THE 2008 ANNUAL REPORT OF THE BOARD OF TRUSTEES OF THE FEDERAL OLD-AGE AND SURVIVORS INSURANCE AND FEDERAL DISABILITY INSURANCE TRUST FUNDS

COMMUNICATION

FROM

THE BOARD OF TRUSTEES, FEDERAL OLD-AGE AND SURVIVORS INSURANCE AND FEDERAL DISABILITY INSURANCE TRUST FUNDS

TRANSMITTING

THE 2008 ANNUAL REPORT OF THE BOARD OF TRUSTEES OF THE FEDERAL OLD-AGE AND SURVIVORS INSURANCE AND FEDERAL DISABILITY INSURANCE TRUST FUNDS

April 10, 2008.—Referred to the Committee on Ways and Means and ordered to be printed

---

U.S. GOVERNMENT PRINTING OFFICE

41-188   WASHINGTON: 2008

LETTER OF TRANSMITTAL

BOARD OF TRUSTEES OF THE
FEDERAL OLD-AGE AND SURVIVORS INSURANCE AND
FEDERAL DISABILITY INSURANCE TRUST FUNDS,
Washington, D.C., March 25, 2008

The Honorable Nancy Pelosi
Speaker of the House of Representatives
Washington, D.C.

The Honorable Richard B. Cheney
President of the Senate
Washington, D.C.

Dear Madam Speaker and Mr. Cheney:

We have the honor of transmitting to you the 2008 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance Trust Fund and the Federal Disability Insurance Trust Fund, the 68th such report.

Respectfully,

/S/
Henry M. Paulson, Jr., *Secretary of the Treasury, and Managing Trustee of the Trust Funds.*

/S/
Elaine L. Chao, *Secretary of Labor, and Trustee.*

/S/
Michael O. Leavitt, *Secretary of Health and Human Services, and Trustee.*

/S/
Michael J. Astrue, *Commissioner of Social Security, and Trustee.*

Public Trustee, *Vacant.*

Public Trustee, *Vacant.*

/S/
Jason J. Fichtner, *Associate Commissioner, Office of Retirement Policy, Office of Retirement and Disability Policy, Social Security Administration, and Acting Secretary, Board of Trustees.*

CONTENTS

**THE 2008 ANNUAL REPORT OF THE BOARD OF
TRUSTEES OF THE FEDERAL OLD-AGE AND
SURVIVORS INSURANCE AND FEDERAL DISABILITY
INSURANCE TRUST FUNDS**

I. INTRODUCTION

The Old-Age, Survivors, and Disability Insurance (OASDI) program in the United States makes available a basic level of monthly income upon the attainment of retirement eligibility age, death, or disability by insured workers. The OASDI program consists of two separate parts which pay benefits to workers and their families—Old-Age and Survivors Insurance (OASI) and Disability Insurance (DI). Under OASI, monthly benefits are paid to retired workers and their families and to survivors of deceased workers. Under DI, monthly benefits are paid to disabled workers and their families.

The Board of Trustees was established under the Social Security Act to oversee the financial operations of the OASI and DI Trust Funds. The Board is composed of six members. Four members serve by virtue of their positions in the Federal Government: the Secretary of the Treasury, who is the Managing Trustee; the Secretary of Labor; the Secretary of Health and Human Services; and the Commissioner of Social Security. The other two positions, which are currently vacant, are for members of the public, to be appointed by the President, subject to confirmation by the Senate. The Deputy Commissioner of the Social Security Administration (SSA) is designated as Secretary of the Board.

The Social Security Act requires that the Board, among other duties, report annually to the Congress on the actuarial (financial) status of the OASI and DI Trust Funds. This annual report, for 2008, is the 68th such report.

II. OVERVIEW

A. HIGHLIGHTS

The report's major findings are summarized below.

In 2007

At the end of 2007, almost 50 million people were receiving benefits: 34 million retired workers and their dependents, 6 million survivors of deceased workers, and 9 million disabled workers and their dependents. During the year an estimated 163 million people had earnings covered by Social Security and paid payroll taxes. Total benefits paid in 2007 were $585 billion. Income was $785 billion, and assets held in special issue U.S. Treasury securities grew to $2.2 trillion.

Short-Range Results

The OASI Trust Fund and the combined OASI and DI Trust Funds are adequately financed over the next 10 years under the intermediate assumptions. The DI Trust Fund is expected to remain solvent over the next 10 years, but does not satisfy the short-range test of financial adequacy because assets are estimated to fall below 100 percent of annual expenditures before the end of 2017. The combined assets of the OASI and DI Trust Funds are projected to increase from $2,238 billion at the beginning of 2008, or 359 percent of annual expenditures, to $4,273 billion at the beginning of 2017, or 385 percent of annual expenditures in that year. Combined assets were projected in last year's report to rise to 362 percent of annual expenditures at the beginning of 2008, and 403 percent at the beginning of 2017.

Long-Range Results

Under the intermediate assumptions, OASDI cost will increase more rapidly than tax income between about 2010 and 2030 due to the retirement of the large baby-boom generation. After 2030, increases in life expectancy and the relatively low fertility rates experienced since the baby boom will continue to increase Social Security system costs relative to tax income, but more slowly. Annual cost will exceed tax income starting in 2017, at which time the annual gap will be covered with cash from redemptions of special obligations of the Treasury that make up the trust fund assets until these assets are exhausted in 2041. Separately, the DI fund is projected to be exhausted in 2025 and the OASI fund in 2042. For the 75-year projection period, the actuarial deficit is 1.70 percent of taxable payroll, 0.26 percentage point smaller than in last year's report. The open group unfunded obligation for OASDI over the 75-year period is $4.3 trillion in present value, and is $0.4 trillion

less than the measured level of a year ago. In the absence of any changes in assumptions, methods, and starting values, the unfunded obligation would have risen to almost $5.1 trillion due to the change in the valuation date.

The OASDI annual cost rate is projected to increase from 11.20 percent of taxable payroll in 2008, to 16.41 percent in 2030, and to 17.50 percent in 2082, or to a level that is 4.20 percent of taxable payroll more than the projected income rate for 2082. In last year's report the OASDI cost for 2081 was estimated at 18.55 percent, or 5.20 percent of payroll more than the annual income rate for that year. Expressed in relation to the projected gross domestic product (GDP), OASDI cost is estimated to rise from the current level of 4.3 percent of GDP, to 6.0 percent in 2030, and then to decline to 5.8 percent in 2082.

The improvement in the long-range actuarial status of the OASDI program indicated in this report is principally the result of changes in immigration methods and assumptions. These changes resulted in substantial reductions in the projected cost of the program, particularly in the latter half of the long-range projection period.

Conclusion

Annual cost will begin to exceed tax income in 2017 for the combined OASDI Trust Funds, which are projected to become exhausted and thus unable to pay scheduled benefits in full on a timely basis in 2041 under the long-range intermediate assumptions. For the trust funds to remain solvent throughout the 75-year projection period, the combined payroll tax rate could be increased during the period in a manner equivalent to an immediate and permanent increase of 1.70 percentage points, benefits could be reduced during the period in a manner equivalent to an immediate and permanent reduction of 11.5 percent, general revenue transfers equivalent to $4.3 trillion in present value could be made during the period, or some combination of approaches could be adopted. Significantly larger changes would be required to maintain solvency beyond 75 years.

The projected trust fund deficits should be addressed in a timely way to allow for a gradual phasing in of the necessary changes and to provide advance notice to workers. Making adjustments sooner will allow them to be spread over more generations. Social Security plays a critical role in the lives of 50 million beneficiaries and 164 million covered workers and their families in 2008. With informed discussion, creative thinking, and timely legislative action, present and future Congresses and Presidents can ensure that Social Security continues to protect future generations.

B. TRUST FUND FINANCIAL OPERATIONS IN 2007

The table below shows the income, expenditures, and assets for the OASI, the DI and the combined OASDI Trust Funds in calendar year 2007.

Table II.B1.—Summary of 2007 Trust Fund Financial Operations

	Amounts (in billions)		
	OASI	DI	OASDI
Assets at the end of 2006	$1,844.3	$203.8	$2,048.1
Total income in 2007	675.0	109.9	784.9
Net contributions	560.9	95.2	656.1
Taxation of benefits	17.2	1.4	18.6
Interest	97.0	13.2	110.2
Total expenditures in 2007	495.7	98.8	594.5
Benefit payments	489.1	95.9	584.9
Railroad Retirement financial interchange	3.6	.4	4.0
Administrative expenses	3.1	2.5	5.5
Net increase in assets in 2007	179.3	11.1	190.4
Assets at the end of 2007	2,023.6	214.9	2,238.5

Note: Totals do not necessarily equal the sums of rounded components.

In 2007, net contributions accounted for 84 percent of total trust fund income. Net contributions consist of taxes paid by employees, employers and the self-employed on earnings covered by Social Security. These taxes were paid on covered earnings up to a specified maximum annual amount, which was $97,500 in 2007 and is increased each year automatically (to $102,000 in 2008) as the average wage increases. The tax rates scheduled under current law for 2007 and later are shown in table II.B2.

Table II.B2.—Tax Rates for 2007 and Later

	OASI	DI	OASDI
Tax rate for employees and employers, each (in percent)	5.30	0.90	6.20
Tax rate for self-employed persons (in percent)	10.60	1.80	12.40

Two percent of OASDI Trust Fund income came from subjecting up to 50 percent of Social Security benefits above specified levels to Federal personal income taxation, and 14 percent of OASDI income came from interest earned on investment of OASDI Trust Fund reserves. Social Security's assets are invested in interest-bearing securities of the U.S. Government. In 2007 the combined trust fund assets earned interest at an effective annual rate of

5.3 percent. More than 98 percent of expenditures from the combined OASDI Trust Funds in 2007 went to pay retirement, survivor, and disability benefits totaling $584.9 billion. The financial interchange with the Railroad Retirement program resulted in a payment of $4.0 billion from the combined OASDI Trust Funds, or about 0.7 percent of total expenditures. The administrative expenses of the Social Security program were $5.5 billion, or about 0.9 percent of total expenditures.

Assets of the trust funds provide a reserve to pay benefits whenever total program cost exceeds income. Trust fund assets increased by $190.4 billion in 2007 because income to each fund exceeded expenditures. At the end of 2007, the combined assets of the OASI and the DI Trust Funds were 359 percent of estimated expenditures for 2008, up from an actual level of 345 percent at the end of 2006.

C. ASSUMPTIONS ABOUT THE FUTURE

Future income and expenditures of the OASI and DI Trust Funds will depend on many factors, including the size and characteristics of the population receiving benefits, the level of monthly benefit amounts, the size of the workforce, and the level of workers' earnings. These factors will depend in turn on future birth rates, death rates, immigration, marriage and divorce rates, retirement-age patterns, disability incidence and termination rates, employment rates, productivity gains, wage increases, inflation, and many other demographic, economic, and program-specific factors.

The intermediate demographic and economic assumptions shown in table II.C1, designated as alternative II, reflect the Trustees' best estimates of future experience, and therefore most of the figures in this overview depict only the outcomes under the intermediate assumptions. Any projection of the future is, of course, uncertain. For this reason, alternatives I (low cost) and III (high cost) are included to provide a range of possible future experience. The assumptions for these two alternatives are also shown in table II.C1, and their implications are highlighted in a separate section on the uncertainty of the projections.

Assumptions are reexamined each year in light of recent experience and new information. This annual review helps to ensure that the assumptions provide the Trustees' best estimate of future possibilities.

Table II.C1.—Ultimate[1] Values of Key Demographic and Economic Assumptions for the Long-Range (75-year) Projection Period

Ultimate assumptions	Intermediate	Low Cost	High Cost
Total fertility rate (children per woman)	2.0	2.3	1.7
Average annual percentage reduction in total age-sex-adjusted death rates from 2032 to 2082.	.73	.32	1.21
Average annual net immigration (in thousands) over the period 2008-82.	1,070	1,375	790
Annual percentage change in:			
Productivity (total U.S. economy)	1.7	2.0	1.4
Average wage in covered employment.	3.9	3.4	4.4
Consumer Price Index (CPI).	2.8	1.8	3.8
Real-wage differential (percent).	1.1	1.6	.6
Unemployment rate (percent).	5.5	4.5	6.5
Annual trust fund real interest rate (percent)	2.9	3.6	2.1

[1] Ultimate values are assumed to be reached within 25 years. See chapter V for details, including historical values and projected values prior to reaching the ultimate.

D. PROJECTIONS OF FUTURE FINANCIAL STATUS

Short-Range Actuarial Estimates

For the short range (2008-2017), the Trustees measure financial adequacy by comparing projected assets at the beginning of each year to projected program cost for that year under the intermediate set of assumptions. Having a trust fund ratio of 100 percent or more—that is, assets at the beginning of each year at least equal to projected cost for the year—is considered a good indication of a trust fund's ability to cover most short-term contingencies. The projected trust fund ratios for OASI alone, and for OASI and DI combined, under the intermediate assumptions exceed 100 percent throughout the short-range period and therefore OASI and OASDI satisfy the Trustees' short-term test of financial adequacy. Considering the DI program alone, however, its trust fund ratio is projected to fall below the 100 percent level before the end of 2017. Thus, DI fails to satisfy the Trustees' short-term test of financial adequacy. Figure II.D1 below shows that the trust fund ratios for the combined OASI and DI Trust Funds reach a peak level in 2014 and begin declining thereafter.

Figure II.D1.—Short-Range OASDI Trust Fund Ratios
[Assets as a percentage of annual expenditures]
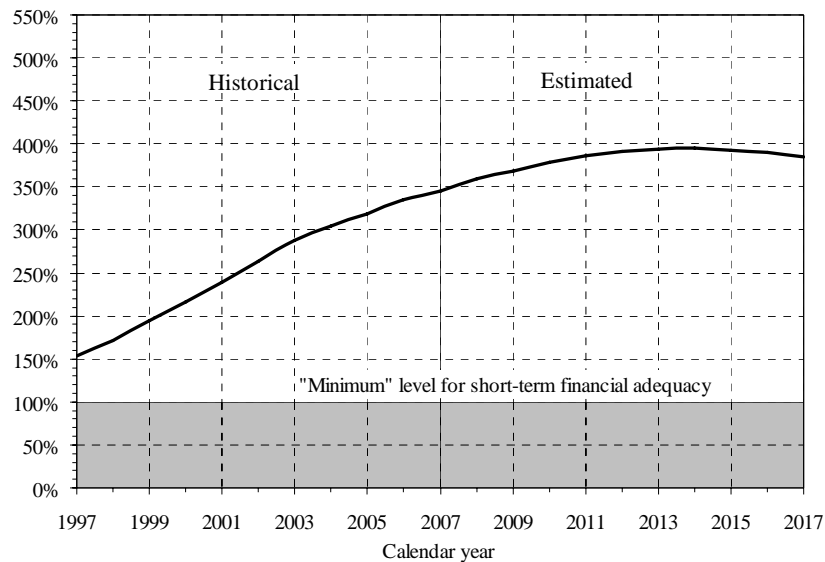
Long-Range Actuarial Estimates

The actuarial status of the program over the next 75 years is measured in terms of annual cost and income as a percentage of taxable payroll, trust fund ratios, the actuarial balance (also as a percentage of taxable payroll), and the open group unfunded obligation (expressed in present-value dollars and as percentages of taxable payroll and gross domestic product (GDP)). Considering Social Security's annual cost and income as a percentage of the total U.S. economic output or GDP provides an additional important perspective.

The year-by-year relationship between income and cost rates shown in figure II.D2 illustrates the expected pattern of cash flows for the OASDI program over the full 75-year period. Under the intermediate assumptions, the OASDI cost rate is projected to increase rapidly and first exceed the income rate in 2017, producing cash-flow deficits thereafter. Redemption of trust fund assets will allow continuation of full benefit payments on a timely basis until 2041, when the trust funds are projected to become exhausted. This redemption process will require a flow of cash from the General Fund of the Treasury. Pressures on the Federal Budget will thus emerge well before 2041. Even if a trust fund's assets are exhausted, however, tax income will continue to flow into the fund. Present tax rates are projected to be sufficient to pay 78 percent of scheduled benefits after trust fund exhaustion in 2041 and 75 percent of scheduled benefits in 2082.

Figure II.D2.—OASDI Income and Cost Rates Under Intermediate Assumptions
[As a percentage of taxable payroll]
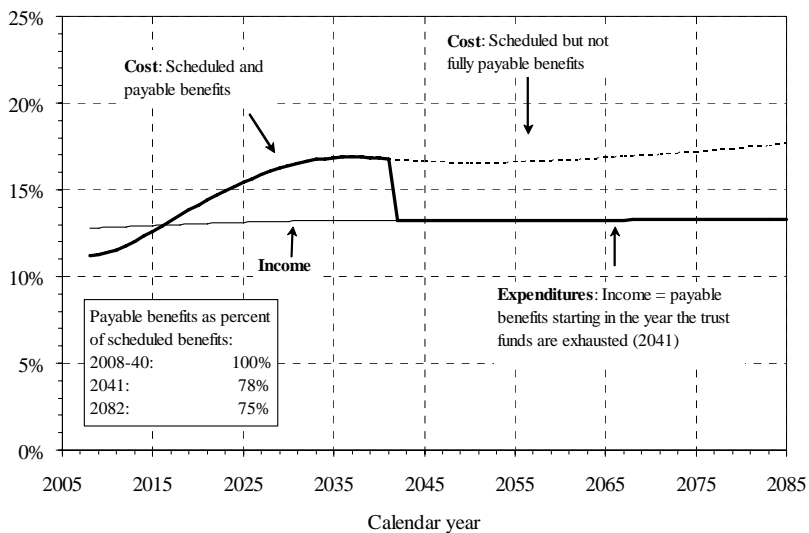
Social Security's cost rate is projected to rise rapidly from 2010 through about 2030 as the baby-boom generation reaches retirement eligibility age. Thereafter, the cost rate is estimated to rise at a slower rate for about 5 years and then to remain fairly stable for the next 35 years. Continued reductions in death rates and maintaining birth rates at levels well below those from the baby-boom era and before will cause a continued increase in the average age of the population and will raise the cost rate from 17.0 percent of taxable payroll in 2070 to 17.5 percent by 2082 under the intermediate assumptions. In a pure pay-as-you-go system (with no trust fund assets or borrowing authority), this 17.5-percent cost rate would require that the combination of the payroll tax (scheduled to total 12.4 percent) and proceeds from income taxes on benefits (expected to be 0.9 percent of taxable payroll in 2082) be equal to 17.5 percent of taxable payroll to pay all currently scheduled benefits. After 2082, the increase in the average age of the population is likely to continue and to increase the gap between OASDI cost and income rates.

The primary reason that the OASDI cost rate will increase rapidly between 2010 and 2030 is that, as the large baby-boom generation born in the years 1946 through 1965 retires, the number of beneficiaries will increase much more rapidly than the number of workers. The estimated number of workers per beneficiary is shown in figure II.D3. There were about 3.3 workers for every OASDI beneficiary in 2007. This ratio has been extremely stable, remaining between 3.2 and 3.4 since 1974. However, the baby-boom generation will have largely retired by 2030, and the ratio of workers to beneficiaries is projected to be only 2.2 at that time. Thereafter, the number of workers per beneficiary will slowly decline, and the OASDI cost rate will continue to increase, largely due to projected reductions in mortality.

Figure II.D3.—Number of Covered Workers Per OASDI Beneficiary
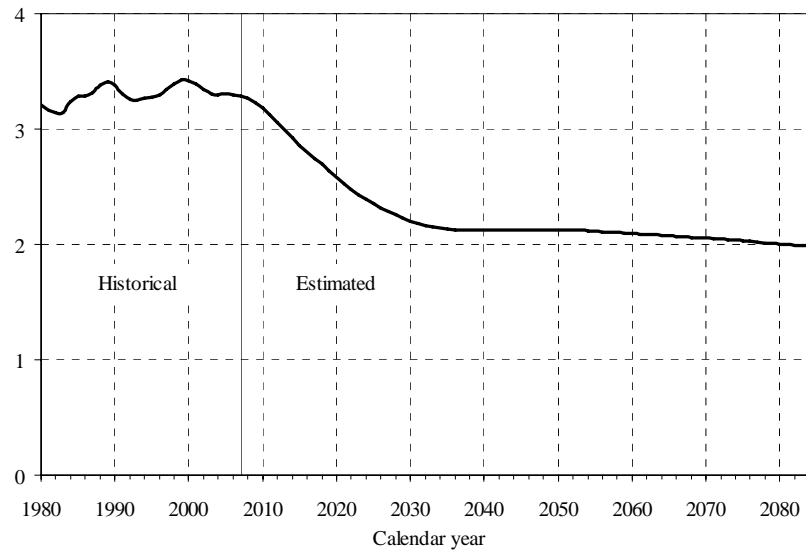
The maximum projected trust fund ratios for the OASI, DI, and combined funds appear in table II.D1. The year in which the maximum projected trust fund ratio is attained and the year in which the assets are projected to be exhausted are shown as well.

**Table II.D1.—Projected Maximum Trust Fund Ratios Attained and
Trust Fund Exhaustion Dates Under the Intermediate Assumptions**

	OASI	DI	OASDI
Maximum trust fund ratio (percent).	445	199	395
Year attained.	2014	2008	2014
Year of trust fund exhaustion.	2042	2025	2041

The actuarial balance is a measure of the program's financial status for the 75-year valuation period as a whole. It is essentially the difference between income and cost of the program expressed as a percentage of taxable payroll over the valuation period. This single number summarizes the adequacy of program financing for the period. When the actuarial balance is negative, the actuarial deficit can be interpreted as the percentage that could be added to the current law income rate for each of the next 75 years, or subtracted from the cost rate for each year, to bring the funds into actuarial balance. Because the effects of future changes are unlikely to follow this pattern, this measure should be viewed only as providing a rough indication of the amount of

change that is needed over the 75-year period as a whole. In this report, the actuarial balance under the intermediate assumptions is a deficit of 1.70 percent of taxable payroll for the combined OASI and DI Trust Funds. The actuarial deficit was 1.95 percent in the 2007 report and has been in the range of 1.86 percent to 2.19 percent for the prior 10 reports. The main reason for the decline in the actuarial deficit from the level in last year's report is the improved method used for projecting the other-immigrant population, which, taken alone, reduces the actuarial deficit by about 0.3 percent of taxable payroll.

Another way to illustrate the financial shortfall of the OASDI system is to examine the cumulative value of income less cost, in present value. Figure II.D4 shows the present value of cumulative OASDI income less cost over the next 75 years. The balance of the combined trust funds peaks at $2.7 trillion in 2017 (in present value) and then turns downward. This cumulative amount continues to be positive, indicating trust fund assets, or reserves, through 2040. However, after 2040 this cumulative amount becomes negative, indicating a net unfunded obligation. Through the end of 2082, the combined funds have a present-value unfunded obligation of $4.3 trillion. This unfunded obligation represents 1.6 percent of future taxable payroll and 0.6 percent of future GDP, through the end of the 75-year projection period.

Figure II.D4.—Cumulative OASDI Income Less Cost, Based on Present Law Tax Rates and Scheduled Benefits
[Present value as of January 1, 2008, in trillions]
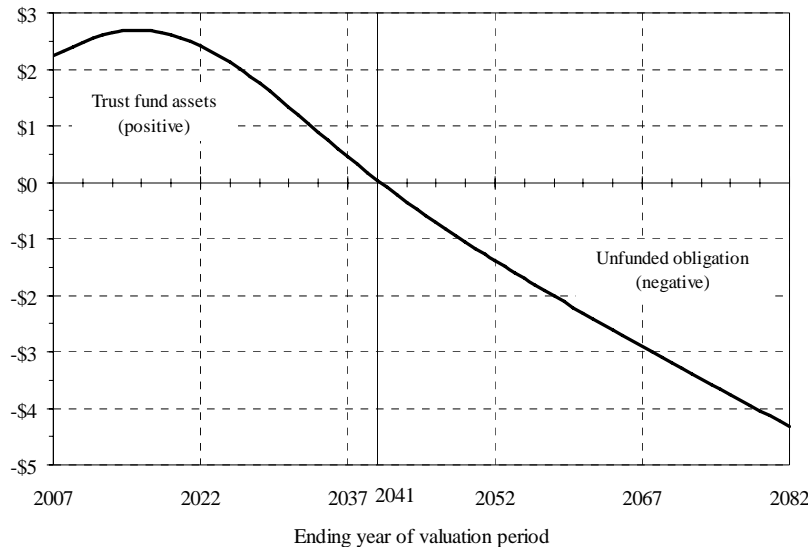
Still another important way to look at Social Security's future is to view its annual cost and tax income as a share of U.S. economic output. Figure II.D5 shows that Social Security's cost as a percentage of GDP is projected to grow from 4.3 percent in 2008 to 6.0 percent in 2030, and then to peak at about 6.1 percent in 2035. Thereafter, OASDI cost as a percent of GDP is projected to decrease to about 5.8 percent by 2050, and to remain at that level through 2082. However, Social Security's scheduled tax revenue is projected to begin declining within the next 5 years from its current level of about 4.9 percent of GDP reaching about 4.4 percent by 2082. Income from payroll taxes declines generally in relation to GDP in the future because an increasing share of employee compensation is assumed to be provided in fringe benefits, making wages a shrinking share of GDP.

Figure II.D5.—OASDI Cost and Scheduled Tax Revenue as a Percentage of GDP
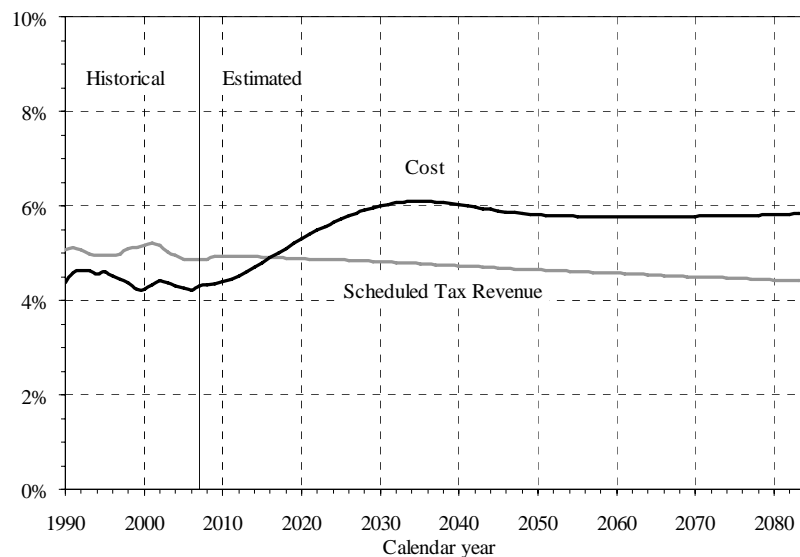
Figures II.D2, II.D4, and II.D5 show that the program's financial condition is worsening at the end of the period. Overemphasis on summary measures for a 75-year period can lead to incorrect perceptions and to policy prescriptions that do not achieve sustainable solvency. Thus, careful consideration of the trends in annual deficits and unfunded obligations toward the end of the 75-year period is important. In addition, summary measures for a time period that extends to the infinite horizon are included in this report. These measures provide an additional indication of Social Security's very long-run

financial condition, but are subject to much greater uncertainty. These calculations show that extending the horizon beyond 75 years increases the unfunded obligation. Over the infinite horizon, the shortfall (unfunded obligation) is $13.6 trillion in present value, or 3.2 percent of future taxable payroll and 1.1 percent of future GDP. These calculations of the shortfall indicate that much larger changes may be required to achieve solvency beyond the 75-year period as compared to changes needed to balance 75-year period summary measures. The measured unfunded obligation over the infinite horizon is unchanged from $13.6 trillion in last year's report. In the absence of any changes in assumptions, methods, and starting values, the unfunded obligation over the infinite horizon would have risen to $14.3 trillion due to the change in the valuation date. This reduction in the unfunded obligation over the infinite horizon is largely the result of the changes in immigration assumptions and methods. Expressed as percentages of taxable payroll and of GDP, however, the measured unfunded obligation over the infinite horizon declined from 3.5 percent and 1.2 percent, respectively in last year's report.

Uncertainty of the Projections

Significant uncertainty surrounds the intermediate assumptions and the Trustees utilize several methods to help illustrate that uncertainty. One approach is the use of low cost (alternative I) and high cost (alternative III) assumptions. Figure II.D6 shows the projected trust fund ratios for the combined OASI and DI Trust Funds under the intermediate, low cost, and high cost assumptions. The low cost alternative reflects a set of assumptions that improves the projected financial status of the trust funds, relative to the financial status under the intermediate set of assumptions. The low cost alternative includes a higher ultimate total fertility rate, slower improvement in mortality, a higher real-wage differential, and lower unemployment. The high cost alternative, in contrast, includes a lower ultimate total fertility rate, more rapid declines in mortality, a lower real-wage differential, and higher unemployment. These alternatives are not intended to suggest that all parameters would be likely to differ from the intermediate values in the same direction, but are intended to illustrate the effect of scenarios that are, on balance, very favorable or unfavorable for the program's financial status. The actual outcome for future costs is unlikely to be as extreme as either of the outcomes portrayed by the low and high cost projections. The method for constructing these high and low cost projections does not provide an estimate of the probability that actual experience will lie within or outside the range they define.

Figure II.D6.—Long-Range OASDI Trust Fund Ratios Under Alternative Assumptions
[Assets as a percentage of annual cost]
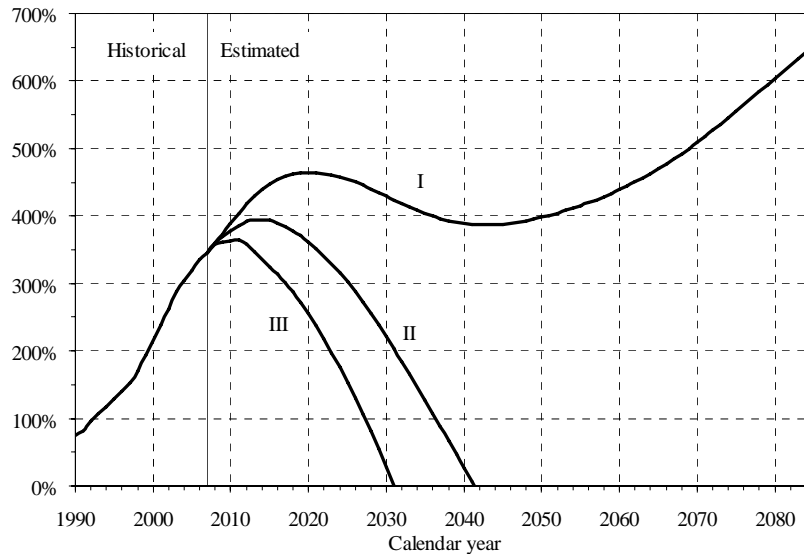
This report also provides long-range sensitivity analysis for the OASDI program, varying one parameter at a time, in Appendix D. These estimates provide further illustrations of the uncertainty surrounding projections into the future, but do not provide any measure of the probability that future outcomes will fall within or outside the ranges shown.

An alternative approach uses stochastic simulations to develop a range of projections and does provide estimates of the probability that future outcomes will fall within or outside a given range. The results of the stochastic simulations, discussed in more detail in Appendix E, suggest that trust fund exhaustion is highly probable sometime during the 75-year period (see figure II.D7). Further, the stochastic results suggest that outcomes as good as the low cost alternative or as bad as the high cost alternative are unlikely. However, the relationship between the stochastic results and the high and low cost alternatives may change as the methodology for the stochastic simulations is further developed. As noted in Appendix E, future improvements and refinements are expected to be more likely to expand rather than reduce the indicated range of uncertainty.

Figure II.D7.—Annual Trust Fund Ratios
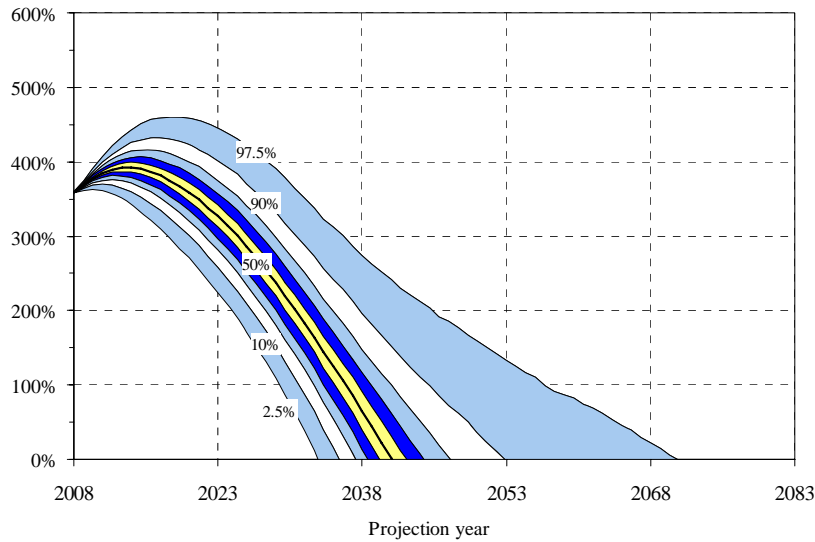
Changes From Last Year's Report

The long-range OASDI actuarial deficit of 1.70 percent of taxable payroll for this year's report is smaller than the deficit of 1.95 percent of taxable payroll shown in last year's report under intermediate assumptions. Changes in methodology are the main reason for the decrease in the deficit. The most significant methodological change for this report is the introduction of a new approach for projecting other (undocumented and temporary legal) immigration. Changes in several assumptions and recent data had largely offsetting effects. For example, an increase in the assumed level of legal immigration improved the OASDI actuarial balance by 0.07 percent of payroll, but this improvement was offset by other changes in demographic assumptions and starting values. For a detailed description of the specific changes identified in table II.D2 below, see section IV.B.7 on page 67.

Table II.D2.—Reasons for Change in the 75-Year Actuarial Balance Under Intermediate Assumptions
[As a percentage of taxable payroll]

Item	OASI	DI	OASDI
Shown in last year's report:			
Income rate	11.99	1.93	13.92
Cost rate	13.68	2.19	15.87
Actuarial balance	**-1.69**	**-.27**	**-1.95**
Changes in actuarial balance due to changes in:			
Legislation / Regulation	.00	.00	.00
Valuation period[1]	-.06	-.01	-.06
Demographic data and assumptions	-.02	+.02	.00
Economic data and assumptions	-.01	+.01	.00
Disability assumptions	.00	.00	.00
Methods and programmatic data	+.31	+.01	+.32
Total change in actuarial balance	+.23	+.03	+.26
Shown in this report:			
Actuarial balance	**-1.46**	**-.24**	**-1.70**
Income rate	12.01	1.93	13.94
Cost rate	13.46	2.17	15.63

[1] In changing from the valuation period of last year's report, which was 2007-81, to the valuation period of this report, 2008-82, the relatively large negative annual balance for 2082 is included. This change in the valuation period results in a larger long-range actuarial deficit. The fund balance at the end of 2007, i.e., at the beginning of the projection period, is included in the 75-year actuarial balance.

Note: Totals do not necessarily equal the sums of rounded components.

The open group unfunded obligation over the 75-year projection period has decreased from $4.7 trillion (present discounted value as of January 1, 2007) to $4.3 trillion (present discounted value as of January 1, 2008). The measured unfunded obligation would be expected to increase by about $0.3 trillion due to advancing the valuation date by 1 year and including the additional year 2082. However, changes in methods and assumptions reduced the measured unfunded obligation by about $0.7 trillion, more than fully offsetting the increase that would be expected in the absence of such changes.

Figure II.D8 shows that this year's projections of annual balances (non-interest income minus cost) are slightly lower than those in last year's report through 2024 principally because of lower death rates and recent economic trends. Thereafter, annual balances are somewhat higher for the rest of the long-range projection period mostly due to changes in immigration assumptions and methods. Section IV.B.7 on page 67 provides a detailed presentation of these changes.

Figure II.D8.—OASDI Annual Balances: 2007 and 2008 Trustees Reports
[As a percentage of taxable payroll under the intermediate assumptions]
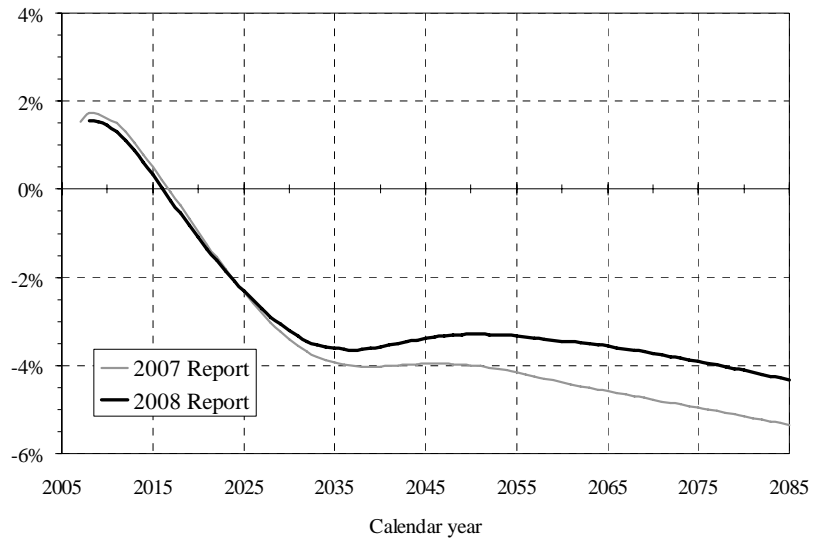
E. CONCLUSION

Under current law the cost of Social Security will soon begin to increase faster than the program's income because of the aging of the baby-boom generation, expected continuing low fertility (compared to the baby-boom period), and increasing life expectancy. Based on the Trustees' best estimate, program cost will exceed tax revenues starting in 2017 and throughout the remainder of the 75-year projection period. Social Security's combined trust funds are projected to allow full payment of scheduled benefits until they become exhausted in 2041. At that time annual tax income to the trust funds is projected to equal about 78 percent of program costs. Separately, the OASI and DI funds are projected to have sufficient funds to pay full benefits on time until 2042 and 2025, respectively. By 2082, annual tax income is projected to be about 75 percent as large as the annual cost of the OASDI program.

Over the full 75-year projection period the actuarial deficit estimated for the combined trust funds is 1.70 percent of taxable payroll—0.26 percentage point smaller than the 1.95 percent deficit projected in last year's report. This deficit indicates that financial adequacy of the program for the next 75 years could be restored if increases were made equivalent to immediately and permanently increasing the Social Security payroll tax from its current level of 12.4 percent (for employees and employers combined) to 14.10 percent. Alternatively, changes could be made equivalent to reducing all current and future benefits by about 11.5 percent. Other ways of reducing the deficit include making transfers from general revenues or adopting some combination of approaches.

If no action were taken until the combined trust funds become exhausted in 2041, then the effects of changes would be more concentrated on fewer years and fewer cohorts:

- For example, payroll taxes could be raised to finance scheduled benefits fully in every year starting in 2041. In this case, the payroll tax would be increased to 15.94 percent at the point of trust fund exhaustion in 2041 and continue rising to 16.60 percent in 2082.

- Similarly, benefits could be reduced to the level that is payable with scheduled tax rates in each year beginning in 2041. Under this scenario, benefits would be reduced 22 percent at the point of trust fund exhaustion in 2041, with reductions reaching 25 percent in 2082.

Either of these examples would eliminate the shortfall for the 75-year period as a whole by specifically eliminating annual deficits after trust fund exhaus-

tion. Because of the increasing average age of the population (due to expected improvement in life expectancy and continued low birth rates), Social Security's annual cost will very likely continue to grow faster than scheduled tax revenues after 2082. As a result, ensuring solvency of the system beyond 2082 would likely require further changes beyond those expected to be needed for 2082.

