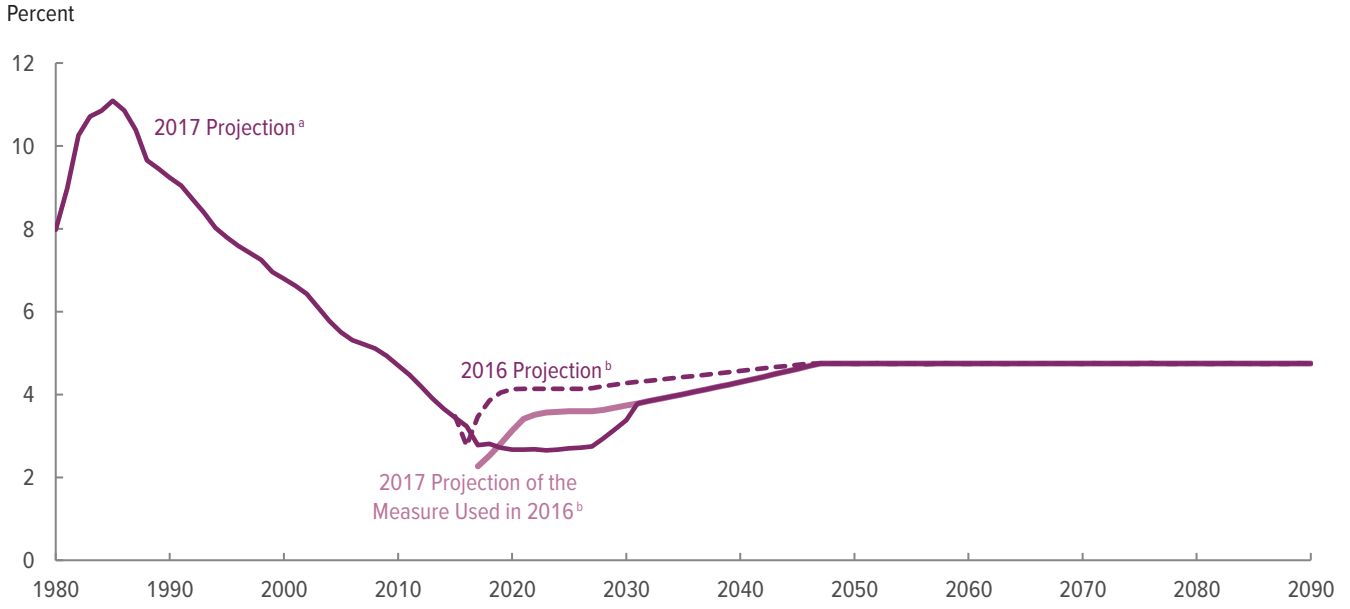
In CBO's calculation, the lower projected interest rates worsen the 75-year actuarial balance by about 0.1 percent of GDP, or by 0.2 percent of taxable payroll.

What Is the Effect of Changes in the Projected Population?

Since last year, CBO has decreased its projections of both the size of the working-age population and the ratio of

Figure 2.

Interest Rate Used in the Calculation of the Actuarial Balance



Source: Congressional Budget Office.

a. The average rate on all bonds held by the Social Security trust funds until their exhaustion in 2030, then the rate on new special-issue Treasury bonds.

b. The interest rate on new special-issue Treasury bonds.

working-age people (ages 20 to 64) to people of retirement age (age 65 or older), thus worsening the projected actuarial balance. The size and composition of the population determine both the number of working-age people available to support Social Security beneficiaries and the number of those beneficiaries. The fewer working-age people there are in the population relative to people of retirement age, the weaker the Social Security system's finances will be.

