



New Report Shows Little Improvement Social Security's Financial Soundness Should Be Addressed Now

Highlights of the 2014 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Fund:

- The asset reserve depletion date for the combined Social Security trust funds remains unchanged from the prior report. Trust fund asset reserves are projected to deplete during 2033, and if changes are not implemented by that date, only about 75% of scheduled benefits would be payable thereafter.
- The Disability Insurance (DI) Trust Fund alone is still projected to deplete reserves in 2016, but a little later than projected last year. In the past year disability applications and allowance rates have been lower than expected. At reserve depletion, the Trustees project 81 percent of scheduled benefits would be payable, slightly higher than the 80 percent projected last year.
- The present value of the shortfall between assets, which include income and reserves, and obligations, which include scheduled benefit payments, estimated over the 75-year valuation period of the projection increased from \$9.6 trillion in 2013 to \$10.6 trillion in 2014. About one-half of this increase is due to the valuation period moving one year forward. The unfunded obligation over the valuation period is 1.0 percent of the gross domestic product (GDP). The unfunded obligation increased from 2.57 percent to 2.73 percent of taxable payroll over the same period.
- To maintain solvency for the next 75 years (using best estimate assumptions), changes equivalent to either an immediate increase of 2.83 percentage points in the payroll tax rate, or an immediate decrease of 17.4 percent of benefits for all current and future beneficiaries, or some combination thereof, are required. The analogous numbers from last year's report were a 2.66 percentage point increase in the payroll tax rate and a 16.5 percent decrease in all benefits

Congress should act soon to improve the long-term financial outlook of Social Security. Congress must act no later than mid-2016 to pay full scheduled disability benefits.

An Actuarial Perspective on the 2014 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 three 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, 2014–2023

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. A trust fund ratio is the ratio of the trust fund assets at the beginning of the year to the

The American Academy of Actuaries is an 18,000+ member professional association whose mission is to serve the public and the U.S. actuarial profession. The Academy assists public policymakers on all levels by providing leadership, objective expertise, and actuarial advice on risk and financial security issues. The Academy also sets qualification, practice, and professionalism standards for actuaries in the United States.



benefits 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 62 percent today to zero during 2016. The OASI trust fund ratio is expected to drop from 373 percent to 232 percent by the end of the 10-year period. *Under the trustees' projections, action by Congress is needed to allow the DI trust fund to continue to pay full scheduled disability benefits during and beyond 2016.*

Social Security's OASI finances (excluding disability) are somewhat weaker than the projection made a year ago. The total change in the projected tenth-year trust fund ratio was a decline of 18 percentage points. The majority of the expected decline is caused by moving the Short-Range Estimate period one year forward. Changes to the OASI trust fund ratios are itemized below. These include economic data and assumptions and methodology changes, with the impact on the tenth-year trust fund ratio in parentheses:

- Moving the Short-Range Estimate period forward one year (reduced ratio by 15 percentage points)
- Changes in economic data and assumptions (reduced ratio by 2 percentage points)
- Methodology changes (reduced ratio by 1 percentage point)

Unless otherwise noted, all subsequent information in this issue brief is based on the combined OASDI trust funds.

Trust Fund Assets

Any excess of tax income over outgo is recorded as an asset reserve of the Social Security trust funds. These trust fund asset reserves are held in special U.S. Treasury securities that totaled almost \$2.8 trillion at the end of 2013. Trust fund

asset reserves are expected to increase to almost \$2.9 trillion by 2019 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 funds whenever Social Security needs the money. As the securities are redeemed by the trust funds, the U.S. government must finance the redemptions 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 2023. The excess of income over cost prior to 2009 has led to the current \$2.8 trillion in trust fund asset reserves.

The net annual amounts of income (excluding interest) to, and outgo from, Social Security 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 2014–2023, the income rate will increase (due to taxation of Social Security benefits) from 12.67 percent to 13.03 percent of annual taxable payroll. The cost rate, meanwhile, will rise from 13.95 percent to 15.00 percent of taxable payroll. The difference between these two rates, called the **annual balance**, ranges from a deficit of 1.29 percent to a deficit of 1.97 percent² of taxable payroll during the period from 2014 to 2023.