The projected trust fund deficits should be addressed in a timely way to allow for a gradual phasing in of the necessary changes and to provide advance notice to workers. Making adjustments sooner will allow them to be spread over more generations. In 2008, Social Security plays a critical role in the lives of 50 million beneficiaries and 164 million covered workers, and their families. With informed discussion, creative thinking, and timely legislative action, present and future Congresses and Presidents can ensure that Social Security continues to protect future generations.

For further information related to the contents of this report, see the following websites.

- www.socialsecurity.gov/OACT/TR/TR08/index.html
- www.cms.hhs.gov/ReportsTrustFunds/
- www.treas.gov/offices/economic-policy/social_security.html

III. FINANCIAL OPERATIONS OF THE TRUST FUNDS AND LEGISLATIVE CHANGES IN THE LAST YEAR

A. *OPERATIONS OF THE OLD-AGE AND SURVIVORS INSURANCE (OASI) AND DISABILITY INSURANCE (DI) TRUST FUNDS, IN CALENDAR YEAR 2007*

Detailed information on the operations of the OASI and DI Trust Funds[1] during calendar year 2007 is presented in this section. Chapter IV provides projections for calendar years 2008 through 2085.

1. OASI Trust Fund

A statement of the income and disbursements of the Federal Old-Age and Survivors Insurance Trust Fund in calendar year 2007, and of the assets of the fund at the beginning and end of the calendar year, is presented in table III.A1. As shown in the table, total trust fund receipts in 2007 amounted to $675.0 billion, while disbursements totaled $495.7 billion, resulting in an increase in trust fund assets during 2007 of $179.3 billion.

The reported income and disbursements for 2007 were both affected by a transfer made from the OASI Trust Fund to the DI Trust Fund to correct a long-standing, but small, error in the allocation of benefit payments between the trust funds. For beneficiaries entitled to benefits both as disabled workers (payable from the DI Trust Fund) and as disabled adult children of retired or deceased workers (payable from the OASI Trust Fund), their benefit payments have initially been made entirely from the DI Trust Fund. Periodic transfers from the OASI Trust Fund to reimburse the DI Trust Fund for the share of benefits paid due to the disabled adult child entitlement have not been made for many years. To correct the allocation error, on an estimated basis for months through September 2007, a transfer from the OASI Trust Fund to the DI Trust Fund was made in September 2007. The transfer totaled $5.6 billion, consisting of a principal amount of $3.3 billion, the balance being interest. Further details of the various components of trust fund income and disbursements are discussed in the following paragraphs.

Included in total receipts during calendar year 2007 were $562.8 billion in employment tax contributions. These contributions were partially offset by transfers totaling $1.9 billion to the general fund for the estimated amount of refunds to employees who worked for more than one employer during a year and paid contributions on total earnings in excess of the contribution and benefit base.

---

[1] Data on trust fund operations are available on the Social Security website at: www.socialsecurity.gov/OACT/ProgData/fundsQuery.html.

Net contributions thus amounted to $560.9 billion in 2007, an increase of 4.9 percent over the corresponding amount in 2006. This increase in OASI tax contributions is due to increased earnings and the increase in the contribution and benefit base. (Table VI.A1 shows the tax rates and contribution and benefit bases in effect for past years.)

Table III.A1.—Operations of the OASI Trust Fund, Calendar Year 2007
[In millions]

Total assets, December 31, 2006		$1,844,304
Receipts:		
Contributions:		
Employment taxes	$562,775	
Payments from the General Fund of the Treasury for contributions subject to refund.	-1,897	
Net contributions		560,877
Income based on taxation of benefit payments:		
Withheld from benefit payments to nonresident aliens	145	
All other, not subject to withholding	17,047	
Total income from taxation of benefits.		17,192
Reimbursement from the General Fund of the Treasury for costs of payments to uninsured persons who attained age 72 before 1968.		1/
Investment income and interest adjustments:		
Interest on investments.	99,320	
Interest adjustments[2]	-2,355	
Net investment income and interest adjustments		96,965
Gifts		1
Total receipts		675,035
Disbursements:		
Benefit payments:		
Monthly benefits and lump-sum death benefits	485,881	
Transfer to the DI Trust Fund to correct a trust fund allocation error made on payments to certain dually entitled disabled beneficiaries	3,253	
Reimbursement from the general fund for unnegotiated checks	-62	
Payment for costs of vocational rehabilitation services for disabled beneficiaries .	2	
Net benefit payments		489,074
Transfer to the Railroad Retirement "Social Security Equivalent Benefit Account" .		3,575
Administrative expenses:		
Costs incurred by:		
Social Security Administration.	2,519	
Department of the Treasury	560	
Offsetting receipts from sales of supplies, materials, etc.	1/	
Miscellaneous reimbursements from the general fund [3]	-4	
Net administrative expenses.		3,075
Total disbursements		495,723
Net increase in assets		179,312
Total assets, December 31, 2007		2,023,616

[1] Between -$0.5 and $0.5 million.

[2] Includes (1) interest on transfers between the trust fund and the general fund account for the Supplemental Security Income program due to adjustments in the allocation of administrative expenses, (2) interest arising from the revised allocation of administrative expenses among the trust funds, and (3) interest on certain reimbursements to the trust fund.

[3] Reimbursements for costs incurred in performing certain legislatively mandated activities not directly related to administering the OASI program.

Note: Totals do not necessarily equal the sums of rounded components.

Income based on taxation of benefits amounted to $17.2 billion in 2007. About 99 percent of this income represents amounts credited to the trust funds, on an estimated basis, generally in advance of the actual receipt of taxes by the Treasury. The remaining 1 percent of the total income from taxation of benefits represents amounts withheld from the benefits paid to nonresident aliens.

Special payments are made to uninsured persons who meet certain requirements. The costs associated with providing such payments are largely reimbursed from the General Fund of the Treasury. Accordingly, a transfer of $12 thousand was made in 2007, reflecting costs incurred in fiscal year 2006.

The OASI Trust Fund was credited with interest netting $97.0 billion, which consisted of (1) interest earned on the investments of the trust fund, (2) interest on transfers between the trust fund and the general fund account for the Supplemental Security Income program due to adjustments in the allocation of administrative expenses, (3) interest arising from the revised allocation of administrative expenses among the trust funds, and (4) interest on certain reimbursements to the trust fund, including interest on the transfer related to the trust fund allocation error described earlier. The remaining $569 thousand of receipts consisted of gifts received under the provisions authorizing the deposit of money gifts or bequests in the trust funds.

Of the $495.7 billion in total OASI disbursements, $489.1 billion was for net benefit payments, including the reimbursable costs of vocational rehabilitation services.[1] Excluding the $3.3 billion interfund transfer due to the trust fund allocation error described earlier, net benefit payments would have been $485.8 billion. This lower amount of net benefit payments in calendar year 2007 represents an increase of 5.5 percent over the corresponding adjusted amount[2] in calendar year 2006. This increase is due primarily to (1) an increase in the total number of beneficiaries and (2) an increase in the average benefit amount. The increase in the average benefit amount in 2007 was due in large part to the automatic cost-of-living benefit increase of 3.3 percent which became effective for December 2006 under the automatic-adjustment provisions in section 215(i) of the Social Security Act.

Provisions of the Railroad Retirement Act require an annual financial interchange between the Railroad Retirement and OASDI programs. The purpose

---

[1] Vocational rehabilitation services are furnished to disabled widow(er) beneficiaries and to those children of retired or deceased workers who were receiving benefits on the basis of disabilities that began before age 22. Reimbursement from the trust funds for the costs of vocational rehabilitation services is made only in those cases where the services contributed to the successful rehabilitation of the beneficiary.

[2] In calendar year 2006, net OASI benefit payments were $454.5 billion, but after excluding reimbursements totaling $5.9 billion related to voluntary income tax withholding, adjusted net benefit payments were $460.4 billion.

of such provisions is to put the OASI and DI Trust Funds in the same financial position they would have been had railroad employment always been covered by Social Security. Under those provisions, the Railroad Retirement Board and the Commissioner of Social Security determined that a transfer of $3.6 billion to the Social Security Equivalent Benefit Account from the OASI Trust Fund was required in June 2007.

The remaining $3.1 billion of disbursements from the OASI Trust Fund represented net administrative expenses. The expenses of administering the OASDI and Medicare programs are allocated and charged directly to each of the various trust funds through which those programs are financed, on the basis of provisional estimates. Similarly, the expenses allocated for administering the Supplemental Security Income program are charged directly to the General Fund of the Treasury on a provisional basis. Periodically, as actual experience develops and is analyzed, adjustments to the allocations of administrative expenses for prior periods are effected by interfund transfers and transfers between the OASI Trust Fund and the general fund account for the Supplemental Security Income program, with appropriate interest adjustments. As described earlier, the interest adjustments arising from the reallocation of administrative expenses are recorded in the trust fund accounting under investment income.

In 2007, 82 percent of OASI net administrative expenses represented the cost of administering the program. Such costs are charged to the trust fund by the Social Security Administration ($2.5 billion in 2007). In addition, the Department of the Treasury charges directly to the trust fund certain expenses ($0.6 billion in 2007) that it incurs in helping to administer the OASI program. In addition a relatively small adjustment ($257,483 in 2007) to administrative expenses is an offset representing income from the sale of excess supplies and equipment.

Finally, certain net reimbursements are made from the General Fund of the Treasury for administrative costs incurred by the Social Security Administration in performing certain legislatively mandated activities that are not directly related to the OASI program. These reimbursements include the costs associated with union activities related to administering the OASI program and providing information to participants in certain pension plans. Such reimbursements totaled $4 million in 2007.

The assets of the OASI Trust Fund at the end of calendar year 2007 totaled $2,023.6 billion, consisting of $2,024.4 billion in U.S. Government obligations and, as an offset, an extension of credit amounting to $0.8 billion against securities to be redeemed within the following few days. The effective annual rate of interest earned by the assets of the OASI Trust Fund during calendar year 2007 was 5.2 percent, as compared to 5.3 percent earned

during calendar year 2006. Table VI.A5, presented in Appendix A, shows a detailed listing of OASI Trust Fund holdings by type of security, interest rate, and year of maturity at the end of each year 2006 and 2007.

All securities held by the trust funds are backed by the full faith and credit of the United States Government, as required by law. Those currently held by the OASI Trust Fund are special issues (i.e., securities sold only to the trust funds). These are of two types: short-term certificates of indebtedness and long-term bonds. The certificates of indebtedness are issued on a daily basis for the investment of receipts not required to meet current expenditures, and they mature on the next June 30 following the date of issue. Special-issue bonds, on the other hand, are normally acquired only when special issues of either type mature on June 30. The amount of bonds acquired on June 30 is equal to the amount of special issues maturing, less amounts required to meet expenditures on that day.

Section 201(d) of the Social Security Act provides that the obligations issued for purchase by the OASI and DI Trust Funds shall have maturities fixed with due regard for the needs of the funds. The usual practice has been to spread the holdings of special issues, as of each June 30, so that the amounts maturing in each of the next 15 years are approximately equal. Accordingly, the amounts and maturity dates of the OASI special-issue bonds purchased on June 30, 2007, with an interest rate of 5.000 percent, were selected so that the maturity dates of the total portfolio of special issues were spread evenly over the 15-year period 2008-22. The amount of bonds purchased on June 30, 2007 is shown in table III.A7.

2. DI Trust Fund

A statement of the income and disbursements of the Federal Disability Insurance Trust Fund in calendar year 2007, and of the assets of the fund at the beginning and end of the calendar year, is presented in table III.A2.

Line entries in the DI statement are similar to those in the OASI statement and the explanations of the OASI entries generally apply to DI as well.

Net contributions amounted to $95.2 billion, an increase of 4.9 percent from the amount in the preceding calendar year. This increase is attributable to the same factors, insofar as they apply to the DI program, which accounted for the change in contributions to the OASI Trust Fund.

Table III.A2.—Operations of the DI Trust Fund, Calendar Year 2007
[In millions]

Total assets, December 31, 2006		$203,808
Receipts:		
Contributions:		
Employment taxes	$95,565	
Payments from the General Fund of the Treasury for contributions subject to refund	-322	
Net contributions		95,243
Income based on taxation of benefit payments:		
Withheld from benefit payments to nonresident aliens	4	
All other, not subject to withholding	1,389	
Total income from taxation of benefits		1,393
Reimbursement from the General Fund of the Treasury for costs of noncontributory wage credits for military service before 1957		8
Investment income and interest adjustments:		
Interest on investments	10,843	
Interest adjustments [1]	2,367	
Total investment income and interest adjustments		13,210
Total receipts		109,854
Disbursements:		
Benefit payments:		
Monthly benefits	99,086	
Transfer from the OASI Trust Fund to correct a trust fund allocation error made on payments to certain dually entitled disabled beneficiaries	-3,253	
Reimbursement from the general fund for unnegotiated checks	-29	
Payment for costs of vocational rehabilitation services for disabled beneficiaries .	61	
Net benefit payments		95,865
Transfer to the Railroad Retirement "Social Security Equivalent Benefit Account" .		445
Administrative expenses:		
Costs incurred by:		
Social Security Administration	2,350	
Department of the Treasury	103	
Miscellaneous reimbursements from the general fund [2]	15	
Total administrative expenses		2,468
Total disbursements		98,778
Net increase in assets		11,076
Total assets, December 31, 2007		214,884

[1] Includes (1) interest on transfers between the trust fund and the general fund account for the Supplemental Security Income program due to adjustments in the allocation of administrative expenses, (2) interest arising from the revised allocation of administrative expenses among the trust funds, and (3) interest on certain reimbursements to the trust fund.

[2] Reimbursements for costs incurred in performing certain legislatively mandated activities not directly related to administering the DI program.

Note: Totals do not necessarily equal the sums of rounded components.

Of the $98.8 billion in total disbursements, $95.9 billion was for net benefit payments. Excluding the $3.3 billion interfund transfer due to the trust fund allocation error, net benefit payments would have been $99.1 billion. This amount represents an increase of 7.3 percent over the corresponding adjusted amount ($92.4 billion) of benefit payments in calendar year 2006. This increase in DI benefit payments was due to the same factors that resulted in the net increase in benefit payments from the OASI Trust Fund. However, the number of persons receiving benefits from the DI Trust Fund increased more rapidly in 2007 than the number receiving benefits from the OASI Trust Fund largely due to a) the current ages of the baby-boom generation, b)

the recent increase in the normal retirement age (NRA), and c) the special administrative action, undertaken by SSA beginning in 2001, to identify and award benefits from the DI Trust Fund to a substantial number of current and former recipients of SSI benefits whose disability insured status under the DI program was not previously recognized. Total DI disbursements, which started to exceed non-interest income in 2005, continue to exceed such income in 2007. However, as in 2005 and 2006, total DI income (including interest) in 2007 exceeds total disbursements.

The assets of the DI Trust Fund at the end of calendar year 2007 totaled $214.9 billion, consisting of $215.0 billion in U.S. Government obligations and, as an offset, an extension of credit amounting to $0.2 billion against securities to be redeemed within the following few days. The effective annual rate of interest earned by the assets of the DI Trust Fund during calendar year 2007 was 5.3 percent, as compared to 5.4 percent earned during calendar year 2006. Table VI.A6, presented in Appendix A, shows a detailed listing of DI Trust Fund holdings by type of security, interest rate, and year of maturity at the end of each year 2006 and 2007.

3.   OASI and DI Trust Funds, Combined

A statement of the operations of the income and disbursements of the OASI and DI Trust Funds, on a combined basis, is presented in table III.A3. The entries in this table represent the sums of the corresponding values from tables III.A1 and III.A2. For a discussion of the nature of these income and expenditure transactions, reference should be made to the two preceding sub-sections covering OASI and DI separately.

**Table III.A3.—Operations of the Combined OASI and DI Trust Funds,
Calendar Year 2007**
[In millions]

Total assets, December 31, 2006		$2,048,112
Receipts:		
Contributions:		
Employment taxes	$658,340	
Payments from the General Fund of the Treasury for contributions subject to refund	-2,220	
Net contributions		656,121
Income based on taxation of benefit payments:		
Withheld from benefit payments to nonresident aliens	149	
All other, not subject to withholding	18,436	
Total income from taxation of benefits		18,585
Reimbursement from the General Fund of the Treasury for costs of noncontributory wage credits for military service before 1957		8
Reimbursement from the General Fund of the Treasury for costs of payments to uninsured persons who attained age 72 before 1968		1/
Investment income and interest adjustments:		
Interest on investments	110,163	
Interest adjustments [2]	12	
Total investment income and interest adjustments		110,175
Gifts		1
Total receipts		784,889
Disbursements:		
Benefit payments:		
Monthly benefits and lump-sum death payments	584,966	
Reimbursement from the general fund for unnegotiated checks	-90	
Payment for costs of vocational rehabilitation services for disabled beneficiaries	63	
Net benefit payments		584,939
Transfer to the Railroad Retirement "Social Security Equivalent Benefit Account"		4,020
Administrative expenses:		
Costs incurred by:		
Social Security Administration	4,869	
Department of the Treasury	663	
Offsetting receipts from sales of supplies, materials, etc.	1/	
Miscellaneous reimbursements from the general fund [3]	11	
Net administrative expenses		5,542
Total disbursements		594,501
Net increase in assets		190,388
Total assets, December 31, 2007		2,238,500

[1] Between -$0.5 and $0.5 million.

[2] Includes (1) interest on transfers between the trust funds and the general fund account for the Supplemental Security Income program due to adjustments in the allocation of administrative expenses, (2) interest arising from the revised allocation of administrative expenses among the trust funds, and (3) interest on certain reimbursements to the trust funds.

[3] Reimbursements for costs incurred in performing certain legislatively mandated activities not directly related to administering the OASI and DI programs.

Note: Totals do not necessarily equal the sums of rounded components.

To provide a context for estimates of future trust fund income and expenditures provided later in this report, table III.A4 compares past estimates of contributions and benefit payments for calendar year 2007, as shown in the 2003-07 Annual Reports, with the corresponding actual amounts in 2007.[1]

Table III.A4.—Comparison of Actual Calendar Year 2007 Trust Fund Operations With Estimates Made in Prior Reports[1]

[Amounts in billions]

	Net contributions [2]		Net benefit payments	
	Amount	Difference from actual (percent)	Amount	Difference from actual (percent)
OASI Trust Fund:				
Estimate in 2003 report	$573.2	2.2	$474.2	-2.4
Estimate in 2004 report	554.8	-1.1	462.4	-4.8
Estimate in 2005 report	554.8	-1.1	469.9	-3.3
Estimate in 2006 report	557.7	-.6	482.7	-.6
Estimate in 2007 report	559.9	-.2	485.8	[3/]
Actual amount	560.9	—	[4] 485.8	—
DI Trust Fund:				
Estimate in 2003 report	97.3	2.2	94.8	-4.3
Estimate in 2004 report	94.2	-1.1	92.2	-7.0
Estimate in 2005 report	94.2	-1.1	94.8	-4.4
Estimate in 2006 report	94.7	-.6	99.0	-.1
Estimate in 2007 report	95.1	-.2	99.3	.2
Actual amount	95.2	—	[4] 99.1	—
OASI and DI Trust Funds, combined:				
Estimate in 2003 report	670.6	2.2	569.1	-2.7
Estimate in 2004 report	649.1	-1.1	554.6	-5.2
Estimate in 2005 report	649.0	-1.1	564.7	-3.5
Estimate in 2006 report	652.4	-.6	581.7	-.6
Estimate in 2007 report	655.0	-.2	585.0	[3/]
Actual amount	656.1	—	584.9	—

[1] The estimates shown are based on the intermediate assumptions.

[2] "Actual" contributions for 2007 reflect adjustments for prior calendar years (see Appendix A on page 133 for description of these adjustments). "Estimated" contributions also include such adjustments, but on an estimated basis.

[3] Less than 0.05 percent.

[4] Excludes interfund transfer to correct a trust fund allocation error made on payments to certain disabled beneficiaries. The transfer amounted to $3.3 billion from OASI to DI.

A number of factors can contribute to differences between estimates and subsequent actual amounts, including actual values for key demographic, economic, and other variables that differ from assumed levels. In addition, new legislation or other administrative initiatives that were unanticipated at the time the earlier estimates were completed can contribute to such differences.

At the end of calendar year 2007, about 49.9 million persons were receiving monthly benefits under the OASDI program. Of these persons, about 40.9

---

[1] Estimated amounts used to calculate percentage differences are before rounding to amounts shown in the annual reports.

million and 8.9 million were receiving monthly benefits from the OASI Trust Fund and the DI Trust Fund, respectively. The number of persons receiving benefits from the OASI and DI Trust Funds grew by 1.1 percent and 3.5 percent, respectively, during the calendar year. The estimated distributions of benefit payments in calendar years 2006 and 2007, by type of beneficiary, are shown in table III.A5 for each trust fund separately.

Table III.A5.—Distribution of Benefit Payments by Type of Beneficiary or Payment, Calendar Years 2006 and 2007

[Amounts in millions]

	Calendar year 2006[1]		Calendar year 2007[2]	
	Amount	Percentage of total	Amount	Percentage of total
Total OASDI benefit payments	$552,841	100.0	$584,966	100.0
OASI benefit payments	460,457	83.3	485,881	83.1
DI benefit payments	92,384	16.7	99,086	16.9
OASI benefit payments, total.	460,457	100.0	485,881	100.0
Monthly benefits:				
Retired workers and auxiliaries	366,952	79.7	389,124	80.1
Retired workers	342,865	74.5	364,278	75.0
Spouses.	21,005	4.6	21,571	4.4
Children	3,082	.7	3,274	.7
Survivors of deceased workers.	93,300	20.3	96,554	19.9
Aged widows and widowers.	74,142	16.1	76,619	15.8
Disabled widows and widowers	1,758	.4	1,853	.4
Parents	24	[3]/	24	[3]/
Children	15,814	3.4	16,486	3.4
Widowed mothers and fathers caring for child beneficiaries	1,562	.3	1,573	.3
Uninsured persons generally aged 72 before 1968	[4]/	[3]/	[4]/	[3]/
Lump-sum death payments	204	[3]/	203	[3]/
DI benefit payments, total	92,384	100.0	99,086	100.0
Disabled workers	84,952	92.0	91,314	92.2
Spouses.	509	.6	520	.5
Children	6,923	7.5	7,251	7.3

[1] Excludes reimbursements for excess amounts of voluntary income tax withholding in 1999-2005. Reimbursements are $5.9 billion and $0.7 billion for OASI and DI, respectively.
[2] Excludes interfund transfer to correct a trust fund allocation error made on payments to certain disabled beneficiaries. The transfer amounted to $3.3 billion from OASI to DI.
[3] Less than 0.05 percent.
[4] Less than $500,000.

Note: Totals do not necessarily equal the sums of rounded components.

Net administrative expenses charged to the OASI and DI Trust Funds in calendar year 2007 totaled $5.5 billion. This amount represented 0.8 percent of contribution income and 0.9 percent of expenditures. Corresponding percentages for each trust fund separately and for the OASDI program as a whole are shown in table III.A6 for each of the last 5 years.

Table III.A6.—Administrative Expenses as a Percentage of Contribution Income and of Total Expenditures, Calendar Years 2003-07

Calendar year	OASI Trust Fund		DI Trust Fund		OASI and DI Trust Funds, combined	
	Contribution income	Total expenditures	Contribution income	Total expenditures	Contribution income	Total expenditures
2003	0.6	0.6	2.6	2.7	0.9	1.0
2004	.5	.6	2.7	2.7	.8	.9
2005	.6	.7	2.7	2.6	.9	1.0
2006	.6	.7	2.6	2.5	.9	1.0
2007	.5	.6	2.6	2.5	.8	.9

Changes in the invested assets of the OASI and DI funds between the end of 2006 and the end of 2007 are a result of the acquisition and disposition of securities during calendar year 2007. Table III.A7 presents these investment transactions for each trust fund separately and combined.

Table III.A7.—Trust Fund Investment Transactions, Calendar Year 2007
[In millions]

	OASI Trust Fund	DI Trust Fund	OASI and DI Trust Funds, combined
Invested assets, December 31, 2006	$1,845,339	$203,922	$2,049,260
Acquisitions:			
Special issues:			
Certificates of indebtedness	634,596	108,709	743,304
Bonds [1]	304,967	20,725	325,692
Total acquisitions	939,563	129,434	1,068,996
Dispositions:			
Special issues:			
Certificates of indebtedness	650,706	106,238	756,943
Bonds	109,804	12,072	121,876
Total dispositions	760,510	118,309	878,819
Net increase in invested assets	179,053	11,124	190,177
Invested assets, December 31, 2007	2,024,392	215,046	2,239,438

[1] Amounts shown were purchased on June 30, 2007. The interest rate on such purchases was 5 percent.

Note: All investments are shown at par value.

B. *SOCIAL SECURITY AMENDMENTS SINCE THE 2007 REPORT*

Since the 2007 Annual Report was transmitted to Congress on April 23, 2007, there has been no legislation enacted that would have a significant effect on the financial status of the OASDI program.

IV. ACTUARIAL ESTIMATES

This chapter presents actuarial estimates of the future financial condition of the Social Security program. These estimates include projected income and cost of the OASI and DI Trust Funds, in dollars over the next 10 years and as a percentage of taxable payroll or in present-value dollars over the full 75-year period, along with a discussion of a variety of measures of the adequacy of current program financing. In this report we carefully distinguish between (1) the cost (or obligations) of the program, which includes, for the future, all benefits scheduled under current law, and (2) expenditures (disbursements or outgo), which include actual payments for the past and only the portion of the cost of the program that is projected to be payable with the financing provisions in current law.

As described in the Overview section of this report, these estimates depend upon a broad set of demographic, economic, and programmatic factors. Since assumptions related to these factors are subject to uncertainty, the estimates presented in this section are prepared under three sets of assumptions, to show a range of possible outcomes. The intermediate set of assumptions, designated as alternative II, reflects the Trustees' best estimate of future experience; the low cost alternative I is more optimistic and the high cost alternative III more pessimistic for the trust funds' future financial outlook. The intermediate estimates are shown first in the tables in this report, followed by the low cost and high cost estimates. These sets of assumptions, along with actuarial methods used to produce the estimates, are described in chapter V. In this chapter, the estimates and measures of trust fund financial adequacy for the short range (2008-17) are presented first, followed by estimates and measures of actuarial status for the long range (2008-82) and for the infinite future. As an additional illustration of uncertainty, estimated probability distributions of certain measures are presented in Appendix E.

A. SHORT-RANGE ESTIMATES

Financial adequacy, or solvency, of the trust funds reflects the ability to pay scheduled benefits in full on a timely basis and is generally assessed using the "trust fund ratio," which is defined as the assets at the beginning of a year expressed as a percentage of the projected cost for the year. Thus, the trust fund ratio represents the proportion of a year's cost which can be paid with the funds available at the beginning of the year. A trust fund ratio of 100 percent of annual program cost is generally assumed to provide a reasonable "contingency reserve." During periods when trust fund income exceeds disbursements, the excess is held in the trust funds. To the extent that trust fund assets exceed 100 percent of annual cost, the excess is dedicated to advance fund a portion of the Social Security program's future financial obligations. During periods when trust fund disbursements exceed income, as might happen during an economic recession, trust fund assets are used to meet the shortfall. In the event of recurring shortfalls for an extended period, the trust

funds can allow time for the development, enactment, and implementation of legislation to restore financial stability to the program.

The short-range test of financial adequacy is applicable to the OASI and DI Trust Funds individually and on a combined basis. The requirements of this test are as follows: If the estimated trust fund ratio is at least 100 percent at the beginning of the projection period, then it must be projected to remain at or above 100 percent throughout the 10-year projection period. Alternatively, if the ratio is initially less than 100 percent, then it must be projected to reach a level of at least 100 percent within 5 years and to remain at or above 100 percent throughout the remainder of the 10-year period. In addition, the fund's estimated assets at the beginning of each month of the 10-year period must be sufficient to cover that month's disbursements. This test is applied on the basis of the intermediate estimates. Failure to meet this test by either trust fund is an indication that solvency of the program over the next 10 years is in question and that legislative action is needed to improve the short-range financial adequacy of the program.

1.   Operations of the OASI Trust Fund

This subsection presents estimates of the operations and financial status of the OASI Trust Fund for the period 2008-17, based on the assumptions described in chapter V. No changes are assumed to occur in the present statutory provisions and regulations under which the OASDI program operates.[1]

These estimates are shown in table IV.A1 and indicate that the assets of the OASI Trust Fund would continue to increase rapidly throughout the next 10 years under all three sets of assumptions. Also, based on the intermediate assumptions, the assets of the OASI Trust Fund would continue to exceed 100 percent of annual expenditures by a large amount through the end of 2017. Consequently, the OASI Trust Fund satisfies the test of short-range financial adequacy by a wide margin. The estimates in table IV.A1 also indicate that the short-range test would be satisfied even under the high cost assumptions (see figure IV.A1 for graphical illustration of these results).

The increases in estimated income shown in table IV.A1 under each set of assumptions reflect increases in estimated OASDI taxable earnings and growth in interest earnings on the invested assets of the trust fund. For each alternative, employment and earnings are assumed to increase in every year through 2017, except for two periods of economic recession in alternative III. The number of persons with taxable earnings would increase on the basis of alternatives I, II, and III from 163 million during calendar year 2007 to

---

[1] The estimates shown in this subsection reflect 12 months of benefit payments in each year of the short-range projection period. In practice, the actual payment dates have at times been shifted over calendar year boundaries as a result of the statutory requirement that benefit checks be delivered early when the normal check delivery date is a Saturday, Sunday, or legal public holiday. The annual benefit figures are shown as if those benefit checks were delivered on the usual date.

about 178 million, 175 million, and 172 million, respectively, in 2017. The total annual amount of taxable earnings is projected to increase from $5,300 billion in 2007 to $8,329 billion, $8,422 billion, and $8,758 billion, in 2017, on the basis of alternatives I, II, and III, respectively.[1] These increases in taxable earnings are due primarily to (1) projected increases in employment levels as the working age population increases, (2) increases in average earnings in covered employment (reflecting both real growth and price inflation), and (3) increases in the contribution and benefit base in 2008-17 under the automatic-adjustment provisions.

Growth in interest earnings represents a significant component of the overall increase in trust fund income during this period. Although interest rates payable on trust fund investments are not assumed to change substantially from current levels, the continuing rapid increase in OASI assets will result in a corresponding increase in interest income. By 2017, interest income to the OASI Trust Fund is projected to be about 20 percent of total trust fund income on the basis of the intermediate assumptions, as compared to 14 percent in 2007.

Figure IV.A1.—Short-Range OASI and DI Trust Fund Ratios
[Assets as a percentage of annual cost]

---
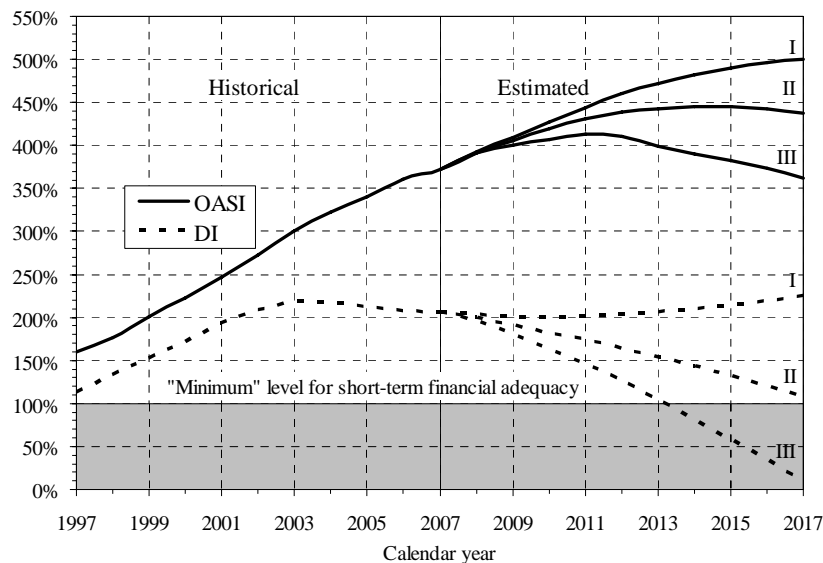
[1] Note that the pattern, by alternative, of these nominal amounts of total taxable earnings is not what might be expected, but the reverse, because of the varying inflation assumptions embedded in the respective estimates.

Table IV.A1.—Operations of the OASI Trust Fund, Calendar Years 2003-17[1]
[Amounts in billions]

	Income				Cost				Assets		
Calendar year	Total[2]	Net contri-butions	Taxa-tion of benefits	Net interest	Total	Benefit pay-ments	Admin-istra-tive costs	RRB inter-change	Net increase during year	Amount at end of year	Trust fund ratio[3]
Historical data:											
2003 ..	$543.8	$456.1	$12.5	$75.2	$406.0	$399.8	$2.6	$3.6	$137.8	$1,355.3	300
2004 ..	566.3	472.8	14.6	79.0	421.0	415.0	2.4	3.6	145.3	1,500.6	322
2005 ..	604.3	506.9	13.8	84.0	441.9	435.4	3.0	3.6	162.4	1,663.0	340
2006 ..	642.2	534.8	15.6	91.8	461.0	454.5	3.0	3.5	181.3	1,844.3	361
2007 ..	675.0	560.9	17.2	97.0	495.7	489.1	3.1	3.6	179.3	2,023.6	372
Intermediate:											
2008 ..	708.0	583.1	18.9	106.1	515.6	508.8	3.3	3.6	192.4	2,216.0	392
2009 ..	754.9	618.3	22.0	114.7	545.2	538.3	3.3	3.6	209.7	2,425.7	406
2010 ..	801.2	650.7	23.9	126.5	577.9	570.9	3.3	3.6	223.3	2,648.9	420
2011 ..	848.1	682.1	26.0	139.9	615.0	608.0	3.3	3.7	233.1	2,882.0	431
2012 ..	896.8	713.8	28.9	154.0	656.7	649.5	3.3	3.9	240.1	3,122.1	439
2013 ..	946.9	746.1	32.3	168.5	704.0	696.6	3.4	4.0	242.9	3,365.0	443
2014 ..	997.6	779.6	34.8	183.2	755.4	747.8	3.4	4.2	242.1	3,607.1	445
2015 ..	1,049.6	814.1	37.9	197.6	810.2	802.3	3.5	4.4	239.4	3,846.5	445
2016 ..	1,103.5	850.1	41.3	212.2	868.7	860.7	3.6	4.5	234.7	4,081.3	443
2017 ..	1,159.4	887.3	44.8	227.3	931.4	923.0	3.6	4.9	227.9	4,309.2	438
Low Cost:											
2008 ..	713.0	587.5	18.9	106.7	515.4	508.5	3.3	3.6	197.6	2,221.2	393
2009 ..	763.9	626.7	21.9	115.4	543.1	536.2	3.3	3.5	220.8	2,442.0	409
2010 ..	807.0	657.8	23.7	125.5	571.9	565.0	3.3	3.6	235.0	2,677.1	427
2011 ..	852.2	689.1	25.5	137.5	602.4	595.5	3.3	3.6	249.8	2,926.9	444
2012 ..	899.0	720.1	28.0	150.9	636.6	629.5	3.3	3.8	262.4	3,189.3	460
2013 ..	946.3	750.2	31.0	165.2	675.4	668.3	3.3	3.9	270.8	3,460.1	472
2014 ..	994.2	781.0	33.1	180.2	717.6	710.3	3.3	4.0	276.6	3,736.7	482
2015 ..	1,042.8	812.0	35.7	195.2	762.3	754.8	3.4	4.1	280.5	4,017.3	490
2016 ..	1,093.2	844.0	38.5	210.7	809.8	802.3	3.4	4.1	283.3	4,300.6	496
2017 ..	1,146.4	877.8	41.4	227.2	860.5	852.6	3.5	4.4	285.9	4,586.5	500
High Cost:											
2008 ..	693.0	569.7	18.9	104.4	515.9	509.0	3.3	3.6	177.1	2,200.7	392
2009 ..	732.2	597.8	22.1	112.3	550.0	543.0	3.3	3.6	182.3	2,383.0	400
2010 ..	784.5	635.8	24.2	124.5	584.9	577.9	3.3	3.7	199.6	2,582.6	407
2011 ..	827.3	663.1	26.5	137.8	624.6	617.5	3.3	3.7	202.7	2,785.3	413
2012 ..	888.9	702.3	29.9	156.7	679.0	671.6	3.4	4.0	209.9	2,995.2	410
2013 ..	971.6	753.1	34.4	184.2	749.9	742.1	3.6	4.2	221.8	3,217.0	399
2014 ..	1,040.3	798.6	38.0	203.7	825.0	816.8	3.7	4.6	215.2	3,432.2	390
2015 ..	1,099.0	840.2	42.1	216.7	899.4	890.7	3.7	5.0	199.6	3,631.9	382
2016 ..	1,155.8	881.3	46.3	228.3	973.7	964.7	3.8	5.2	182.1	3,814.0	373
2017 ..	1,212.6	922.5	50.7	239.5	1,052.5	1,042.9	3.9	5.7	160.1	3,974.1	362

[1] A detailed description of the components of income and cost, along with complete historical values, is presented in Appendix A.

[2] "Total Income" column includes transfers made between the OASI Trust Fund and the General Fund of the Treasury that are not included in the separate components of income shown. These transfers consist of payments for (1) the cost of noncontributory wage credits for military service before 1957, and (2) the cost of benefits to certain uninsured persons who attained age 72 before 1968. In December 2005, $350 million was transferred from the OASI Trust Fund to the General Fund of the Treasury for the cost of pre-1957 military service wage credits. After 2007 such transfers are estimated to be less than $500,000 in each year.

[3] The "Trust fund ratio" column represents assets at the beginning of a year (which are identical to assets at the end of the prior year shown in the "Amount at end of year" column) as a percentage of cost for the year.

Note: Totals do not necessarily equal the sums of rounded components.

Rising expenditures during 2008-17 reflect automatic benefit increases as well as the upward trend in the number of beneficiaries and in the average monthly earnings underlying benefits payable by the program. The growth in the number of beneficiaries in the past and the expected growth in the future result both from the increase in the aged population and from the increase in the proportion of the population which is eligible for benefits.

The estimates under all three sets of assumptions shown in table IV.A1 indicate that income to the OASI Trust Fund would substantially exceed expenditures in every year of the short-range projection period, and assets are therefore estimated to increase substantially.

The portion of the OASI Trust Fund that is not needed to meet day-to-day expenditures is used to purchase financial securities, generally special public-debt obligations of the U.S. Government. The cash used to make these purchases flows to the General Fund of the Treasury and is used to meet various Federal outlays or to reduce the amount of publicly-held Federal debt. Interest on these securities is credited to the trust fund and, when the securities mature, they are reinvested in new securities if not immediately needed to pay program costs. When securities are redeemed prior to maturity in order to pay program costs, general fund revenues flow to the trust fund. Thus, the investment operations of the trust fund result in various credits and cash flows between the trust fund and the General Fund of the Treasury.

2. Operations of the DI Trust Fund

The estimated operations and financial status of the DI Trust Fund during calendar years 2008-17 under the three sets of assumptions are shown in table IV.A2, together with values for actual experience in 2003-07. Income is generally projected to increase steadily under each alternative, reflecting most of the same factors described previously in connection with the OASI Trust Fund. The estimates indicate that the assets of the DI Trust Fund would also continue to increase throughout the next 10 years under the low cost assumptions, but would peak in 2011 and then begin to decline under the intermediate assumptions. Under the high cost assumptions, DI assets would decline steadily beginning in 2008 until exhaustion in 2017.

Cost is estimated to increase in part due to increases in average benefit levels resulting from (1) automatic benefit increases and (2) projected increases in the amounts of average monthly earnings on which benefits are based. In addition, under all three sets of assumptions, the number of DI beneficiaries in current-payment status is projected to continue increasing throughout the short-range projection period. Over the period 2007-17, the projected annual average growth rate in the number of DI worker beneficiaries is roughly 1.2, 2.5, and 3.6 percent under alternatives I, II, and III, respectively. Growth is largely attributable to the gradual progression of the baby-boom generation

through ages 50 to normal retirement age, at which higher rates of disability incidence are experienced.

