



New Report Shows Continued Decline

Process of Restoring Social Security's Long-Term Financial Soundness Should Start Now

The newly released *2013 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds* highlights that:

- The Social Security trust fund exhaustion date remains unchanged from the prior report. The trust fund is projected to run out of assets during 2033, and if reform is not implemented by that date, benefits will have to be reduced by about one-fourth thereafter.
- The present value of the shortfall between assets that include income and benefits estimated over the 75-year valuation period of the forecast increased from \$8.6 trillion in 2012 to \$9.6 trillion in 2013. About \$0.5 trillion of this increase is due to the valuation period moving one year forward. The unfunded obligation over the valuation period, as a percent of the gross domestic product (GDP), remained unchanged at 0.9 percent and increased from 2.50 percent to 2.57 percent of taxable earnings over the same period.
- To eliminate the projected deficit (using best estimate assumptions), some combination of an immediate increase of 2.66 percentage points in the payroll tax rate or an immediate decrease of 16.5 percent of benefits for all current and future beneficiaries is required. The analogous numbers from last year's report were a 2.61 percentage point increase in the payroll tax rate and a 16 percent decrease in all benefits.
- Without legislative action, the Disability Insurance trust fund will be unable to pay full scheduled disability benefits beyond 2016.

Congress should act soon to improve the long term financial outlook of Social Security.

An Actuarial Perspective on the 2013 Social Security Trustees Report

The Social Security Trustees Report is a detailed annual assessment that serves as a basis for discussions of Social Security's financial problems and their solutions. Social Security's Chief Actuary prepares and certifies the financial projections for the Old-Age, Survivors, and Disability Insurance program, under the direction of the Social Security Board of Trustees.

Because future events are inherently uncertain, the report contains three 75-year financial projections to illustrate a broad range of possible outcomes based on separate sets of assumptions. These projections are called intermediate, low-cost, and high-cost. The trustees consider the intermediate projection to be their best estimate. **All information in this issue brief is based on the intermediate projection unless otherwise noted.**

OVERVIEW OF FINANCIAL STATUS

Short-Range Estimates, 2013–2022

Short-range solvency and financial adequacy are measured separately for Old-Age and Survivors Insurance (OASI) and Disability Insurance (DI) programs as well as for the combined (OASDI) trust funds. These measures are based on the funds' projected trust fund ratios. Trust fund ratio is the ratio of the trust fund assets at the beginning of the year to the benefits

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payable during the year. The plans are considered solvent during any period if the trust fund ratios are positive throughout the period. For the plans to pass the test of short-range financial adequacy, a further requirement is that the trust fund ratios remain at or above 100 percent throughout the 10-year short-range period.¹ The DI trust fund ratio is projected to drop quickly from 85 percent today to zero during 2016. The OASI trust fund is expected to drop from 383 percent to 250 percent by the end of the 10-year period. Under the trustees' projections, action by Congress will be required to allow the DI trust fund to continue to pay full scheduled disability benefits beyond 2016. Unless otherwise noted, all subsequent information in this issue brief is based on the combined OASDI trust funds.

Social Security's finances are somewhat weaker than the projection made a year ago. The total change in the trust fund ratio was a decline of 30 percentage points. Half of the year-over-year change in various measures is the expected change from moving the Short-Range Estimate period one year forward to 2013-2022. Other changes to the OASI trust fund ratios totaled a drop of 15 percentage points. These include, with the impact on the tenth year trust fund ratio in parentheses (rounded numbers do not total the expected negative 15 percentage points):

- Changes in demographic assumptions (reduced ratio by 9 percentage points)
- Changes in economic data and assumptions, primarily the effect of slightly higher COLAs and lower interest rates (reduced ratio by 11 percentage points)
- Incorporation of recent programmatic data (increased ratio by 5 percentage points)
- Significant methodology changes (increased ratio by 6 percentage points)
- Legislative and policy changes, including the American Taxpayer Relief Act of 2012, enacted on Jan. 2, 2013, which made permanent most of the lower personal income tax rate provi-

sions of the Economic Growth and Tax Relief Reconciliation Act of 2001 and the Jobs and Growth Tax Relief Reconciliation Act of 2003 that had been scheduled to expire in 2013, and the Deferred Action for Childhood Arrivals policy (decreased ratio by 4 percentage points).