CBO's current projection for the working-age population in 2047 is 3.5 percent smaller than last year's (see Figure 3). The projected ratio of working-age people to people of retirement age has fallen by 1.9 percent. Projections of the size and composition of the population are based on projections of three demographic factors: fertility rates, mortality rates, and net immigration. CBO's revisions to its projections of population size and composition result mainly from lower projections of net immigration in both the short and the long term, largely reflecting a decrease in the projected number of unauthorized immigrants. That reduction is primarily attributable to the agency's putting more weight in the projections on estimates of low levels of unauthorized immigration in recent years. Mortality projections have changed only modestly, resulting in a slightly smaller anticipated number of people of retirement age. Fertility projections are unchanged from a year ago.

CBO estimates that the change in the projected population worsens the 75-year actuarial balance by less than 0.05 percent of GDP, or by about 0.1 percent of taxable payroll.

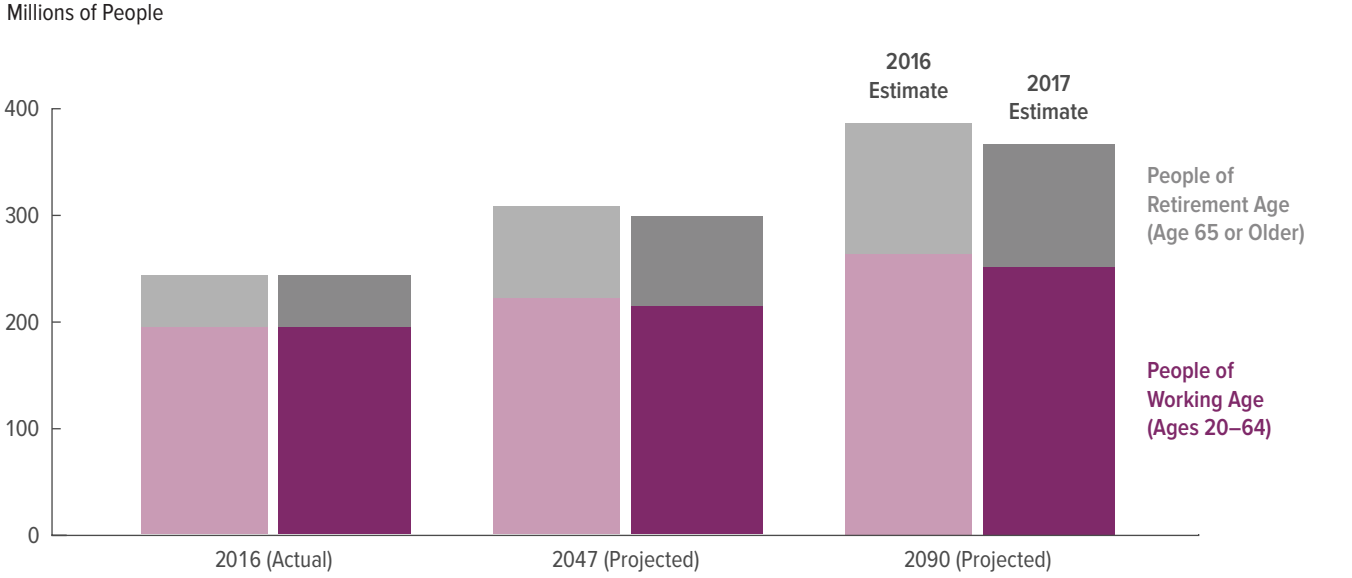
What Is the Effect of Changes in the Projected Labor Force Participation Rate?

CBO's projection of the labor force participation rate is higher than it was last year, which improves the projected actuarial balance. A higher labor force participation rate—which represents the share of people over the age of 16 in the civilian noninstitutional population who are employed or actively seeking jobs—implies that more people are working and paying payroll taxes and then, eventually, receiving benefits.

CBO's projection of the labor force participation rate for 2027 has increased by roughly half a percentage point since last year; the agency's projection of the labor force

Figure 3.