Annual increases in incidence rates over the period 2001-03 represented a notable departure from the experience of the preceding decade, which generally showed modest annual declines in the age-sex-adjusted disability incidence rate.[1] During 2004 and 2005 however, this growth in the incidence rate subsided, and the incidence rate even declined in 2006 and 2007. Nevertheless, incidence rates are still at a level somewhat higher than experienced during the late 1990s. The increases in 2001-03 were likely due in large part to the slowdown in economic growth experienced during that period. However, a special administrative activity undertaken by SSA beginning in 2001 has also contributed slightly to the upsurge in disabled worker awards. This special workload was the result of discovering a substantial number of current or former recipients of Supplemental Security Income (SSI) benefits whose disability insured status under the DI program was not previously recognized. As this special disability workload continues to be processed over the next several years, the resulting disability awards will contribute to temporarily higher incidence rates than would have been expected as part of longer term underlying trends.

Estimates of the total size of this special workload, and the schedule for processing these cases, remain roughly the same as assumed for the 2007 report. After the last of these special workload cases is processed in about 2010, the incidence of disability is projected in this report to drop back somewhat from then current levels, and to remain roughly level on an age-sex-adjusted basis over the remainder of the short-range period under the intermediate assumptions. Incidence rates gradually rise under alternative III, and decline under alternative I, after 2010 to the end of the short-range period.

---

[1] Historical and projected patterns of disability incidence rates are described in greater detail in section V.C.6.

Table IV.A2.—Operations of the DI Trust Fund, Calendar Years 2003-17[1]
[Amounts in billions]

Calendar year	Income				Cost				Assets		
	Total[2]	Net contri- butions	Taxa- tion of benefits	Net interest	Total	Benefit pay- ments	Admin- istra- tive costs	RRB inter- change	Net increase during year	Amount at end of year	Trust fund ratio[3]
Historical data:											
2003 ..	$88.1	$77.4	$0.9	$9.7	$73.1	$70.9	$2.0	$0.2	$15.0	$175.4	219
2004 ..	91.4	80.3	1.1	10.0	80.6	78.2	2.2	.2	10.8	186.2	218
2005 ..	97.4	86.1	1.1	10.3	88.0	85.4	2.3	.3	9.4	195.6	212
2006 ..	102.6	90.8	1.2	10.6	94.5	91.7	2.3	.4	8.2	203.8	207
2007 ..	109.9	95.2	1.4	13.2	98.8	95.9	2.5	.4	11.1	214.9	206
Intermediate:											
2008 ..	111.6	99.0	1.6	11.0	107.9	104.9	2.5	.4	3.8	218.7	199
2009 ..	117.9	105.0	1.9	11.0	114.8	111.7	2.7	.5	3.1	221.8	190
2010 ..	123.8	110.5	2.2	11.1	121.8	118.5	2.8	.5	2.0	223.9	182
2011 ..	129.4	115.8	2.4	11.2	128.7	125.2	3.0	.6	.8	224.6	174
2012 ..	135.2	121.2	2.7	11.2	136.7	133.0	3.1	.5	-1.5	223.1	164
2013 ..	140.9	126.7	3.1	11.1	144.7	140.8	3.3	.6	-3.8	219.3	154
2014 ..	146.6	132.4	3.3	10.9	152.8	148.8	3.5	.6	-6.2	213.0	143
2015 ..	152.4	138.2	3.6	10.5	161.4	157.1	3.7	.6	-9.0	204.0	132
2016 ..	158.3	144.3	3.9	10.0	170.2	165.8	3.9	.5	-11.9	192.1	120
2017 ..	164.5	150.7	4.3	9.5	179.4	174.8	4.1	.5	-14.9	177.2	107
Low Cost:											
2008 ..	112.5	99.7	1.6	11.1	106.1	103.1	2.5	.4	6.4	221.3	203
2009 ..	119.6	106.4	1.9	11.3	111.0	107.9	2.7	.4	8.6	229.9	199
2010 ..	125.4	111.7	2.1	11.7	115.5	112.2	2.8	.5	9.9	239.8	199
2011 ..	131.4	117.0	2.2	12.2	119.4	115.9	2.9	.6	12.0	251.8	201
2012 ..	137.5	122.3	2.5	12.8	124.2	120.6	3.1	.5	13.3	265.1	203
2013 ..	143.6	127.4	2.8	13.5	128.8	125.0	3.3	.5	14.8	279.9	206
2014 ..	149.9	132.6	2.9	14.3	133.4	129.5	3.4	.5	16.4	296.4	210
2015 ..	156.2	137.9	3.1	15.2	138.3	134.2	3.6	.5	17.9	314.2	214
2016 ..	162.9	143.3	3.3	16.2	143.4	139.1	3.8	.5	19.5	333.7	219
2017 ..	170.1	149.1	3.6	17.5	148.6	144.2	3.9	.5	21.5	355.2	225
High Cost:											
2008 ..	109.2	96.7	1.6	10.9	109.7	106.8	2.5	.4	-.5	214.4	196
2009 ..	114.0	101.5	2.0	10.5	119.2	116.1	2.7	.5	-5.2	209.2	180
2010 ..	120.4	108.0	2.3	10.1	128.4	125.1	2.8	.5	-8.0	201.2	163
2011 ..	124.8	112.6	2.6	9.6	137.4	133.9	3.0	.6	-12.7	188.5	146
2012 ..	131.1	119.3	3.0	8.8	149.8	146.0	3.2	.6	-18.7	169.8	126
2013 ..	139.1	127.9	3.5	7.7	164.4	160.3	3.5	.6	-25.3	144.4	103
2014 ..	145.6	135.6	3.9	6.1	178.9	174.6	3.7	.6	-33.3	111.1	81
2015 ..	151.5	142.7	4.4	4.4	193.0	188.4	3.9	.6	-41.5	69.6	58
2016 ..	156.8	149.6	4.8	2.4	206.7	201.8	4.2	.6	-49.8	19.7	34
2017 ..	4/	156.6	5.3	4/	220.8	215.8	4.4	.6	4/	4/	9

[1] A detailed description of the components of income and cost, along with complete historical values, is pre- sented in Appendix A.

[2] "Total Income" column includes transfers made between the DI Trust Fund and the General Fund of the Treasury that are not included in the separate components of income shown. These transfers consist of pay- ments for the cost of noncontributory wage credits for military service before 1957. In particular, a transfer was made in December 2007 in the amount of $7.7 million from the General Fund of the Treasury to the DI Trust Fund. After 2007 such transfers are estimated to be less than $500,000 in each year.

[3] The "Trust fund ratio" column represents assets at the beginning of a year (which are identical to assets at the end of the prior year shown in the "Amount at end of year" column) as a percentage of cost for the year.

[4] Under the high cost assumptions, the DI Trust Fund is projected to be exhausted in 2017. Therefore, certain trust fund operation values for that year are not meaningful under present law and are not shown in this table.

Note: Totals do not necessarily equal the sums of rounded components.

The proportion of DI beneficiaries whose benefits terminate in a given year has also fluctuated in the past. Over the last 20 years, the rates of benefit termination due to death or conversion to retirement benefits (at attainment of normal retirement age) have declined very gradually. This trend is attributable, in part, to the lower average age of new beneficiaries. Declines in mortality for the general population have also led to improved mortality experience among the DI disabled-worker beneficiaries. In addition, conversions to old-age benefits are at a temporarily reduced level for years 2003 through 2008 due to the gradual increase in the normal retirement age. The termination rate due to recovery has been much more volatile. Currently, the proportion of disabled beneficiaries whose benefits cease because of their recovery from disability is very low in comparison to levels experienced throughout the 1970s and early 1980s. Projected rates of recovery terminations in this year's report are low initially due to resource constraints which temporarily limit the number of continuing disability reviews conducted by SSA. Following this temporary resource constraint, recovery termination rates are projected to return to levels consistent with last year's report. The overall proportion of disabled workers leaving the DI rolls (reflecting all causes) is projected in 2008 to remain near levels experienced since 2003, before returning to higher levels in 2009 when the gradual increase in the normal retirement age temporarily ceases.

At the beginning of calendar year 2007, the assets of the DI Trust Fund represented 206 percent of annual expenditures. During 2007, DI expenditures continued to exceed non-interest income. While total DI income exceeded DI expenditures by $11.1 billion, the trust fund ratio for the beginning of 2008 still decreased, to about 199 percent. Under the intermediate set of assumptions, total income is estimated to exceed expenditures through 2011. The projected expenditures in excess of income beginning in 2012 result in a decline in the projected trust fund ratio to 107 percent by the beginning of 2017.

Under the low cost assumptions, the trust fund ratio would increase to 225 percent at the beginning of 2017. Under the high cost assumptions, the assets of the DI Trust Fund would decline steadily, dipping below the level of 1 year's expenditures near the beginning of 2013, and becoming completely depleted in 2017.

Assets of the DI Trust Fund were greater than 1 year's expenditures at the beginning of 2008 and would remain above that level through the beginning of 2017. By the beginning of 2018, however, the trust fund ratio is projected to decline to 95 percent, indicating that assets would fall below the 100-percent level sometime during 2017. Accordingly, the DI Trust Fund does not satisfy the Trustees' short-range test of financial adequacy under both the intermediate and high cost assumptions. However, under the low cost assumptions the DI Trust Fund does meet the short-range test of financial

adequacy, because assets remain above 1 year's expenditures through the end of the short-range period, as described above (see also figure IV.A1).

3. Operations of the Combined OASI and DI Trust Funds

The estimated operations and status of the OASI and DI Trust Funds, combined, during calendar years 2008-17 on the basis of the three alternatives, are shown in table IV.A3, together with figures on actual experience in 2003-07. Because income and cost for the OASI Trust Fund represent over 80 percent of the corresponding amounts for the combined OASI and DI Trust Funds, the operations of the OASI Trust Fund tend to dominate the combined operations of the two funds. Consequently, based on the strength of the OASI Trust Fund over the next 10 years, the combined OASI and DI Trust Funds meet the requirements of the short-range test of financial adequacy under all three alternative sets of assumptions.

While combining the operations of the OASI and DI Trust Funds permits an assessment of the short-range test for the two programs on a combined basis, in practice assets from one trust fund cannot be shared with another trust fund without legislative changes to the Social Security Act. For example, under the high cost scenario, table IV.A2 shows that the DI Trust Fund becomes exhausted in 2017. The value of the combined OASI and DI Trust Funds in that year shown in table IV.A3 shows that OASI assets could be made available to pay DI benefits through 2017, but only with legislation to permit this action.

**Table IV.A3.—Operations of the Combined OASI and DI Trust Funds,
Calendar Years 2003-17[1]**

[Amounts in billions]

Calendar year	Income				Cost				Assets		
	Total[2]	Net contri- butions	Taxa- tion of benefits	Net interest	Total	Benefit pay- ments	Admin- istra- tive costs	RRB inter- change	Net increase during year	Amount at end of year	Trust fund ratio[3]
Historical data:											
2003 ..	$631.9	$533.5	$13.4	$84.9	$479.1	$470.8	$4.6	$3.7	$152.8	$1,530.8	288
2004 ..	657.7	553.0	15.7	89.0	501.6	493.3	4.5	3.8	156.1	1,686.8	305
2005 ..	701.8	592.9	14.9	94.3	529.9	520.7	5.3	3.9	171.8	1,858.7	318
2006 ..	744.9	625.6	16.9	102.4	555.4	546.2	5.3	3.8	189.5	2,048.1	335
2007 ..	784.9	656.1	18.6	110.2	594.5	584.9	5.5	4.0	190.4	2,238.5	345
Intermediate:											
2008 ..	819.7	682.1	20.5	117.1	623.5	613.7	5.8	4.0	196.2	2,434.7	359
2009 ..	872.8	723.3	23.9	125.7	660.0	650.0	6.0	4.0	212.8	2,647.5	369
2010 ..	925.0	761.2	26.1	137.6	699.6	689.4	6.1	4.1	225.3	2,872.8	378
2011 ..	977.5	798.0	28.4	151.1	743.7	733.2	6.3	4.2	233.8	3,106.6	386
2012 ..	1,031.9	835.0	31.6	165.3	793.4	782.5	6.5	4.4	238.6	3,345.2	392
2013 ..	1,087.8	872.8	35.4	179.7	848.8	837.5	6.7	4.6	239.1	3,584.2	394
2014 ..	1,144.2	912.0	38.2	194.0	908.3	896.6	6.9	4.8	235.9	3,820.2	395
2015 ..	1,201.9	952.3	41.5	208.1	971.6	959.4	7.2	5.0	230.4	4,050.5	393
2016 ..	1,261.8	994.4	45.2	222.2	1,039.0	1,026.5	7.5	5.0	222.8	4,273.4	390
2017 ..	1,323.9	1,037.9	49.1	236.8	1,110.8	1,097.7	7.7	5.4	213.0	4,486.4	385

**Table IV.A3.—Operations of the Combined OASI and DI Trust Funds,
Calendar Years 2003-17[1] (Cont.)**

[Amounts in billions]

Calendar year	Income				Cost				Assets		
	Total[2]	Net contri-butions	Taxa-tion of benefits	Net interest	Total	Benefit pay-ments	Admin-istra-tive costs	RRB inter-change	Net increase during year	Amount at end of year	Trust fund ratio[3]
Low Cost:											
2008 ..	$825.5	$687.2	$20.4	$117.8	$621.5	$611.7	$5.8	$4.0	$204.0	$2,442.5	360
2009 ..	883.5	733.1	23.7	126.7	654.1	644.2	6.0	4.0	229.4	2,671.9	373
2010 ..	932.4	769.5	25.8	137.1	687.4	677.2	6.1	4.1	245.0	2,916.9	389
2011 ..	983.5	806.1	27.7	149.7	721.8	711.4	6.2	4.2	261.8	3,178.6	404
2012 ..	1,036.5	842.4	30.5	163.6	760.8	750.1	6.4	4.3	275.7	3,454.4	418
2013 ..	1,089.9	877.6	33.7	178.6	804.3	793.3	6.6	4.4	285.7	3,740.0	430
2014 ..	1,144.1	913.6	36.0	194.5	851.0	839.8	6.8	4.5	293.1	4,033.1	439
2015 ..	1,199.0	949.8	38.8	210.4	900.6	889.0	7.0	4.6	298.4	4,331.5	448
2016 ..	1,256.0	987.3	41.8	226.9	953.2	941.4	7.2	4.6	302.8	4,634.3	454
2017 ..	1,316.5	1,026.8	45.0	244.7	1,009.1	996.8	7.4	4.9	307.4	4,941.7	459
High Cost:											
2008 ..	802.2	666.4	20.5	115.3	625.6	615.8	5.8	4.0	176.6	2,415.1	358
2009 ..	846.2	699.3	24.1	122.8	669.1	659.1	6.0	4.0	177.1	2,592.2	361
2010 ..	904.9	743.7	26.5	134.6	713.3	703.0	6.1	4.2	191.6	2,783.8	363
2011 ..	952.0	775.7	29.0	147.4	762.0	751.4	6.3	4.3	190.0	2,973.8	365
2012 ..	1,020.0	821.6	32.9	165.5	828.8	817.6	6.6	4.6	191.2	3,165.0	359
2013 ..	1,110.7	881.0	37.9	191.8	914.2	902.4	7.1	4.8	196.4	3,361.4	346
2014 ..	1,185.9	934.2	42.0	209.7	1,004.0	991.4	7.4	5.2	181.9	3,543.3	335
2015 ..	1,250.5	982.9	46.4	221.1	1,092.4	1,079.1	7.7	5.6	158.1	3,701.4	324
2016 ..	1,312.6	1,030.9	51.1	230.7	1,180.4	1,166.5	8.0	5.8	132.3	3,833.7	314
2017 ..	1,374.1	1,079.1	56.0	239.0	1,273.3	1,258.7	8.4	6.3	100.8	3,934.5	301

[1] A detailed description of the components of income and cost, along with complete historical values, is presented in Appendix A.

[2] "Total Income" column includes transfers made between the OASI and DI Trust Funds and the General Fund of the Treasury that are not included in the separate components of income shown. These transfers consist of payments for (1) the cost of noncontributory wage credits for military service before 1957, and (2) the cost of benefits to certain uninsured persons who attained age 72 before 1968.

[3] The "Trust fund ratio" column represents assets at the beginning of a year (which are identical to assets at the end of the prior year shown in the "Amount at end of year" column) as a percentage of cost for the year.

Note: Totals do not necessarily equal the sums of rounded components.

4. Factors Underlying Changes in 10-Year Trust Fund Ratio Estimates From the 2007 Report

The factors underlying the changes in the intermediate estimates for the OASI, DI and the combined funds from last year's annual report to this report are analyzed in table IV.A4. In the 2007 Annual Report, the trust fund ratio for OASI was estimated to reach 462 percent at the beginning of 2016—the tenth projection year from that report. If there had been no changes to the projections, the estimated ratio at the beginning of 2017 would be 4 percentage points lower than at the beginning of 2016, or 458 percent. There were changes, however, to reflect the latest actual data, as well as adjustments to the assumptions for future years. The resulting ratio shown in this report for the tenth projection year (2017) is 438 percent. The net effect of changes in demographic assumptions over the short-range period resulted in a reduction in the tenth-year trust fund ratio of 3 percent-

age points. The cumulative net effects of changes in economic data and assumptions resulted in a reduction in the trust fund ratio of 15 percentage points by the beginning of 2017. There were several relatively minor changes in the short-range projection methodology since the 2007 report. The changes included improvements in our methods for estimating the numbers of retired workers and their retirement rates. In addition, the revision in the methods used for projecting the other-immigrant (other than legal permanent resident) population described in section IV.B.7 had an impact on estimated revenue in the short-range period. The combined effect of these methodological improvements was to increase the ending trust fund ratio by about 2 percentage points. Finally, a decrease in the 2017 trust fund ratio of 3 percentage points resulted from the combined effects of incorporating recent programmatic data including the correction of the trust fund allocation error described in section III.A. As discussed in section III.B, no legislative changes have been enacted since the 2007 report that directly affect the financing of the OASDI program.

Corresponding estimates of the factors underlying the changes in the financial projections for the DI Trust Fund, and for the OASI and DI Trust Funds combined, are also shown in table IV.A4. The largest effects on the DI trust fund ratio at the beginning of 2017 were due to the change in the valuation period and revised economic assumptions, which make up essentially all of the net 23 percentage point reduction. Revised demographic assumptions, updates for a variety of programmatic assumptions (including the correction of the trust fund allocation error), and improvements to DI projection methodology contributed minor offsetting changes.

Table IV.A4.—Reasons for Change in Trust Fund Ratios at the Beginning of the Tenth Year of Projection
[In percent]

Item	OASI Trust Fund	DI Trust Fund	OASI and DI Trust Funds, combined
Trust fund ratio shown in last year's report for calendar year 2016	462	130	407
Change in trust fund ratio due to changes in:			
Legislation	1/	1/	1/
Valuation period	-4	-11	-4
Demographic data and assumptions	-3	-1	-3
Economic data and assumptions.	-15	-11	-14
Programmatic data and assumptions	-3	4	-1
Projection methods and data.	2	-5	1
Total change in trust fund ratio	-24	-23	-22
Trust fund ratio shown in this report for calendar year 2017.	438	107	385

[1] Change in trust fund ratio of less than 0.5 percentage point.

Note: Totals do not necessarily equal the sums of rounded components.

B. LONG-RANGE ESTIMATES

Three types of financial measures are useful in assessing the actuarial status of the Social Security trust funds under the financing approach specified in current law: (1) annual cash-flow measures, including income and cost rates, and balances; (2) trust fund ratios; and (3) summary measures like actuarial balances and unfunded obligations. The first long-range estimates presented are the series of projected annual balances (or net cash flow), which are the differences between the projected annual income rates and annual cost rates (expressed as percentages of the taxable payroll). In assessing the financial condition of the program, particular attention should be paid to the level of the annual balances at the end of the long-range period and the time at which the annual balances may change from positive to negative values.

The next measure discussed is the pattern of projected trust fund ratios. The trust fund ratio represents the proportion of a year's projected cost that could be paid with the funds available at the beginning of the year. Particular attention should be paid to the level and year of maximum trust fund ratio, to the year of exhaustion of the funds, and to the stability of the trust fund ratio in cases where the ratio remains positive at the end of the long-range period. When a program has positive trust fund ratios throughout the 75-year projection period and these ratios are stable or rising at the end of the period, the program financing is said to achieve sustainable solvency.

The final measures discussed in this section summarize the total income and cost over valuation periods that extend through 75 years, and to the infinite horizon. These measures indicate whether projected income will be adequate for the period as a whole. The first such measure, actuarial balance, indicates the size of any surplus or shortfall as a percentage of the taxable payroll over the period. The second, open group unfunded obligation, indicates the size of any shortfall in present-value dollars. This section also includes a comparison of covered workers to beneficiaries, a generational decomposition of the infinite future unfunded obligation, the test of long-range close actuarial balance, and the reasons for change in the actuarial balance from the last report.

If the 75-year actuarial balance is zero (or positive), then the trust fund ratio at the end of the period will be at 100 percent (or greater), and financing for the program is considered to be adequate for the 75-year period as a whole. (Financial adequacy, or solvency, for each year is determined by whether the trust fund asset level is positive throughout the year.) Whether or not financial adequacy is stable in the sense that it is likely to continue for subsequent 75-year periods in succeeding reports is also important when considering the actuarial status of the program. One indication of this stability, or sustainable solvency, is the behavior of the trust fund ratio at the end of the projection

period. If trust fund ratios for the last several years of the long-range period are positive and constant or rising, then it is likely that subsequent Trustees Reports will also show projections of financial adequacy (assuming no changes in demographic and economic assumptions, or the law). The actuarial balance and the open group unfunded obligation for the infinite future provide additional measures of the financial status of the program for the very long range.

1. Annual Income Rates, Cost Rates, and Balances

Basic to the consideration of the long-range actuarial status of the trust funds are the concepts of income rate and cost rate, each of which is expressed as a percentage of taxable payroll. Other measures of the cash flow of the program are shown in Appendix F. The annual income rate is the sum of the tax contribution rate and the ratio of income from taxation of benefits to the OASDI taxable payroll for the year. The OASDI taxable payroll consists of the total earnings which are subject to OASDI taxes, with some relatively small adjustments.[1] As such, it excludes net investment income and reimbursements from the General Fund of the Treasury for the costs associated with special monthly payments to certain uninsured persons who attained age 72 before 1968 and who have fewer than 3 quarters of coverage.

The annual cost rate is the ratio of the cost of the program to the taxable payroll for the year. The cost is defined to include scheduled benefit payments, special monthly payments to certain uninsured persons who have 3 or more quarters of coverage (and whose payments are therefore not reimbursable from the General Fund of the Treasury), administrative expenses, net transfers from the trust funds to the Railroad Retirement program under the financial-interchange provisions, and payments for vocational rehabilitation services for disabled beneficiaries. For any year, the income rate minus the cost rate is referred to as the balance for the year. (In this context, the term balance does not represent the assets of the trust funds, which are sometimes referred to as the balance in the trust funds.)

Table IV.B1 presents a comparison of the estimated annual income rates and cost rates by trust fund and alternative. Detailed long-range projections of trust fund operations, in current dollar amounts, are shown in table VI.F8.

The projections for OASI under the intermediate assumptions show the income rate rising due to the gradually increasing effect of the taxation of

---

[1] Adjustments are made to include deemed wage credits based on military service for 1983-2001, and to reflect the lower effective tax rates (as compared to the combined employee-employer rate) which apply to multiple-employer "excess wages," and which did apply, before 1984, to net earnings from self-employment and, before 1988, to income from tips.

benefits. The pattern of the cost rate is much different. From about 2010 to 2030, the cost rate increases rapidly as the baby-boom generation reaches retirement eligibility age. After 2030, the cost rate remains fairly stable for about 40 years and thereafter rises slowly reflecting projected reductions in death rates and continued relatively low birth rates. The cost rate reaches 15.20 percent of taxable payroll for 2082. By comparison, the income rate reaches 11.43 percent of taxable payroll for 2082.

Projected income rates under the low cost and high cost sets of assumptions are very similar to those projected for the intermediate assumptions as they are largely a reflection of the tax rates specified in the law. OASI cost rates for the low cost and high cost assumptions differ significantly from those projected for the intermediate assumptions. For the low cost assumptions, the cost rate decreases through 2009, then rises, until it peaks in 2034 at a level of 13.10 percent of payroll. The cost rate then declines gradually, reaching a level of 11.06 percent of payroll for 2082 (at which point the income rate reaches 11.20 percent). For the high cost assumptions, the cost rate rises throughout the 75-year period. It rises at a relatively fast pace between 2010 and 2030 because of the aging of the baby-boom generation. Subsequently, the projected cost rate continues rising and reaches 21.62 percent of payroll for 2082 (at which point the income rate reaches 11.79 percent).

The pattern of the projected OASI annual balance is important in the analysis of the financial condition of the program. Under the intermediate assumptions, the annual balance is positive for 10 years (through 2017) and is negative thereafter. This annual deficit rises rapidly, reaching 2 percent of taxable payroll by 2025, and continues rising generally thereafter, to a level of 3.76 percent of taxable payroll for 2082.

Under the low cost assumptions, the projected OASI annual balance is positive for 13 years (through 2020) and then becomes negative, with the annual deficit peaking at 1.82 percent of taxable payroll for 2034. Thereafter, the annual deficit declines. By 2072, the OASI annual balance becomes positive, reaching a surplus of 0.15 percent of payroll in 2082. Under the high cost assumptions, however, the OASI balance is projected to be positive for only 7 years (through 2014) and to be negative thereafter, with a deficit of 1.87 percent for 2020, 5.79 percent for 2050, and 9.84 percent of payroll for 2082.

Table IV.B1.—Estimated Annual Income Rates, Cost Rates, and Balances,
Calendar Years 1990-2085

[As a percentage of taxable payroll]

Calendar year	OASI			DI			OASDI		
	Income rate[1]	Cost rate	Balance	Income rate[1]	Cost rate	Balance	Income rate[1]	Cost rate	Balance
Historical data:									
1990.....	11.32	9.66	1.66	1.17	1.09	0.09	12.49	10.74	1.75
1991.....	11.44	10.15	1.29	1.21	1.18	.03	12.65	11.33	1.32
1992.....	11.43	10.27	1.16	1.21	1.27	-.06	12.64	11.54	1.10
1993.....	11.40	10.37	1.03	1.21	1.35	-.14	12.61	11.73	.88
1994.....	10.70	10.22	.48	1.89	1.40	.49	12.59	11.62	.97
1995.....	10.70	10.22	.48	1.88	1.44	.44	12.59	11.67	.92
1996.....	10.73	10.06	.68	1.89	1.48	.41	12.62	11.53	1.09
1997.....	10.93	9.83	1.09	1.71	1.44	.28	12.64	11.27	1.37
1998.....	10.96	9.45	1.51	1.72	1.42	.30	12.68	10.87	1.81
1999.....	10.99	9.09	1.90	1.72	1.42	.30	12.71	10.51	2.20
2000.....	10.89	8.98	1.92	1.80	1.42	.37	12.69	10.40	2.29
2001.....	10.89	9.08	1.81	1.82	1.48	.34	12.71	10.56	2.15
2002.....	10.91	9.29	1.62	1.82	1.60	.22	12.74	10.90	1.84
2003.....	10.89	9.35	1.54	1.82	1.68	.14	12.71	11.03	1.68
2004.....	10.92	9.28	1.64	1.82	1.78	.05	12.75	11.05	1.69
2005.....	10.88	9.31	1.58	1.82	1.85	-.03	12.71	11.16	1.55
2006.....	10.91	9.17	1.74	1.82	1.88	-.05	12.74	11.04	1.69
2007.....	10.93	9.39	1.54	1.83	1.87	-.04	12.75	11.26	1.49
Intermediate:									
2008.....	10.94	9.26	1.68	1.83	1.94	-.11	12.77	11.20	1.57
2009.....	10.97	9.31	1.67	1.83	1.96	-.13	12.81	11.26	1.54
2010.....	10.99	9.39	1.60	1.84	1.98	-.14	12.82	11.37	1.46
2011.....	11.00	9.54	1.47	1.84	2.00	-.16	12.84	11.53	1.31
2012.....	11.03	9.73	1.29	1.84	2.03	-.19	12.87	11.76	1.11
2013.....	11.06	9.98	1.08	1.84	2.05	-.21	12.90	12.03	.87
2014.....	11.07	10.25	.83	1.85	2.07	-.23	12.92	12.32	.60
2015.....	11.09	10.52	.57	1.85	2.10	-.25	12.94	12.62	.32
2016.....	11.11	10.81	.31	1.85	2.12	-.27	12.96	12.92	.04
2017.....	11.13	11.10	.03	1.85	2.14	-.29	12.99	13.24	-.25
2020.....	11.19	12.02	-.82	1.85	2.12	-.27	13.04	14.14	-1.09
2025.....	11.27	13.28	-2.00	1.85	2.16	-.30	13.13	15.43	-2.30
2030.....	11.34	14.28	-2.94	1.85	2.13	-.27	13.19	16.41	-3.21
2035.....	11.37	14.74	-3.36	1.85	2.10	-.25	13.23	16.84	-3.61
2040.....	11.38	14.71	-3.33	1.86	2.11	-.25	13.23	16.81	-3.58
2045.....	11.37	14.46	-3.09	1.86	2.16	-.30	13.23	16.62	-3.39
2050.....	11.37	14.32	-2.95	1.86	2.20	-.34	13.23	16.52	-3.29
2055.....	11.37	14.33	-2.96	1.86	2.23	-.37	13.23	16.57	-3.33
2060.....	11.38	14.46	-3.07	1.86	2.23	-.37	13.24	16.69	-3.44
2065.....	11.39	14.58	-3.19	1.86	2.24	-.38	13.25	16.82	-3.57
2070.....	11.40	14.73	-3.33	1.86	2.26	-.40	13.26	16.99	-3.72
2075.....	11.41	14.91	-3.49	1.86	2.28	-.42	13.28	17.18	-3.91
2080.....	11.43	15.11	-3.68	1.86	2.30	-.43	13.29	17.41	-4.12
2085.....	11.44	15.33	-3.89	1.86	2.30	-.44	13.30	17.63	-4.33
First year balance becomes negative and remains negative through 2085			2018			2005			2017
Low Cost:									
2008.....	10.94	9.19	1.75	1.83	1.89	-.06	12.76	11.08	1.69
2009.....	10.97	9.17	1.80	1.83	1.88	-.04	12.80	11.05	1.75
2010.....	10.98	9.19	1.79	1.83	1.86	-.02	12.81	11.05	1.77
2011.....	10.99	9.25	1.75	1.83	1.83	[2]/	12.83	11.08	1.75
2012.....	11.01	9.35	1.66	1.84	1.83	.01	12.85	11.18	1.67
2013.....	11.04	9.52	1.51	1.84	1.82	.02	12.88	11.34	1.54
2014.....	11.05	9.72	1.33	1.84	1.81	.03	12.89	11.52	1.36
2015.....	11.06	9.93	1.14	1.84	1.80	.04	12.90	11.73	1.18
2016.....	11.08	10.15	.93	1.84	1.80	.04	12.92	11.94	.98
2017.....	11.10	10.37	.73	1.84	1.79	.05	12.94	12.16	.78

**Table IV.B1.—Estimated Annual Income Rates, Cost Rates, and Balances,
Calendar Years 1990-2085 (Cont.)**

[As a percentage of taxable payroll]

Calendar year	OASI			DI			OASDI		
	Income rate [1]	Cost rate	Balance	Income rate [1]	Cost rate	Balance	Income rate [1]	Cost rate	Balance
Low Cost (cont.):									
2020.....	11.15	11.15	[2]	1.84	1.71	0.13	12.99	12.86	0.14
2025.....	11.22	12.19	-0.97	1.84	1.67	.18	13.06	13.85	-.80
2030.....	11.27	12.92	-1.65	1.84	1.61	.23	13.11	14.52	-1.42
2035.....	11.28	13.09	-1.80	1.84	1.56	.28	13.12	14.65	-1.53
2040.....	11.27	12.79	-1.52	1.84	1.55	.30	13.11	14.34	-1.22
2045.....	11.25	12.31	-1.06	1.84	1.56	.28	13.10	13.88	-.78
2050.....	11.24	11.95	-.71	1.84	1.56	.28	13.08	13.52	-.44
2055.....	11.23	11.73	-.50	1.84	1.56	.28	13.07	13.29	-.22
2060.....	11.23	11.59	-.36	1.84	1.54	.30	13.07	13.13	-.06
2065.....	11.22	11.42	-.20	1.84	1.53	.31	13.06	12.95	.11
2070.....	11.21	11.25	-.03	1.84	1.53	.31	13.05	12.78	.28
2075.....	11.21	11.10	.11	1.84	1.54	.30	13.05	12.64	.40
2080.....	11.20	11.05	.15	1.84	1.56	.28	13.05	12.61	.44
2085.....	11.21	11.09	.12	1.84	1.57	.28	13.05	12.66	.39
First year balance becomes negative and remains negative through 2085		[3]	....		[3]	....		[3]	
High Cost:									
2008.....	10.95	9.49	1.46	1.83	2.02	-.19	12.78	11.51	1.27
2009.....	10.99	9.61	1.37	1.83	2.08	-.25	12.82	11.70	1.13
2010.....	11.00	9.73	1.28	1.84	2.14	-.30	12.84	11.86	.98
2011.....	11.02	9.97	1.05	1.84	2.19	-.35	12.86	12.16	.70
2012.....	11.05	10.22	.83	1.84	2.25	-.41	12.89	12.47	.42
2013.....	11.08	10.52	.56	1.85	2.31	-.46	12.93	12.83	.10
2014.....	11.10	10.92	.19	1.85	2.37	-.52	12.96	13.29	-.33
2015.....	11.13	11.31	-.18	1.85	2.43	-.57	12.98	13.74	-.75
2016.....	11.15	11.68	-.52	1.86	2.48	-.62	13.01	14.16	-1.14
2017.....	11.18	12.06	-.88	1.86	2.53	-.67	13.04	14.59	-1.55
2020.....	11.25	13.12	-1.87	1.86	2.57	-.70	13.11	15.68	-2.57
2025.....	11.34	14.58	-3.23	1.87	2.68	-.81	13.21	17.26	-4.05
2030.....	11.42	15.85	-4.42	1.87	2.69	-.82	13.29	18.53	-5.24
2035.....	11.48	16.65	-5.17	1.87	2.69	-.82	13.35	19.34	-5.99
2040.....	11.50	16.99	-5.48	1.87	2.72	-.85	13.38	19.71	-6.34
2045.....	11.52	17.09	-5.58	1.88	2.83	-.96	13.39	19.93	-6.53
2050.....	11.53	17.33	-5.79	1.88	2.93	-1.05	13.41	20.26	-6.84
2055.....	11.56	17.74	-6.18	1.88	3.02	-1.14	13.44	20.76	-7.32
2060.....	11.60	18.32	-6.72	1.88	3.06	-1.18	13.48	21.38	-7.90
2065.....	11.63	18.97	-7.34	1.88	3.10	-1.22	13.52	22.07	-8.55
2070.....	11.68	19.73	-8.05	1.89	3.15	-1.26	13.56	22.88	-9.31
2075.....	11.72	20.54	-8.82	1.89	3.17	-1.29	13.61	23.71	-10.10
2080.....	11.77	21.33	-9.56	1.89	3.18	-1.30	13.66	24.51	-10.86
2085.....	11.81	22.01	-10.20	1.89	3.18	-1.29	13.69	25.19	-11.50
First year balance becomes negative and remains negative through 2085		2015	....		2005	....			2014

[1] Historical income rates are modified to include adjustments to the lump-sum payments received in 1983 from the General Fund of the Treasury for the cost of noncontributory wage credits for military service in 1940-56.

[2] Between -0.005 and 0.005 percent of taxable payroll.

[3] The annual balance is projected to be negative for a temporary period, returning to positive levels before the end of the projection period.

Notes:
1. The income rate excludes interest income and certain transfers from the General Fund of the Treasury.
2. Some historical values are subject to change due to revisions of taxable payroll.
3. Totals do not necessarily equal the sums of rounded components.

47

Actuarial Estimates

Under the intermediate assumptions, the cost rate for DI generally increases over the long-range period from 1.94 percent of taxable payroll for 2008, reaching 2.30 percent for 2082. The income rate increases only very slightly from 1.83 percent of taxable payroll for 2008 to 1.86 percent for 2082. The annual deficit is about 0.11 percent in 2008 and reaches 0.44 percent for 2082.

Under the low cost assumptions, the DI cost rate is fairly stable over the long-range period, reaching 1.56 percent for 2082. The annual balance is negative for the first 3 years and is positive throughout the remainder of the long-range period. For the high cost assumptions, DI cost rises much more, reaching 3.18 percent for 2082. The annual deficit is about 0.19 percent in 2008 and reaches 1.30 percent for 2082.

Figure IV.B1 shows in graphical form the patterns of the OASI and DI annual income rates and cost rates. The income rates shown here are only for alternative II in order to simplify the graphical presentation because, as shown in table IV.B1, the variation in the income rates by alternative is very small. Income rates increase generally, but at a slow rate for each of the alternatives over the long-range period. Both increases in the income rate and variation among the alternatives result from the relatively small component of income from taxation of benefits. Increases in income from taxation of benefits reflect increases in the total amount of benefits paid and the fact that an increasing share of individual benefits will be subject to taxation because benefit taxation threshold amounts are not indexed.

The patterns of the annual balances for OASI and DI are suggested by figure IV.B1. For each alternative, the magnitude of each of the positive balances, as a percentage of taxable payroll, is represented by the distance between the appropriate cost-rate curve and the income-rate curve above it. The magnitude of each of the deficits is represented by the distance between the appropriate cost-rate curve and the income-rate curve below it.

In the future, the cost of OASI, DI and the combined OASDI programs as a percentage of taxable payroll will not necessarily be within the range encompassed by alternatives I and III. Nonetheless, because alternatives I and III define a reasonably wide range of demographic and economic conditions, the resulting estimates delineate a reasonable range for consideration of potential future program costs.

Figure IV.B1.—Long-Range OASI and DI Annual Income Rates and Cost Rates
[As a percentage of taxable payroll]
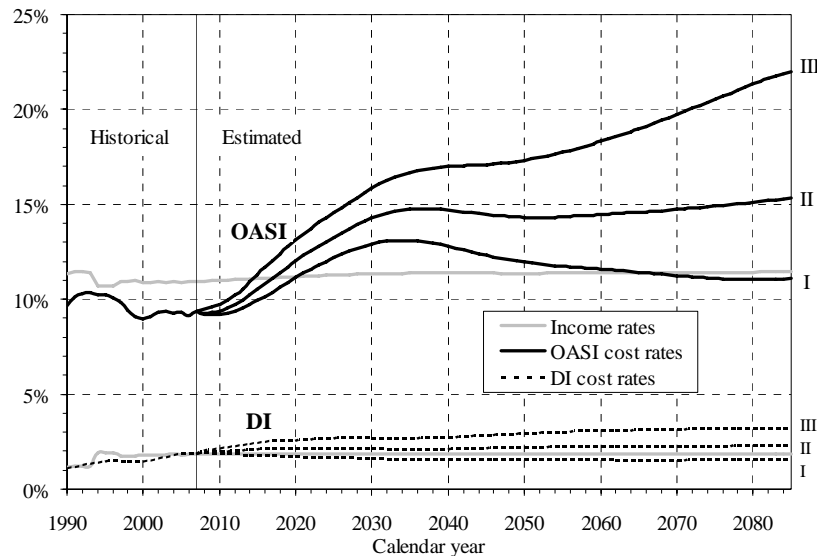
The cost of the OASDI program has been discussed in this section in relation to taxable payroll, which is a program-related concept that is very useful in analyzing the financial status of the OASDI program. The cost can also be discussed in relation to broader economic concepts, such as the gross domestic product (GDP), which is the total value of goods and services produced during the year in the United States. OASDI cost generally rises from about 4.3 percent of GDP currently to about 5.8 percent of GDP by the end of the 75-year projection period under alternative II. Discussion of both the cost and the taxable payroll of the OASDI program in relation to GDP is presented in Appendix VI.F.2 beginning on page 177.