Trust Fund Assets

Any excess of tax income over outgo is recorded as an asset in the Social Security trust funds. These trust fund assets are held in special U.S. Treasury securities that totaled more than \$2.7 trillion (for OASDI) at the end of 2012. Trust fund assets are expected to increase to \$2.9 trillion in 2021 and then decline slightly by the end of the short-range estimate period. The bonds in the trust funds represent the government's commitment to repay the borrowed cash whenever Social Security needs the money. As the securities are redeemed by the trust funds, the U.S. government must raise the necessary cash either by raising taxes, increasing publicly held debt, or lowering other expenditures.

Income and Cost

Figure 1 shows the excess of income over cost (referred to as a positive cash flow) in the period from 1976 through 2009, and the anticipated excess of cost over income through 2022. The excess of income over cost prior to 2009 has led to the current \$2.7 trillion in trust fund assets.

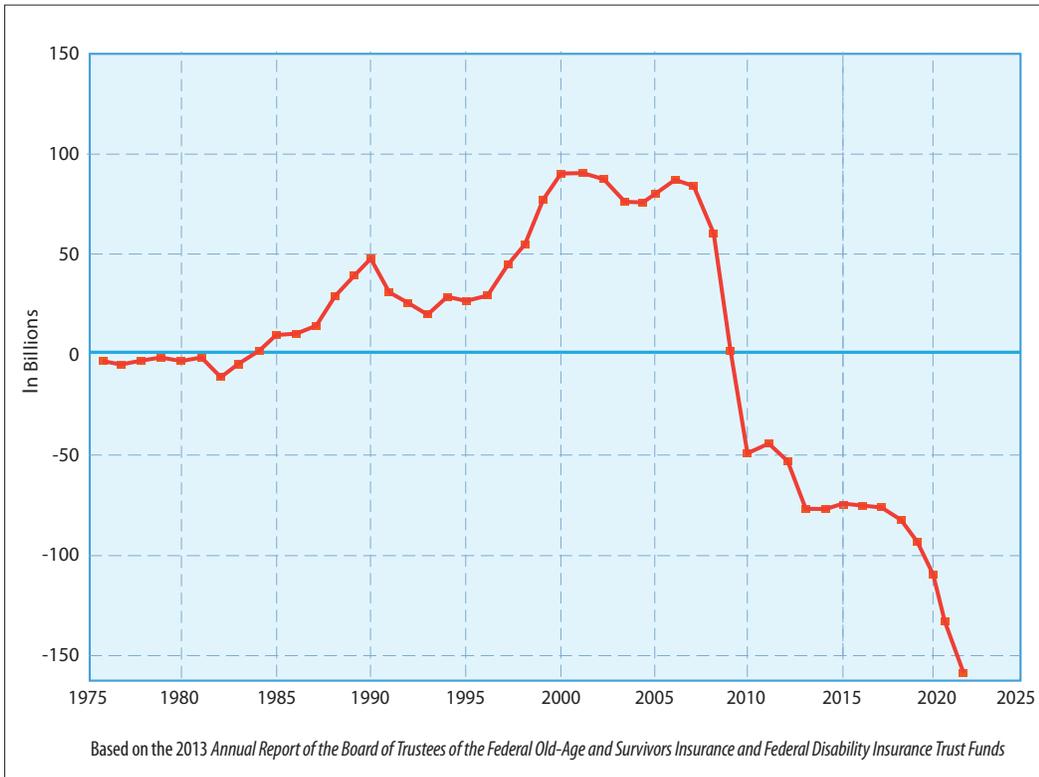
The net annual amounts of cash income to and outgo from Social Security also are expressed in the Trustees Report as percentages of taxable payroll. These percentages are known respectively as the **income rate** and **cost rate**. During the short-range estimate period of 2013-2022, the income rate will increase from 12.69 percent to 13.03 percent of taxable payroll. The cost rate, meanwhile, will rise from 13.95 percent to 14.70 percent of taxable payroll. The difference between these two rates, called the **annual balance**, ranges from a deficit of 0.98 percent to a deficit of 1.68 percent²