Population by Age Group



Source: Congressional Budget Office.

participation rate for 2046 has increased by roughly 2½ percentage points (see Figure 4).[5] The changes since last year result from changes in how CBO estimates the effects of several factors—chiefly, education and the marriage rate—on labor force participation. CBO now projects that increasing educational attainment will have a larger positive effect on participation and that the declining marriage rate will have a smaller negative effect. (Fewer men are projected to be married, and unmarried men have lower labor force participation rates than do married men.) In addition, CBO now factors race and ethnicity into its analysis, which increases the overall projected participation rate. (That change largely results from CBO's expectation that Hispanics, who have high rates of participation in the labor force, will make up an increasing share of the population.)

Over the full projection period, a higher labor force participation rate leads to increased receipts from payroll taxes. Over time, however, those additional workers will retire and become eligible for Social Security benefits. Thus, a higher labor force participation rate initially will increase revenues but later will increase both revenues and spending, with some of that spending occurring more than 75 years from now. In the calculation of the system's actuarial balance, earlier years receive greater weight than later years, and only spending and revenues over the next 75 years are included, so the larger amount of projected revenues outweighs the effect of greater spending on future benefits and improves the projected actuarial balance.

As a result, in CBO's estimation, higher anticipated labor force participation rates improve the projected 75-year actuarial balance by about 0.2 percent of GDP, or by 0.6 percent of taxable payroll.

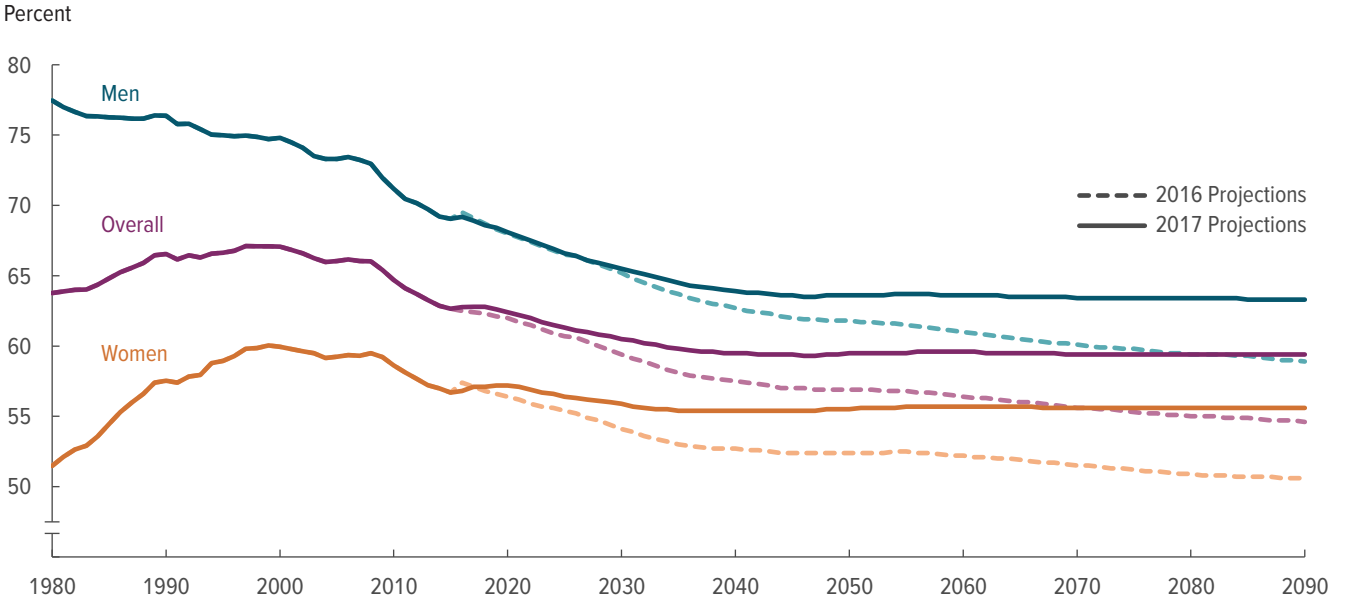
What Is the Effect of Changes in the Projected Share of Earnings That Is Taxable for Social Security?