2. Comparison of Workers to Beneficiaries

The primary reason that the estimated OASDI cost rate increases rapidly between 2010 and 2030 is that the number of beneficiaries is projected to increase more rapidly than the number of covered workers. This occurs because the relatively large number of persons born during the baby boom will reach retirement eligibility age, and begin to receive benefits, while the relatively small number of persons born during the subsequent period of low fertility rates will comprise the labor force. A comparison of the numbers of covered workers and beneficiaries is shown in table IV.B2.

Table IV.B2.—Covered Workers and Beneficiaries, Calendar Years 1945-2085

Calendar year	Covered workers[1] (in thousands)	Beneficiaries[2] (in thousands)			Covered workers per OASDI beneficiary	OASDI beneficiaries per 100 covered workers
		OASI	DI	OASDI		
Historical data:						
1945	46,390	1,106	—	1,106	41.9	2
1950	48,280	2,930	—	2,930	16.5	6
1955	64,975	7,564	—	7,564	8.6	12
1960	72,293	13,740	522	14,262	5.1	20
1965	80,437	18,509	1,648	20,157	4.0	25
1970	92,788	22,618	2,568	25,186	3.7	27
1975	100,198	26,998	4,125	31,123	3.2	31
1980	112,659	30,384	4,734	35,117	3.2	31
1985	120,234	32,763	3,874	36,636	3.3	30
1990	133,247	35,255	4,204	39,459	3.4	30
1995	141,030	37,364	5,731	43,096	3.3	31
2000	154,624	38,556	6,606	45,162	3.4	29
2001	154,830	38,888	6,780	45,668	3.4	29
2002	154,310	39,117	7,060	46,176	3.3	30
2003	154,576	39,315	7,438	46,753	3.3	30
2004	156,250	39,558	7,810	47,368	3.3	30
2005	158,913	39,961	8,172	48,133	3.3	30
2006	161,209	40,435	8,428	48,863	3.3	30
2007	163,177	40,863	8,739	49,603	3.3	30
Intermediate:						
2010	167,817	43,165	9,615	52,780	3.2	31
2015	173,056	49,804	10,688	60,492	2.9	35
2020	177,542	57,519	11,362	68,881	2.6	39
2025	181,299	64,947	12,191	77,138	2.4	43
2030	184,974	71,547	12,421	83,968	2.2	45
2035	189,166	76,084	12,628	88,712	2.1	47
2040	193,724	78,396	12,985	91,381	2.1	47
2045	198,583	79,801	13,601	93,402	2.1	47
2050	203,318	81,506	14,134	95,640	2.1	47
2055	208,081	83,857	14,643	98,500	2.1	47
2060	212,909	86,724	14,979	101,703	2.1	48
2065	217,825	89,602	15,394	104,996	2.1	48
2070	222,734	92,628	15,877	108,505	2.1	49
2075	227,634	95,810	16,364	112,174	2.0	49
2080	232,426	99,154	16,837	115,991	2.0	50
2085	237,182	102,672	17,256	119,928	2.0	51
Low Cost:						
2010	169,371	43,150	9,298	52,449	3.2	31
2015	176,193	49,693	9,676	59,369	3.0	34
2020	181,320	57,140	9,848	66,988	2.7	37
2025	185,847	64,171	10,116	74,288	2.5	40
2030	190,581	70,137	10,065	80,203	2.4	42
2035	196,431	73,913	10,128	84,041	2.3	43
2040	203,488	75,468	10,382	85,850	2.4	42
2045	211,562	76,250	10,875	87,125	2.4	41
2050	220,158	77,498	11,327	88,826	2.5	40
2055	229,281	79,480	11,795	91,275	2.5	40
2060	238,906	81,991	12,191	94,182	2.5	39
2065	249,329	84,459	12,702	97,162	2.6	39
2070	260,491	87,015	13,323	100,339	2.6	39
2075	272,255	89,788	14,034	103,822	2.6	38
2080	284,348	93,262	14,777	108,039	2.6	38
2085	296,658	97,564	15,492	113,056	2.6	38

Table IV.B2.—Covered Workers and Beneficiaries, Calendar Years 1945-2085 (Cont.)

Calendar year	Covered workers [1] (in thousands)	Beneficiaries [2] (in thousands)			Covered workers per OASDI beneficiary	OASDI beneficiaries per 100 covered workers
		OASI	DI	OASDI		
High Cost:						
2010	165,703	43,183	9,933	53,116	3.1	32
2015	170,017	49,926	11,700	61,626	2.8	36
2020	173,672	58,010	12,836	70,847	2.5	41
2025	176,930	65,906	14,181	80,086	2.2	45
2030	179,866	73,139	14,678	87,817	2.0	49
2035	182,565	78,492	14,994	93,487	2.0	51
2040	184,903	81,680	15,406	97,086	1.9	53
2045	186,828	83,827	16,090	99,917	1.9	53
2050	187,986	86,128	16,641	102,769	1.8	55
2055	188,862	88,938	17,118	106,056	1.8	56
2060	189,419	92,205	17,303	109,508	1.7	58
2065	189,617	95,565	17,499	113,064	1.7	60
2070	189,280	99,156	17,680	116,836	1.6	62
2075	188,684	102,797	17,736	120,533	1.6	64
2080	187,731	106,075	17,701	123,776	1.5	66
2085	186,740	108,867	17,612	126,479	1.5	68

[1] Workers who are paid at some time during the year for employment on which OASDI taxes are due.
[2] Beneficiaries with monthly benefits in current-payment status as of June 30.

Notes:
1. The number of beneficiaries does not include uninsured individuals who receive benefits under Section 228 of the Social Security Act. Costs are reimbursed from the General Fund of the Treasury for most of these individuals.
2. Historical covered worker data are subject to revision.
3. Totals do not necessarily equal the sums of rounded components.

The impact of the demographic shifts under the three alternatives on the OASDI cost rates is readily seen by considering the projected number of OASDI beneficiaries per 100 covered workers. As compared to the 2007 level of 30 beneficiaries per 100 covered workers, this ratio is estimated to rise significantly by 2085 to 38 under the low cost assumptions, 51 under the intermediate assumptions, and 68 under the high cost assumptions. The significance of these numbers can be seen by comparing figure IV.B1 to figure IV.B2.

For each alternative, the shape of the curve in figure IV.B2, which shows beneficiaries per 100 covered workers, is strikingly similar to that of the corresponding cost-rate curve in figure IV.B1, thereby emphasizing the extent to which the cost of the OASDI program as a percentage of taxable payroll is determined by the age distribution of the population. Because the cost rate is basically the product of the number of beneficiaries and their average benefit, divided by the product of the number of covered workers and their average taxable earnings (and because average benefits rise at about the same rate as average earnings), it is to be expected that the pattern of the annual cost rates is similar to that of the annual ratios of beneficiaries to workers.

Figure IV.B2.—Number of OASDI Beneficiaries Per 100 Covered Workers
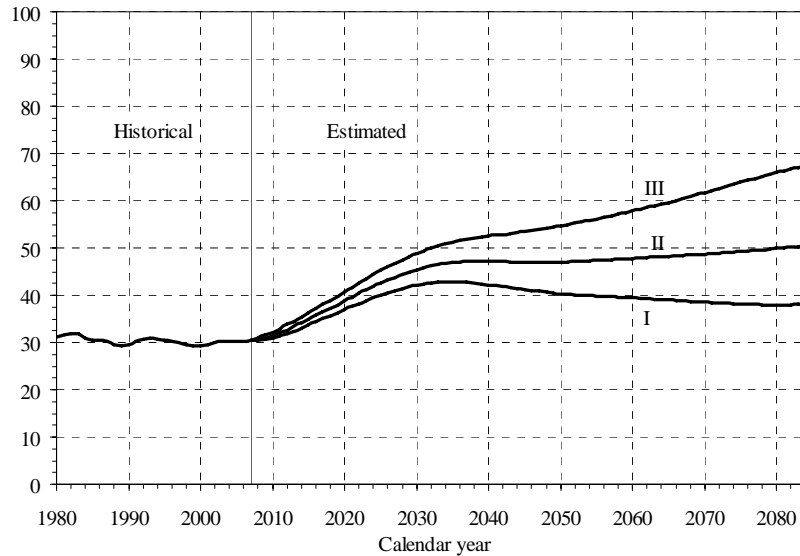
Table IV.B2 also shows that the number of covered workers per OASDI beneficiary, which was about 3.3 in 2007, is estimated to decline in the future. Based on the intermediate assumptions, the ratio declines to 2.1 by 2034, and thereafter declines very slowly reaching 2.0 workers per beneficiary by 2071. The slow decline after 2034 is due to the assumed gradual decline in death rates. Based on the low cost assumptions, for which high fertility rates and small reductions in death rates are assumed, the ratio declines to 2.3 by 2032, and then rises back to a level of 2.6 by 2063. Based on the high cost assumptions, for which low fertility rates and large reductions in death rates are assumed, the decline is much greater, reaching 1.8 by 2048, and 1.5 workers per beneficiary by 2077.

3. Trust Fund Ratios

Trust fund ratios are useful indicators of the adequacy of the financial resources of the Social Security program at any point in time. For any year in which the projected trust fund ratio is positive (i.e., the trust fund holds assets at the beginning of the year), but is not positive for the following year the trust fund is projected to become exhausted during the year. Under present law, the OASI and DI Trust Funds do not have the authority to borrow. Therefore, exhaustion of the assets in either fund during a year would mean there are no longer sufficient assets in the fund to cover the full amount of benefits scheduled for the year under present law.

The trust fund ratio also serves an additional important purpose in assessing the actuarial status of the program. When the financing is adequate for the timely payment of full benefits throughout the long-range period, the stability of the trust fund ratio toward the end of the period indicates the likelihood that this projected adequacy will continue for subsequent Trustees Reports. If the trust fund ratio toward the end of the period is level (or increasing), then projected adequacy for the long-range period is likely to continue for subsequent reports. Under these conditions, the program financing is said to achieve sustainable solvency.

Table IV.B3 shows, by alternative, the estimated trust fund ratios (without regard to advance tax transfers that would be effected after the end of the 10-year, short-range period) for the separate and combined OASI and DI Trust Funds. Also shown in this table is the year in which a fund is estimated to become exhausted, reflecting the effect of the provision for advance tax transfers.

Based on the intermediate assumptions, the OASI trust fund ratio rises steadily from 392 percent at the beginning of 2008, reaching a peak of 445 percent at the beginning of 2014. This increase in the OASI trust fund ratio results from the fact that the annual income rate exceeds the annual cost rate for several years (see table IV.B1). Thereafter, the OASI trust fund ratio declines steadily, with the OASI Trust Fund becoming exhausted in 2042. The DI trust fund ratio follows a pattern that is similar but unfolds more rapidly. The DI trust fund ratio is estimated to decline steadily from 199 percent at the beginning of 2008 until becoming exhausted in 2025.

The trust fund ratio for the combined OASI and DI Trust Funds under the intermediate assumptions rises from 359 percent for 2008 to a peak of 395 percent at the beginning of 2014. Thereafter, the ratio declines, with the combined funds becoming exhausted in 2041. In last year's report, the peak trust fund ratio for the combined funds was estimated to be 409 percent for 2014 and the year of exhaustion was estimated to be 2041.

The trust fund ratio for the OASDI program under the intermediate assumptions first declines in 2015. This occurs because the increase in trust fund assets during 2014, which reflects interest income and a small excess of noninterest income over cost, occurs at a slower rate than does the increase in the annual cost of the program between 2014 and 2015. After 2014, the dollar amount of assets is projected to continue to rise through the beginning of 2027 because interest income more than offsets the shortfall in noninterest income.

Beginning in 2017, the OASDI program under the intermediate assumptions is projected to experience increasingly large cash-flow shortfalls that will

require the trust funds to redeem special public-debt obligations of the General Fund of the Treasury. This will differ from the experience of recent years when the trust funds have been net lenders to the General Fund of the Treasury. The change in the cash flow between the trust funds and the general fund is expected to have important public policy and economic implications that go well beyond the operation of the OASDI program itself.

Based on the low cost assumptions, the trust fund ratio for the DI program increases from 2011 through the end of the long-range projection period, reaching the extremely high level of 2,111 percent for 2083. At the end of the long-range period, the DI trust fund ratio is rising by 38 percentage points per year. For the OASI program, the trust fund ratio rises to a peak of 500 percent for 2018, drops to a low of 323 percent for 2054, and rises thereafter to a level of 424 percent for 2083. At the end of the period, the OASI trust fund ratio is rising by 5 percentage points per year. For the OASDI program, the trust fund ratio peaks at 464 percent for 2020, falls to 387 percent for 2043, and increases thereafter, reaching 633 percent for 2083. Because the trust fund ratios are large and increasing at the end of the long range period, subsequent Trustees Reports are likely to contain projections of adequate long-range financing of the OASI, the DI, and the combined OASI and DI programs under the low cost assumptions. Thus, under the low cost assumptions, each program would achieve sustainable solvency.

In contrast, under the high cost assumptions, the OASI trust fund ratio is estimated to peak at 413 percent for 2011, thereafter declining to fund exhaustion by the end of 2033. The DI trust fund ratio is estimated to decline from 196 percent for 2008 to fund exhaustion by the end of 2017. The combined OASDI trust fund ratio is estimated to rise to a peak of 365 percent for 2011, declining thereafter to fund exhaustion by the end of 2031.

Thus, because large ultimate cost rates are projected under all but the low cost assumptions, it is likely that income will eventually need to be increased, and/or program costs will need to be reduced in order to prevent the trust funds from becoming exhausted.

Even under the high cost assumptions, however, the combined OASI and DI funds on hand plus their estimated future income would be able to cover their combined cost for 23 years into the future (until 2031). Under the intermediate assumptions the combined starting funds plus estimated future income would be able to cover cost for about 33 years into the future (until 2041). The program would be able to cover cost for the foreseeable future under the more optimistic low cost assumptions. In the 2007 report, the combined trust funds were projected to become exhausted in 2030 under the high cost assumptions and in 2041 under the intermediate assumptions.

Table IV.B3.—Estimated Trust Fund Ratios, Calendar Years 2008-85
[In percent]

Calendar year	Intermediate			Low Cost			High Cost		
	OASI	DI	OASDI	OASI	DI	OASDI	OASI	DI	OASDI
2008	392	199	359	393	203	360	392	196	358
2009	406	190	369	409	199	373	400	180	361
2010	420	182	378	427	199	389	407	163	363
2011	431	174	386	444	201	404	413	146	365
2012	439	164	392	460	203	418	410	126	359
2013	443	154	394	472	206	430	399	103	346
2014	445	143	395	482	210	439	390	81	335
2015	445	132	393	490	214	448	382	58	324
2016	443	120	390	496	219	454	373	34	314
2017	438	107	385	500	225	459	362	9	301
2020	413	71	361	496	258	464	320	1/	256
2025	350	9	302	471	332	455	221	1/	153
2030	263	1/	221	429	432	429	97	1/	28
2035	164	1/	127	386	558	404	1/	1/	1/
2040	59	1/	26	352	695	389	1/	1/	1/
2045	1/	1/	1/	333	824	388	1/	1/	1/
2050	1/	1/	1/	325	960	398	1/	1/	1/
2055	1/	1/	1/	323	1,109	416	1/	1/	1/
2060	1/	1/	1/	327	1,284	439	1/	1/	1/
2065	1/	1/	1/	336	1,466	470	1/	1/	1/
2070	1/	1/	1/	354	1,646	509	1/	1/	1/
2075	1/	1/	1/	379	1,821	555	1/	1/	1/
2080	1/	1/	1/	408	1,998	604	1/	1/	1/
2085	1/	1/	1/	435	2,190	652	1/	1/	1/
Trust fund is esti-mated to become exhausted in.	2042	2025	2041	2/	2/	2/	2033	2017	2031

[1] The trust fund is estimated to be exhausted by the beginning of this year. The last line of the table shows the specific year of trust fund exhaustion.

[2] The trust fund is not estimated to be exhausted within the projection period.

Note: See definition of trust fund ratio on page 214. The combined ratios shown for years after the DI fund is estimated to be exhausted are theoretical and are shown for informational purposes only.

A graphical illustration of the trust fund ratios for the separate OASI and DI Trust Funds is shown in figure IV.B3 for each of the alternative sets of assumptions. A graphical illustration of the trust fund ratios for the combined trust funds is shown in figure II.D6 on page 14.

Figure IV.B3.—Long-Range OASI and DI Trust Fund Ratios
[Assets as a percentage of annual expenditures]
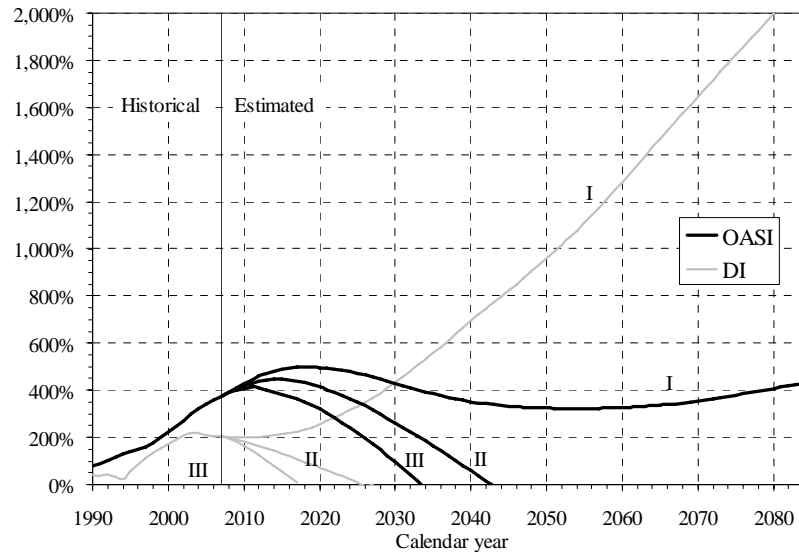
4. Summarized Income Rates, Cost Rates, and Balances

Summarized income and cost rates, along with their components, are presented in table IV.B4 for 25-year, 50-year, and 75-year valuation periods. Income rates reflect the scheduled payroll tax rates and the projected income from the taxation of scheduled benefits expressed as a percentage of taxable payroll. The current combined payroll tax rate of 12.4 percent is scheduled to remain unchanged in the future. In contrast, the projected income from taxation of benefits, expressed as a percentage of taxable payroll, is expected to generally increase throughout the long-range period. This is because increasing income from taxation of benefits reflects not only rising benefit and income levels, but also the fact that benefit-taxation threshold amounts are not indexed. Summarized income rates also include the starting trust fund balance. Summarized cost rates include the cost of reaching a target trust fund of 100 percent of annual cost at the end of the period in addition to the cost included in the annual cost rates.

It may be noted that the payroll tax income expressed as a percentage of taxable payroll, as shown in table IV.B4, is slightly smaller than the actual tax rates in effect for each period. This results from the fact that all OASDI income and cost dollar amounts presented in this report are computed on a cash basis, i.e., amounts are attributed to the year in which they are intended to be received by, or expended from, the fund, while taxable payroll is attrib-

uted to the year in which earnings are paid. Because earnings are paid to workers before the corresponding payroll taxes are credited to the funds, payroll tax income for a particular year reflects a combination of the taxable payrolls from that year and from prior years, when payroll was smaller. Dividing payroll tax income by taxable payroll for a particular year, or period of years, will thus generally result in an income rate that is slightly less than the applicable tax rate for the period.

Summarized values for the full 75-year period are useful in analyzing the long-range adequacy of financing for the program over the period as a whole under present law and under proposed modifications to the law.

Table IV.B4 shows summarized rates for valuation periods of the first 25, the first 50, and the entire 75 years of the long-range projection period, including the funds on hand at the start of the period and the cost of accumulating a target trust fund balance equal to 100 percent of the following year's annual cost by the end of the period. The actuarial balance for each of these three valuation periods is equal to the difference between the summarized income rate and the summarized cost rate for the corresponding period. An actuarial balance of zero for any period would indicate that estimated cost for the period could be met, on average, with a remaining trust fund balance at the end of the period equal to 100 percent of the following year's cost. A negative actuarial balance indicates that, over the period, the present value of income to the program plus the existing trust fund falls short of the present value of the cost of the program plus the cost of reaching a target trust fund balance of 1 year's cost by the end of the period. Combined with a falling trust fund ratio, this signals the possibility of continuing cash-flow deficits, implying that the current-law level of financing is not sustainable.

The values in table IV.B4 show that the combined OASDI program is expected to operate with a positive actuarial balance over the 25-year valuation period under the low cost and intermediate assumptions. For the 25-year valuation period the summarized values indicate actuarial balances of 1.57 percent of taxable payroll under the low cost assumptions, 0.38 percent under the intermediate assumptions, and -1.07 percent under the high cost assumptions. Thus, the program is more than adequately financed for the 25-year valuation period under all but the high cost projections. For the 50-year valuation period the OASDI program would have a positive actuarial balance of 0.64 percent under the low cost assumptions, but would have deficits of 1.14 percent under the intermediate assumptions and 3.35 percent under the high cost assumptions. Thus, the program is more than adequately financed for the 50-year valuation period under only the low cost set of assumptions.

Actuarial Estimates

For the entire 75-year valuation period, the combined OASDI program would again have actuarial deficits except under the low cost set of assumptions. The actuarial balance for this long-range valuation period is projected to be 0.57 percent of taxable payroll under the low cost assumptions, -1.70 percent under the intermediate assumptions, and -4.66 percent under the high cost assumptions.

Assuming the Trustees' intermediate assumptions are realized, the deficit of 1.70 percent of payroll indicates that financial adequacy of the program for the next 75 years could be restored if the Social Security payroll tax rate were increased for current and future earnings from 12.4 percent (combined employee-employer shares) to 14.1 percent. Alternatively, all current and future benefits could be reduced by 11.5 percent (or there could be some combination of tax increases and benefit reductions). Changes of this magnitude would be sufficient to eliminate the actuarial deficit over the 75-year projection period.

However, large annual deficits projected under current law for the end of the long-range period, which exceed 4 percent of payroll under the intermediate assumptions (see table IV.B1), indicate that the annual cost will very likely continue to exceed tax revenues after 2082. As a result, ensuring continued adequate financing would eventually require larger changes than those needed to restore actuarial balance for the 75-year period. For the infinite future, the actuarial deficit is estimated to be 3.2 percent of taxable payroll under the intermediate assumptions. This means that the projected infinite horizon shortfall could be eliminated with an immediate increase in the combined payroll tax rate from 12.4 percent to about 15.6 percent. This shortfall could also be eliminated if all current and future benefits were immediately reduced by 19.8 percent.

As may be concluded from table IV.B4, the financial condition of the DI program is substantially weaker than that of the OASI program for the first 25 years. Summarized over the full 75-year period, however, long-range deficits for the OASI and DI programs under intermediate assumptions are more similar when measured relative to the level of program costs.

Table IV.B4.—Components of Summarized Income Rates and Cost Rates,
Calendar Years 2008-82
[As a percentage of taxable payroll]

Valuation period	Summarized income rate				Summarized cost rate			Actuarial balance
	Payroll tax	Taxation of benefits	Beginning fund balance	Total	Cost	Ending target fund	Total	
OASI:								
Intermediate:								
2008-32.	10.58	0.57	1.64	12.79	11.76	0.51	12.26	0.53
2008-57.	10.59	.65	.95	12.19	12.92	.21	13.13	-.94
2008-82.	10.59	.69	.73	12.01	13.34	.12	13.46	-1.46
Low Cost:								
2008-32.	10.59	.53	1.64	12.75	10.95	.45	11.40	1.35
2008-57.	10.59	.58	.95	12.12	11.57	.17	11.74	.38
2008-82.	10.59	.59	.72	11.90	11.50	.09	11.60	.31
High Cost:								
2008-32.	10.58	.62	1.64	12.84	12.77	.58	13.35	-.51
2008-57.	10.58	.75	.94	12.27	14.63	.27	14.90	-2.63
2008-82.	10.58	.82	.72	12.13	15.79	.17	15.96	-3.83
DI:								
Intermediate:								
2008-32.	1.80	.05	.17	2.02	2.09	.07	2.17	-.15
2008-57.	1.80	.05	.10	1.95	2.12	.03	2.15	-.20
2008-82.	1.80	.05	.08	1.93	2.15	.02	2.17	-.24
Low Cost:								
2008-32.	1.80	.04	.17	2.01	1.74	.05	1.79	.22
2008-57.	1.80	.04	.10	1.94	1.66	.02	1.69	.25
2008-82.	1.80	.04	.08	1.92	1.63	.01	1.65	.27
High Cost:								
2008-32.	1.80	.06	.17	2.03	2.49	.10	2.58	-.55
2008-57.	1.80	.07	.10	1.96	2.63	.04	2.68	-.72
2008-82.	1.80	.07	.08	1.94	2.75	.02	2.77	-.83
OASDI:								
Intermediate:								
2008-32.	12.38	.61	1.82	14.81	13.85	.58	14.43	.38
2008-57.	12.38	.71	1.05	14.14	15.04	.24	15.28	-1.14
2008-82.	12.39	.74	.81	13.94	15.49	.14	15.63	-1.70
Low Cost:								
2008-32.	12.38	.56	1.81	14.76	12.69	.50	13.19	1.57
2008-57.	12.39	.62	1.05	14.06	13.23	.19	13.42	.64
2008-82.	12.39	.63	.80	13.82	13.14	.11	13.24	.57
High Cost:								
2008-32.	12.37	.68	1.82	14.87	15.25	.68	15.93	-1.07
2008-57.	12.38	.81	1.04	14.23	17.26	.31	17.58	-3.35
2008-82.	12.38	.89	.80	14.07	18.54	.19	18.73	-4.66

Note: Totals do not necessarily equal the sums of rounded components.

Table IV.B5 presents the components and the calculation of the long-range (75-year) actuarial balance under the intermediate assumptions. The present value of future cost less future tax income over the long-range period, minus the amount of trust fund assets at the beginning of the projection period, amounts to $4.3 trillion for the OASDI program. This amount is referred to as the 75-year "open group unfunded obligation." The actuarial deficit (i.e., the negative of the actuarial balance) combines this unfunded obligation with the present value of the "ending target trust fund," and expresses the total as a percentage of the present value of the taxable payroll for the period. The

present value of future tax income minus cost, plus starting trust fund assets, minus the present value of the ending target trust fund amounts to -$4.7 trillion for the OASDI program. Expressed as a percentage of taxable payroll for the period, this is the actuarial balance of -1.70 percent.

**Table IV.B5.—Components of 75-Year Actuarial Balance
Under Intermediate Assumptions (2008-82)**

Item	OASI	DI	OASDI
Present value as of January 1, 2008 (in billions):			
a. Payroll tax revenue	$29,321	$4,979	$34,300
b. Taxation of benefits revenue	1,907	149	2,056
c. Tax income (a + b)	31,228	5,128	36,357
d. Cost	36,953	5,958	42,911
e. Cost minus tax income (d - c)	5,725	830	6,555
f. Trust fund assets at start of period	2,024	215	2,238
g. Open group unfunded obligation (e - f)	3,701	615	4,316
h. Ending target trust fund[1]	336	51	387
i. Income minus cost, plus assets at start of period, minus ending target trust fund (c - d + f - h = - g - h)	-4,037	-666	-4,703
j. Taxable payroll	276,946	276,946	276,946
Percent of taxable payroll:			
Actuarial balance $(100 \times i \div j)$	-1.46	-.24	-1.70

[1] The calculation of the actuarial balance includes the cost of accumulating a target trust fund balance equal to 100 percent of annual cost by the end of the period.

Note: Totals do not necessarily equal the sums of rounded components.

5.   Additional Measures of OASDI Unfunded Obligations

As shown in the previous section, a negative actuarial balance (or an actuarial deficit) provides one measure of the unfunded obligation of the program over a period of time. Two additional measures of OASDI unfunded obligations under the intermediate assumptions are presented below.

a.   *Open Group Unfunded Obligations*

Consistent with practice since 1965, this report focuses on the 75-year period (from 2008 to 2082 for this report) for the evaluation of the long-run financial status of the OASDI program on an open group basis (i.e., including taxes and cost for past, current and future participants through the year 2082). Table IV.B6, in its second line, shows that the present value of the open group unfunded obligation for the program over that period is $4.3 trillion. The open group measure indicates the adequacy of financing over the period as a whole for a program financed on a pay-as-you-go basis. On this basis, payroll taxes and scheduled benefits of all participants are included through 2082.

Table IV.B6 also presents the 75-year unfunded obligation as percentages of future OASDI taxable payroll and gross domestic product (GDP) through

2082. The 75-year unfunded obligation as a percentage of taxable payroll is less than the actuarial deficit, because it excludes the ending target trust fund value (see table IV.B5).

However, there are limitations on what can be conveyed using summarized measures alone. For example, overemphasis on summary measures (such as the actuarial balance and open group unfunded obligation) for the 75-year period can lead to incorrect perceptions and policies that fail to address financial sustainability for the more distant future. This can be addressed by considering the trend in trust fund ratios toward the end of the period (see "sustainable solvency" at the beginning of section IV.B).

Another limitation is that continued, and possibly increasing, annual shortfalls after the period are not reflected in the 75-year summarized measures. In order to address this limitation, this section presents estimates of unfunded obligations that extend to the infinite horizon. The extension assumes that the current-law OASDI program and the demographic and most economic trends used for the 75-year projection continue indefinitely. The one exception is that the ultimate assumed real-wage differential for the long-range period of 1.1 percent is increased to 1.2 percent, phased in over the 10-year period 2083 to 2092. This change essentially maintains consistency with the assumed reduction in the growth of health care expenditures after 2082. (See the Medicare Trustees Report.) The values in table IV.B6 indicate that extending the calculations beyond 2082 adds $9.3 ($13.6 - $4.3) trillion in present value to the amount of the unfunded obligation estimated through 2082. That is, over the infinite horizon, the OASDI open group unfunded obligation is projected to be $13.6 trillion. The $9.3 trillion increment reflects a significant financing gap projected for OASDI over the infinite future period after 2082. Of course, the degree of uncertainty associated with estimates beyond 2082 is substantial.

In last year's report the unfunded obligation over the infinite horizon was reported as $13.6 trillion in present value as of January 1, 2007. The change to the later valuation date (January 1, 2008), taken alone, would increase the measured deficit by about $0.7 trillion. The net effects of changes in data, methods, and other assumptions decreased the infinite horizon unfunded obligation by approximately $0.7 trillion. The main changes affecting the infinite horizon unfunded obligation for this report are changes in immigration methods and assumptions. The change in the method for projecting other immigration results in persistent effects (beginning in the latter half of the long-range 75-year period) from an increased overall working-age population relative to the increased overall retirement-age population. See section IV.B.7 for details regarding changes in data, methods, and assumptions.

Actuarial Estimates

As noted in the previous section, the $13.6 trillion infinite future open group unfunded obligation may also be expressed as a percentage of the taxable payroll over that period. This actuarial deficit for the infinite future is 3.2 percent of taxable payroll under the intermediate assumptions, about 0.3 percent lower than in last year's report. This unfunded obligation can also be expressed as a percentage of GDP over the infinite future and is 1.1 percent on that basis, about 0.1 percentage point lower than in last year's report. These relative measures of the unfunded obligation over the infinite future express its magnitude in relation to the resources that are potentially available to finance the shortfall.

Table IV.B6.—Unfunded OASDI Obligations for 1935 (Program Inception)
Through the Infinite Horizon
[Present values as of January 1, 2008; dollar amounts in trillions]

	Present value	Expressed as a percentage of future payroll and GDP	
		Taxable payroll	GDP
Unfunded obligation for 1935 through the infinite horizon[1]	$13.6	3.2	1.1
Unfunded obligation for 1935 through 2082[2]	4.3	1.6	.6

[1] Present value of future cost less future taxes, reduced by the amount of trust fund assets at the beginning of 2008. Expressed as percentage of payroll and GDP for the period 2008 through the infinite horizon.
[2] Present value of future cost less future taxes through 2082, reduced by the amount of trust fund assets at the beginning of 2008. Expressed as percentage of payroll and GDP for the period 2008 through 2082.

Notes:
1. The present values of future taxable payroll for 2008-82 and for 2008 through the infinite horizon are $276.9 trillion and $432.8 trillion, respectively.
2. The present values of GDP for 2008-82 and for 2008 through the infinite horizon are $768.4 trillion and $1,274.3 trillion, respectively. Present values of GDP shown in the Medicare Trustees Report differ slightly due to the use of interest discount rates that are specific to each program's trust fund holdings.

b. Unfunded Obligations for Past, Current, and Future Participants

The future unfunded obligation of the OASDI program may also be viewed from a generational perspective. This perspective is generally associated with assessment of the financial condition of a program that is intended or required to be financed on a fully-advance-funded basis. However, analysis from this perspective can also provide insights into the implications of pay-as-you-go financing, the basis that has been used for the OASDI program.

The first line of table IV.B7 shows that the present value of future cost less future taxes over the next 100 years for all current participants equals $17.4 trillion. For this purpose, current participants are defined as individuals who attain age 15 or older in 2008. Subtracting the current value of the trust fund (the accumulated value of past OASDI taxes less cost) gives a closed group (excluding all future participants) unfunded obligation of $15.2 trillion. This value represents the shortfall of lifetime contributions for all past and current participants relative to the lifetime costs associated with

their generations. For a fully-advance-funded program this value would be equal to zero.

For Social Security benefits to be adequately financed for the infinite future, the scheduled taxes or benefits of current and future participants in the system must be adjusted to fully offset the shortfall due to past and current participants. Future participants, as a whole, are projected to pay taxes that are approximately $1.5 trillion more in present value than the cost of providing benefits they are scheduled to receive over the infinite future. For the 2007 report, on a present-value basis, future participants were projected to pay about $0.8 trillion more, in taxes, than the total cost of benefits they would receive over the infinite future. This amount changed in part due to relatively lower annual deficits late in the 75-year period that are projected to continue.

Thus, the remaining long run financing gap that program reforms must ultimately close for the infinite future is estimated to be $13.6 trillion in present value. This can be achieved by raising additional revenue or reducing benefits (or some combination) for current and future participants so that the present value of the additional revenue or reduced benefits for the infinite future is equivalent to 3.2 percent of taxable payroll or 1.1 percent of GDP.

Table IV.B7.—Present Values of OASDI Cost Less Tax Revenue and Unfunded Obligations for Program Participants
[Present values as of January 1, 2008; dollar amounts in trillions]

	Present value	Expressed as a percentage of future payroll and GDP	
		Taxable payroll	GDP
Present value of future cost less future taxes for current participants . . .	$17.4	4.0	1.4
Less current trust fund (tax accumulations minus expenditures to date for past and current participants).	2.2	.5	.2
Equals unfunded obligation for past and current participants[1]	15.2	3.5	1.2
Plus present value of cost less taxes for future participants for the infinite future	-1.5	-.3	-.1
Equals unfunded obligation for all participants through the infinite horizon.	13.6	3.2	1.1

[1] This concept is also referred to as the closed group unfunded obligation.

Notes:
1. The present value of future taxable payroll for 2008 through the infinite horizon is $432.8 trillion.
2. The present value of GDP for 2008 through the infinite horizon is $1,274.3 trillion.
3. Totals do not necessarily equal the sums of rounded components.

6. Test of Long-Range Close Actuarial Balance

The test of long-range close actuarial balance applies to a set of 66 separate valuation periods beginning with the first 10-year period, and including the periods of the first 11 years, the first 12 years, etc., up through the full 75-year projection period. Under the long-range test, the summarized income rate and cost rate are calculated for each of these valuation periods. The

long-range test is met if, for each of the 66 valuation periods, the actuarial balance is not less than zero or is negative by, at most, a specified percentage of the summarized cost rate for the same time period. The percentage allowed for a negative actuarial balance is 5 percent for the full 75-year period. For shorter periods, the allowable percentage begins with zero for the first 10 years and increases uniformly for longer periods, until it reaches the maximum percentage of 5 percent allowed for the 75-year period. The criterion for meeting the test is less stringent for the longer periods in recognition of the greater uncertainty associated with estimates for more distant years.

When a negative actuarial balance in excess of the allowable percentage of the summarized cost rate is projected for one or more of the 66 separate valuation periods, the program fails the test of long-range close actuarial balance. Being out of close actuarial balance indicates that the program is expected to experience financial problems in the future and that ways of improving the financial status of the program should be considered. The sooner the actuarial balance is less than the minimum allowable balance, expressed as a percentage of the summarized cost rate, the more urgent is the need for corrective action. It is recognized that necessary changes in program financing or benefit provisions should not be put off until the last possible moment if future beneficiaries and workers are to effectively plan for their retirement.

Table IV.B8 presents a comparison of the estimated actuarial balances with the minimum allowable balance (or maximum allowable deficit) under the long-range test, each expressed as a percentage of the summarized cost rate, based on the intermediate estimates. Values are shown for only 14 of the valuation periods: those of length 10 years, 15 years, and continuing in 5-year increments through 75 years. However, each of the 66 periods—those of length 10 years, 11 years, and continuing in 1-year increments through 75 years—is considered for the test. These minimum allowable balances are calculated to show the limit for each valuation period resulting from the graduated tolerance scale. The patterns in the estimated balances as a percentage of the summarized cost rates, as well as that for the minimum allowable balance, are presented graphically in figure IV.B4 for the OASI, DI and combined OASDI programs. Values shown for the 25-year, 50-year, and 75-year valuation periods correspond to those presented in table IV.B4.

For the OASI program, the estimated actuarial balance as a percentage of the summarized cost rate exceeds the minimum allowable for valuation periods of length 10 through 32 years under the intermediate estimates. For valuation periods of length greater than 32 years, the estimated actuarial balance is less than the minimum allowable. For the full 75-year long-range period the estimated actuarial balance reaches -10.83 percent of the summarized cost rate, for a shortfall of 5.83 percent, from the minimum allowable balance of

-5.0 percent of the summarized cost rate. Thus, although the OASI program satisfies the test of short-range financial adequacy (as discussed earlier on page 33), it is not in long-range close actuarial balance.

For the DI program, under the intermediate assumptions, the estimated actuarial balance as a percentage of the summarized cost rate is less than the minimum allowable balance for all 66 valuation periods. For the full 75-year long-range period the estimated actuarial balance reaches -11.08 percent of the summarized cost rate, for a shortfall of 6.08 percent from the minimum allowable balance of -5.0 percent of the summarized cost rate. Thus, the DI program fails to meet the short-range test of financial adequacy (as discussed on page 39), and is also not in long-range close actuarial balance.

Financing for the DI program is much less adequate than for the OASI program in satisfying the test for long-range actuarial balance even though long-range actuarial deficits are more comparable over the entire 75-year period. This difference occurs because much more of the increase in the long-range cost due to the aging of the large baby-boom generation occurs earlier for the DI program than for the OASI program. As a result, tax rates that are relatively more adequate for the OASI program during the first 25 years become relatively less adequate later in the long-range period.

For the OASDI program, the estimated actuarial balance as a percentage of the summarized cost rate exceeds the minimum allowable balance for valuation periods of length 10 through 30 years under the intermediate estimates. For valuation periods of length greater than 30 years, the estimated actuarial balance is below the minimum allowable balance. The size of the shortfall from the minimum allowable balance rises gradually, reaching 5.86 percent of the summarized cost rate for the full 75-year long-range valuation period. Thus, although the OASDI program satisfies the short-range test of financial adequacy, it is out of long-range close actuarial balance.