¹This condition applies when the trust fund ratio is at least 100 percent at the beginning of the period. If the trust fund ratio is below 100 percent at the beginning of the period, the test of short-term financial adequacy requires that the trust fund ratio increase to 100 percent within five years (while remaining positive at all times) and then remain at or above 100 percent for the rest of the short-range period.

²Table IV.B1, 2013 *Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*. Please note that due to rounding, the numbers do not add up.

Members of the Social Security Committee include: Bob Alps, MAAA, ASA; Eric Atwater, MAAA, FSA, FCA, EA; Janet Barr, MAAA, ASA, EA—chairperson; Raymond Berry, MAAA, ASA, MSPA, EA; Douglas Eckley, MAAA, FSA; Eric Klieber, MAAA, FSA, EA—vice chairperson; Timothy Leier, MAAA, FSA, EA; Timothy Marnell, MAAA, ASA, FCA, EA; John Nylander, MAAA, FSA; Brendan O'Farrell, MAAA, FSPA, FCA, EA; Jeffery Rykhus, MAAA, FSA; Bruce Schobel, MAAA, FSA, FCA; Mark Shemtob, MAAA, ASA, EA; P.J. Eric Stallard, MAAA, ASA, FCA; Joan Weiss, MAAA, FSA, EA; Ali Zaker-Shahrak, MAAA, FSA

Figure 1: OASDI Cash Flow Excluding Interest on Assets



of taxable payroll during the period from 2013 to 2022.

Long-Range Estimates, 2013–2087

The 75-year projection covers the future lifetimes of nearly all current participants, which includes those paying payroll taxes or already retired. The estimates show that, beginning in 2033, trust

fund assets are projected to be exhausted and the system will revert to a pay-as-you-go (PAYGO) system. This date is unchanged from last year's report. After 2033, under current law, Social Security income will be sufficient to pay only 72 percent to 77 percent of scheduled benefits, as shown in Figure 2.

The projections show expenditures exceeding

Figure 2: Projected Annual Cost and Tax Income as a Percentage of Taxable Payroll