CBO's projection of the share of earnings that is subject to the Social Security payroll tax, which is the main source of funding for the program, has increased since last year, improving the projected actuarial balance. Each person working in a job covered by Social Security pays 6.2 percent of his or her wages up to a cap (the taxable maximum, equal to $127,200 in 2017); that amount is

5. For additional information, see Joshua Montes, Xiaotong Niu, and Julie Topoleski, "CBO's Long-Term Projections of Labor Force Participation," *CBO Blog* (January 13, 2017), www.cbo.gov/publication/52365. CBO also calculates what the labor force participation rate would be if the current composition of the population by age and sex were sustained over time, and that age- and sex-adjusted rate is also higher in this year's projection relative to last year's.

Figure 4.

Labor Force Participation Rates



Source: Congressional Budget Office.

matched by the worker's employer (self-employed people pay the combined 12.4 percent). If a larger share of earnings is taxable, revenues will increase, but spending will also increase eventually because future beneficiaries will receive greater benefits. Because earlier years receive greater weight than later years in the calculation of the system's actuarial balance, and only spending and revenues over the next 75 years are included, the increased revenues outweigh the greater benefits paid in the future, and the actuarial balance improves.

Both this year and last year, CBO projected a decline over the next decade in the share of earnings that is taxable for Social Security, but the anticipated rate of that decline has slowed (see Figure 5). Because on average, earnings have grown faster for people earning more than the taxable maximum than for those earning less, the portion of covered earnings that is taxable has fallen from 90 percent in 1983 to about 82 percent today, and CBO projects that it will continue to decline.[6] Last year, CBO projected that the taxable share would decline to about 77 percent in the long run; in the agency's current projection, the percentage of taxable wages is expected to fall to about 79 percent. Since last year, CBO has reexamined the historical trends in the growth in earnings inequality. In particular, data for the past few years show smaller-than-expected increases in the share of wages and salaries received by higher earners. Although CBO still expects that the unequal growth in earnings will continue for the next decade before stopping, the agency now projects a smaller increase in that share over that period.

In CBO's calculation, the change in the projected share of earnings that is taxable for Social Security improves the projected 75-year actuarial balance by about 0.1 percent of GDP, or by 0.3 percent of taxable payroll.

What Is the Effect of the Change in the Valuation Period?

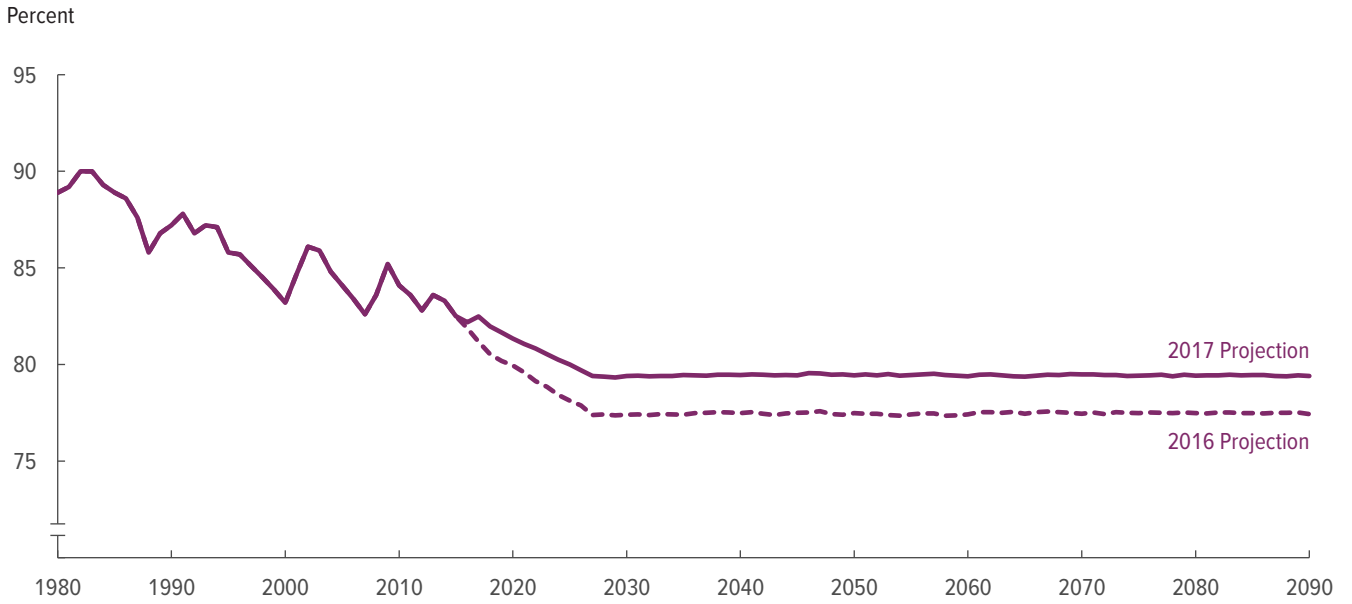
The change in the valuation period for the 75-year actuarial balance, which ended in 2090 in last year's projections and ends in 2091 in this year's projections, worsens the projected actuarial balance because the calculation includes an additional year of deficit (2091).[7] In