Long-Range Estimates, 2013–2087

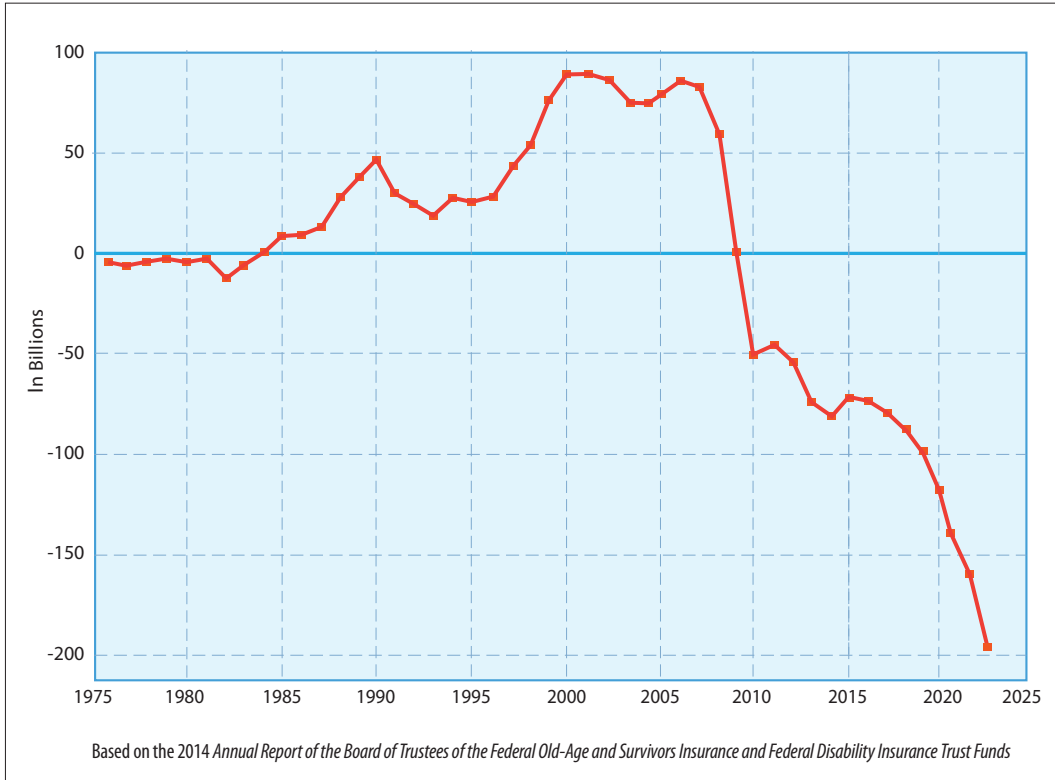
This is based on a 75-year projection that covers the future lifetimes of nearly all current participants, which includes those paying payroll taxes and those already retired. The estimates show that, beginning in 2033, trust fund asset reserves are projected to be depleted and the system is expected to 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

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, 2014 *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 2013 numbers do not add up.

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Figure 1: OASDI Cash Flow Excluding Interest on Assets



ty 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 non-interest income in every year (as has been the case since 2010) and rising rapidly through 2035 as the baby boomers retire. While costs are expected to increase quickly, tax revenue is also

expected to grow, but more slowly. After 2035, projected costs are fairly level as a share of both GDP and taxable payroll.