The OASI and DI programs, both separate and combined, were also found to be out of close actuarial balance in last year's report. The estimated deficits for the OASI, DI, and combined OASDI programs in this report are improved as compared to those shown in last year's report for the longer valuation periods.

**Table IV.B8.—Comparison of Estimated Long-Range Actuarial Balances With the
Minimum Allowable in the Test for Close Actuarial Balance,
Based on Intermediate Assumptions**

Valuation period	Rates (percentage of taxable payroll)			Values expressed as a percentage of cost rate	
	Summarized income rate	Summarized cost rate	Actuarial balance	Actuarial balance	Minimum allowable actuarial balance
OASI:					
10 years: 2008-2017.....	14.80	11.10	3.70	33.36	0.00
15 years: 2008-2022.....	13.65	11.42	2.23	19.51	-.38
20 years: 2008-2027.....	13.11	11.85	1.25	10.58	-.77
25 years: 2008-2032.....	12.79	12.26	.53	4.31	-1.15
30 years: 2008-2037.....	12.59	12.59	.00	.02	-1.54
35 years: 2008-2042.....	12.45	12.81	-.36	-2.81	-1.92
40 years: 2008-2047.....	12.34	12.95	-.61	-4.70	-2.31
45 years: 2008-2052.....	12.26	13.05	-.79	-6.06	-2.69
50 years: 2008-2057.....	12.19	13.13	-.94	-7.15	-3.08
55 years: 2008-2062.....	12.14	13.21	-1.07	-8.07	-3.46
60 years: 2008-2067.....	12.10	13.27	-1.18	-8.87	-3.85
65 years: 2008-2072.....	12.06	13.34	-1.28	-9.58	-4.23
70 years: 2008-2077.....	12.03	13.40	-1.37	-10.23	-4.62
75 years: 2008-2082.....	12.01	13.46	-1.46	-10.83	-5.00
DI:					
10 years: 2008-2017.....	2.24	2.25	-.01	-.32	.00
15 years: 2008-2022.....	2.12	2.20	-.08	-3.81	-.38
20 years: 2008-2027.....	2.06	2.18	-.13	-5.80	-.77
25 years: 2008-2032.....	2.02	2.17	-.15	-6.75	-1.15
30 years: 2008-2037.....	2.00	2.15	-.16	-7.28	-1.54
35 years: 2008-2042.....	1.98	2.15	-.17	-7.73	-1.92
40 years: 2008-2047.....	1.97	2.15	-.18	-8.29	-2.31
45 years: 2008-2052.....	1.96	2.15	-.19	-8.85	-2.69
50 years: 2008-2057.....	1.95	2.15	-.20	-9.36	-3.08
55 years: 2008-2062.....	1.94	2.16	-.21	-9.77	-3.46
60 years: 2008-2067.....	1.94	2.16	-.22	-10.12	-3.85
65 years: 2008-2072.....	1.94	2.16	-.23	-10.46	-4.23
70 years: 2008-2077.....	1.93	2.17	-.23	-10.78	-4.62
75 years: 2008-2082.....	1.93	2.17	-.24	-11.08	-5.00
OASDI:					
10 years: 2008-2017.....	17.04	13.35	3.70	27.70	.00
15 years: 2008-2022.....	15.77	13.62	2.14	15.74	-.38
20 years: 2008-2027.....	15.16	14.03	1.13	8.03	-.77
25 years: 2008-2032.....	14.81	14.43	.38	2.65	-1.15
30 years: 2008-2037.....	14.59	14.74	-.15	-1.04	-1.54
35 years: 2008-2042.....	14.43	14.95	-.53	-3.51	-1.92
40 years: 2008-2047.....	14.31	15.09	-.79	-5.21	-2.31
45 years: 2008-2052.....	14.22	15.20	-.98	-6.46	-2.69
50 years: 2008-2057.....	14.14	15.28	-1.14	-7.46	-3.08
55 years: 2008-2062.....	14.08	15.36	-1.28	-8.31	-3.46
60 years: 2008-2067.....	14.04	15.43	-1.40	-9.05	-3.85
65 years: 2008-2072.....	14.00	15.50	-1.50	-9.70	-4.23
70 years: 2008-2077.....	13.96	15.57	-1.60	-10.31	-4.62
75 years: 2008-2082.....	13.94	15.63	-1.70	-10.86	-5.00

Note: Totals do not necessarily equal the sums of rounded components.

Figure IV.B4.—Test of Long-Range Close Actuarial Balance
[Comparison of estimated long-range actuarial balances with the minimum
allowable for close actuarial balance under intermediate assumptions]
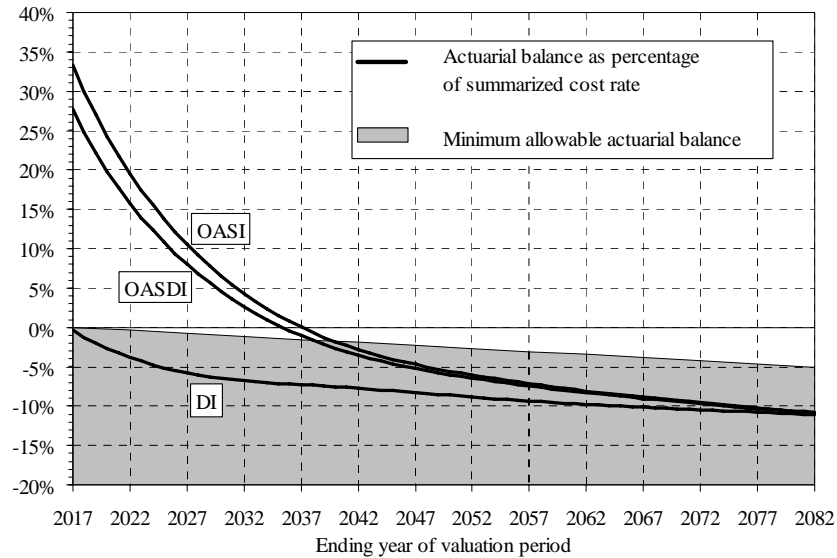
7. Reasons for Change in Actuarial Balance From Last Report

The estimated effects of various changes from last year's report to this report
on the long-range actuarial balance under the intermediate assumptions are
listed (by category) in table IV.B9.

**Table IV.B9.—Reasons for Change in the 75-Year Actuarial Balance
Under Intermediate Assumptions**
[As a percentage of taxable payroll]

Item	OASI	DI	OASDI
Shown in last year's report:			
Income rate	11.99	1.93	13.92
Cost rate	13.68	2.19	15.87
Actuarial balance	**-1.69**	**-.27**	**-1.95**
Changes in actuarial balance due to changes in:			
Legislation / Regulation	.00	.00	.00
Valuation period[1]	-.06	-.01	-.06
Demographic data and assumptions	-.02	+.02	.00
Economic data and assumptions.	-.01	+.01	.00
Disability assumptions	.00	.00	.00
Methods and programmatic data	+.31	+.01	+.32
Total change in actuarial balance	+.23	+.03	+.26
Shown in this report:			
Actuarial balance	**-1.46**	**-.24**	**-1.70**
Income rate.	12.01	1.93	13.94
Cost rate	13.46	2.17	15.63

[1] In changing from the valuation period of last year's report, which was 2007-81, to the valuation period of this report, 2008-82, the relatively large negative annual balance for 2082 is included. This results in a larger long-range actuarial deficit. The fund balance at the end of 2007, i.e., at the beginning of the projection period, is included in the 75-year actuarial balance.

Note: Totals do not necessarily equal the sums of rounded components.

There were no legislative changes since the last report that are projected to have a significant effect on the long-range OASDI actuarial balance.

In changing from the valuation period of last year's report, which was 2007-81, to the valuation period of this report, 2008-82, the relatively large negative annual balance for 2082 is included. This results in a decrease (worsening) in the long-range OASDI actuarial balance of 0.06 percent of taxable payroll. (Note that the fund balance at the end of 2007, i.e., at the beginning of the projection period, is included in the 75-year actuarial balance.)

Changes in the demographic starting values and the transition to ultimate assumptions and changes in the ultimate mortality and legal immigration assumptions have largely offsetting effects and combine to have little net effect on the long-range OASDI actuarial balance. Final mortality data for 2004 result in slightly lower starting death rates and faster near-term declines in death rates than in last year's report. Also, slightly faster rates of decline in death rates are assumed ultimately for ages 15-64 in this year's report. These changes in ultimate rates are based on the continuing strong declines in mortality recently experienced by men at these ages and a belief that the lower rates of decline experienced by women since 1982 will not continue in the future. All of the mortality changes result in a decrease (worsening) in the long-range actuarial balance of about 0.12 percent of taxable payroll. Partially offsetting the effect of the mortality changes is an increase in the

assumed ultimate level of net legal immigration in this year's report. Based on data since 2000, the ultimate level of net legal immigration is assumed to increase from 600,000 to 750,000 persons per year. This change results in an increase (improvement) in the long-range actuarial balance of about 0.07 percent of taxable payroll. Other demographic changes are made to the starting values of birth rates and numbers of people in the Social Security area. Birth rates for the first 25 years of the projection period are higher than in last year's report, based on preliminary birth data for 2005 and 2006 which indicate higher than expected numbers of births. These changes in birth rates and the starting population result in an increase (improvement) in the long-range actuarial balance of about 0.05 percent of taxable payroll.

Ultimate economic assumptions are unchanged from last year's report. Changes in starting values for the economic assumptions and in the near-term transition to the ultimate economic assumptions have a negligible effect on the OASDI long-range actuarial balance.

Several methodological improvements and updates of program-specific data are included in the 2008 report. These changes to programmatic data and methods result in a combined increase (improvement) in the long-range OASDI actuarial balance of about 0.32 percent of taxable payroll. The most significant of these changes is a major revision in the methods used for projecting the other-immigrant (other than legal permanent resident) population. In previous reports, the other-immigrant population was projected using assumed annual numbers of net other immigrants with a static age-sex distribution. For this year's report, the annual numbers of net other immigrants are projected by explicitly modeling other immigrants and other emigrants separately. Under this approach, a large number of other immigrants is assumed to enter the Social Security area at relatively young working ages, with the total annual number of other immigrants entering the area assumed to be about 1.5 million. Most of these immigrants are assumed to either: (1) leave the Social Security area (i.e., to depart from the area without having attained the legal status or work credits needed to become eligible for retired-worker benefits); or (2) attain legal permanent resident (LPR) status after several years of being in the other-immigrant population. Thus, this year's report results in a much larger other-immigrant population projected at working ages and a smaller number remaining in the Social Security area into old age. This change, along with the additional births due to the larger other-immigrant population at younger ages, results in a substantial increase in the number of working-age individuals contributing payroll taxes, but a relatively smaller increase in the number of retirement-age individuals receiving benefits in the latter half of the long-range period. This revision results in an increase (improvement) in the long-range actuarial balance of about 0.30 percent of taxable payroll. Another area of methodological improvement is

related to the projection of average benefit levels for workers who will become eligible in the future. The historical sample of new beneficiaries, which serves as the basis for the projection of average benefit levels, was updated from a 2003 sample to a 2004 sample. Also, additional records of beneficiaries who began receiving benefits after the year for which they were first found to be entitled are now included in the sample of newly entitled retired-worker beneficiaries. These changes in projecting average benefits, along with several other smaller changes, result in an increase (improvement) in the long-range actuarial balance of about 0.02 percent of taxable payroll.

The combined effects of changes made in data, assumptions, and methods for this report more than offset the decrease in the OASDI long-range actuarial balance due to the new valuation period. This effect is indicated by the total 0.26 percent of payroll increase in the actuarial balance, which, after rounding, changes the actuarial balance from a deficit of 1.95 percent in last year's report to a deficit of 1.70 percent of taxable payroll in this report.

The effects of changes made in this report can also be illustrated by comparing the annual (cash-flow) balances for this and the prior year's report. Figure IV.B5 provides this comparison for the combined OASDI program over the long-range (75-year) projection period.

Figure IV.B5.—OASDI Annual Balances: 2007 and 2008 Trustees Reports
[As a percentage of taxable payroll under the intermediate assumptions]
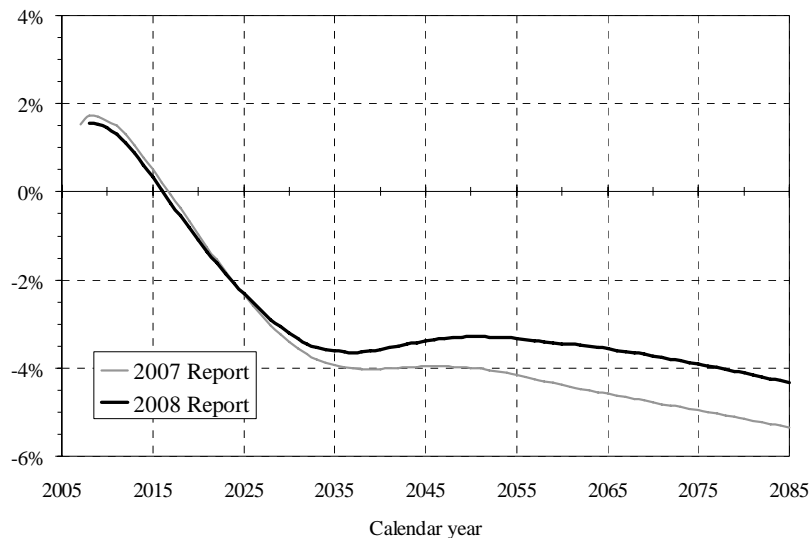
During the first 10 years of the projection period, the annual balances in this report are lower than those in last year's report by about 0.18 percent of taxable payroll, on average. These diminished annual balances early in the projection period reflect the fact that, the more unfavorable economic experience during 2007 and assumed for the first few projection years in this year's report and the lower death rates for retirees projected for this year's report, have a larger effect in increasing cost than do the changes in immigration assumptions and methods in increasing workers and payroll. After 2017, the difference in projected annual balances between the two reports declines, as the impact of early economic experience diminishes and the number of immigrant workers increases, with annual balances becoming similar around 2024. Thereafter, the projected annual balances in this year's report are higher than those in last year's report, reaching over 1 percent of payroll higher by the end of the 75-year projection period. The higher annual balances in this year's report for years after 2035 reflect the combined effects of: (1) the increased working-age population due to the cumulative effects of higher legal and other immigration; and (2) reductions in the other-immigrant population at retirement ages due to the improved projection methods. Also contributing to the improved annual balances in later years is the assumption that new policies since 2001 for issuing Social Security numbers will result in a reduced likelihood that the other-immigrant population remaining in the Social Security area will collect benefits. The annual deficit for 2081 is 4.16 percent of taxable payroll in this report compared to 5.20 percent for 2081 in last year's report.

V. ASSUMPTIONS AND METHODS UNDERLYING ACTUARIAL ESTIMATES

The future income and cost of the OASDI program will depend on many demographic, economic, and program-specific factors. Trust fund income will depend on how these factors affect the size and composition of the working population and the level and distribution of earnings. Similarly, program cost will depend on how these factors affect the size and composition of the beneficiary population and the general level of benefits.

Basic assumptions are developed for several of these factors based on analysis of historical trends and conditions, and on expected future conditions. These factors include fertility, mortality, immigration, marriage, divorce, productivity, inflation, average earnings, unemployment, retirement, and disability incidence and termination. Other factors are projected using methods that reflect historical and expected future relationships to the basic assumptions. These include total population, life expectancy, labor force, gross domestic product, interest rates, and many program-specific factors. It should be noted that all factors included in any consistent set of assumptions are interrelated directly or indirectly. It is also important to note that these interrelationships can and do change over time.

The assumptions and methods used in this report are reexamined each year in light of recent experience and new information about future conditions, and are revised if warranted.

Because projections of these factors and their interrelationships are inherently uncertain, a range of estimates is shown in this report on the basis of three sets of assumptions, designated as intermediate (alternative II), low cost (alternative I), and high cost (alternative III). The intermediate set represents the Board's best estimate of the future course of the population and the economy. In terms of the net effect on the status of the OASDI program, the low cost is the most optimistic, and the high cost is the most pessimistic. The low and high cost sets of assumptions reflect significant potential changes in the interrelationship among factors, as well as changes in the values for individual factors. The probability is very low that all the assumptions and interactions would differ in the same direction from those expected. Outcomes with overall cost as low as (or lower than) the low cost scenario or as high as (or higher than) the high cost scenario also have a very low probability.

Although these three sets of demographic and economic assumptions have been developed to provide a broad range of possible outcomes, the resulting estimates should be interpreted with care. The estimates are not intended to be specific predictions of the future financial status of the OASDI program,

but rather, they are intended to be indicators of the expected trend and a reasonable range of future income and cost, under a variety of plausible demographic and economic conditions.

The values for each of the demographic, economic, and program-specific factors are assumed to move from recently experienced levels or trends, toward long-range ultimate values, generally over the next 25 years. Ultimate values or trends reached by the end of the 75-year long-range period are generally maintained at these levels or trends for extrapolations beyond 75 years. One exception is for real-wage growth, as described in section IV.B.5.

The assumed ultimate values, which are reached within the first 25 years (and apply thereafter through the end of the 75-year long-range period) for both the demographic and the economic factors, are intended to represent average annual experience or growth rates. Actual future values will exhibit fluctuations or cyclical patterns, as in the past.

The following sections discuss, in abbreviated form, the various assumptions and methods required to make the estimates of trust fund financial status which are the heart of this report.[1] There are, of course, many interrelationships among these factors that make a sequential presentation potentially misleading. Nevertheless, the following sections roughly follow the order used in building the trust fund estimates presented in chapter IV.

A. DEMOGRAPHIC ASSUMPTIONS AND METHODS

The principal demographic assumptions relating to fertility, mortality, and net immigration for the three alternatives are shown in table V.A1. The rationales for selecting these assumptions are discussed in the following three sections.

1. Fertility Assumptions

Fertility (birth rate) assumptions are developed for women by single year of age, from 14 to 49. They are applied to the total number of women in the population at each age, for all marital statuses.

---

[1] Further details about the assumptions, methods, and actuarial estimates are contained in Actuarial Studies published by the Office of the Chief Actuary, Social Security Administration. A complete list of available studies may be found on the Social Security website at:
www.socialsecurity.gov/OACT/NOTES/actstud.html. To obtain copies of such studies, or of this report, submit a request via our Internet request form at www.socialsecurity.gov/OACT/request.html; or write to: Office of the Chief Actuary, 700 Altmeyer Building, 6401 Security Boulevard, Baltimore, MD 21235; or call (410) 965-3006. This entire report, along with supplemental year-by-year tables, may also be found at www.socialsecurity.gov/OACT/TR/TR08/index.html.

Historically, fertility rates in the United States have fluctuated widely. The total fertility rate[1] decreased from 3.3 children per woman after World War I to 2.1 during the Great Depression, rose to 3.7 in 1957, and then fell to 1.7 in 1976. After 1976, the total fertility rate began to rise again, reaching a level of 2.07 for 1990. Since then, the total fertility rate has remained fairly stable, around 2.0 children per woman.

These variations in fertility rates have resulted from changes in many factors, including social attitudes, economic conditions, and the use of birth-control methods. Future fertility rates may be expected to remain close to recent levels. The recent historical and projected trends in certain population characteristics, such as the rising percentages of women who have never married, of women who are divorced, and of young women who are in the labor force, are consistent with a continued relatively low fertility rate. Based on consideration of these factors, ultimate total fertility rates of 2.3, 2.0 and 1.7 children per woman were selected for the low cost, intermediate, and high cost assumptions, respectively. These assumptions are unchanged from those used in last year's report.

Based on preliminary data for 2005 and 2006, the total fertility rate is assumed to reach a level of 2.06 children per woman for 2006 and 2007. These levels are slightly higher than those estimated in last year's report for the intermediate assumptions. For all three alternatives, the total fertility rate is then assumed to follow a gradual trend toward the selected ultimate level, which is reached for 2032 and later.

2. Mortality Assumptions

For the projections in this year's report, assumed average percentage reductions in future mortality rates were developed by age group, sex, and cause of death. These assumptions were then used to estimate future central death rates by age group, sex, and cause of death. From these estimated central death rates, resulting probabilities of death by single year of age and sex were calculated.

Historical death rates (for years 1900-2004) used in developing estimates for this report were calculated for ages below 65 (and for all ages for years prior to 1968) using data from the National Center for Health Statistics (NCHS).[2]

---

[1] Defined to be the average number of children that would be born to a woman in her lifetime if she were to experience the birth rates by age observed in, or assumed for, the selected year, and if she were to survive the entire childbearing period. A rate of 2.1 would ultimately result in a nearly constant population if net immigration were zero and if death rates were constant.

[2] These rates reflect NCHS data on deaths and Census estimates of population.

For ages 65 and over, final Medicare data on deaths and enrollments were used for years 1968 through 2004. Death rates by cause of death at all ages, for years 1979-2004, were produced by the NCHS.

The total age-sex-adjusted death rate[1] declined at an average rate[2] of 1.08 percent per year between 1900 and 2004. Between 1979 and 2004, the period for which death rates were analyzed by cause, the total age-sex-adjusted death rate (for all causes combined) declined at an average rate of 0.86 percent per year.

Death rates have declined substantially in the U.S. since 1990, with rapid declines over some periods and slow or no improvement over the other periods. Historical death rates have generally declined more slowly for older ages than for the rest of the population. The age-sex-adjusted death rate for ages 65 and over declined at an average rate of 0.76 percent per year between 1900 and 2004. Between 1979 and 2004 the age-sex-adjusted death rate for these ages declined at an average annual rate of 0.66 percent.

Reductions in death rates have resulted from many factors, including increased medical knowledge and availability of health-care services, and improvements in sanitation and nutrition. Based on consideration of the expected rate of future progress in these and other areas, three alternative sets of ultimate annual percentage reductions in central death rates by age group, sex, and cause of death were selected for 2032 and later. The intermediate set, which was used for alternative II, is considered to be the most likely to occur. The average annual percentage reductions used for alternative I are generally smaller than those for alternative II, while those used for alternative III are generally greater. These three sets of ultimate annual percentage reductions differ only slightly from those used in last year's report.

After 2004, the reductions in central death rates for alternative II are assumed to change rapidly from the average annual reductions by age group, sex, and cause of death observed between 1984 and 2004, to the ultimate annual percentage reductions by age group, sex, and cause of death assumed for 2032 and later. The reductions in death rates under alternatives I and III are also assumed to change rapidly to their ultimate levels, but start from lev-

---

[1] Calculated here as the crude rate that would occur in the enumerated total population, as of April 1, 2000, if that population were to experience the death rates by age and sex for the selected year.

[2] Average rate of decline is calculated as the annual geometric rate of reduction between the first and last years of the period.

els which are, respectively, 50 or 150 percent of the average annual reductions observed between 1984 and 2004.

Projections of age-sex-adjusted death rates are presented in table V.A1 for the total (all ages), for under age 65, and for ages 65 and over. Under the intermediate assumptions, these projected age-sex-adjusted death rates are lower than the death rates in last year's report. New final death data for 2004 indicate a substantial decrease in the total age-sex-adjusted death rate of about 4 percent for the year. However, preliminary death data for 2005 and 2006 indicate little, if any, further decline from the 2004 death rates. This suggests that the large decline for 2004 may have resulted in part from an acceleration of declines that would have been expected to occur in later years.

After adjustment for changes in the age-sex distribution of the population, the resulting total death rates are projected to decline at ultimate average annual rates of about 0.32 percent, 0.73 percent, and 1.21 percent between 2032 and 2082 for alternatives I, II, and III, respectively. In keeping with the patterns observed in the historical data, future rates of decline are assumed to be greater for younger ages than for older ages, but to a substantially lesser degree than in the past. Accordingly, age-sex-adjusted death rates for ages 65 and over are projected to decline at average annual rates of about 0.28 percent, 0.65 percent, and 1.13 percent between 2032 and 2082 for alternatives I, II, and III, respectively.

There is a wide range of opinion among experts on the likely rate of future decline in death rates. For example, the 2003 Technical Panel on Assumptions and Methods appointed by the Social Security Advisory Board believed that ultimate rates of decline in mortality will be higher than the rates of decline assumed for the intermediate projections in this report. Others believe that biological and social factors may slow future rates of decline in mortality. Evolving mortality trends and developments in health care and life style will be closely monitored to determine what further modifications to the assumed ultimate rates of decline in mortality may be warranted for future reports.

3. Immigration Assumptions

In order to develop projections of the total Social Security area population, assumptions are made for annual legal immigration, legal emigration, other immigration, and other emigration. Legal immigration consists of persons who are granted legal permanent resident (LPR) status. Legal emigration consists of those legal immigrants and native-born citizens who leave the

Social Security area population. Net legal immigration is then calculated as the difference between legal immigration and legal emigration. Other immigration consists of immigrants who enter the Social Security area and stay 6 months or more but without LPR status, such as undocumented immigrants and temporary foreign workers and students. Other emigration consists of other immigrants who leave the Social Security area population or who adjust their status to LPR. Net other immigration is then calculated as the difference between other immigration and other emigration. For previous Trustees Reports, annual net other immigration was assumed without making explicit assumptions for other immigrants or other emigrants.

Separate assumptions are developed for the low cost, intermediate, and high cost scenarios. The low cost scenario includes higher annual net immigration and the high cost scenario includes lower annual net immigration.

Legal immigration increased after World War II to around 300,000 persons per year and remained around that level until shortly after 1960. With the Immigration Act of 1965 and other related changes, annual legal immigration increased to about 400,000 and remained fairly stable until 1977. Between 1977 and 1990, legal immigration once again increased, averaging about 580,000[1] per year. The Immigration Act of 1990, which took effect in fiscal year 1992, restructured the immigration categories and increased significantly the number of immigrants who may legally enter the United States.

Legal immigration averaged about 790,000[1] persons per year during the period 1992 through 2000. Legal immigration increased to about 900,000 in 2000 and about 1,000,000 in 2001 reflecting primarily an increase in the number of persons granted LPR status as immediate relatives of U.S. citizens, the only category of legal immigration that is not numerically limited. However, legal immigration declined to less than 800,000 by 2003 as the number of pending applications increased. Since 2003, legal immigration has increased, rising above 1,100,000 in 2005 and reaching a level over 1,200,000 in 2006. Legal immigration in excess of 1,000,000 reflects the concerted effort in recent years to reduce the backlog of pending applications for LPR status.

For the intermediate alternative, it is assumed that the backlog of pending applications will be reduced by the end of 2009, and thereafter legal immigration will average approximately 1,000,000 persons per year. For alternatives I and III, annual legal immigration is ultimately assumed to be

---

[1] Excludes those persons who attained legal permanent resident status under the special, one-time provisions of the Immigration Reform and Control Act of 1986.

1,200,000 persons and 800,000 persons, respectively. These are higher than the ultimate legal immigration assumptions used in the 2007 report, which were 1,062,500, 800,000, and 675,000 for alternatives I, II, and III, respectively.

The ratios of annual legal emigration to legal immigration are assumed to be 20, 25, and 30 percent for alternatives I, II, and III, respectively. This range is consistent with the limited historical data for legal emigration from the Social Security area. These are the same ratios used in the 2007 Trustees Report. Combining the annual legal immigration and emigration assumptions, results in ultimate net legal immigration of 750,000 persons per year under the intermediate alternative. For the low cost and high cost scenarios, ultimate annual net legal immigration is 960,000 persons and 560,000 persons, respectively.

Significant changes for projecting other immigration are implemented in this year's report. In previous reports, annual other immigration was estimated by assuming a fixed number of net other immigrants with a static age-sex distribution. For this year's report, the annual numbers of other immigrants and other emigrants are modeled separately. In addition, the new model reflects the fact that many new legal immigrants are persons who adjust to LPR status from the other-immigrant population.

The number of other immigrants residing in the Social Security area population is estimated to have been about 9.7 million persons as of April 1, 2000, increasing to about 13.0 million persons as of January 1, 2006. This other-immigrant population is highly mobile and far more likely to leave the Social Security area than is the native-born or legal-immigrant population. The average number of persons entering the other-immigrant population in the period 2000 through 2006 is estimated to have been about 1.5 million persons per year. During the same period, the number of other immigrants who left the Social Security area or adjusted status to become an LPR averaged about 950,000 per year. Thus, annual net other immigration during this time period is estimated to have averaged approximately 550,000 persons.

For the intermediate assumptions, annual other immigration is assumed to continue at the level of 1.5 million persons throughout the projection period. For the low and high cost scenarios, future annual other immigration is assumed to average 1.8 million persons and 1.2 million persons, respectively.

Emigration from the other-immigrant population includes those who leave the Social Security area and those who adjust status to become LPRs. The annual number of other immigrants who leave the Social Security area is

estimated based on modeled departures for the period 2000-06, disaggregated into two groups. The first departing group is calculated by applying a set of annual departure rates, by age and sex, to the other-immigrant population in the Social Security area. The second departing group is set at fixed annual numbers of departures, by age and sex, which remain constant throughout the projection period. For the intermediate assumptions, the ultimate annual number of other immigrants who adjust status to become an LPR is assumed to be 500,000, or one third of the annual number of other immigrants entering the Social Security area. For the low and high cost scenarios, ultimate annual numbers adjusting status to LPR are assumed to average 600,000 persons and 400,000 persons, respectively.

Under the assumptions and methods described above, the size of the other-immigrant population is projected to grow substantially. This growth reflects the excess of annual other immigration over the combined annual numbers of emigrants and deaths that occur within the other-immigrant population.

Net other immigration decreased from a level averaging well over 550,000 per year in the period 2000 through 2003, to about 380,000 in 2006, reflecting an increase in the number of other immigrants adjusting to LPR status as a result of the effort to reduce the backlog of applications for LPR status. By 2010, when the backlog of applications is expected to be eliminated, net other immigration is projected to rise to a level of about 445,000 persons per year. After 2010, net other immigration is projected to decline steadily to about 275,000 in 2061 and to remain fairly stable thereafter. The decline in net other immigration is attributable to the increasing number of other immigrants residing in the Social Security area, which results in an increase in the numbers who emigrate out of the area based on the rates of departure described above. All other components of other immigration and emigration are set at fixed levels after 2009, and thus do not contribute toward any change in net other immigration. While annual net other immigration is projected to fall below the ultimate assumption of 300,000 used in last year's report, average annual net other immigration over the 75-year projection period in this year's report is higher, at 315,000 persons. Net other immigration is estimated to average about 415,000 persons per year under the low cost assumptions and 225,000 persons per year under the high cost assumptions.

The total level of net immigration (legal and other combined) is estimated to average 1,070,000 persons per year during the 75-year projection period under the intermediate assumptions. For the low cost assumptions, total net immigration is estimated to average 1,375,000 persons per year. Under the

high cost assumptions, total net immigration is estimated to average 790,000 persons per year.

Demographers express a wide range of views about the future course of immigration for the United States. Some, like the 2003 Technical Panel mentioned in the previous section, believe that immigration will increase substantially in the future. Others believe that potential immigrants may be attracted to other countries or that the U.S. borders could be tightened in the future.

Table V.A1.—Principal Demographic Assumptions, Calendar Years 1940-2085

Calendar year	Total fertility rate[1]	Age-sex-adjusted death rate[2] per 100,000, by age			Net immigration	
		Total	Under 65	65 and over	Legal[3]	Other[4]
Historical data:						
1940	2.23	1,779.1	673.0	9,569.0	45,000	
1945	2.42	1,586.6	601.8	8,522.4	55,000	
1950	3.03	1,435.6	499.4	8,028.3	170,000	
1955	3.50	1,334.2	442.8	7,612.2	210,000	
1960	3.61	1,330.9	436.9	7,626.7	200,000	
1965	2.88	1,304.6	430.0	7,464.0	230,000	
1970	2.43	1,224.3	422.6	6,870.7	280,000	
1975	1.77	1,099.0	369.5	6,236.4	295,000	
1980	1.82	1,035.9	331.9	5,993.6	410,000	375,000
1985	1.84	984.2	303.6	5,777.6	435,000	375,000
1990	2.07	931.2	289.4	5,451.1	500,000	550,000
1995	1.98	913.9	277.3	5,397.5	575,000	550,000
1996	1.98	900.4	266.1	5,367.2	665,000	550,000
1997	1.97	885.1	253.6	5,332.5	570,000	550,000
1998	2.00	878.3	246.9	5,325.2	490,000	550,000
1999	2.01	884.3	245.0	5,386.6	520,000	550,000
2000	2.06	875.7	243.4	5,328.3	670,000	630,000
2001	2.03	867.3	243.5	5,260.7	795,000	500,000
2002	2.02	863.6	242.6	5,236.6	730,000	555,000
2003	2.05	851.4	241.2	5,148.2	575,000	685,000
2004	2.05	819.9	234.8	4,940.6	750,000	505,000
2005[5]	2.05	835.8	230.6	5,098.4	870,000	445,000
2006[5]	2.06	831.0	227.7	5,079.9	950,000	380,000
2007[5]	2.06	826.5	224.9	5,062.9	900,000	375,000
Intermediate:						
2010	2.06	812.2	217.1	5,003.5	750,000	445,000
2015	2.04	782.4	205.0	4,848.9	750,000	410,000
2020	2.03	750.5	193.7	4,671.8	750,000	380,000
2025	2.02	719.3	183.2	4,495.4	750,000	360,000
2030	2.01	689.8	173.3	4,327.1	750,000	335,000
2035	2.00	662.0	164.1	4,168.1	750,000	315,000
2040	2.00	635.9	155.5	4,019.1	750,000	300,000
2045	2.00	611.5	147.4	3,879.5	750,000	290,000
2050	2.00	588.6	139.9	3,748.4	750,000	285,000
2055	2.00	567.0	132.8	3,625.3	750,000	280,000
2060	2.00	546.8	126.1	3,509.5	750,000	280,000
2065	2.00	527.8	119.9	3,400.3	750,000	275,000
2070	2.00	509.8	114.0	3,297.3	750,000	275,000
2075	2.00	492.9	108.5	3,200.0	750,000	275,000
2080	2.00	476.8	103.2	3,107.9	750,000	275,000
2085	2.00	461.7	98.3	3,020.7	750,000	275,000

Table V.A1.—Principal Demographic Assumptions, Calendar Years 1940-2085 (Cont.)

Calendar year	Total fertility rate[1]	Age-sex-adjusted death rate[2] per 100,000, by age			Net immigration	
		Total	Under 65	65 and over	Legal[3]	Other[4]
Low Cost:						
2010	2.09	827.7	221.9	5,094.6	960,000	640,000
2015	2.14	820.2	216.4	5,072.6	960,000	560,000
2020	2.19	807.8	210.9	5,011.2	960,000	510,000
2025	2.23	793.9	205.5	4,938.4	960,000	475,000
2030	2.28	780.1	200.2	4,863.5	960,000	440,000
2035	2.30	766.4	195.2	4,789.3	960,000	415,000
2040	2.30	753.2	190.3	4,717.5	960,000	390,000
2045	2.30	740.5	185.6	4,648.2	960,000	375,000
2050	2.30	728.3	181.1	4,581.4	960,000	360,000
2055	2.30	716.5	176.8	4,516.9	960,000	355,000
2060	2.30	705.1	172.7	4,454.6	960,000	350,000
2065	2.30	694.1	168.7	4,394.5	960,000	345,000
2070	2.30	683.5	164.8	4,336.4	960,000	345,000
2075	2.30	673.2	161.1	4,280.3	960,000	345,000
2080	2.30	663.4	157.5	4,226.1	960,000	345,000
2085	2.30	653.8	154.0	4,173.6	960,000	345,000
High Cost:						
2010	2.02	796.8	212.5	4,912.4	630,000	205,000
2015	1.95	745.4	194.6	4,624.4	560,000	255,000
2020	1.87	695.2	178.9	4,331.3	560,000	250,000
2025	1.80	648.3	164.8	4,053.5	560,000	245,000
2030	1.73	605.1	151.9	3,796.5	560,000	230,000
2035	1.70	565.4	140.2	3,560.0	560,000	220,000
2040	1.70	529.2	129.6	3,343.4	560,000	215,000
2045	1.70	496.0	119.8	3,144.9	560,000	210,000
2050	1.70	465.5	110.9	2,962.6	560,000	205,000
2055	1.70	437.6	102.8	2,795.1	560,000	205,000
2060	1.70	411.9	95.4	2,640.8	560,000	210,000
2065	1.70	388.2	88.5	2,498.6	560,000	210,000
2070	1.70	366.4	82.3	2,367.3	560,000	210,000
2075	1.70	346.2	76.5	2,245.9	560,000	210,000
2080	1.70	327.6	71.2	2,133.4	560,000	210,000
2085	1.70	310.4	66.3	2,029.1	560,000	210,000

[1] The total fertility rate for any year is the average number of children who would be born to a woman in her lifetime if she were to experience the birth rates by age observed in, or assumed for, the selected year, and if she were to survive the entire childbearing period. The ultimate total fertility rate is assumed to be reached in 2032.

[2] The age-sex-adjusted death rate is the crude rate that would occur in the enumerated total population as of April 1, 2000, if that population were to experience the death rates by age and sex observed in, or assumed for, the selected year.

[3] Historical estimates of net legal immigration assume a 25 percent reduction in legal immigration due to legal emigration. Estimates do not include persons legalized under the Immigration Reform and Control Act of 1986.

[4] Net other annual immigration is estimated to have averaged 375,000 persons over the period 1980-89 and 550,000 persons over the period 1990-99.

[5] Estimated.

4. Total Population Estimates

Combining the above assumptions for future fertility, mortality, and net immigration with assumptions on marriage and divorce based on data from the NCHS, projections were made of the population in the Social Security area by age, sex, and marital status as of January 1 of each year 2007 through

2085. The starting Social Security area population for January 1, 2006, is based on the Census Bureau's estimate of the residents of the 50 States and D.C., and U.S. Armed Forces overseas. The base estimate is adjusted for net census undercount and increased for other U.S. citizens living abroad (including residents of U.S. territories) and for non-citizens living abroad who are insured for Social Security benefits. This starting population was then projected using assumed rates of birth, death, marriage and divorce, and assumed levels of net immigration.

Table V.A2 shows the historical and projected population as of July 1 by broad age group, for the three alternatives. Also shown are aged and total dependency ratios (see table footnotes for definitions).

Table V.A2.—Social Security Area Population as of July 1 and Dependency Ratios, Calendar Years 1950-2085

Calendar year	Population (in thousands)				Dependency ratio	
	Under 20	20-64	65 and over	Total	Aged[1]	Total[2]
Historical data:						
1950	54,466	92,841	12,811	160,118	0.138	0.725
1960	73,076	99,818	17,278	190,172	.173	.905
1965	80,052	104,805	19,070	203,927	.182	.946
1970	80,864	112,996	20,899	214,759	.185	.901
1975	78,776	122,579	23,254	224,609	.190	.832
1980	74,929	134,110	26,196	235,236	.195	.754
1985	73,401	144,851	29,122	247,374	.201	.708
1990	75,154	153,316	31,981	260,452	.209	.699
1995	79,541	160,872	34,336	274,748	.213	.708
2000	82,684	170,127	35,474	288,284	.209	.695
2005	84,512	181,058	37,293	302,863	.206	.673
2007[3]	85,276	185,135	38,264	308,675	.207	.667
Intermediate:						
2010	86,121	190,674	40,303	317,097	.211	.663
2015	87,644	197,105	46,393	331,142	.235	.680
2020	90,224	200,843	54,082	345,149	.269	.719
2025	92,839	202,943	62,837	358,619	.310	.767
2030	95,176	205,359	70,437	370,973	.343	.806
2035	96,988	210,038	74,972	381,998	.357	.819
2040	98,646	216,003	77,353	392,002	.358	.815
2045	100,446	222,192	78,777	401,416	.355	.807
2050	102,547	227,282	80,845	410,674	.356	.807
2055	104,806	231,736	83,602	420,145	.361	.813
2060	106,919	235,906	87,202	430,027	.370	.823
2065	108,839	240,958	90,513	440,309	.376	.827
2070	110,688	246,105	93,991	450,784	.382	.832
2075	112,609	251,165	97,471	461,245	.388	.836
2080	114,636	255,823	101,120	471,580	.395	.843
2085	116,702	260,221	104,906	481,829	.403	.852

Table V.A2.—Social Security Area Population as of July 1 and Dependency Ratios, Calendar Years 1950-2085 (Cont.)