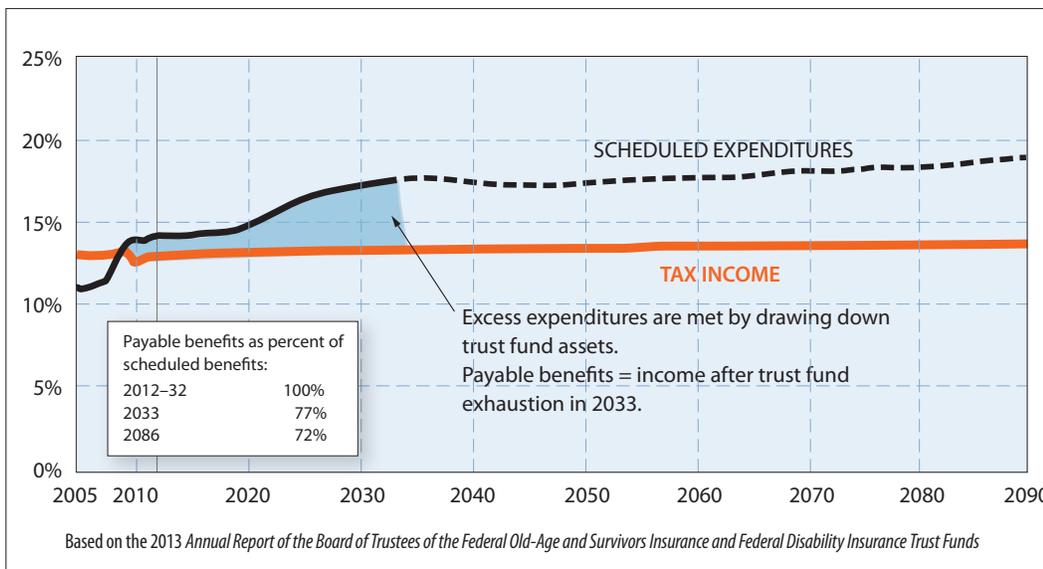
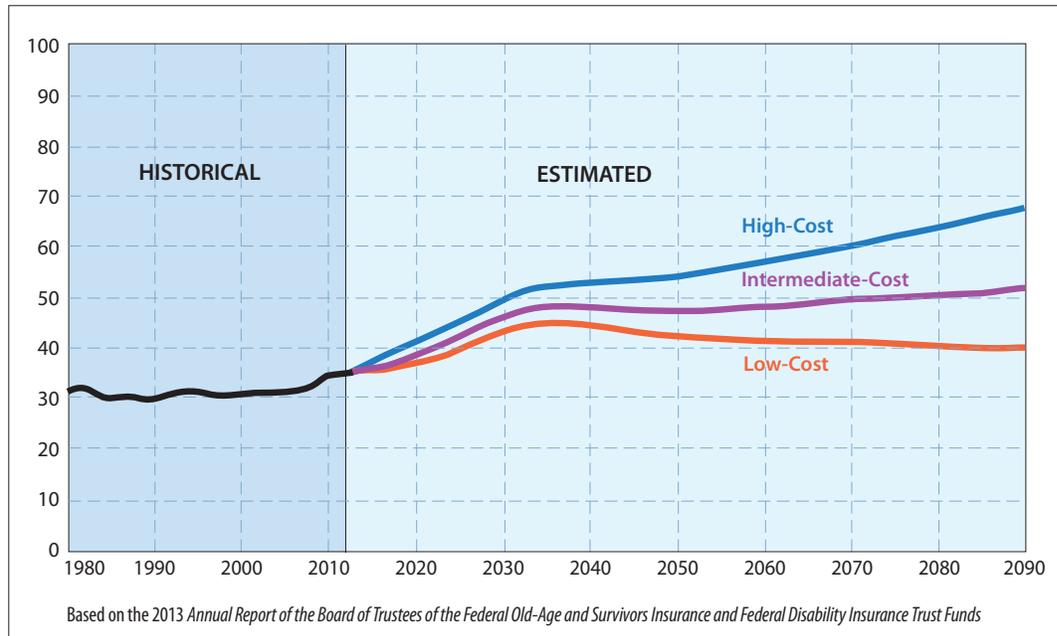


Figure 3: Number of Social Security Beneficiaries Per 100 Workers



non-interest income in every year after 2012 and rising rapidly through 2035 as the baby boomers retire. While costs are expected to increase quickly, tax revenue is expected to grow more slowly. After 2035, projected costs are fairly level as a share of GDP and taxable earnings.

Long-range solvency for Social Security can be presented in one number using the actuarial balance. The actuarial balance is the discounted present value of all future income less all future

costs divided by the discounted present value of the taxable payroll. It represents the annual amount (expressed as a percent of taxable payroll) by which income would need to increase to bring the system into actuarial balance. The actuarial balance decreased from a negative 2.67 percent to a negative 2.72 percent during 2012. Refer to the Appendix for a more expanded definition of actuarial balance.

NEED FOR PROGRAM REFORM

Now is the Time to Restore Social Security's Long-Term Financial Soundness

Causes of the long-range expected increase in cost are principally demographic trends. Large numbers of baby boomers will be reaching retirement age in the next two decades, and the longevity of retirees is gradually increasing. Also important is the fact that birth rates dropped precipitously after the baby-boom cohort and have remained at a lower level ever since. The ratio of workers to Social Security beneficiaries is expected to fall rapidly from 2.9 in 2012 to 2.1 in 2035, and then to decrease more slowly to 1.9 by the end of the projection period due to increasing longevity. This decrease over the projection period of approximately one-third is important in a PAYGO system in which, over time, the number of workers multiplied by the average per-person tax must equal the number of beneficiaries multiplied by the average benefit.