6. Covered earnings are those received by workers in jobs subject to Social Security payroll taxes. Most workers pay payroll taxes on their earnings, although a small number—mostly in state and local government jobs or in the clergy—are exempt.

7. The calculation of the actuarial balance includes the current value of the trust funds. In the current projections, that value includes the deficit the system ran in 2016.

Figure 5.

The Share of Earnings That Is Taxable for Social Security



Source: Congressional Budget Office.

CBO's estimation, the addition of that year worsens the projected actuarial balance by less than 0.05 percent of GDP, or by 0.1 percent of taxable payroll.

How Do CBO's Projections Compare With Those of the Social Security Trustees?

The Social Security Trustees' projection of the 75-year actuarial balance is –1.0 percent of GDP, representing a deficit that is 0.5 percentage points smaller than CBO projects. As a percentage of taxable payroll, the trustees' projection of the 75-year actuarial balance is –2.8 percent, representing a deficit that is 1.7 percentage points smaller than CBO projects.

The difference between CBO's projections and those of the trustees is largely explained by differences in projections of four major inputs into estimates of the system's finances:

- The trustees' higher estimate of earnings subject to the Social Security payroll tax;
- The trustees' different projections of key components of nominal GDP growth—higher labor force participation rates (partially offset by higher unemployment rates), faster productivity growth, and higher inflation—all of which increase projected GDP growth;
- The trustees' projections of population, including higher fertility rates and slower declines in mortality rates; and
- The trustees' projection of higher real interest rates.[8]

The projections of Social Security's long-term finances made by CBO and the Social Security Trustees are closer now than they were in 2016. Relative to last year, the difference between CBO's and the trustees' projections of the 75-year actuarial balance as a share of GDP has shrunk by 0.1 percentage point, and the difference between their projections of the actuarial balance as a share of taxable payroll has shrunk by 0.4 percentage points.

8. For more information on differences between projections, see the testimony of Keith Hall, Director, Congressional Budget Office, before the Subcommittee on Social Security, Committee on Ways and Means, *Comparing CBO's Long-Term Projections With Those of the Social Security Trustees* (September 21, 2016), www.cbo.gov/publication/51988.

This Congressional Budget Office report was prepared at the request of the Chairman of the Subcommittee on Social Security of the House Committee on Ways and Means. In keeping with CBO's mandate to provide objective, impartial analysis, the report makes no recommendations.

Michael Simpson prepared the report with guidance from Julie Topoleski and David Weaver. Eva de Francisco, Noah Meyerson, Sam Papenfuss, Charles Pineles-Mark, and Emily Stern provided useful comments on various drafts of the report. Justin Lee fact-checked it.

Wendy Edelberg and Jeffrey Kling reviewed the report. Christine Browne edited it, and Casey Labrack prepared it for publication. An electronic version is available on CBO's website (www.cbo.gov/publication/53209).

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