Calendar year	Population (in thousands)				Dependency ratio	
	Under 20	20-64	65 and over	Total	Aged[1]	Total[2]
Low Cost:						
2010	86,439	191,101	40,272	317,812	0.211	0.663
2015	89,306	198,830	46,162	334,299	.232	.681
2020	93,981	203,802	53,474	351,256	.262	.724
2025	99,481	207,101	61,659	368,242	.298	.778
2030	105,425	210,789	68,498	384,712	.325	.825
2035	110,984	217,387	72,155	400,526	.332	.842
2040	116,111	226,023	73,660	415,794	.326	.840
2045	121,316	235,571	74,354	431,240	.316	.831
2050	126,927	244,714	75,896	447,537	.310	.829
2055	132,834	253,971	78,277	465,082	.308	.831
2060	138,974	263,468	81,498	483,940	.309	.837
2065	145,081	274,555	84,321	503,956	.307	.836
2070	151,118	286,643	87,137	524,898	.304	.831
2075	157,239	299,490	89,920	546,649	.300	.825
2080	163,603	312,184	93,444	569,231	.299	.823
2085	170,211	324,723	97,782	592,717	.301	.825
High Cost:						
2010	85,815	190,269	40,336	316,419	.212	.663
2015	86,045	195,472	46,637	328,154	.239	.679
2020	86,618	198,032	54,725	339,375	.276	.714
2025	86,491	198,986	64,079	349,556	.322	.757
2030	85,439	200,186	72,481	358,106	.362	.789
2035	83,818	203,008	77,955	364,781	.384	.797
2040	82,427	206,392	81,294	370,114	.394	.793
2045	81,407	209,348	83,543	374,298	.399	.788
2050	80,787	210,570	86,221	377,578	.409	.793
2055	80,392	210,505	89,409	380,306	.425	.807
2060	79,649	209,765	93,400	382,814	.445	.825
2065	78,685	209,385	97,177	385,247	.464	.840
2070	77,764	208,436	101,284	387,483	.486	.859
2075	77,039	206,820	105,439	389,298	.510	.882
2080	76,468	204,849	109,180	390,497	.533	.906
2085	75,930	202,813	112,337	391,080	.554	.928

[1] Ratio of the population at ages 65 and over to the population at ages 20-64.
[2] Ratio of the population at ages 65 and over and the population under age 20 to the population at ages 20-64.
[3] Estimated.

Notes:
1. Historical data are subject to revision.

2. Totals do not necessarily equal the sums of rounded components.

5. Life Expectancy Estimates

Life expectancy, or average remaining number of years expected prior to death, is a useful analytical concept. Life expectancy is calculated in two different forms, for two separate purposes.

Period life expectancy is calculated for a given year using the actual or expected death rates at each age for that year. It is a useful summary statistic

for illustrating the overall level of the death rates experienced in a single year. It is thus closely related to the age-sex-adjusted death rate that is discussed in section V.A.2. Period life expectancy for a particular year may be viewed as the expected remaining life at a selected age *only* if it is assumed that there is no change in death rates after that year.

Cohort life expectancy truly answers the question "What is the expected average remaining lifetime for an individual at a selected age in a given year?" Cohort life expectancy is calculated using death rates not from a single year, but from the series of years in which the individual will actually reach each succeeding age if he or she survives. Cohort life expectancy is shown in table V.A4 for those born on January 1 of each calendar year, and for those attaining age 65 on January 1 of each calendar year.

Tables V.A3 and V.A4 present historical and projected life expectancy calculated on both period and cohort bases. Cohort life expectancy is somewhat greater than period life expectancy for the same year. This is because death rates for any given age tend to decline as time passes and the cohort grows older.

Table V.A3.—Period Life Expectancy[1]

| Calendar year | Low Cost | | | | Intermediate | | | | High Cost | | | |
| | At birth | | At age 65 | | At birth | | At age 65 | | At birth | | At age 65 | |
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Historical data:												
1940					61.4	65.7	11.9	13.4				
1945					62.9	68.4	12.6	14.4				
1950					65.6	71.1	12.8	15.1				
1955					66.7	72.8	13.1	15.6				
1960					66.7	73.2	12.9	15.9				
1965					66.8	73.8	12.9	16.3				
1970					67.2	74.9	13.1	17.1				
1975					68.7	76.6	13.7	18.0				
1980					69.9	77.5	14.0	18.4				
1985					71.1	78.2	14.4	18.6				
1990					71.8	78.9	15.1	19.1				
1995					72.5	79.1	15.4	19.1				
1996					73.0	79.2	15.5	19.1				
1997					73.4	79.4	15.6	19.1				
1998					73.7	79.4	15.7	19.1				
1999					73.8	79.3	15.7	19.0				
2000					74.0	79.4	15.9	19.0				
2001					74.1	79.5	16.1	19.1				
2002					74.2	79.5	16.2	19.1				
2003					74.4	79.6	16.3	19.2				
2004					74.8	80.0	16.7	19.5				
2005[2] . . .					74.9	79.8	16.5	19.2				
2006[2] . . .					75.1	79.8	16.6	19.2				
2007[2] . . .					75.2	79.9	16.7	19.2				
Projected:												
2010	75.4	79.8	16.8	19.2	75.7	80.0	16.9	19.3	75.9	80.2	17.1	19.4
2015	75.7	79.9	16.9	19.2	76.3	80.4	17.3	19.5	76.9	80.9	17.6	19.9
2020	76.0	80.1	17.0	19.3	76.9	80.9	17.6	19.8	77.9	81.7	18.2	20.3
2025	76.2	80.3	17.1	19.4	77.5	81.3	17.9	20.0	78.7	82.4	18.7	20.9
2030	76.5	80.5	17.3	19.5	78.0	81.8	18.2	20.3	79.5	83.1	19.2	21.3
2035	76.8	80.7	17.4	19.6	78.5	82.2	18.5	20.6	80.3	83.8	19.7	21.8
2040	77.0	80.9	17.5	19.7	79.0	82.6	18.8	20.9	81.1	84.5	20.2	22.3
2045	77.2	81.1	17.6	19.8	79.5	83.1	19.0	21.2	81.8	85.1	20.7	22.8
2050	77.5	81.3	17.7	19.9	80.0	83.4	19.3	21.4	82.6	85.7	21.2	23.3
2055	77.7	81.5	17.8	20.0	80.4	83.8	19.6	21.7	83.2	86.3	21.7	23.7
2060	77.9	81.6	17.9	20.1	80.8	84.2	19.8	21.9	83.9	86.9	22.1	24.1
2065	78.1	81.8	18.0	20.2	81.3	84.6	20.1	22.2	84.5	87.5	22.6	24.6
2070	78.3	82.0	18.1	20.3	81.7	84.9	20.3	22.4	85.2	88.0	23.0	25.0
2075	78.5	82.1	18.2	20.4	82.0	85.2	20.6	22.6	85.8	88.5	23.4	25.4
2080	78.7	82.3	18.3	20.5	82.4	85.6	20.8	22.8	86.3	89.0	23.8	25.8
2085	78.9	82.4	18.4	20.6	82.8	85.9	21.0	23.1	86.9	89.5	24.3	26.2

[1] The period life expectancy at a given age for a given year represents the average number of years of life remaining if a group of persons at that age were to experience the mortality rates for that year over the course of their remaining lives.
[2] Estimated.

Table V.A4.—Cohort Life Expectancy [1]

| Calendar year | Low Cost | | | | Intermediate | | | | High Cost | | | |
| | At birth[2] | | At age 65[3] | | At birth[2] | | At age 65[3] | | At birth[2] | | At age 65[3] | |
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1940	69.5	75.4	12.7	14.7	69.8	75.8	12.7	14.7	70.2	76.3	12.7	14.7
1945	71.1	76.8	13.0	15.4	71.6	77.3	13.0	15.4	72.1	78.0	13.0	15.4
1950	72.1	77.8	13.1	16.2	72.8	78.5	13.1	16.2	73.6	79.4	13.1	16.2
1955	72.6	78.2	13.1	16.7	73.5	79.2	13.1	16.7	74.6	80.3	13.1	16.7
1960	73.1	78.5	13.2	17.4	74.2	79.6	13.2	17.4	75.5	81.0	13.2	17.4
1965	73.7	78.8	13.5	18.0	75.1	80.2	13.5	18.0	76.7	81.8	13.5	18.0
1970	74.6	79.4	13.8	18.5	76.2	81.0	13.8	18.5	78.1	82.9	13.8	18.5
1975	75.2	79.9	14.2	18.7	77.2	81.7	14.2	18.7	79.3	83.9	14.2	18.7
1980	75.9	80.3	14.7	18.7	78.1	82.4	14.7	18.7	80.6	84.8	14.7	18.7
1985	76.4	80.6	15.3	18.8	78.8	83.0	15.3	18.9	81.6	85.7	15.3	18.9
1990	76.8	80.9	15.8	18.9	79.5	83.5	15.8	19.0	82.6	86.4	15.9	19.1
1995	77.2	81.2	16.2	19.0	80.1	84.0	16.3	19.2	83.5	87.2	16.5	19.4
1996	77.3	81.3	16.3	19.0	80.3	84.1	16.5	19.3	83.7	87.3	16.6	19.5
1997	77.3	81.3	16.4	19.1	80.3	84.2	16.6	19.3	83.8	87.5	16.7	19.6
1998	77.4	81.4	16.5	19.1	80.4	84.2	16.7	19.3	84.0	87.6	16.9	19.6
1999	77.4	81.4	16.6	19.1	80.6	84.3	16.8	19.4	84.1	87.7	17.0	19.7
2000	77.5	81.5	16.6	19.1	80.6	84.4	16.9	19.5	84.3	87.9	17.2	19.8
2001	77.5	81.5	16.7	19.2	80.7	84.5	17.0	19.5	84.5	88.0	17.3	19.9
2002	77.5	81.5	16.8	19.2	80.8	84.5	17.1	19.6	84.6	88.1	17.4	20.0
2003	77.6	81.6	16.8	19.2	80.9	84.6	17.2	19.6	84.7	88.2	17.5	20.1
2004	77.6	81.6	16.9	19.2	81.0	84.7	17.2	19.7	84.9	88.4	17.7	20.2
2005	77.7	81.7	16.9	19.2	81.1	84.8	17.3	19.7	85.0	88.5	17.8	20.3
2006	77.8	81.7	16.9	19.3	81.2	84.9	17.4	19.8	85.2	88.6	17.9	20.4
2007	77.8	81.7	17.0	19.3	81.3	85.0	17.5	19.8	85.4	88.8	18.0	20.5
2010	78.0	81.8	17.1	19.3	81.6	85.2	17.7	20.0	85.8	89.1	18.4	20.8
2015	78.2	82.0	17.2	19.5	82.1	85.6	18.0	20.3	86.5	89.8	19.0	21.3
2020	78.4	82.2	17.3	19.6	82.5	85.9	18.3	20.6	87.2	90.3	19.6	21.9
2025	78.6	82.4	17.4	19.7	82.9	86.3	18.6	20.9	87.8	90.9	20.1	22.4
2030	78.8	82.5	17.5	19.8	83.3	86.6	18.9	21.2	88.5	91.4	20.6	22.9
2035	79.0	82.7	17.6	19.9	83.7	86.9	19.2	21.4	89.1	91.9	21.2	23.4
2040	79.2	82.8	17.8	20.0	84.0	87.2	19.5	21.7	89.6	92.4	21.7	23.9
2045	79.4	83.0	17.9	20.1	84.4	87.5	19.8	22.0	90.2	92.9	22.2	24.3
2050	79.6	83.1	18.0	20.2	84.8	87.8	20.0	22.2	90.7	93.4	22.6	24.8
2055	79.8	83.3	18.1	20.3	85.1	88.1	20.3	22.5	91.2	93.8	23.1	25.3
2060	80.0	83.4	18.2	20.4	85.4	88.4	20.6	22.7	91.8	94.3	23.6	25.7
2065	80.2	83.5	18.3	20.5	85.7	88.7	20.8	22.9	92.2	94.7	24.0	26.1
2070	80.3	83.7	18.4	20.6	86.0	88.9	21.0	23.2	92.7	95.2	24.5	26.6
2075	80.5	83.8	18.5	20.7	86.3	89.2	21.3	23.4	93.2	95.6	24.9	27.0
2080	80.6	83.9	18.6	20.8	86.6	89.4	21.5	23.6	93.6	96.0	25.3	27.4
2085	80.8	84.0	18.7	20.9	86.9	89.7	21.7	23.8	94.1	96.4	25.8	27.8

[1] The cohort life expectancy at a given age for a given year represents the average number of years of life remaining if a group of persons at that age were to experience the mortality rates for the series of years in which they reach each succeeding age.

[2] Cohort life expectancy at birth for those born on January 1 of the calendar year is based on a combination of actual and estimated death rates for birth years 1940 through 2004. For birth years after 2004, these values are based solely on estimated death rates.

[3] Age 65 cohort life expectancy for those attaining age 65 on January 1 of the calendar years before 1975 is based on actual data. For 1975 through 2004, these values are based on a combination of actual and estimated death rates. After 2004, these values are based solely on estimated death rates.

B. ECONOMIC ASSUMPTIONS AND METHODS

The basic economic assumptions are embodied in three alternatives that are designed to provide a reasonable range of effects on Social Security's financial status. The intermediate assumptions reflect the Trustees' consensus expectation of moderate economic growth throughout the projection period. The low cost assumptions represent a more optimistic outlook, with relatively strong economic growth. The high cost assumptions represent a relatively pessimistic scenario, with weak economic growth and two recessions in the short-range period.

Based on the latest data and estimates, the economy is assumed to have been above its sustainable potential level of output and employment during the latter half of 2007. Under all three sets of assumptions the economy is assumed to reach the sustainable, potential level of output by the end of the short-range period. Economic cycles are not included in the assumptions beyond the first 5 to 10 years of the projection period because they have little effect on the long-range estimates of financial status.

This report also includes a stochastic projection that provides a probability distribution of possible future outcomes that is centered around the Trustees' intermediate assumptions. Additional economic assumptions and modeling are required for these projections. These are discussed in Appendix E.

The following sections 1 through 4 present the principal economic assumptions for the three alternatives that are summarized in table V.B1. The subsequent sections 5 through 7 present additional economic factors, summarized in table V.B2, that are critical to the projections of the future financial status of the combined OASI and DI Trust Funds.

1. Productivity Assumptions

Total U.S. economy productivity is defined as the ratio of real gross domestic product (GDP) to hours worked by all workers.[1] The rate of change in total- economy productivity is a major determinant in the growth of average earnings. For the 40 years from 1966 to 2006, annual increases in total productivity averaged 1.7 percent, the result of average annual increases of 2.0, 1.3, 1.2, and 2.1 percent for the 10-year periods 1966-76, 1976-86, 1986-96, and 1996-2006, respectively. However, it should be noted that this growth

---

[1] Historical levels of real GDP are from the Bureau of Economic Analysis' (BEA) National Income and Product Accounts (NIPA). Historical total hours worked is an unpublished series provided by the Bureau of Labor Statistics (BLS), and is for all U.S. Armed Forces and civilian employment.

rate of 1.7 percent reflects a shift of employment from low (farm) to high (nonfarm) productivity sectors that is not expected to continue in the future.

Because productivity growth can vary substantially within economic cycles, it is more useful to consider historical average growth rates for complete economic cycles. The annual increase in total productivity averaged 1.6 percent over the last four complete economic cycles (measured from peak to peak), covering the 34-year period from 1966 to 2000. The annual increase in total productivity averaged 2.2, 1.2, 1.2, and 1.6 percent over the economic cycles 1966-73, 1973-78, 1978-89, 1989-2000, respectively.

The ultimate annual increases in productivity are assumed to be 2.0, 1.7, and 1.4 percent for the low cost, intermediate, and high cost assumptions, respectively. These rates of increase are the same as those used in the 2007 report, and reflect the belief that recent strong growth in nonfarm business productivity, after the relatively poor performance from 1973 to 1995, is consistent with future long-term growth that mirrors the long-term trends of the past.

For the intermediate assumptions, the annual change in productivity is assumed to be about 1.4 percent for 2007, average about 1.9 percent for 2008 and 2009, then gradually decline to the ultimate assumed level of 1.7 percent by 2014. For the low cost assumptions, the annual change in productivity averages about 2.1 percent over the 2007 to 2012 period, and reaches the ultimate assumed level of 2.0 percent by 2017. For the high cost assumptions, the annual change in productivity decreases from 1.4 percent for 2007 to 0.1 percent for 2008. Thereafter, the annual change in productivity varies with economic cycles until reaching its ultimate growth rate of 1.4 percent for 2017.

2. Price Inflation Assumptions

Future changes in the Consumer Price Index for Urban Wage Earners and Clerical Workers (hereafter denoted as CPI) will directly affect the OASDI program through the automatic cost-of-living benefit increases. Future changes in the GDP chain-type price index (hereafter, the GDP deflator) affect the nominal levels of GDP, wages, self-employment income, average earnings, and taxable payroll.

Historically, the CPI increased at an average annual rate of 4.6 percent for the 40 years from 1966 to 2006, the result of average annual increases of 5.8, 6.6, 3.6, and 2.5 percent for the 10-year periods 1966-76, 1976-86, 1986-96, and 1996-2006, respectively. The GDP deflator increased at an average annual rate of 4.1 percent from 1966 to 2006, the result of average annual increases of 5.7, 5.9, 2.8, and 2.2 percent for the same respective 10-year periods.

The ultimate annual increases in the CPI are assumed to be 1.8, 2.8, and 3.8 percent for the low cost, intermediate, and high cost assumptions, respectively. These rates of increase are the same as those used in the 2007 report, and reflect a belief that future inflationary shocks will likely be offset by succeeding periods of relatively slow inflation due to persistent international competition, and that future monetary policy will be similar to the recent past, with its strong emphasis on holding the growth rate in prices to relatively low levels.

For each alternative, the ultimate annual increase in the GDP deflator is assumed to be equal to the annual increases in the CPI minus a 0.4 percentage point price differential. This differential is based primarily on methodological differences in the construction of the two indices, and is the same as the one used in the 2007 report. Hence, for the intermediate assumptions, the ultimate annual increase in the GDP deflator is 2.4 percent, equal to the 2.8 percent assumed ultimate annual increase in the CPI less the 0.4 percentage point price differential. Similarly, the ultimate annual increases in the GDP deflator are 1.4 and 3.4 percent for the low cost and high cost assumptions, respectively.

For the intermediate assumptions, the annual change in the CPI is assumed to decrease from 2.8 percent for 2007 to 2.5 percent for 2009, then rise gradually to the assumed ultimate rate of 2.8 percent for 2010 and later. For the low cost assumptions, the annual change in the CPI is assumed to decrease from 2.8 percent for 2007, to the assumed ultimate rate of 1.8 percent by 2010. For the high cost assumptions, the annual change in the CPI mostly increases from 2.8 percent for 2007 to 5.7 percent by 2012, then decreases to its assumed ultimate rate of 3.8 percent as of 2016. The price differential, defined as the percent change in the CPI less the GDP deflator percent change, is estimated to be 0.1 percentage point for 2007. For 2008, the price differential is assumed to be 0.8 percentage point, reflecting the relative effects on the two price measures of the rise in oil prices in the second half of 2007. For all three alternatives, the price differential is projected to be approximately 0.4 percentage point for 2009 and later.

3. Average Earnings Assumptions

The level of average (nominal) earnings in OASDI covered employment for each year has a direct effect on the size of the taxable payroll and on the future level of average benefits. In addition, increases in the level of average wages in the U.S. economy directly affect the indexation, under the automatic-adjustment provisions in the law, of the OASDI benefit formulas, the contribution and benefit base, the exempt amounts under the retirement earn-

ings test, the amount of earnings required for a quarter of coverage, and under certain circumstances, the automatic cost-of-living benefit increases.

Average U.S. earnings is defined as the ratio of the sum of total U.S. wage and salary disbursements and proprietor income to the sum of total U.S. military and total civilian (household) employment. The growth rate in average U.S. earnings for any period is equal to the combined growth rates for total U.S. economy productivity, average hours worked, the ratio of earnings to compensation (which includes fringe benefits), the ratio of compensation to GDP, and the GDP deflator. Assumed future growth rates in productivity and the GDP deflator are discussed in the previous two sections.

The average annual change in average hours worked was -0.3 percent over the last 40 years, and -0.9, -0.1, 0.3, and -0.3 percent for the 10-year periods 1966-76, 1976-86, 1986-96 and 1996-2006, respectively. The average annual change in average hours worked was -0.2 percent over the last four complete economic cycles covering the period from 1966 to 2000. The annual change in average hours worked averaged -0.7, -0.6, 0.0, and 0.1 percent over the economic cycles 1966-73, 1973-78, 1978-89, 1989-2000, respectively.

For the 2008 report, the ultimate annual rates of change for average hours worked are assumed to be 0.1, 0.0, and -0.1 percent for the low cost, intermediate, and high cost assumptions, respectively. These ultimate annual rates of change for average hours worked are the same as those assumed for the 2007 report.

The average annual change in the ratio of earnings to compensation was -0.2 percent from 1966 to 2006. For wage workers, the assumed ultimate annual rates of change in the ratio of earnings to compensation are -0.1, -0.2, and -0.3 percent for the low cost, intermediate, and high cost assumptions, respectively. Under the intermediate assumptions, the ratio of wages to employee compensation is projected to decline from 0.809 for 2007 to 0.698 for 2082. The ratio of compensation to GDP is assumed to be stable.

Thus, the ultimate projected annual growth rate in average U.S. earnings is about 3.9 percent for the intermediate assumptions. This growth rate reflects assumed ultimate annual growth rates of about 1.7, -0.2, 0.0, and 2.4 percent for productivity, the ratio of earnings to compensation, average hours worked, and the GDP deflator, respectively. Similarly, the ultimate projected annual growth rate in average nominal U.S. earnings is 3.4 percent for the low cost assumptions and 4.4 percent for the high cost assumptions.

Over long periods of time the average annual growth rates in average U.S. earnings and average earnings in OASDI covered employment are expected to be very close to the average annual growth rates in the average wage in

OASDI covered employment (henceforth the average covered wage). Thus, the assumed ultimate annual growth rates in the average covered wage are 3.4, 3.9, and 4.4 percent for the low cost, intermediate, and high cost assumptions, respectively. For the intermediate assumptions, the annual rate of change in the average covered wage is estimated to be 4.4 percent for 2007, then generally declining until reaching its assumed ultimate annual growth rate of 3.9 percent after 2017.

4. Assumed Real-Wage Differentials

For simplicity, real increases in the average OASDI covered wage have traditionally been expressed in the form of real-wage differentials—i.e., the percentage change in the average covered wage minus the percentage change in the CPI. This differential is closely related to assumed growth rates in average earnings and productivity, which are discussed in the previous sections. Over the 40-year period, 1967-2006, the real-wage differential averaged 0.9 percentage point, the result of averages of 0.7, 0.7, 0.5, and 1.6 percentage points for the 10-year periods 1967-76, 1977-86, 1987-96, and 1997-2006, respectively. The assumed ultimate annual average covered real-wage differentials are 1.6, 1.1, and 0.6 percentage point(s) for the low cost, intermediate, and high cost assumptions, respectively.

Based on preliminary data, the real-wage differential is estimated to be 1.6 percentage points for 2007. For the intermediate assumptions, the real-wage differential is projected to fall to 1.3 percentage points in 2008, then rise to 1.7 percentage points in 2009, reflecting an assumed economic slowdown and recovery over the period. The real-wage differential is projected to average about 1.2 percentage points for the 2010 to 2013 period, then average the ultimate assumed differential of 1.1 percentage points (3.9 percent nominal wage growth less 2.8 percent CPI inflation) thereafter.

For the low cost assumptions, the real-wage differential is assumed to rise to 2.1 percentage points by 2009, then generally decline to an average of about 1.5 percentage points over the 2012 to 2017 period, then averaging the ultimate assumed real-wage differential of 1.6 percentage points for 2018 and later. For the high cost assumptions, the real-wage differential for the short-range period is projected to fluctuate between -1.3 and 2.0 percentage points, eventually stabilizing at about 0.6 percentage point for 2018 and later.

Table V.B1.—Principal Economic Assumptions

Calendar year	Productivity (Total U.S. economy)	Earnings as a percent of compensation	Average hours worked	GDP price index	Average annual wage in covered employment	Consumer Price Index	Real-wage differ-ential[2]
	Annual percentage change[1] in—						
Historical data:							
1960 to 1965....	3.2	-0.2	0.2	1.4	3.2	1.2	2.0
1965 to 1970....	2.0	-.4	-.7	4.1	5.8	4.2	1.6
1970 to 1975....	2.1	-.7	-.9	6.7	6.6	6.8	-.2
1975 to 1980....	.9	-.6	-.2	7.3	8.9	8.9	-.1
1980 to 1985....	1.7	-.2	.0	5.2	6.5	5.2	1.3
1985 to 1990....	1.3	.1	-.1	3.2	4.7	3.8	.9
1990 to 1995....	1.1	-.2	.4	2.5	3.6	3.0	.6
1995 to 2000....	2.1	.4	.1	1.7	5.4	2.4	2.9
2000 to 2005....	2.4	-.6	-.8	2.5	2.7	2.5	.2
1997	1.5	.8	.7	1.7	5.6	2.3	3.3
1998	2.0	.2	.7	1.1	6.1	1.3	4.7
1999	2.4	.1	.5	1.4	4.9	2.2	2.7
2000	2.3	.1	-1.1	2.2	6.2	3.5	2.7
2001	2.1	-.3	-1.3	2.4	2.1	2.7	-.7
2002	2.9	-1.5	-1.0	1.7	.7	1.4	-.7
2003	3.0	-1.0	-1.5	2.1	2.6	2.2	.4
2004	2.4	.4	.1	2.9	4.5	2.6	1.8
2005	1.5	-.4	-.2	3.2	3.7	3.5	.1
2006	1.0	.1	.0	3.2	5.0	3.2	1.8
2007[3]	1.4	.0	-.3	2.7	4.4	2.8	1.6
Intermediate:							
2008	1.9	.0	-.1	2.0	4.1	2.8	1.3
2009	1.9	-.1	.0	2.1	4.2	2.5	1.7
2010	1.8	-.1	.0	2.4	4.0	2.8	1.3
2011	1.8	-.2	.0	2.4	3.9	2.8	1.1
2012	1.8	-.2	.0	2.4	4.0	2.8	1.2
2013	1.8	-.2	.0	2.4	4.0	2.8	1.2
2014	1.7	-.2	.0	2.4	3.9	2.8	1.1
2015	1.7	-.2	.0	2.4	3.9	2.8	1.1
2016	1.7	-.2	.0	2.4	3.8	2.8	1.0
2017	1.7	-.2	.0	2.4	3.8	2.8	1.0
2015 to 2020....	1.7	-.2	.0	2.4	3.9	2.8	1.1
2020 to 2082....	1.7	-.2	.0	2.4	3.9	2.8	1.1
Low Cost:							
2008	2.7	.0	.0	1.8	4.6	2.6	2.0
2009	2.3	-.1	.1	1.5	4.0	1.9	2.1
2010	2.1	-.1	.1	1.4	3.6	1.8	1.8
2011	2.1	-.1	.1	1.4	3.5	1.8	1.7
2012	2.0	-.1	.1	1.4	3.4	1.8	1.6
2013	1.9	-.1	.1	1.4	3.4	1.8	1.6
2014	1.8	-.1	.1	1.4	3.3	1.8	1.5
2015	1.8	-.1	.1	1.4	3.2	1.8	1.4
2016	1.8	-.1	.1	1.4	3.2	1.8	1.4
2017	2.0	-.1	.1	1.4	3.3	1.8	1.5
2015 to 2020....	2.0	-.1	.1	1.4	3.3	1.8	1.5
2020 to 2082....	2.0	-.1	.1	1.4	3.4	1.8	1.6

Table V.B1.—Principal Economic Assumptions (Cont.)

| Calendar year | Annual percentage change[1] in— | | | | | | Real-wage differ-ential[2] |
	Productivity (Total U.S. economy)	Earnings as a percent of compensation	Average hours worked	GDP price index	Average annual wage in covered employment	Consumer Price Index	
High Cost:							
2008	0.1	-0.2	-0.2	2.7	2.1	3.5	-1.3
2009	2.6	-.1	-.1	2.6	5.0	3.0	2.0
2010	1.8	-.1	-.1	2.6	4.4	3.0	1.4
2011	.1	-.3	-.1	4.0	3.5	4.4	-.9
2012	2.0	-.3	-.1	5.3	6.6	5.7	.9
2013	2.1	-.3	-.1	5.2	7.2	5.6	1.6
2014	1.3	-.4	-.1	4.3	5.3	4.7	.6
2015	1.3	-.3	-.1	3.5	4.3	3.9	.4
2016	1.3	-.3	-.1	3.4	4.2	3.8	.4
2017	1.4	-.3	-.1	3.4	4.3	3.8	.5
2015 to 2020. . . .	1.4	-.3	-.1	3.4	4.3	3.8	.5
2020 to 2082. . . .	1.4	-.3	-.1	3.4	4.4	3.8	.6

[1] For rows with a single year listed, the value is the annual percentage change from the prior year. For rows with a range of years listed, the value is the compound average annual percentage change.

[2] For rows with a single year listed, the value is the unrounded annual percentage change in the average annual wage in covered employment less the unrounded annual percentage change in the Consumer Price Index. For rows with a range of years listed, the value is the average of unrounded annual values of the differential.

[3] Historical data are not available for the full year. Estimated values vary slightly by alternative and are shown for the intermediate alternative.

5. Labor Force and Unemployment Projections

The civilian labor force is projected by age, sex, marital status, and presence of children. Projections of the labor force participation rates for each sub-group take into account the percentages of the population that are disabled or in the military, the levels of Social Security retirement benefits, the state of the economy, and changes in life expectancy. The projections also include a "lagged-cohort effect" that applies changes in participation rates for a cohort at a specific age (relative to earlier cohorts at the same age) to participation rates for that cohort at older ages.

The annual rate of growth in the size of the labor force decreased from an average of about 2.1 percent during the 1970s and 1980s to about 1.2 percent from 1990 to 2007. Further slowing of labor force growth is projected due to a substantial slowing of growth in the working age population in the future—a natural consequence of the baby-boom generation approaching retirement and the succeeding lower-birth-rate cohorts reaching working age. Under the intermediate assumptions, the labor force is projected to increase by about 0.8 percent per year, on average, through 2017. Thereafter, the labor force is projected to increase much more slowly, averaging 0.5 percent over the 2017 to 2022 period, and 0.4 percent over the remainder of the 75-year projection period. The 0.4 percent ultimate average annual growth rate in the labor

force is higher than the 0.3 percent growth rate in the 2007 Trustees Report because of changes in the demographic assumptions (see section V.A).

The ultimate projected labor force participation rates are not basic assumptions. They are derived from a historically-based structural relationship using demographic and economic assumptions specific to each alternative. However, the participation rates are not highly sensitive to most of the demographic and economic assumptions. Thus, the projected labor force participation rates vary modestly into the future and across alternatives.

Historically, labor force participation rates have been influenced substantially by trends in demographics and pensions. Between the mid-1960s and the mid-1980s, labor force participation rates at ages 50 and over declined for males and were fairly stable for females. These overall declines were facilitated by the large numbers of workers entering the labor force from the baby-boom generation, and from the female population in general, during this period. This increasing supply of labor allowed employers to offer early-retirement options that were attractive. Between the mid-1980s and about 1995, these rates roughly stabilized for males and increased for females. Since 1995, however, participation rates for both sexes at ages 50 and over have generally risen significantly, reflecting a decrease in early-out options and relatively strong economic growth.

For the future, changes in available benefit levels from Social Security, increases in the normal retirement age, and the effects of modifying the earnings test are expected to encourage work at higher ages. Some of these factors are modeled directly. However, other factors, like the trend away from private defined-benefit pension plans (that often provided incentives to retire) toward defined-contribution plans, are expected to provide additional upward pressure on labor force participation rates. In addition to this shift in private pensions, the aging of the population is expected to both increase the demand for workers and, through improved health associated with greater life expectancy, improve the ability of the older population to work. Longer life expectancy will also increase the amount of assets that will be needed to live comfortably through retirement years, also influencing workers to stay employed longer. In order to account for these effects, which are directly or indirectly related to increases in life expectancy, projected participation rates for prime age and older males and females are adjusted upward in relation to assumed increases in life expectancy. For the intermediate projections, this adjustment for changes related to life expectancy adds about 1.3 percent to the total labor force by 2082.

For men age 16 and over, the projected age-adjusted labor force participation rates for 2082 are 72.6, 73.0, and 73.5 percent for the low cost, intermediate,

and high cost assumptions, respectively, compared to the 2006 level of 73.5 percent. (Age-adjusted labor force participation rates are adjusted to the 2006 age distribution of the civilian noninstitutional U.S. population.) These rates reflect the net effect of increases due to assumed improvements in life expectancy, and decreases due to higher assumed disability prevalence rates and an increasing proportion of males who are never married. For women age 16 and over, the projected age-adjusted labor force participation rates for 2082 are 60.6, 60.7, and 60.6 percent, for the low cost, intermediate, and high cost assumptions, respectively, compared to the 2006 level of 59.4 percent. These projections are the net effect of decreases due to higher assumed disability prevalence rates, increases due to assumed improvements in life expectancy, and increases due to assumed changes in the proportion of females who are separated, widowed, divorced, or never married.

The unemployment rate presented in table V.B2 is in the most commonly cited form, the civilian rate. For years through 2017, total rates are presented without adjustment for the changing age-sex distribution of the population. For years after 2017, unemployment rates are presented as total age-sex-adjusted rates (using the age-sex distribution of the 2006 civilian labor force). Age-sex-adjusted rates allow for more meaningful comparisons across longer time periods.

The total unemployment rate reflects the projected levels of unemployment for various age-sex subgroups of the population. The unemployment rate for each subgroup is projected based on a specification (consistent with Okun's Law) relating changes in the unemployment rate to the changes in the economic cycle, as measured by the ratio of the actual to potential GDP. For each alternative, the total unemployment rate is projected to move toward the ultimate assumed rate as the economy moves toward the long-range sustainable growth path.

The ultimate age-sex-adjusted unemployment rate for each alternative is assumed to be reached by 2017. The ultimate assumed unemployment rates are 4.5, 5.5, and 6.5 percent for the low cost, intermediate, and high cost assumptions, respectively. These are the same values assumed for the 2007 report.

6. Gross Domestic Product Projections

The real growth rate in gross domestic product (GDP) equals the combined growth rates for total employment, productivity, and average hours worked. Total employment is the sum of the U.S. Armed Forces and total civilian employment, which is based on the projected total civilian labor force and

unemployment rates. For the 40-year period from 1966 to 2006, the average growth rate in real GDP was 3.1 percent, combining the approximate growth rates of 1.6, 1.7, and -0.3 percent for its components—total employment, productivity, and average hours worked, respectively.

For the intermediate assumptions, the average annual growth in real GDP is projected to be 2.4 percent from 2007 to 2017, a slower rate than the 3.1 percent average observed over the historical 40-year period from 1966 to 2006. This slowdown is primarily due to slower projected growth in total employment. For the low cost assumptions, annual growth in real GDP is projected to average 3.1 percent over the decade ending in 2017. The relatively faster growth is due mostly to a higher assumed rate of growth in worker productivity. For the high cost assumptions, real GDP is assumed to fall in the fourth quarter of 2007 and in the first three quarters of 2008, resulting in a total decline in real GDP for these four quarters of 2.6 percent. After 10 quarters of recovery, a second recession, with a total decline in real GDP of 1.7 percent, is assumed to begin in the second quarter of 2011 and last three quarters. After the second recession, a moderate economic recovery is assumed through 2013, with continued modest economic growth thereafter. For the high cost assumptions, annual growth in real GDP is projected to average 1.7 percent for the decade ending in 2017.

After 2017, no economic cycles are assumed for the three alternatives. Thus, projected rates of growth in real GDP are determined by the projected full-employment rate of growth for total employment, and the assumed full-employment rates of growth for total U.S. economy productivity and average hours worked. For the intermediate assumptions, the projected rate of growth for real GDP falls toward the assumed productivity growth rate because of the projected decline in labor force growth over the period. At the end of the 75-year projection period, the annual growth in real GDP is 2.1 percent, due to the assumed ultimate percent changes of about 0.4, 1.7, and 0.0 for total employment, productivity, and average hours worked, respectively.

7. Interest Rates

The average annual nominal and real interest rates are presented in table V.B2. The nominal rate is the average of the nominal interest rates for special U.S. Government obligations issuable to the trust funds in each of the 12 months of the year. Interest for these securities is generally compounded semiannually. The real interest rate (ex post) is defined to be the annual compound yield rate for investments in these securities divided by the annual rate of growth in the CPI for the first year after issuance. The real rate shown for each year reflects the actual realized (historical) or expected (future) annual real yield on securities issuable in the prior year.

In developing a reasonable range of assumed ultimate future real interest rates for the three alternatives, historical experience was examined for the 40 years, 1967-2006, and for each of the 10-year subperiods, 1967-76, 1977-86, 1987-96, and 1997-2006. For the 40-year period, the real interest rate averaged 2.8 percent per year. For the four 10-year subperiods, the real interest rates averaged 0.6, 3.7, 4.2, and 2.9 percent, respectively. The assumed ultimate real interest rates are 3.6 percent, 2.9 percent, and 2.1 percent for the low cost, intermediate, and high cost assumptions, respectively. The ultimate real yields, which are assumed to be reached by the end of the short-range period, are the same as those assumed in the 2007 report. These ultimate real interest rates, when combined with the ultimate CPI assumptions of 1.8, 2.8, and 3.8 percent, yield ultimate nominal interest rates of about 5.4 percent for the low cost assumptions, about 5.7 percent for the intermediate assumptions, and about 5.9 percent for the high cost assumptions.

The actual average annual nominal interest rate is 4.8 and 4.7 percent for 2006 and 2007, respectively. The annual rate of change in the CPI is assumed to be 2.8 percent for 2007. Hence, the annual real interest rate is 2.0 percent for 2007. For the next 10-year short-range projection period, nominal interest rates are projected based on changes in the business cycle and in the CPI. Under the intermediate assumptions, the nominal interest rate is projected to rise from 4.7 percent for 2007 to 5.8 percent for 2012 through 2016, reflecting a continued growing economy along with a stable rate of inflation. The nominal interest rate falls to the ultimate assumed level of 5.7 percent for 2017. For the low cost assumptions, the average annual nominal interest rate is assumed to reach an ultimate level of about 5.4 percent for 2013. For the high cost assumptions, it is assumed to peak at 8.8 percent for 2013, and then decline to an ultimate rate of about 5.9 percent by 2016.