Figure 3 shows the projected growth in the number of Social Security beneficiaries relative to the working population under the three sets of assumptions. Because the program financing is nearly PAYGO, the three alternative projections of long-range cost show similar patterns.

The Academy's Social Security Committee believes that any modifications to the Social Security system should include sustainable solvency as a primary goal. Sustainable solvency means that not only will the program be solvent for the next 75 years under the reform methods adopted, but also that the trust fund reserves will be stable or increasing as a percentage of annual program cost at the end of the 75-year period.

The Trustees note that providing for solvency beyond the next 75 years would require changes to address increasing longevity, as beneficiaries would be receiving benefits for ever-longer periods of retirement. An August 2008 [position state-](#)

ment from the Academy addresses this longevity issue: “Demographic problems require demographic solutions. You just cannot have people living longer and longer with a frozen retirement age. As actuaries, we believe that increasing the retirement age should be a part of any solution.”

Regardless of the types of changes ultimately enacted into law, the Academy believes that Social Security reform will best serve the public if implemented sooner than later. Some advantages of acting promptly are:

- Future beneficiaries gain time to plan for all aspects of retirement and modify their own financial planning while adjusting to changes in Social Security.
- Implementation of program reforms can be more gradual and span multiple generations of retirees.
- Public trust in the financial soundness of the Social Security program will improve.

APPENDIX

OTHER MEASURES OF FINANCIAL STATUS

The metrics used by the Trustees to present the program’s financial status are discussed in more detail below.

Actuarial Balance

The **actuarial balance** is calculated as the difference between the summarized income rate and the summarized cost rate over a period of years. The summarized income rate is the ratio of the sum of the present value of scheduled tax income for each year of the period to the sum of the present value of taxable payroll for each year of the period. The summarized cost rate is the ratio of the sum of the present value of cost for each year of the period to the sum of the present value of taxable payroll for each year of the period. For purposes of evaluating the program’s financial adequacy, these amounts are adjusted to include the cost of reaching and maintaining a target trust fund level equal to one year’s outgo, as shown in Table 1.

In the 75-year period, 2013–2087, the actuarial deficit is 2.72 percent. The actuarial deficit increased from the comparable figure of 2.67 percent a year ago due to a combination of factors,

including changes in demographic assumptions, changes in economic data and assumptions, incorporation of recent programmatic data, significant methodology changes and, legislative and policy changes.

An immediate increase of 2.66 percentage points in the payroll tax from 12.4 percent of payroll to 15.06 percent of payroll, a benefit reduction of 16.5 percent, or some combination of the two would pay all benefits during the period, but would not end the period with any trust fund reserve.

The high-cost 75-year projection in the Trustees Report shows a far greater actuarial deficit 5.93 percent of taxable payroll. The low-cost projection is much more favorable, with a small actuarial deficit of 0.19 percent of taxable payroll, mostly attributable to the cost of reaching the target level of the trust fund at the end of the period.

Trust Fund Ratios

The **trust fund ratio**, equal to trust fund assets as a percentage of the following year’s cost, is an important measure of short-term solvency. A trust

Table 1: Long-Range Actuarial Balance
(percentage of taxable payroll)

	Summarized Income Rate	Summarized Cost Rate	Actuarial Balance
2013–37	14.77%	16.03%	-1.27%
2013–62	14.08%	16.33%	-2.25%
2013–87	13.88%	16.60%	-2.72%

Based on the 2013 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds

fund ratio of at least 100 percent indicates the ability to cover most short-term contingencies. Figure 4 shows projected trust fund ratios under all three sets of assumptions.