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

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

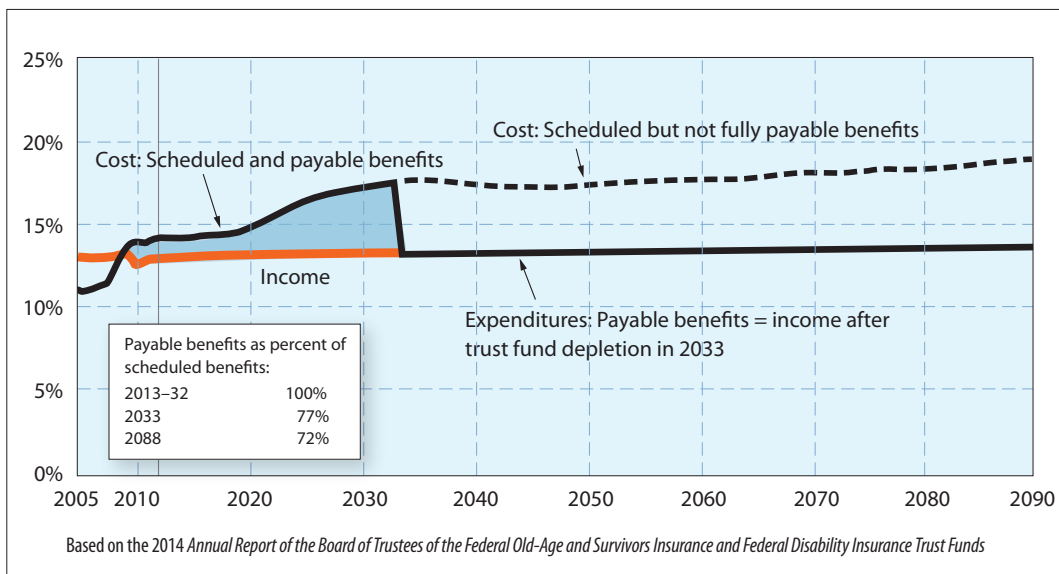
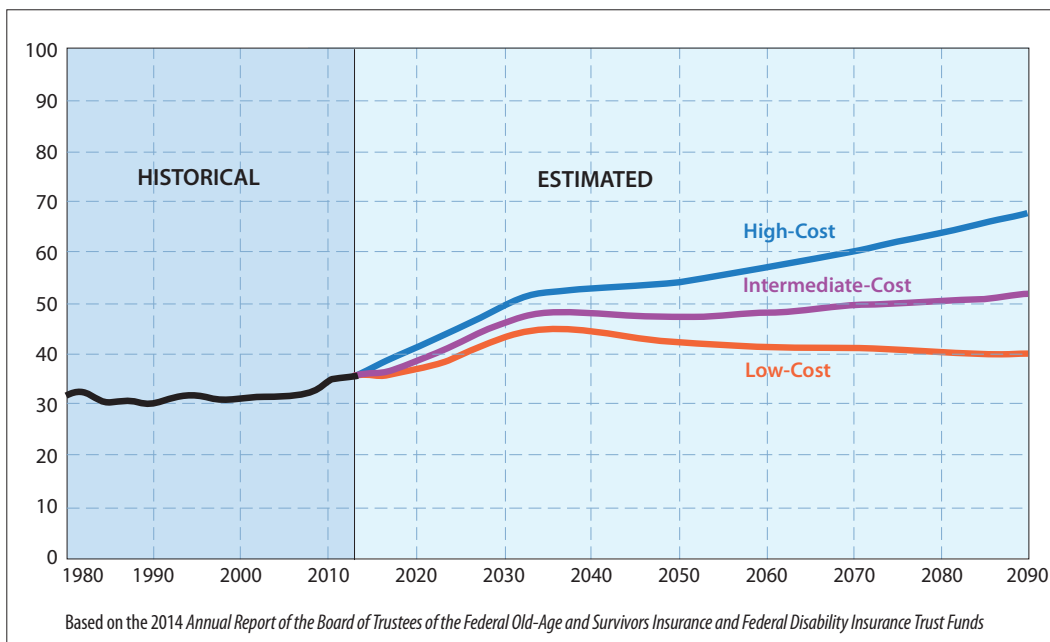


Figure 3: Number of Social Security Beneficiaries Per 100 Workers



the taxable payroll over the 75-year period. 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 deteriorated, from

a negative 2.72 percent to a negative 2.88 percent during 2013. Refer to the Appendix for a more expanded definition of actuarial balance.

NOW IS THE TIME TO RESTORE SOCIAL SECURITY'S LONG-TERM FINANCIAL SOUNDNESS

The long-range expected increase in Social Security program costs are principally caused by demographic trends. These demographic trends are very well-known and are generally referred to as “aging” or, sometimes, as “the aging of America.” It is useful to further separate the aging trend into two components:

(i) macro-aging, which is observed at the population level and refers to a shift in the average age of the population caused by the large one-time decrease in birth rates beginning in the mid-1960s (the fertility drop after the large Baby Boom generation), and

(ii) micro-aging, which can be observed at an individual level and refers to the expected continuous long-term increase in life expectancies, caused by individuals living longer, on average, in each succeeding generation.