Table V.B2.—Additional Economic Factors

Calendar year	Average annual unemployment rate[1]	Annual percentage change[2] in—			Average annual interest rate	
		Labor force[3]	Total employment[4]	Real GDP[5]	Nominal[6]	Real[7]
Historical data:						
1960 to 1965.	5.5	1.3	1.6	5.0	4.0	2.5
1965 to 1970.	3.9	2.2	2.1	3.4	5.9	1.0
1970 to 1975.	6.1	2.5	1.5	2.7	6.7	.0
1975 to 1980.	6.8	2.7	2.9	3.7	8.5	-.9
1980 to 1985.	8.3	1.5	1.5	3.2	12.1	6.9
1985 to 1990.	5.9	1.7	2.0	3.3	8.5	5.1
1990 to 1995.	6.6	1.0	.9	2.5	7.0	4.3
1995 to 2000.	4.6	1.5	1.8	4.1	6.2	3.9
2000 to 2005.	5.4	.9	.7	2.3	4.6	2.4
1997	4.9	1.8	2.2	4.5	6.6	4.3
1998	4.5	1.0	1.4	4.2	5.6	5.3
1999	4.2	1.2	1.5	4.4	5.9	3.4
2000	4.0	2.3	2.5	3.7	6.2	2.4
2001	4.7	.8	.0	.8	5.2	3.5
2002	5.8	.8	-.3	1.6	4.9	3.9
2003	6.0	1.1	1.0	2.5	4.1	2.6
2004	5.5	.6	1.1	3.6	4.3	1.5
2005	5.1	1.3	1.7	3.1	4.3	.8
2006	4.6	1.4	1.8	2.9	4.8	1.1
2007[8]	4.6	1.1	1.1	2.2	4.7	2.0
Intermediate:						
2008	4.8	.7	.4	2.3	4.4	1.9
2009	5.0	1.1	.9	2.8	5.1	1.9
2010	5.2	1.1	.9	2.7	5.6	2.3
2011	5.3	.9	.7	2.5	5.7	2.8
2012	5.4	.8	.7	2.5	5.8	2.9
2013	5.5	.7	.6	2.5	5.8	3.0
2014	5.5	.7	.7	2.4	5.8	3.0
2015	5.5	.6	.6	2.3	5.8	3.0
2016	5.5	.6	.6	2.3	5.8	2.9
2017	5.5	.6	.6	2.3	5.7	3.0
2020	5.5	.5	.5	2.2	5.7	2.9
2025	5.5	.4	.4	2.1	5.7	2.9
2030	5.5	.4	.4	2.1	5.7	2.9
2035	5.5	.5	.5	2.2	5.7	2.9
2040	5.5	.5	.5	2.2	5.7	2.9
2045	5.5	.5	.5	2.2	5.7	2.9
2050	5.5	.4	.4	2.1	5.7	2.9
2055	5.5	.4	.4	2.1	5.7	2.9
2060	5.5	.4	.4	2.1	5.7	2.9
2065	5.5	.4	.4	2.1	5.7	2.9
2070	5.5	.4	.4	2.1	5.7	2.9
2075	5.5	.4	.4	2.1	5.7	2.9
2080	5.5	.4	.4	2.1	5.7	2.9
2085	5.5	.4	.4	2.1	5.7	2.9
Low Cost:						
2008	4.5	.9	.9	3.4	4.6	2.1
2009	4.5	1.2	1.2	3.5	4.8	2.6
2010	4.5	1.2	1.2	3.5	4.9	3.0
2011	4.5	1.1	1.1	3.3	5.2	3.1
2012	4.5	1.0	1.0	3.1	5.3	3.4
2013	4.4	.8	.9	3.0	5.4	3.5
2014	4.4	.8	.8	2.9	5.4	3.6
2015	4.4	.7	.7	2.7	5.4	3.6
2016	4.5	.7	.6	2.7	5.4	3.6
2017	4.5	.7	.7	2.8	5.4	3.6

Table V.B2.—Additional Economic Factors (Cont.)

Calendar year	Average annual unemployment rate[1]	Annual percentage change[2] in—			Average annual interest rate	
		Labor force[3]	Total employment[4]	Real GDP[5]	Nominal[6]	Real[7]
Low Cost: (Cont.)						
2020	4.5	0.6	0.6	2.7	5.4	3.6
2025	4.5	.5	.5	2.6	5.4	3.6
2030	4.5	.6	.6	2.7	5.4	3.6
2035	4.5	.7	.7	2.8	5.4	3.6
2040	4.5	.7	.7	2.8	5.4	3.6
2045	4.5	.8	.8	2.9	5.4	3.6
2050	4.5	.8	.8	2.9	5.4	3.6
2055	4.5	.8	.8	2.9	5.4	3.6
2060	4.5	.8	.8	2.9	5.4	3.6
2065	4.5	.8	.8	2.9	5.4	3.6
2070	4.5	.8	.8	2.9	5.4	3.6
2075	4.5	.8	.8	2.9	5.4	3.6
2080	4.5	.8	.8	2.9	5.4	3.6
2085	4.5	.8	.8	2.9	5.4	3.6
High Cost:						
2008	5.9	.4	-1.0	-1.0	3.7	1.2
2009	6.3	.7	.2	2.7	5.5	.7
2010	6.0	1.1	1.4	3.1	5.9	2.5
2011	6.5	.7	.2	.2	6.1	1.5
2012	7.2	.4	-.4	1.5	8.0	.4
2013	6.6	.7	1.4	3.4	8.8	2.5
2014	6.4	.7	.9	2.1	7.2	4.1
2015	6.5	.5	.4	1.6	6.2	3.3
2016	6.5	.5	.5	1.7	5.9	2.4
2017	6.5	.4	.4	1.7	5.9	2.2
2020	6.5	.4	.4	1.7	5.9	2.1
2025	6.5	.4	.4	1.6	5.9	2.1
2030	6.5	.3	.4	1.6	5.9	2.1
2035	6.5	.3	.3	1.6	5.9	2.1
2040	6.5	.3	.3	1.6	5.9	2.1
2045	6.5	.2	.2	1.5	5.9	2.1
2050	6.5	.1	.1	1.4	5.9	2.1
2055	6.5	.1	.1	1.3	5.9	2.1
2060	6.5	.0	.0	1.3	5.9	2.1
2065	6.5	.0	.0	1.3	5.9	2.1
2070	6.5	-.1	-.1	1.2	5.9	2.1
2075	6.5	-.1	-.1	1.2	5.9	2.1
2080	6.5	-.1	-.1	1.1	5.9	2.1
2085	6.5	-.1	-.1	1.2	5.9	2.1

[1] The unemployment rates for 2018 and later are adjusted to the age-sex distribution of the civilian labor force in 2006. All other rates are unadjusted.

[2] For rows with a single year listed, the value is the annual percentage change from the prior year. For rows with a range of years listed, the value is the compounded average annual percentage change.

[3] The U.S. civilian labor force concept is used here.

[4] Total of civilian and military employment in the U.S. economy.

[5] The real GDP (gross domestic product) is the value of total output of goods and services in 2000 dollars.

[6] The average annual nominal interest rate is the average of the nominal interest rates, which, in practice, are compounded semiannually, for special public-debt obligations issuable to the trust funds in each of the 12 months of the year.

[7] The average annual real interest rate reflects the realized or expected annual real yield for each year on securities issuable in the prior year.

[8] Historical data are not available for the full year. Estimated values vary slightly by alternative and are shown for the intermediate assumptions.

C. PROGRAM-SPECIFIC ASSUMPTIONS AND METHODS

The demographic and economic assumptions and methods described in the previous sections are used in a set of models to project future income and cost under the OASDI program. In some cases, the economic assumptions result in the direct calculation of program parameters as described in the following subsection. These parameters affect the level of payroll taxes collected and the level of benefits paid and are calculated using formulas described explicitly in the Social Security Act. In other cases, the combination of demographic and economic assumptions are used indirectly to drive more complicated models that project the numbers of future workers covered under OASDI and the levels of their covered earnings, and the numbers of future beneficiaries and the expected levels of their benefits. The following subsections provide brief descriptions of the derivations of these program-specific factors.

1. Automatically Adjusted Program Parameters

The Social Security Act specifies that certain program parameters affecting the determination of OASDI benefits and taxes are to be adjusted annually, reflecting changes in particular economic measures. The law prescribes specific formulas that, when applied to reported statistics, produce automatic revisions in these program parameters and hence in the benefit and tax computations. These automatic adjustments are based on measured changes in the national average wage index (AWI) and the CPI.[1] In this section, values are shown for program parameters that are subject to automatic adjustment, from the time that such adjustments became effective through 2017. Projected values for future years are based on the economic assumptions described in the preceding section of this report.

The following two tables present the historical and projected values of the CPI-based benefit increases, as well as the AWI series and the values of many of the wage-indexed program parameters. In each table, the projections are shown under the three alternative sets of economic assumptions described in the previous section. Table V.C1 includes:

- The annual percentage increases which have been applied to OASDI benefits under automatic cost-of-living adjustment provisions in the Social Security Act, based on increases in the CPI.

---

[1] Details of these indexation procedures are published annually in the *Federal Register*, and are also available on the Social Security website at www.socialsecurity.gov/OACT/COLA/index.html.

- The annual levels of and percentage increases in the AWI. Under section 215(b)(3) of the Social Security Act, the AWI for each year after 1950 is used to index the taxable earnings of most workers first becoming eligible for benefits in 1979 or later. This procedure converts a worker's past earnings to approximately benefit equivalent values near the time of the worker's benefit eligibility, and these indexed values are used to calculate the worker's benefit amount. The AWI is also used to adjust most of the other program parameters that are subject to the automatic-adjustment provisions.

- The wage-indexed OASDI contribution and benefit base—the maximum amount of earnings for the specified year that are subject to the OASDI payroll tax and creditable toward benefit computation.

- The wage-indexed retirement earnings test exempt amounts—the annual amount of earnings below which beneficiaries are not subject to benefit withholding. A lower exempt amount applies in years before a beneficiary attains normal retirement age (NRA). A higher amount applies for the year in which the beneficiary attains normal retirement age. The retirement test does not apply beginning with the attainment of normal retirement age.

Table V.C1.—Cost-of-Living Benefit Increases, Average Wage Index, Contribution and Benefit Bases, and Retirement Earnings Test Exempt Amounts, 1975-2017

Calendar year	OASDI benefit increases[1] (percent)	Average wage index (AWI)[2] Amount	Increase (percent)	OASDI contribution and benefit base[3]	Retirement earnings test exempt amount Under NRA[4]	At NRA[5]
Historical data:						
1975	8.0	$8,630.92	7.5	$14,100	$2,520	$2,520
1976	6.4	9,226.48	6.9	15,300	2,760	2,760
1977	5.9	9,779.44	6.0	16,500	3,000	3,000
1978	6.5	10,556.03	7.9	17,700	3,240	4,000
1979	9.9	11,479.46	8.7	22,900	3,480	4,500
1980	14.3	12,513.46	9.0	25,900	3,720	5,000
1981	11.2	13,773.10	10.1	29,700	4,080	5,500
1982	7.4	14,531.34	5.5	32,400	4,440	6,000
1983	3.5	15,239.24	4.9	35,700	4,920	6,600
1984	3.5	16,135.07	5.9	37,800	5,160	6,960
1985	3.1	16,822.51	4.3	39,600	5,400	7,320
1986	1.3	17,321.82	3.0	42,000	5,760	7,800
1987	4.2	18,426.51	6.4	43,800	6,000	8,160
1988	4.0	19,334.04	4.9	45,000	6,120	8,400
1989	4.7	20,099.55	4.0	48,000	6,480	8,880
1990	5.4	21,027.98	4.6	51,300	6,840	9,360
1991	3.7	21,811.60	3.7	53,400	7,080	9,720
1992	3.0	22,935.42	5.2	55,500	7,440	10,200
1993	2.6	23,132.67	.9	57,600	7,680	10,560
1994	2.8	23,753.53	2.7	60,600	8,040	11,160
1995	2.6	24,705.66	4.0	61,200	8,160	11,280
1996	2.9	25,913.90	4.9	62,700	8,280	12,500
1997	2.1	27,426.00	5.8	65,400	8,640	13,500
1998	1.3	28,861.44	5.2	68,400	9,120	14,500
1999	[6]2.5	30,469.84	5.6	72,600	9,600	15,500
2000	3.5	32,154.82	5.5	76,200	10,080	17,000
2001	2.6	32,921.92	2.4	80,400	10,680	25,000
2002	1.4	33,252.09	1.0	84,900	11,280	30,000
2003	2.1	34,064.95	2.4	87,000	11,520	30,720
2004	2.7	35,648.55	4.6	87,900	11,640	31,080
2005	4.1	36,952.94	3.7	90,000	12,000	31,800
2006	3.3	38,651.41	4.6	94,200	12,480	33,240
Intermediate:						
2007	[7]2.3	40,307.02	4.3	[7]97,500	[7]12,960	[7]34,440
2008	2.7	41,953.05	4.1	[7]102,000	[7]13,560	[7]36,120
2009	2.5	43,679.27	4.1	106,500	14,160	37,560
2010	2.8	45,434.85	4.0	110,700	14,760	39,120
2011	2.8	47,226.12	3.9	115,500	15,360	40,800
2012	2.8	49,089.78	3.9	120,000	15,960	42,360
2013	2.8	51,050.68	4.0	124,800	16,560	44,040
2014	2.8	53,053.07	3.9	129,600	17,160	45,840
2015	2.8	55,091.11	3.8	135,000	17,880	47,640
2016	2.8	57,198.35	3.8	140,100	18,600	49,440
2017	2.8	59,376.44	3.8	145,500	19,320	51,360
Low Cost:						
2007	[7]2.3	40,296.93	4.3	[7]97,500	[7]12,960	[7]34,440
2008	2.4	42,140.73	4.6	[7]102,000	[7]13,560	[7]36,120
2009	1.9	43,833.37	4.0	106,500	14,160	37,560
2010	1.8	45,416.45	3.6	111,300	14,760	39,360
2011	1.8	46,995.78	3.5	115,800	15,360	40,920
2012	1.8	48,607.27	3.4	120,000	15,960	42,360
2013	1.8	50,237.06	3.4	124,200	16,440	43,800
2014	1.8	51,888.66	3.3	128,400	17,040	45,360
2015	1.8	53,561.45	3.2	132,600	17,640	46,920
2016	1.8	55,284.42	3.2	137,100	18,240	48,360
2017	1.8	57,114.87	3.3	141,600	18,720	49,920

Table V.C1.—Cost-of-Living Benefit Increases, Average Wage Index, Contribution and Benefit Bases, and Retirement Earnings Test Exempt Amounts, 1975-2017 (Cont.)

Calendar year	OASDI benefit increases[1] (percent)	Average wage index (AWI)[2] Amount	Increase (percent)	OASDI contribution and benefit base[3]	Retirement earnings test exempt amount Under NRA[4]	At NRA[5]
High Cost:						
2007	[7]2.3	$40,262.64	4.2	[7]$97,500	[7]$12,960	[7]$34,440
2008	3.5	41,159.10	2.2	[7]102,000	[7]13,560	[7]36,120
2009	2.8	43,165.02	4.9	106,500	14,160	37,560
2010	3.1	45,054.20	4.4	108,900	14,400	38,400
2011	4.6	46,635.97	3.5	114,000	15,120	40,320
2012	5.9	49,647.24	6.5	119,100	15,840	42,000
2013	5.5	53,160.38	7.1	123,300	16,320	43,560
2014	4.6	55,984.77	5.3	131,100	17,400	46,320
2015	3.9	58,436.60	4.4	140,400	18,600	49,560
2016	3.8	60,908.74	4.2	147,900	19,680	52,200
2017	3.8	63,499.11	4.3	154,500	20,520	54,480

[1] Effective with benefits payable for June in each year 1975-82, and for December in each year after 1982.

[2] See table VI.F6 for projected dollar amounts of the AWI beyond 2017.

[3] Amounts for 1979-81 were specified by Public Law 95-216. The bases for years after 1989 were increased slightly by changes to the indexing procedure, as required by Public Law 101-239.

[4] Normal retirement age. See table V.C3 for specific values.

[5] In 1955-82, the retirement earnings test did not apply at ages 72 and over; in 1983-99, the test did not apply at ages 70 and over; beginning in 2000, it does not apply beginning with the month of attainment of NRA. In the year of attainment of NRA, the higher exempt amount applies to earnings in the year prior to the month of NRA attainment. Amounts for 1978-82 specified by Public Law 95-216; for 1996-2002, Public Law 104-121.

[6] Originally determined as 2.4 percent, but pursuant to Public Law 106-554, is effectively 2.5 percent.

[7] Actual amount, as determined under automatic-adjustment provisions.

Values for other wage-indexed parameters are shown in table V.C2. The table provides historical values from 1978, when the amount of earnings required for a quarter of coverage was first indexed, through 2008, and also shows projected amounts through 2017. These other wage-indexed program parameters are:

- The bend points in the formula for computing the primary insurance amount (PIA) for workers who reach age 62, become disabled, or die in a given year. As illustrated in figure V.C1, these bend points indicate three ranges in a worker's average indexed monthly earnings (AIME) over which a certain percent factor, 90, 32, or 15 percent respectively, is applied to determine the worker's PIA.

Figure V.C1.—Primary-Insurance-Amount Formula for Those Newly Eligible in 2008
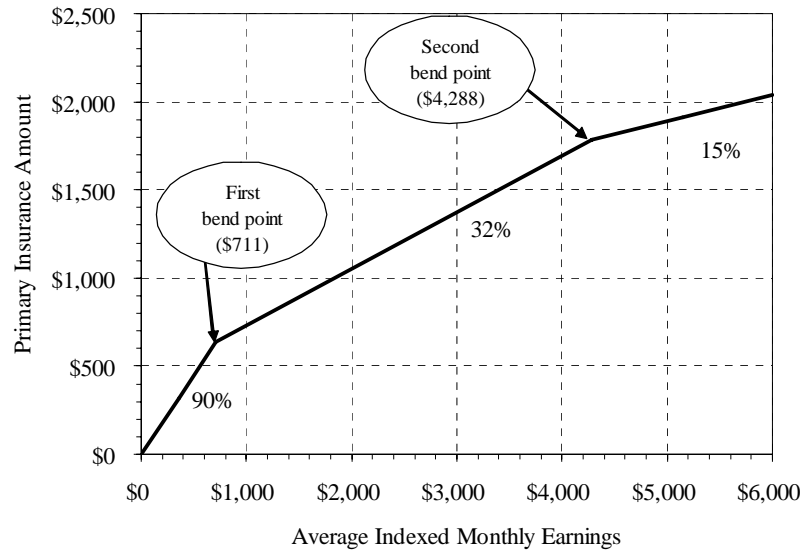
- Bend points in the formula used to compute the maximum total amount of monthly benefits payable on the basis of the earnings of a retired or deceased worker. This formula is a function of the worker's PIA, and, as shown in figure V.C2, relies on four intervals and percentages.

Figure V.C2.—Maximum-Family-Benefit Formula for Those Newly Eligible in 2008
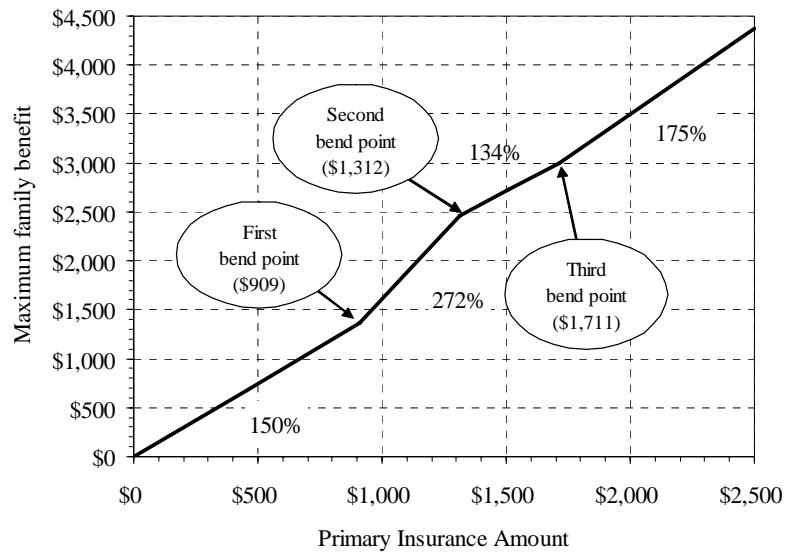
- The amount of earnings required in a year to be credited with a quarter of coverage (QC). The number and timing of QCs earned is used to determine an individual's insured status—the basic requirement for benefit eligibility under OASDI.

- The old-law contribution and benefit base—the OASDI contribution and benefit base that would have been in effect in each year after 1977 under the automatic-adjustment provisions as in effect before the enactment of the 1977 amendments. This old-law base is used in determining special-minimum benefits for certain workers who have many years of low earnings in covered employment. Beginning in 1986, the old-law base is also used in the calculation of OASDI benefits for certain workers who are eligible to receive pensions based on noncovered employment. In addition, it is used for certain purposes under the Railroad Retirement program and the Employee Retirement Income Security Act of 1974.

Table V.C2.—Values for Selected Wage-Indexed Program Parameters, Calendar Years 1978-2017

Calendar year	AIME bend points in PIA formula[1]		PIA bend points in maximum-family-benefit formula[2]			Earnings required for a quarter of coverage	Old-law contribution and benefit base[3]
	First	Second	First	Second	Third		
Historical data:							
1978	[4]	[4]	[4]	[4]	[4]	[5] $250	[5] $17,700
1979	[5] $180	[5] $1,085	[5] $230	[5] $332	[5] $433	260	18,900
1980	194	1,171	248	358	467	290	20,400
1981	211	1,274	270	390	508	310	22,200
1982	230	1,388	294	425	554	340	24,300
1983	254	1,528	324	468	610	370	26,700
1984	267	1,612	342	493	643	390	28,200
1985	280	1,691	358	517	675	410	29,700
1986	297	1,790	379	548	714	440	31,500
1987	310	1,866	396	571	745	460	32,700
1988	319	1,922	407	588	767	470	33,600
1989	339	2,044	433	626	816	500	35,700
1990	356	2,145	455	656	856	520	38,100
1991	370	2,230	473	682	890	540	39,600
1992	387	2,333	495	714	931	570	41,400
1993	401	2,420	513	740	966	590	42,900
1994	422	2,545	539	779	1,016	620	45,000
1995	426	2,567	544	785	1,024	630	45,300
1996	437	2,635	559	806	1,052	640	46,500
1997	455	2,741	581	839	1,094	670	48,600
1998	477	2,875	609	880	1,147	700	50,700
1999	505	3,043	645	931	1,214	740	53,700
2000	531	3,202	679	980	1,278	780	56,700
2001	561	3,381	717	1,034	1,349	830	59,700
2002	592	3,567	756	1,092	1,424	870	63,000
2003	606	3,653	774	1,118	1,458	890	64,500
2004	612	3,689	782	1,129	1,472	900	65,100
2005	627	3,779	801	1,156	1,508	920	66,900
2006	656	3,955	838	1,210	1,578	970	69,900
2007	680	4,100	869	1,255	1,636	1,000	72,600
2008	711	4,288	909	1,312	1,711	1,050	75,900

105

**Table V.C2.—Values for Selected Wage-Indexed Program Parameters,
Calendar Years 1978-2017 (Cont.)**

Calendar year	AIME bend points in PIA formula[1]		PIA bend points in maximum-family-benefit formula[2]			Earnings required for a quarter of coverage	Old-law contribution and benefit base[3]
	First	Second	First	Second	Third		
Intermediate:							
2009	$742	$4,472	$948	$1,368	$1,785	$1,090	$79,200
2010	772	4,655	987	1,424	1,858	1,140	82,200
2011	804	4,846	1,027	1,483	1,934	1,180	85,800
2012	836	5,041	1,069	1,542	2,012	1,230	89,100
2013	869	5,240	1,111	1,603	2,091	1,280	92,700
2014	904	5,446	1,155	1,667	2,174	1,330	96,300
2015	940	5,664	1,201	1,733	2,260	1,380	100,200
2016	976	5,886	1,248	1,801	2,349	1,440	104,100
2017	1,014	6,112	1,296	1,870	2,439	1,490	108,000
Low Cost:							
2009	742	4,471	948	1,368	1,784	1,090	79,200
2010	776	4,675	991	1,431	1,866	1,140	82,800
2011	807	4,863	1,031	1,488	1,941	1,190	86,100
2012	836	5,039	1,068	1,542	2,011	1,230	89,100
2013	865	5,214	1,105	1,595	2,081	1,270	92,100
2014	895	5,393	1,143	1,650	2,152	1,320	95,400
2015	925	5,574	1,182	1,705	2,224	1,360	98,700
2016	955	5,757	1,220	1,762	2,297	1,410	101,700
2017	986	5,942	1,260	1,818	2,372	1,450	105,000
High Cost:							
2009	741	4,467	947	1,367	1,783	1,090	78,900
2010	758	4,566	968	1,397	1,822	1,120	80,700
2011	794	4,789	1,015	1,465	1,911	1,170	84,600
2012	829	4,999	1,060	1,530	1,995	1,220	88,500
2013	858	5,174	1,097	1,583	2,065	1,260	91,500
2014	914	5,508	1,168	1,685	2,198	1,350	97,500
2015	978	5,898	1,250	1,805	2,354	1,440	104,400
2016	1,030	6,211	1,317	1,901	2,479	1,520	109,800
2017	1,076	6,483	1,374	1,984	2,587	1,580	114,600

[1] The formula to compute a PIA is (1) 90% of AIME below the first bend point, plus (2) 32% of AIME in excess of the first bend point but not in excess of the second, plus (3) 15% of AIME in excess of the second bend point. The bend points pertain to the first year a beneficiary becomes eligible for benefits.
[2] The formula to compute a family maximum is (1) 150% of PIA below the first bend point, plus (2) 272% of PIA in excess of the first bend point but not in excess of the second, plus (3) 134% of PIA in excess of the second bend point but not in excess of the third, plus (4) 175% of PIA in excess of the third bend point.
[3] Contribution and benefit base that would have been determined automatically under the law in effect prior to enactment of the Social Security Amendments of 1977. The bases for years after 1989 were increased slightly by changes to the indexing procedure to determine the base, as required by Public Law 101-239.
[4] No provision in law for this amount in this year.
[5] Amount specified for first year by Social Security Amendments of 1977; amounts for subsequent years subject to automatic-adjustment provisions.

In addition to the program parameters affecting the determination of OASDI benefits that reflect changes in the economy, there are certain legislated changes that have affected, and will affect, benefits. Two such changes are the scheduled increases in the normal retirement age and in the delayed retirement credits. Table V.C3 shows the scheduled changes in these parameters and the resulting effects on benefit levels expressed as a percentage of PIA.

Table V.C3.—Legislated Changes in Normal Retirement Age and Delayed Retirement Credits, for Persons Reaching Age 62 in Each Year 1986 and Later

Year of birth	Year of attainment of age 62	Normal retirement age (NRA)	Credit for each year of delayed retirement after NRA (percent)	Benefit, as a percentage of PIA, beginning at age —				
				62	65	66	67	70
1924	1986	65	3	80	100	103	106	115
1925	1987	65	$3\,^1/_2$	80	100	$103\,^1/_2$	107	$117\,^1/_2$
1926	1988	65	$3\,^1/_2$	80	100	$103\,^1/_2$	107	$117\,^1/_2$
1927	1989	65	4	80	100	104	108	120
1928	1990	65	4	80	100	104	108	120
1929	1991	65	$4\,^1/_2$	80	100	$104\,^1/_2$	109	$122\,^1/_2$
1930	1992	65	$4\,^1/_2$	80	100	$104\,^1/_2$	109	$122\,^1/_2$
1931	1993	65	5	80	100	105	110	125
1932	1994	65	5	80	100	105	110	125
1933	1995	65	$5\,^1/_2$	80	100	$105\,^1/_2$	111	$127\,^1/_2$
1934	1996	65	$5\,^1/_2$	80	100	$105\,^1/_2$	111	$127\,^1/_2$
1935	1997	65	6	80	100	106	112	130
1936	1998	65	6	80	100	106	112	130
1937	1999	65	$6\,^1/_2$	80	100	$106\,^1/_2$	113	$132\,^1/_2$
1938	2000	65, 2 mo	$6\,^1/_2$	$79\,^1/_6$	$98\,^8/_9$	$105\,^5/_{12}$	$111\,^{11}/_{12}$	$131\,^5/_{12}$
1939	2001	65, 4 mo	7	$78\,^1/_3$	$97\,^7/_9$	$104\,^2/_3$	$111\,^2/_3$	$132\,^2/_3$
1940	2002	65, 6 mo	7	$77\,^1/_2$	$96\,^2/_3$	$103\,^1/_2$	$110\,^1/_2$	$131\,^1/_2$
1941	2003	65, 8 mo	$7\,^1/_2$	$76\,^2/_3$	$95\,^5/_9$	$102\,^1/_2$	110	$132\,^1/_2$
1942	2004	65, 10 mo	$7\,^1/_2$	$75\,^5/_6$	$94\,^4/_9$	$101\,^1/_4$	$108\,^3/_4$	$131\,^1/_4$
1943-54	2005-16	66	8	75	$93\,^1/_3$	100	108	132
1955	2017	66, 2 mo	8	$74\,^1/_6$	$92\,^2/_9$	$98\,^8/_9$	$106\,^2/_3$	$130\,^2/_3$
1956	2018	66, 4 mo	8	$73\,^1/_3$	$91\,^1/_9$	$97\,^7/_9$	$105\,^1/_3$	$129\,^1/_3$
1957	2019	66, 6 mo	8	$72\,^1/_2$	90	$96\,^2/_3$	104	128
1958	2020	66, 8 mo	8	$71\,^2/_3$	$88\,^8/_9$	$95\,^5/_9$	$102\,^2/_3$	$126\,^2/_3$
1959	2021	66, 10 mo	8	$70\,^5/_6$	$87\,^7/_9$	$94\,^4/_9$	$101\,^1/_3$	$125\,^1/_3$
1960 & later	2022 & later	67	8	70	$86\,^2/_3$	$93\,^1/_3$	100	124

2. Covered Employment

Projections of the total labor force and unemployment rate are based on Bureau of Labor Statistics definitions from the Current Population Survey (CPS), and thus represent the average weekly number of employed and unemployed persons, aged 16 and over, in the U.S. in a calendar year. Total covered workers in a year are the number of persons who have any OASDI covered earnings (earnings subject to the OASDI payroll tax) at any time during the year. For those aged 16 and over, projected covered employment is the sum of age-sex components, each of which is projected as a ratio to the CPS concept of employment. For those under age 16, projected covered employment is the sum of age-sex components, each of which is projected as a ratio to the Social Security area population. The projection methodology accounts for changes in the business cycle, the quarterly pattern of growth in employment within each year, changes in non-OASDI covered employment, the increase in coverage of Federal civilian employment as a result of the 1983 Social Security Amendments, and changes in the number and employ-

ment-status of other immigrants estimated to be residing within the Social Security coverage area.

Covered-worker rates are defined as the ratio of OASDI covered workers to the Social Security area population. The age-adjusted coverage rate for males age 16 and over is projected to be 71.2, 70.6, and 70.2 percent for 2082 for the low cost, intermediate, and high cost assumptions, respectively, compared to the 2006 level of about 71.7 percent. (Age-adjusted covered worker rates are adjusted to the 2006 age distribution of the Social Security area population.) For females, the projected age-adjusted coverage rate changes from its 2006 level of 63.1 percent to 64.4, 63.8, and 63.1 percent for 2082 for the low cost, intermediate, and high cost assumptions, respectively.

3. Taxable Payroll and Payroll Tax Revenue

The OASDI taxable payroll is the amount of earnings in a year which, when multiplied by the combined employee-employer tax rate, yields the total amount of taxes due from wages and self-employed income in the year. Taxable payroll is used in estimating OASDI income and in determining income and cost rates and actuarial balances. (See section IV.B.1, Annual Income Rates, Cost Rates, and Balances, for definitions of these terms.) Taxable payroll is computed from taxable earnings, defined as the sum of wages and self-employment earnings subject to the Social Security tax. In computing taxable payroll, wages are adjusted to take into account the "excess wages" earned by workers with multiple jobs whose combined wages exceed the contribution and benefit base. Also, from 1983 through 2001, taxable payroll includes deemed wage credits for military service. Prior to 1984, the self-employed tax rate was less than the combined employee-employer rate, thus taxable self-employed earnings were weighted to reflect this. Also, prior to 1988, employers were exempt from Social Security tax on part of their employees' tips; taxable payroll was reduced by half of this exempt amount to take this into account.

The computation of taxable earnings for employees, employers, and the self-employed is based on total earnings in covered employment. Covered earnings are summed from component sectors of the economy, including private, State and local, Federal civilian, and military. Covered earnings for each sector are based on the projected growth of U.S. earnings and a factor that reflects any projected change in coverage (e.g., the increase in coverage in the Federal civilian sector due to mandatory coverage of newly hired employees). The level of taxable earnings reflects only the portion of covered earnings that is at or below the contribution and benefit base. The portion of covered earnings that is taxable (i.e., at or below the base) was about

89.5, 86.9, and 82.8 percent for 1983, 1994, and 2000, respectively. This ratio of taxable earnings to covered earnings rose to about 85.8 in 2002, then fell to 83.3 by 2006. The average annual rate of change in the ratio was about -0.3 percent between 1983 and 2006.

Most of this decline was due to a relative increase in wages for high earners. This decline is assumed to continue at a slower rate through 2017 for the intermediate and high cost assumptions. The projected taxable earnings ratios in 2017 are 83.7, 82.9, and 82.1 percent for the low cost, intermediate, and high cost assumptions, respectively. After 2017, the taxable-to-covered earnings ratio is approximately constant.

Payroll tax revenue is computed by applying the scheduled tax rates to taxable wages and self-employment income, taking into account the lag between the time the tax liability is incurred and when the taxes are collected. In the case of wages, employers are required to deposit withholding taxes with the Treasury on a schedule determined by the amount of tax liability incurred. (Generally, the higher the amount of liability, the sooner the taxes must be paid—ranging from the middle of the following month for employers with few employees to the next banking day after wages are paid for companies with very large payrolls.) Self-employed workers are required to make estimated tax payments on their earnings four times during the year, as well as making up any under-estimate on their individual income tax return. The pattern of actual receipts by the Treasury is taken into account when estimating self-employed tax collections.

4. Insured Population

Eligibility for benefits under the OASDI program requires some minimal level of work in covered employment. This requirement is established by a worker's accumulation of quarters of coverage (QCs). Prior to 1978, one QC was credited for each calendar quarter in which at least $50 was earned. In 1978, when quarterly reporting of earnings was replaced by annual reporting, the amount required to earn a QC (up to a maximum of four per year) was set at $250. Since then, this amount has been adjusted each year according to changes in the AWI. Its value in 2008 is $1,050.

There are three types of insured status which can be acquired by a worker under the OASDI program. Each of these statuses is determined by the number and recency of QCs earned. Fully insured status is acquired by any worker whose total number of QCs is greater than or equal to the number of years elapsed after the year of attainment of age 21 (but not less than six). Once a worker has accumulated 40 QCs, he or she remains permanently fully

insured. Disability insured status is acquired by any fully insured worker over age 30 who has accumulated 20 QCs during the 40-quarter period ending with the current quarter; any fully insured worker aged 24-30 who has accumulated QCs during one-half of the quarters elapsed after the quarter of attainment of age 21 and up to and including the current quarter; and any fully insured worker under age 24 who has accumulated six QCs during the 12-quarter period ending with the current quarter. Currently insured status is acquired by any worker who has accumulated six QCs during the 13-quarter period ending with the current quarter. Periods of disability are excluded from the above described QC requirements for insured status (but do not reduce the minimum of six QCs).

There are many types of benefits payable to workers and their family members under the OASDI program. A worker must be fully insured to be eligible for a primary retirement benefit, and for his or her spouse or children to be eligible for auxiliary benefits. A deceased worker must have been either currently insured or fully insured at the time of death for his or her children (and their mother or father) to be eligible for benefits. If there are no eligible surviving children, the deceased worker must have been fully insured at the time of death for his or her surviving spouse to be eligible. A worker must be disability insured to be eligible for a primary disability benefit, and for his or her spouse or children to be eligible for auxiliary benefits.

Historical estimates of the fully insured population, as a percentage of the Social Security area population, are made by age and sex for each birth cohort beginning with 1900. These percentages are based on 30,000 simulated work histories for each sex and birth cohort, which are constructed from past coverage rates, median earnings, and amounts required for crediting QCs. These work histories are developed by a model which assumes that persons who have recently been out of covered employment are likely to remain out of covered employment. This model is aligned such that the simulated fully insured percentages reproduce fairly closely the fully insured percentages estimated from the Continuous Work History Sample from 1970 to date. The fully insured population for future years is projected using this model, reflecting estimated future coverage rates, median earnings, and amounts required for crediting QCs.

Historical estimates of the disability insured population, as a percentage of the fully insured population, are made by age and sex for each birth cohort beginning with 1900. These percentages are based on the same simulated work histories used to project the fully insured percentages. Additional adjustments are made to bring the simulated disability insured percentages into close agreement with those estimated from the Continuous Work His-

tory Sample. The principal adjustment is for periods of disability (which are not explicitly taken into account in the model). These periods (which reduce the normally applicable QC requirements) have a negligible effect on fully insured status at retirement age, but a substantial effect on disability insured status. The disability insured population for future years is projected using this model, reflecting projections of the fully insured population.

Projections of the currently insured population are not made. This is because the number of beneficiaries who are entitled to benefits based solely on currently insured status has been very small, and is expected to remain small in the future.

Under this procedure, the percentage of the Social Security area population aged 62 and over that is fully insured is projected to increase from its estimated level of 81.0 for December 31, 2005, to 90.5, 90.6, and 91.0 for December 31, 2085, under alternatives I, II, and III, respectively. The percentage for females is projected to increase significantly, while that for males is projected to decline somewhat. Under alternative II, for example, the percentage for males is projected to decrease slightly during this period from 92.6 to 91.3, while that for females is projected to increase from 72.1 to 90.0.

5. Old-Age and Survivors Insurance Beneficiaries

The number of OASI beneficiaries is projected for each type of benefit separately, by the sex of the worker on whose earnings the benefits are based, and by the age of the beneficiary. For selected types of benefits, the number of beneficiaries is also projected by marital status.

For the short-range period, the number of retired-worker beneficiaries is developed by applying award rates to the aged fully insured population less those insured persons entitled to retired-worker, disabled-worker, aged-widow(er)'s, or aged-spouse's benefits, and by applying termination rates to the number of persons already receiving retired-worker benefits.

For the long-range period, the number of retired-worker beneficiaries not previously converted from disabled-worker beneficiary status is projected as a percentage of the exposed population, i.e., the aged fully insured population less persons entitled to or converted from disabled-worker benefits and fully insured persons entitled only to widow(er)'s benefits. For age 62, a linear regression is developed based on the historical relationship between this percentage and the labor force participation rate. The regression coefficients are then used to project this percentage based on the projected labor force participation rate for age 62. The percentage for ages 70 and over is assumed to be nearly 100, because delayed retirement credit can no longer be earned

after age 70. The percentage for each age 63 through 69 is projected based on historical experience with an adjustment for changes in the portion of the primary insurance amount that is payable at each age of entitlement. As the normal retirement age increases, the number of retired-worker beneficiaries not automatically converted from disabled-worker beneficiary status as a percentage of the exposed population, is gradually adjusted downward.

For the long-range period also, the number of retired-worker beneficiaries previously converted from disabled-worker beneficiaries is calculated separately in a manner consistent with the calculation of disabled-worker beneficiaries.

The number of aged-spouse beneficiaries (excluding those who are also receiving a retired-worker benefit) is estimated from the population projected by age and sex. The benefits of aged-spouse beneficiaries are based on the earnings records of their husbands or wives, who are referred to as "earners." In the short-range period, insured aged-spouse beneficiaries are projected in conjunction with the retired-worker beneficiaries. Uninsured aged-spouse beneficiaries are projected by applying award rates to the aged uninsured male or female population, and by applying termination rates to the population already receiving such benefits.