As a measure of long-range solvency, the trust fund ratio shows when the program is expected to run out of money to pay full benefits scheduled under current law. Figure 4 illustrates that such insolvency occurs in 2033 under the intermediate projection. The high-cost projection moves the insolvency date up by approximately six years to 2027, while the low-cost projection shows the insolvency date as 2068.

Sustainable Solvency

Sustainable solvency means the program is not expected to run out of money any time in the 75-year projection period, and trust fund ratios are expected to finish the 75-year projection period on a stable or upward trend.

Sustainable solvency is a stronger standard than actuarial balance in two ways. First, actuarial balance is based on averages over time, without regard to year-by-year figures that could indicate inability to pay benefits from trust fund assets at some point along the way. Second, actuarial balance can exist even when trust fund ratios toward the end of the period are trending downward, though sustainable solvency cannot. For example, following the last major reform, the 1983 Trustees Report projected a positive actuarial balance under the intermediate assumptions, but the annual

balances were negative and declining at the end of the period. As a result, the actuarial balance has been declining every year merely as a consequence of the passage of time, and a shortfall would have resulted even without other changes in data and assumptions. Large and growing actuarial deficits are now projected at the end of the long-range projection period. Adequate financing beyond 2086, or sustainable solvency, would require larger program changes than needed to achieve actuarial balance.

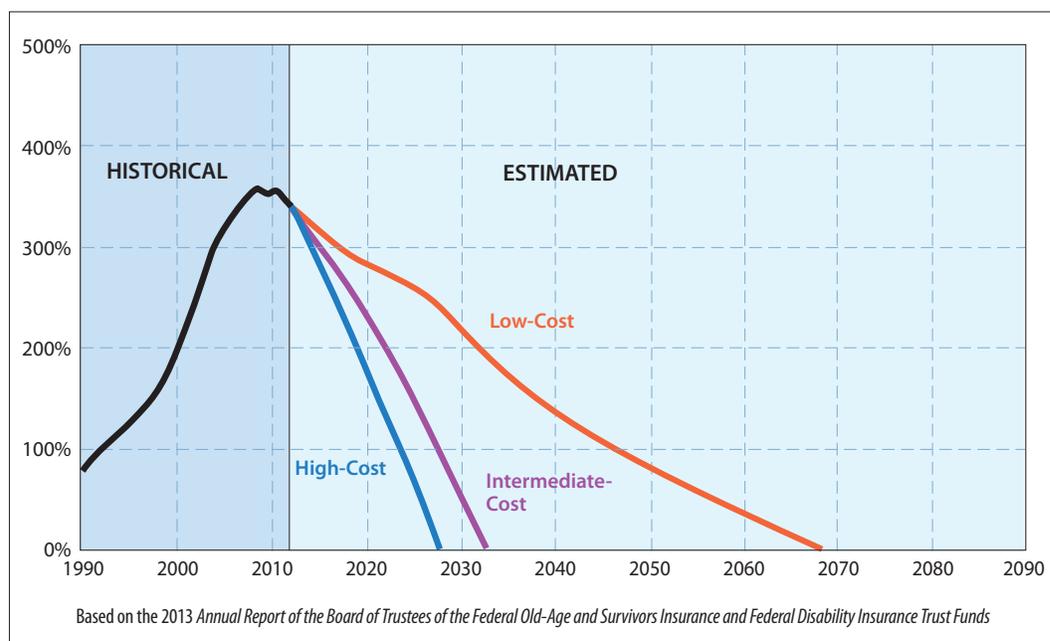
Unfunded Obligation

The **unfunded obligation** is another way of measuring Social Security's long-term financial commitment. To compute it, discount with interest the year-by-year streams of future cost and income and then sum them to obtain their present values. Based on these present values, the general formula for computing the unfunded obligation is:

$$\begin{aligned} &\text{Present value of future cost (benefits and expenses)} \\ &\textit{minus} \text{ the present value of future income from taxes} \\ &\textit{minus} \text{ current trust fund assets.} \end{aligned}$$