A third demographic component, which acts to offset macro-aging, is immigration. Since immigrants tend to be young, higher immigration can offset some of the increase in the average age of the population caused by lower birth rates.

The ratio of workers to Social Security benefi-

ciaries is expected to fall rapidly from 2.8 in 2013 to 2.1 in 2035, primarily due to macro-aging, and then to decrease more slowly, primarily due to micro-aging, to 2.0, by the end of the 75-year projection period. This decrease over the projection period of approximately 30% 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. In other words, the dollars paid into the system must equal the dollars paid out in a PAYGO system.

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 American Academy of Actuaries' 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 at the end of the 75-year period will be stable or increasing as a percentage of annual program cost. Refer to the appendix for a more complete explanation of sustainable solvency.

Providing for solvency beyond the next 75 years will require changes to address micro-aging, as beneficiaries will likely be receiving benefits for ever-longer periods of retirement.

Regardless of the types of changes ultimately enacted into law, measures to address Social Security's financial condition will best serve the public if implemented sooner rather 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 legislated changes in Social Security.

- Implementation of program changes can be more gradual and span multiple generations of retirees.

- Public trust in the financial soundness of the Social Security program will improve.

Providing for solvency of Social Security both during and after the period where the macro-aging trend impacts Social Security requires a timely and thoughtful solution. Not only must changes address the Baby Boom bulge, they must continue to address micro-aging trends and provide for solutions beyond the 2030s.

The imminent rapid decline of the Social Security disability trust fund in 2016 must promptly be addressed, and overall Social Security program solvency should be considered in terms of the stricter requirements of sustainable solvency.

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

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, including one year's outgo at the end of the period, to the sum of the present value of taxable payroll for each year of the period. Table 1 shows the components of Actuarial Balance.

In the 75-year period, 2014–2088, the actuarial deficit is 2.88 percent. The actuarial deficit increased from the comparable figure of 2.72 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, methodology changes and, legislative and policy changes.

An immediate increase of 2.83 percentage points in the payroll tax, from 12.4 percent of payroll to 15.23 percent of payroll, a benefit reduction of 17.4 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 – 6.56 percent of taxable payroll. The low-cost pro-

Table 1: Long-Range Actuarial Balance

(percentage of taxable payroll)

Period	Summarized Income Rate	Summarized Cost Rate	Actuarial Balance
25-year (2014–38)	14.75%	16.25%	-1.50%
50-year (2014–63)	14.08%	16.50%	-2.42%
75-year (2014–88)	13.89%	16.77%	-2.88%

Based on the 2014 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds

jection is much more favorable, with essentially no deficit for the 75-year 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 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 five years to 2028, while the low-cost projection shows no insolvency during the 75-year period.

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.

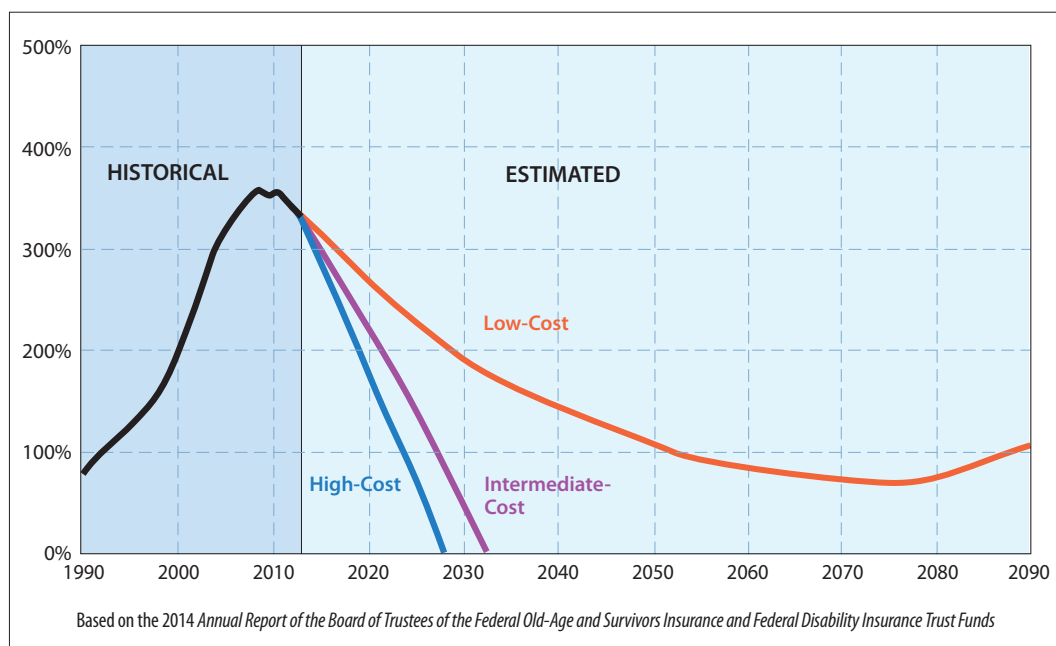
Sustainable solvency is a stronger standard than actuarial balance in two ways. First, actuarial balance is based on averages over time, without

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 sharply downward. Sustainable solvency, in contrast, requires strict year-by-year solvency AND trust fund ratios that are level or trending upward toward the end of the period. For example, following the last major Social Security 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 75-year period. That report was in actuarial balance but did not show sustainable solvency. As a result, the actuarial balance generally has been declining since then, primarily as a consequence of the passage of time. It is important to note that this result was exactly what experts expected in 1983. 30-plus years later, it should be no surprise that large and growing actuarial deficits are now projected at the end of the long-range projection period. Adequate financing beyond 2088, 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-

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



by-year streams of future cost and income and then sum them to obtain their present values. Based on

Present value of future cost (benefits and expenses)
minus the present value of future income from taxes
minus current trust fund assets.

these present values, the general formula for computing the unfunded obligation is:

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, 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 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 2014, the open-group unfunded obligation over the next 75 years was \$10.6 trillion (up from \$9.6 trillion last year). This now represents 2.7 (2.6 last year) percent of taxable payroll, or 1.0 percent (0.9 last year) 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.

MEASURES OF UNCERTAINTY

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

Alternative Sets of Assumptions

Table 2 shows a comparison between recent values and ultimate long-range values of five key assumptions used in each of the three projections.

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

	10-year Average of Estimated and Historical Values	Estimated 2012 Value	Ultimate Value		
			Low-Cost Assumptions	Intermediate Assumptions	High-Cost Assumptions
Fertility (children per woman)	2.0	1.9	2.3	2.0	1.7
Mortality reduction (assumed average annual decrease in adjusted death rates)	1.64%	1.41%	0.41%	0.79%	1.20%
Annual net immigration (thousands)	1,112	1,280	1,335	1,060	805
Productivity growth (total U.S. economy)	1.46%	0.73%	1.98%	1.68%	1.38%
Real-wage growth	0.42%	0.49%	1.76%	1.13%	0.52%

Based on the 2014 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds

With the exception of fertility and productivity growth, where the ultimate values have not changed from last year's report, the ultimate values of the other assumptions exhibit some minor changes when compared to last year's report.

Sensitivity Analysis

The low-cost and high-cost projections change all the major intermediate assumptions at once in the same direction, either favorably or unfavorably. In contrast, there might be some interest in how the projections change when only one key assumption is changed at a time, either favorably

or unfavorably. A sensitivity analysis shows exactly this. Just one assumption is changed at a time to determine the financial impact. Table 3 gives results of three sensitivity tests focusing on total fertility rate, mortality reduction, and real-wage growth.

If the real-wage growth assumption were changed from 1.13 percent to 1.76 percent, for example, the actuarial deficit would be reduced from 2.88 percent of taxable payroll to 1.88 percent, and the year of trust fund asset reserve depletion would be extended from 2033 to 2036.

Table 3: Sensitivity to Varying Any of Three Key Assumptions

Sensitivity Assumption	Results based on Intermediate Assumptions, with one assumption changed at a time		
	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 reserve depletion	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
Real-wage Growth			
■ Ultimate percentage increase in wages-CPI	1.76%	1.13%	0.51%
■ 75-year actuarial deficit	1.88%	2.88%	3.90%
■ Year of combined trust fund reserve depletion	2036	2033	2031

Based on the 2014 *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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