The unfunded obligation may be computed and presented in several ways. Perhaps the most useful way is based on taxes and benefits for an open group of participants over the next 75 years,

Figure 4: Long-Range Projections of Trust Fund Ratios Under Alternative Scenarios
(assets as a percentage of annual cost)



including many people not yet born, the same as was calculated in the basic projections. That methodology is consistent with the primarily pay-as-you-go way the program is designed and currently is run. Although the trustees provide alternative calculations based on the closed group of current participants, we believe the open-group basis makes more sense for Social Security and avoids certain misleading outcomes. For example, if the program were in exact actuarial balance, the open group measure of the unfunded obligation would be zero, while the closed group measure would show a substantial unfunded obligation.

The dollar amount of unfunded obligation is easier to interpret if put in perspective, for example, by comparing it with the size of the economy over the same period. The unfunded obligation is often presented as a percentage of the present value of either taxable payroll or of gross domestic product (GDP). At the beginning of 2013, the open-group unfunded obligation over the next 75 years was \$9.6 trillion (up from \$8.6 trillion last year). This now represents 2.6 (2.5 last year) percent of taxable payroll, or 0.9 percent (unchanged) of GDP.

In recent years, the trustees reports have also presented the unfunded obligation based on stretching the 75-year projection period into infinity. This measure gives information about trends in effect at the end of the 75-year period of the forecast, but, in practice, it is highly problematic. Projections over an infinite time period have an extremely high degree of uncertainty. Troublesome inconsistencies can arise among demographic and program-specific assumptions. By

assuming that longevity keeps increasing forever while retirement ages remain static, for example, the infinite time period forecast will eventually result in an extremely long period of retirement.

Alternative Sets of Assumptions

Table 2 shows the ultimate long-range values of key assumptions used in each of the three projections. With the exception of small changes in the mortality reduction assumption, the ultimate values of these assumptions remain unchanged from last year's report.

Other Measures of Uncertainty

Because the future is unknown, the trustees use the alternative projections and other methods to assess how the financial results may vary with changing economic and demographic experience.

Sensitivity Analysis

The low-cost and high-cost projections change all the major intermediate assumptions at once in the same direction, favorably or unfavorably. A sensitivity analysis also is performed, changing the major assumptions one at a time to determine the financial impact. Table 3 gives results of three sensitivity tests.

If the real-wage growth assumption were changed from 1.12 percent to 1.72 percent, for example, the actuarial deficit would be reduced from 2.72 percent of taxable payroll to 1.79 percent, and the year of trust fund exhaustion would be extended from 2033 to 2037.

Table 2: Current and Long-Range Values of Key Economic and Demographic Assumptions

	Estimated 2012 Value	Ultimate Value		
		Low-Cost Assumptions	Intermediate Assumptions	High-Cost Assumptions
Fertility (children per woman)	1.9	2.3	2.0	1.7
Mortality reduction (assumed average annual decrease in adjusted death rates)	1.39%	0.42%	0.80%	1.21%
Annual net immigration (thousands)	1,075	1,335	1,055	795
Productivity growth (total U.S. economy)	0.66%	1.98%	1.68%	1.38%
Real-wage growth	0.25%	1.72%	1.12%	0.52%

Based on the 2013 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds

Table 3: Sensitivity to Varying Any of Three Key Assumptions

		Results based on Intermediate Assumptions, with one assumption changed at a time	
Sensitivity Assumption	Favorable Change	Intermediate Assumption	Unfavorable Change
Total Fertility Rate			
■ Ultimate assumption (children per woman)	2.3	2.0	1.7
■ 75-year actuarial deficit	2.35%	2.72%	3.10%
■ Year of combined trust fund exhaustion	2033	2033	2033
Mortality Reduction			
■ Average annual reduction in adjusted death rates over 75-year period	0.42%	0.80%	1.21%
■ 75-year actuarial deficit	2.27%	2.72%	3.10%
■ Year of combined trust fund exhaustion	2034	2033	2033

Based on the 2013 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds

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