In the long-range period, aged-spouse beneficiaries are estimated separately for those married and divorced. The number of married aged-spouse beneficiaries is projected by applying a series of factors to the number of spouses aged 62 and over in the population. These factors represent the probabilities that the spouse and the earner meet *all* of the conditions of eligibility—i.e., the probabilities that: (1) the earner is 62 or over; (2) the earner is insured; (3) the earner is receiving benefits; (4) the spouse is not receiving a benefit for the care of an entitled child; (5) the spouse is not insured; and (6) the spouse is not eligible to receive a significant government pension based on earnings in noncovered employment. To the resulting number of spouses a projected prevalence rate is applied to calculate the estimated number of aged-spouse beneficiaries.

The number of divorced aged-spouse beneficiaries is estimated by applying the same factors to the number of divorced persons aged 62 and over in the population, with three differences. First, an additional factor is required to reflect the probability that the person's former earner spouse is still alive (otherwise, the person may be entitled to a divorced widow(er)'s benefit). Second, a factor is required to reflect the probability that the marriage to the earner spouse was at least 10 years in duration. Third, factor (3) above is not applied because, effective as of January 1985, a divorced person generally

need not wait to receive benefits until the former earner spouse is receiving benefits.

The projected numbers of children under age 18, and students aged 18 and 19, who are eligible for benefits as children of retired-worker beneficiaries, are based on the projected number of children in the population. In the short-range period, the number of entitled children is developed by applying award rates to the number of children in the population where both parents are alive, and by applying termination rates to the number of children already receiving benefits.

In the long-range period, the number of entitled children is projected separately by sex of the earner parent. The number of entitled children is projected for each age under 18 from the latest beneficiary data by reflecting changes in the following: the number of children in the population and the proportion of retired workers aged 62 to 71 to the population aged 20 to 71. For student beneficiaries, factors are applied to the number of children aged 18 and 19 in the population, representing the probabilities that the parent is alive, aged 62 or over, insured, and receiving a retired-worker benefit. Another factor is applied representing the probability that the child is attending a secondary school.

The number of disabled children, aged 18 and over, of retired-worker beneficiaries is projected from the adult population. In the short-range period, award rates are applied to the population, and termination rates are applied to the number of disabled children already receiving benefits. In the long-range period, disabled children are projected in a manner similar to that for student children with the inclusion of a factor reflecting the probability of being disabled before age 22.

In the short-range period, the number of entitled young-spouse beneficiaries is developed by applying award rates to the number of awards to children of retired workers, where the children are either under age 16 or disabled, and by applying termination rates to the number of young spouses already receiving benefits. In the long-range period, young-spouse beneficiaries are projected as a proportion of the projected number of child beneficiaries of retired workers, taking into account projected changes in average family size.

The number of aged-widow(er) beneficiaries (excluding those who are also receiving a retired-worker benefit) is projected from the population by age and sex. In the short-range period, fully insured aged-widow(er) beneficiaries are projected in conjunction with the retired-worker beneficiaries. Uninsured aged-widow(er) beneficiaries are projected, by applying award rates to

the aged uninsured male or female population, and by applying termination rates to the population already receiving such benefits. In the long-range period, aged-widow(er) beneficiaries are projected by marital status. Four factors are applied to the number of widow(er)s in the population aged 60 and over. These factors represent the probabilities that (1) the deceased earner is fully insured at death, (2) the widow(er) is not receiving a benefit for the care of an entitled child, (3) the widow(er) is not fully insured, and (4) the widow(er)'s benefits are not withheld because of receipt of a significant government pension based on earnings in noncovered employment. In addition, some insured widow(er)s who had not applied for their retired-worker benefits are assumed to receive widow(er)'s benefits. Also, the same factors are applied to the number of divorced persons aged 60 and over in the population, with additional factors representing the probability that the person's former earner spouse is deceased and that the marriage was at least 10 years in duration.

In the short-range period, the number of disabled-widow(er) beneficiaries is developed by applying award rates to the uninsured male or female population, and by applying termination rates to the population already receiving a disabled-widow(er) benefit. In the long-range period, the number is projected for each age 50 up to NRA as percentages of the widowed and divorced populations, adjusted for the insured status of the deceased spouse, the prevalence of disability, and the probability that the disabled spouse is not receiving another type of benefit.

The projected numbers of children under age 18, and students aged 18 and 19, who are entitled for benefits as survivors of deceased workers, are based on the projected number of children in the population whose mothers or fathers are deceased. In the short-range period, the number of entitled children is developed by applying award rates to the number of orphaned children, and by applying termination rates to the number of children already receiving benefits.

In the long-range period, the number of child-survivor beneficiaries is projected in a manner analogous to that for student beneficiaries of retired workers, with the factor representing the probability that the parent is aged 62 or over replaced by a factor that represents the probability that the parent is deceased.

In the short-range period, the numbers of entitled mother-survivor and father-survivor beneficiaries are developed by applying award rates to the number of awards to child-survivor beneficiaries, where the children are either under age 16 or disabled, and by applying termination rates to the

number of mother-survivors and father-survivors already receiving benefits. In the long-range period, mother-survivor and father-survivor beneficiaries, assuming they are not remarried, are estimated from the number of child-survivor beneficiaries, taking into account projected changes in average family size.

The number of parent-survivor beneficiaries is projected based on the historical pattern of the number of such beneficiaries.

Table V.C4 shows the projected number of beneficiaries under the OASI program by type of benefit. Included among the beneficiaries who receive retired-worker benefits are persons who also receive a residual benefit consisting of the excess of an auxiliary benefit over their retired-worker benefit. Estimates of the number and amount of such residual payments are made separately for spouses and widow(er)s.

**Table V.C4.—OASI Beneficiaries With Benefits in Current-Payment Status
at the End of Calendar Years 1945-2085**
[In thousands]

| | Retired workers and auxiliaries | | | Survivors | | | | |
Calendar year	Worker[1]	Spouse	Child	Widow-widower	Mother-father	Child	Parent	Total
Historical data:								
1945	518	159	13	94	121	377	6	1,288
1950	1,771	508	46	314	169	653	15	3,477
1955	4,474	1,192	122	701	292	1,154	25	7,961
1960	8,061	2,269	268	1,544	401	1,577	36	14,157
1965	11,101	2,614	461	2,371	472	2,074	35	19,128
1970	13,349	2,668	546	3,227	523	2,688	29	23,030
1975	16,589	2,867	643	3,888	582	2,919	21	27,509
1980	19,564	3,018	639	4,415	563	2,610	15	30,823
1985	22,435	3,069	456	4,862	372	1,918	10	33,122
1986	22,985	3,086	450	4,927	350	1,878	9	33,685
1987	23,444	3,090	439	4,983	329	1,837	8	34,129
1988	23,862	3,088	432	5,013	318	1,809	7	34,529
1989	24,331	3,095	422	5,057	312	1,782	6	35,004
1990	24,841	3,104	421	5,098	304	1,777	6	35,551
1991	25,293	3,106	425	5,142	301	1,792	5	36,064
1992	25,762	3,115	431	5,187	294	1,808	5	36,603
1993	26,109	3,098	436	5,207	289	1,837	5	36,981
1994	26,412	3,069	440	5,218	283	1,865	4	37,292
1995	26,679	3,027	441	5,213	275	1,884	4	37,522
1996	26,905	2,971	442	5,199	242	1,898	4	37,661
1997	27,282	2,926	441	5,043	230	1,893	3	37,817
1998	27,518	2,866	439	4,981	221	1,884	3	37,911
1999	27,784	2,811	442	4,936	212	1,885	3	38,073
2000	28,505	2,798	459	4,901	203	1,878	3	38,747
2001	28,843	2,742	467	4,828	197	1,890	3	38,969
2002	29,195	2,681	477	4,771	194	1,908	2	39,227
2003	29,537	2,622	480	4,707	190	1,910	2	39,448
2004	29,952	2,569	482	4,643	184	1,901	2	39,733
2005	30,461	2,524	488	4,569	178	1,903	2	40,126
2006	30,976	2,476	490	4,494	171	1,899	2	40,508
2007	31,528	2,431	494	4,436	165	1,892	2	40,947
Intermediate:								
2010	34,209	2,394	533	4,364	153	1,873	2	43,527
2015	41,056	2,345	623	4,282	143	1,887	1	50,337
2020	49,138	2,254	689	4,229	137	1,901	2	58,349
2025	56,369	2,268	741	4,233	133	1,895	2	65,640
2030	62,728	2,293	779	4,293	129	1,902	2	72,126
2035	67,011	2,205	788	4,375	125	1,898	2	76,405
2040	69,285	2,089	792	4,368	121	1,883	2	78,539
2045	70,865	2,013	800	4,295	118	1,856	2	79,948
2050	72,732	1,996	827	4,195	115	1,832	2	81,698
2055	75,151	2,100	849	4,103	112	1,812	2	84,129
2060	77,993	2,195	871	4,044	110	1,795	2	87,009
2065	80,782	2,310	881	4,044	107	1,773	2	89,899
2070	83,677	2,412	898	4,098	105	1,750	2	92,942
2075	86,730	2,485	918	4,171	102	1,726	2	96,134
2080	89,937	2,570	943	4,239	99	1,708	2	99,497
2085	93,313	2,658	968	4,299	97	1,692	2	103,029

**Table V.C4.—OASI Beneficiaries With Benefits in Current-Payment Status
at the End of Calendar Years 1945-2085 (Cont.)**
[In thousands]

| Calendar year | Retired workers and auxiliaries | | | Survivors | | | | Total |
	Worker[1]	Spouse	Child	Widow-widower	Mother-father	Child	Parent	
Low Cost:								
2010	34,191	2,394	533	4,361	154	1,876	2	43,511
2015	40,905	2,349	629	4,268	146	1,916	1	50,215
2020	48,620	2,227	700	4,250	135	2,001	2	57,935
2025	55,330	2,231	764	4,291	130	2,069	2	64,816
2030	60,910	2,227	817	4,391	125	2,170	2	70,642
2035	64,325	2,111	838	4,502	120	2,259	2	74,157
2040	65,767	1,968	852	4,503	117	2,332	2	75,541
2045	66,674	1,873	872	4,423	117	2,386	2	76,347
2050	68,038	1,838	914	4,311	117	2,430	2	77,650
2055	70,054	1,913	949	4,204	119	2,479	2	79,718
2060	72,484	1,974	988	4,129	122	2,542	2	82,240
2065	74,826	2,032	1,013	4,111	125	2,606	2	84,714
2070	77,226	2,066	1,046	4,143	128	2,668	2	87,278
2075	79,875	2,079	1,086	4,194	130	2,725	2	90,092
2080	83,214	2,119	1,140	4,257	133	2,789	2	93,654
2085	87,299	2,195	1,202	4,338	135	2,856	2	98,028
High Cost:								
2010	34,233	2,393	532	4,368	153	1,869	2	43,549
2015	41,214	2,341	618	4,298	140	1,858	1	50,470
2020	49,763	2,289	681	4,206	140	1,807	2	58,888
2025	57,569	2,315	722	4,175	135	1,732	2	66,648
2030	64,697	2,371	744	4,192	128	1,662	2	73,795
2035	69,896	2,312	740	4,243	121	1,589	2	78,901
2040	73,101	2,218	732	4,227	112	1,513	2	81,905
2045	75,443	2,163	726	4,167	104	1,438	2	84,042
2050	77,906	2,166	738	4,089	97	1,377	2	86,374
2055	80,766	2,300	746	4,018	90	1,326	2	89,247
2060	84,021	2,430	752	3,973	83	1,275	2	92,536
2065	87,289	2,597	747	3,983	77	1,220	2	95,914
2070	90,742	2,756	747	4,042	71	1,168	2	99,528
2075	94,224	2,874	749	4,115	65	1,117	2	103,146
2080	97,346	2,974	748	4,175	60	1,075	2	106,380
2085	100,009	3,063	746	4,207	56	1,035	2	109,117

[1] Included among the beneficiaries who receive retired-worker benefits are persons who also receive a residual benefit consisting of the excess of an auxiliary benefit over their retired-worker benefit.

Notes:
1. The number of beneficiaries does not include uninsured individuals who receive benefits under Section 228 of the Social Security Act. Costs are reimbursed from the General Fund of the Treasury for most of these individuals.
2. Totals do not necessarily equal the sums of rounded components.

6. Disability Insurance Beneficiaries

Benefits are paid from the DI Trust Fund to disabled workers who satisfy the disability insured requirements, are unable to engage in substantial gainful activity due to medically determinable physical or mental impairment severe enough to satisfy the requirements of the program, and have not yet attained normal retirement age. Spouses and children of such disabled workers may

117

also receive DI benefits provided they satisfy certain criteria, principally meeting age requirements.

The number of disabled workers receiving benefits in a given year (i.e., in current-payment status) is projected using standard actuarial methods that reflect future new benefit awards, terminations due to death and recovery, and conversions from disability to retired-worker beneficiary status after which benefits are paid from the OASI Trust Fund.

The prevalence of disability (arising from the likelihood of becoming disabled— incidence—as well as the likelihood that disability ceases—termination) is captured by the ratio of the number of disabled-worker beneficiaries in current-payment status to the disability insured population (this ratio is referred to as the disabled-worker prevalence rate). The balance of this section describes the methods and assumptions used for projecting the number of disability beneficiaries. Incidence rates and termination rates are the key factors in these projections. This section illustrates these rates as well as the projected beneficiary population and prevalence rates.

a. Disability Incidence

The number of new benefit awards each year divided by the number of individuals who meet insured requirements but are not yet receiving benefits (the disability exposed population) is referred to as the disability incidence rate. New awards are projected for each year by applying assumed age-sex-specific disability incidence rates to the projected disability exposed population by age and sex. Projections of the disability insured population are described in section V.C.4 of this report.

For the first 10 years of the projection period (through 2017) incidence rates reflect several factors including: (1) aspects of program administration (processing of the special disability workload described in section IV.A.2, efforts to reduce the disability backlog, and recent changes to how claims are adjudicated); (2) assumed future unemployment rates; and (3) underlying trends in incidence. After 2017, age-sex-specific incidence rates are assumed to trend toward the ultimate rates assumed for the long-range projections, reaching these ultimate rates in 2027. The ultimate age-sex-specific disability incidence rates are selected based on careful analysis of historical levels and patterns and expected future conditions, including the impact of sched-

uled increases in the normal retirement age.[1] The ultimate incidence rates are assumed to represent the likely average rates of incidence for the future.

For the intermediate alternative, the ultimate age-sex-adjusted incidence rate (adjusted to the disability exposed population for the year 2000) for ages through 64 is assumed to be 5.2 awards per thousand exposed population.[2] This level is about 1 percent higher than the average rate for the historical period 1970 through 2007. The ultimate age-sex-adjusted incidence rates for the low cost and high cost alternatives are assumed to be 4.2 and 6.2 awards per thousand exposed, or about 19 percent lower and 20 percent higher than the average for the historical period, respectively. For the 2008 report, the ultimate assumed age-sex-adjusted incidence rates are essentially the same as in last year's report.

Historical incidence rates and assumed incidence rates under the three alternatives are illustrated in figure V.C3. Incidence rates have varied within a wide range over the past 35 years. This variation is attributed to a variety of demographic and economic factors, along with the effects of changes due to legislation and program administration.[3] The solid lines in figure V.C3 illustrate values of the incidence rate, age-sex adjusted to the distribution of the disability exposed population for 2000. Such adjustment facilitates meaningful comparisons over long periods of time by focusing on the likelihood of becoming disabled, and excluding the effects of a changing distribution of the population toward ages where disability is inherently more or less likely.

Gross (unadjusted) incidence rates are also shown in figure V.C3 in dashed lines. Unadjusted rates are influenced by the changing age-sex distribution of the exposed population over time. The gross incidence rate fell substantially below the age-sex-adjusted rate between 1975 and 1995 as the baby-boom generation swelled the size of the younger working-age population, where disability incidence is low. After 1995, the gross rate rose relative to the age-sex-adjusted rate, reflecting the aging of the baby-boom generation into higher ages, where disability incidence increases substantially. After about

---

[1] Incidence rates are adjusted upward to account for additional workers who are expected to file for disability benefits (rather than retirement benefits) in response to greater reductions in retirement benefits as the NRA rises.

[2] The ultimate age-sex-adjusted disability incidence rate is reported as new awards per thousand exposed in this year's report. For last year's report, the rate was reported on an entitlement basis rather than a new award basis. The incidence rates in this year's report are essentially equivalent to those reported for last year's report and have the same ultimate effect on benefit payments and beneficiaries in current-payment status.

[3] A more detailed discussion of the recent history of the DI program is presented in Actuarial Study 118, "Social Security Disability Insurance Program Worker Experience," June 2005. This study can be found at www.socialsecurity.gov/OACT/NOTES/s2000s.html.

2023, the gross incidence rate declines relative to the age-sex-adjusted rate as the baby-boom generation moves above the normal retirement age (NRA), and is replaced at prime disability ages (50 to NRA) by the smaller cohorts born in the 1970s. As these smaller cohorts age past NRA, by about 2050, the gross incidence rate returns to a higher relative level under the intermediate assumptions. Thereafter, the gross rate remains higher, reflecting the persistently higher average age of the working-age population, which is largely due to lower birth rates since 1965.

Figure V.C3.—DI Disabled-Worker Incidence Rates, 1970-2085
[Awards per thousand disability exposed]
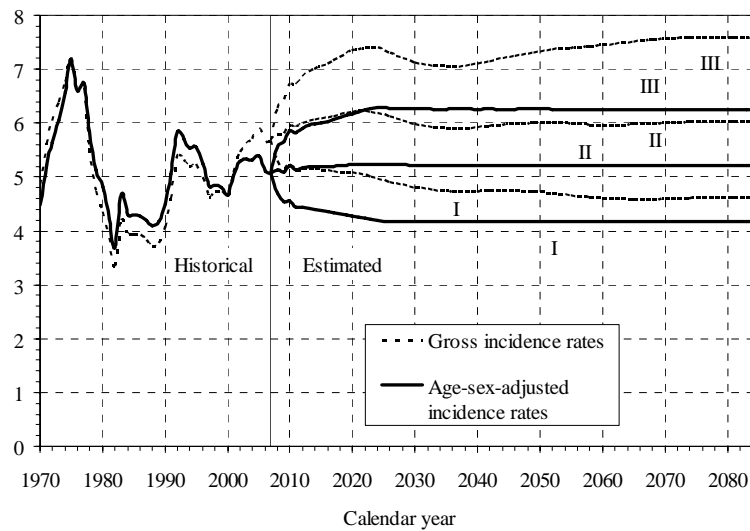
b. Disability Termination

Disability benefits may be terminated if a beneficiary dies or recovers from the disabling condition (as indicated by either medical improvement or return to work). The termination rate is the ratio of the number of terminations to the average number of disabled-worker beneficiaries during the year.

Termination rates are projected by age, sex, and reason for termination. In addition, in the long-range period (post-2017) termination rates are also assumed to vary by duration of entitlement to disabled-worker benefits.

In the short-range period (through 2017), the age-sex-adjusted death rate (adjusted to the 2000 disabled-worker population) under the intermediate assumptions is projected to gradually decline from 27.9 deaths per thousand

beneficiaries in 2007 to about 23.9 per thousand by 2017.[1] The age-sex-adjusted recovery rate under the intermediate assumptions is assumed to rise from a relatively low level of 10 per thousand beneficiaries in 2007 (reflecting temporarily lower levels of continuing disability reviews) to 12 per thousand beneficiaries by 2017. Under low cost (high cost) assumptions, total age-sex-adjusted termination rates due to death and recovery are assumed to increase (decrease) to levels roughly 10-15 percent higher (lower) than those under the intermediate assumptions.

For the long-range period (post-2017), death and recovery rates are projected relative to rates by age, sex, and duration of entitlement over the base period 1996-2000.[2] The ultimate age-sex-adjusted recovery rate for disabled workers is assumed to be about 10.8 per thousand beneficiaries. Ultimate age-sex-adjusted recovery rates for low cost and high cost alternatives are assumed to reach about 13.1 and 8.6 recoveries per thousand beneficiaries, respectively. For all three sets of assumptions, the ultimate recovery rates are reached in the twentieth year of the projection period (2027). In contrast, death rates by age and sex are assumed to change throughout the long-range period at the same rate as for death rates in the general population. From the age-sex-adjusted death rate of 27.9 per thousand beneficiaries in 2007, rates of 21.4, 12.2, and 7.7 per thousand disabled-worker beneficiaries are projected for 2085 under the low cost, intermediate, and high cost assumptions, respectively.

Figure V.C4 illustrates gross and age-sex-adjusted total termination rates for disabled-worker beneficiaries for the historical period since 1970, and for the projection period through 2085. As with incidence rates, the age-sex-adjusted termination rate provides an illustration of the real change in the tendency to terminate benefits. The gross rate is influenced by changes in the age-sex distribution of the beneficiary population. A shift in the beneficiary population to older ages, as when the baby-boom generation moves into pre-retirement ages, results in an increase in the gross death termination rate as long as death rates by age and sex are constant or declining.

---

[1] Projections are distinguished between the short range (through 2017) and the long range (after 2017). While short-range assumptions vary within the 10-year short-range period, the full phase in to the ultimate assumptions is not achieved until 2027. Death rates differ in this regard as explained in the text.

[2] The termination rate analysis was based on work presented in Actuarial Study 118, "Social Security Disability Insurance Program Worker Experience," June 2005. This study can be found on the Social Security website at www.socialsecurity.gov/OACT/NOTES/s2000s.html.

Figure V.C4.—DI Disabled-Worker Termination Rates, 1970-2085
[Terminations per thousand disabled-worker beneficiaries]
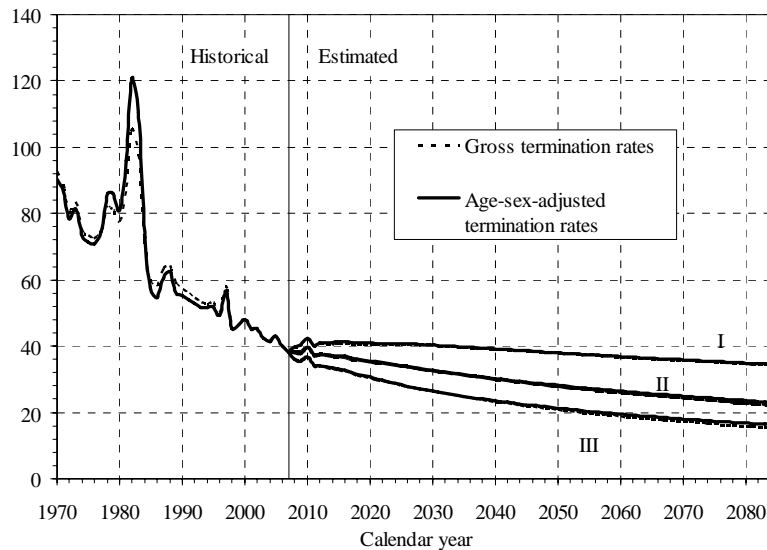
c.   *Comparison of Incidence, Termination, and Conversion*

Incidence and termination rates are the foundation for development of the projected levels of disabled-worker beneficiaries in current-payment status up to the normal retirement age (NRA) at which time beneficiaries are converted to retired-worker status and thereby leave the DI rolls. For all disabled-worker beneficiaries reaching the NRA in a given year, the disability "conversion" rate is, by definition 100 percent. For beneficiaries at all other ages this rate is zero. Conversions are simply a transfer of beneficiaries at NRA from the DI Trust Fund account to the OASI Trust Fund account. After conversion, recovery from the disabling condition is no longer considered. Conversions do represent a form of exit from the DI rolls and therefore must be accounted for in disabled-worker beneficiary totals.

Figure V.C5 compares the historical and projected (intermediate) levels of incidence, termination, and conversion on both gross and age-sex adjusted bases. The rates for incidence and termination (death and recovery) are described above. The conversion ratio is the number of conversions in a given year (i.e., beneficiaries who reach the NRA) divided by the average number of disabled-worker beneficiaries at all ages in that year. The ratio is a constant on an age-sex-adjusted basis, except for the two periods during

which the NRA increases under current law. But on a gross basis, the conversion ratio rises and falls with the change in the age distribution of disabled workers reflecting the changing proportion of all disabled-worker beneficiaries who attain the NRA in a given year.

Termination rates have declined and are expected to continue to fall, largely because of declines in death rates. Incidence rates have varied widely and are assumed for the intermediate projection (on an age-sex-adjusted basis) to remain near the middle of the high and low extremes experienced since 1970. The gross conversion ratio increases in the future due to aging of the beneficiary population.

Figure V.C5.—Comparison of DI Disabled-Worker Incidence Rates, Termination Rates and Conversion Ratios Under Intermediate Assumptions, 1970-2085
[Awards per thousand disability exposed;
terminations and conversions per thousand disabled-worker beneficiaries]
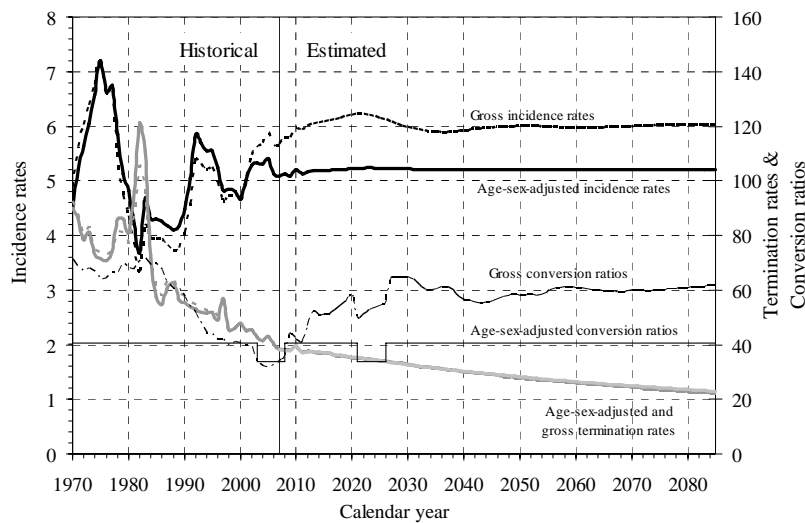
d. DI Beneficiaries and Disabled-Worker Prevalence Rates

The detailed projections of disabled-worker awards, terminations, and conversions are combined using standard actuarial methods to project the number of disabled workers receiving benefits (i.e., in current-payment status) over the next 75 years. The projected numbers of disabled workers in current-payment status are presented in table V.C5. The number of disabled workers in current-payment status is projected to grow from 7.1 million at the end of 2007, to 12.2 million, 14.1 million, and 14.8 million at the end of

2085, under the low cost, intermediate, and high cost assumptions, respectively. Of course, much of this growth is a direct result of the growth and aging of the population described earlier in this chapter. Also shown in table V.C5 are disabled-worker prevalence rates on both gross (unadjusted) and age-sex-adjusted bases. Discussion of auxiliary beneficiary projections appears below.

Table V.C5.—DI Beneficiaries With Benefits in Current-Payment Status at the End of Calendar Years 1960-2085

[Beneficiaries in thousands; prevalence rates per thousand disability insured]

| | Disabled-worker beneficiaries | Auxiliary beneficiaries | | Total beneficiaries | Disabled-worker prevalence rates | |
Calendar year		Spouse	Child		Gross	Age-sex adjusted
Historical data:						
1960.	455	77	155	687		
1965.	988	193	558	1,739		
1970.	1,493	283	889	2,665	20	19
1975.	2,488	453	1,411	4,351	29	29
1980.	2,856	462	1,359	4,677	28	31
1985.	2,653	306	945	3,904	24	26
1986.	2,725	301	965	3,991	24	27
1987.	2,782	291	968	4,041	25	27
1988.	2,826	281	963	4,070	24	27
1989.	2,891	271	962	4,124	24	27
1990.	3,007	266	989	4,261	25	28
1991.	3,191	266	1,052	4,509	26	29
1992.	3,464	271	1,151	4,886	28	31
1993.	3,721	273	1,255	5,249	30	32
1994.	3,958	271	1,350	5,579	31	33
1995.	4,179	264	1,409	5,852	33	35
1996.	4,378	224	1,463	6,065	34	35
1997.	4,501	207	1,438	6,146	34	35
1998.	4,691	190	1,446	6,327	35	36
1999.	4,870	176	1,468	6,514	36	36
2000.	5,036	165	1,466	6,667	36	36
2001.	5,268	157	1,482	6,907	37	37
2002.	5,539	152	1,526	7,217	39	37
2003.	5,869	151	1,571	7,590	41	38
2004.	6,198	153	1,599	7,950	42	39
2005.	6,519	157	1,633	8,309	44	39
2006.	6,807	156	1,652	8,615	45	40
2007.	7,099	154	1,665	8,918	47	40

Table V.C5.—DI Beneficiaries With Benefits in Current-Payment Status at the End of Calendar Years 1960-2085 (Cont.)
[Beneficiaries in thousands; prevalence rates per thousand disability insured]

Calendar year	Disabled-worker beneficiaries	Auxiliary beneficiaries		Total beneficiaries	Disabled-worker prevalence rates	
		Spouse	Child		Gross	Age-sex adjusted
Intermediate:						
2010.	7,841	162	1,733	9,736	50	41
2015.	8,764	159	1,844	10,766	53	43
2020.	9,328	154	1,935	11,416	55	43
2025.	10,029	178	2,061	12,269	54	44
2030.	10,060	178	2,184	12,422	52	44
2035.	10,195	174	2,287	12,656	52	45
2040.	10,505	171	2,366	13,041	53	45
2045.	11,057	177	2,429	13,663	54	45
2050.	11,503	188	2,495	14,187	55	46
2055.	11,906	207	2,573	14,685	55	46
2060.	12,156	207	2,651	15,014	55	46
2065.	12,502	214	2,725	15,440	56	47
2070.	12,910	221	2,792	15,924	56	47
2075.	13,329	227	2,856	16,413	57	47
2080.	13,724	236	2,922	16,882	57	47
2085.	14,062	241	2,992	17,295	58	47
Low Cost:						
2010.	7,547	151	1,652	9,350	48	39
2015.	7,900	140	1,653	9,693	48	38
2020.	8,029	126	1,689	9,843	46	37
2025.	8,255	137	1,755	10,147	43	35
2030.	8,059	130	1,862	10,051	41	35
2035.	8,050	121	1,974	10,144	40	34
2040.	8,233	114	2,078	10,425	40	34
2045.	8,635	115	2,174	10,925	40	34
2050.	8,981	122	2,271	11,373	40	34
2055.	9,322	133	2,383	11,838	40	35
2060.	9,589	132	2,513	12,234	39	35
2065.	9,976	135	2,649	12,760	39	35
2070.	10,467	138	2,783	13,388	39	35
2075.	11,049	144	2,915	14,108	40	35
2080.	11,650	151	3,050	14,850	40	35
2085.	12,215	158	3,189	15,563	40	36
High Cost:						
2010.	8,137	172	1,814	10,123	52	43
2015.	9,631	177	2,031	11,839	59	47
2020.	10,594	177	2,172	12,943	64	50
2025.	11,750	215	2,338	14,303	64	52
2030.	12,023	225	2,445	14,693	64	54
2035.	12,303	227	2,501	15,030	65	55
2040.	12,725	226	2,518	15,469	67	56
2045.	13,400	238	2,519	16,157	70	57
2050.	13,908	252	2,534	16,694	72	58
2055.	14,316	276	2,560	17,152	73	58
2060.	14,477	274	2,568	17,319	74	59
2065.	14,677	284	2,560	17,520	75	59
2070.	14,857	291	2,543	17,691	76	59
2075.	14,919	294	2,524	17,737	77	59
2080.	14,886	297	2,512	17,694	77	59
2085.	14,797	297	2,507	17,601	77	60

Note: Totals do not necessarily equal the sums of rounded components.

Figure V.C6 illustrates the historical and projected disabled-worker prevalence rates on both a gross (unadjusted) basis and on an age-sex-adjusted basis (adjusted to the age-sex distribution of the insured population for the year 2000).

Figure V.C6.—DI Disabled-Worker Prevalence Rates, 1970-2085
[Rate per thousand disability insured]
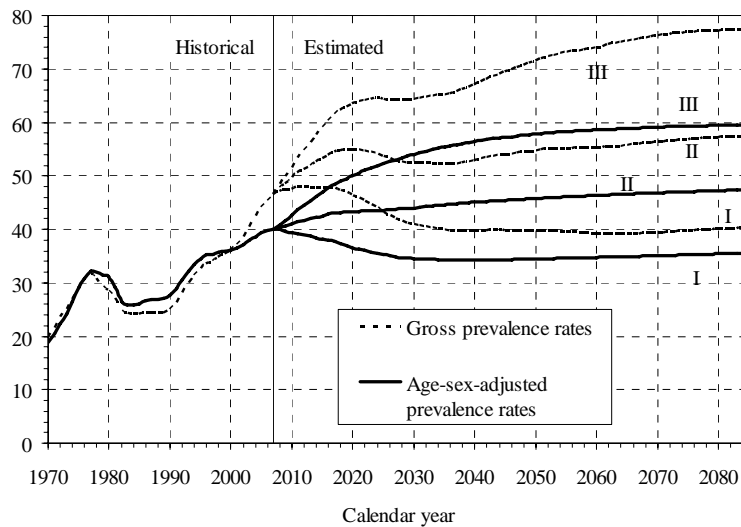
Changes in prevalence rates are a direct result of changes in incidence rates and termination rates. The patterns depicted for these rates in figure V.C5 are helpful for understanding the trend in prevalence rates (annual rates are not directly comparable and cannot be simply combined, as their denominators differ).

Prevalence rates have increased primarily because: (1) termination rates have declined; and (2) incidence rates at younger ages have increased relative to rates at higher ages. Gross prevalence rates have increased more than age-sex-adjusted prevalence rates since the baby-boom generation began to move into the ages 50 through NRA, where incidence rates are relatively high. With this upward shift in the age distribution of the disabled population, gross conversions to retired worker status at NRA have naturally increased as well. In the future, prevalence rates are projected to grow at a slower pace reflecting assumed stabilization in three factors: the age distribution of the general population, the age distribution of the disability insured population,

and relative rates of incidence by age. With these factors gradually stabilizing, the remaining force influencing prevalence rates is the declining death termination rate, which is projected to continue to have a small influence toward higher disabled worker prevalence rates in the future.

As mentioned above in the discussion of incidence and termination rates, the age-sex-adjusted prevalence rate isolates the changing trend in the true likelihood of receiving benefits for the insured population, free from the effects of an aging population. For disability prevalence rates, like incidence rates, the entrance of the baby-boom generation into working ages caused the gross rate of disability to decline relative to the age-sex-adjusted rate between 1975 and 1995, due to lower disability prevalence rates at younger ages. Conversely, the gross rate of disability prevalence increases relative to the age-sex-adjusted rate after 1995 due to the aging of the baby-boom generation into ages with higher disability prevalence rates.

The age-sex-adjusted disabled-worker prevalence rate for ages through 64 is projected to grow from 40.0 per thousand disability insured at the end of 2007, to 47.4 per thousand at the end of 2085 under the intermediate assumptions. As mentioned above, the growth in prevalence is expected to slow relative to the historical period.

Under the low cost and high cost assumptions, the age-sex-adjusted disability prevalence rate is projected to decrease to 35.6 per thousand and increase to 59.6 per thousand insured workers at the end of 2085, respectively.

Table V.C5 presents projections of the numbers of auxiliary beneficiaries paid from the DI Trust Fund. As indicated at the beginning of this subsection, such auxiliary beneficiaries consist of qualifying spouses and children of disabled workers. In the case of children, the child must be either (1) under age 18, (2) age 18 or 19 and still a student in high school, or (3) over age 18 and disabled prior to age 22. In the case of spouses, the spouse must either be at least age 62, or have, in his or her care, an eligible child beneficiary who is either under age 16 or disabled prior to age 22.

In general, the number of such auxiliary beneficiaries is projected in a manner that is related to the projected number of disabled-worker beneficiaries. In the short-range period (2008-17), this is accomplished for family members of disabled-worker beneficiaries by projecting incidence and termination rates for each category of auxiliary beneficiary. After 2017, the child beneficiaries at ages 18 and under are projected in relation to the projected number of children in the population, by applying factors representing the probability that either of their parents is a disabled-worker beneficiary. The remaining categories of children and spouses are projected in a similar manner.

7. Average Benefits

Average benefits are projected by type of benefit based on recent historical averages, projected average primary insurance amounts (PIAs), and projected ratios of average benefits to average PIAs. Average PIAs are calculated from projected distributions of beneficiaries by duration from year of award, average awarded PIAs, and increases in PIAs since the year of award, reflecting automatic benefit increases, recomputations to reflect additional covered earnings, and other factors. Future average awarded PIAs are calculated from projected earnings histories, which are developed using a combination of the actual earnings histories associated with a sample of awards based on 2004 entitlements, and more recent actual earnings levels by age and sex for covered workers.

For several types of benefits—retired-worker, aged-spouse, and aged-widow(er) benefits—the percentage of the PIA that is payable depends on the age at initial entitlement to benefits. Projected ratios of average benefits to average PIAs for these types of benefits are based on projections of age distributions at initial entitlement.

8. Benefit Payments

For each type of benefit, benefit payments are calculated as the product of a number of beneficiaries and a corresponding average monthly benefit. In the short-range period, benefit payments are calculated on a quarterly basis. In the long-range period, all benefit payments are calculated on an annual basis, using the number of beneficiaries on December 31. These amounts are adjusted to include retroactive payments to newly awarded beneficiaries, and other amounts not reflected in the regular monthly benefit payments.

Lump-sum death payments are calculated as the product of (1) the number of such payments, which is projected on the basis of the assumed death rates, the projected fully insured population, and the estimated percentage of the fully insured population that would qualify for benefits, and (2) the amount of the lump-sum death payment, which is $255 (not indexed in future years).

9. Administrative Expenses

The projection of administrative expenses through 2017 is based on historical experience and the expected growth in average wages. Additionally, estimates for the first several years of the projection are provided by the Office of Budget of the Social Security Administration. For years after 2017, administrative expenses are assumed to increase because of increases in the

number of beneficiaries and increases in the average wage which will more than offset assumed improvements in administrative productivity.

10. Railroad Retirement Financial Interchange

Railroad workers are covered under a separate multi-tiered plan, the first tier being very similar to OASDI coverage. An annual financial interchange between the Railroad Retirement fund and the OASI and DI funds is made reflecting the difference between (1) the amount of OASDI benefits that would be paid to railroad workers and their families if railroad employment had been covered under the OASDI program and administrative expenses associated with these benefits, and (2) the amount of OASDI payroll tax and income tax that would be received with allowances for interest from railroad workers.

The effect of the financial interchange with the Railroad Retirement program is evaluated on the basis of trends similar to those used in estimating the cost of OASDI benefits. The resulting effect is annual short-range costs of about $4-5 billion and a long-range summarized cost of 0.03 percent of taxable payroll to the OASDI program.

11. Benefits to Uninsured Persons

Some older persons had little or no chance to become fully insured for Social Security benefits during their working lifetimes. Special payments from the OASI Trust Fund may be granted to uninsured persons who either: (1) attained age 72 before 1968, or (2) attained age 72 in 1968 or later and had 3 quarters of coverage for each year after 1966 and before the year of attainment of age 72. Benefits and costs associated with uninsured persons of the first type above are reimbursable from the General Fund of the Treasury. All projected costs associated with reimbursable and non-reimbursable payments to uninsured persons are insignificant.

12. Military-Service Transfers

Beginning in 1966, the OASI and DI Trust Funds were reimbursed annually for the cost (including administrative expenses) of providing additional benefit payments resulting from noncontributory wage credits for military service performed prior to 1957. The 1983 amendments modified the reimbursement mechanism and the timing of the reimbursements, and required a transfer in 1983 to include all future costs attributable to the wage credits. The amendments also require adjustments to that 1983 transfer every fifth year, beginning with 1985, to account for actual data.

129

13. Income From Taxation of Benefits

Under present law, the OASI and DI Trust Funds are credited with the additional income taxes attributable to the taxation of up to the first 50 percent of OASI and DI benefit payments. (The remainder of the income taxes attributable to the taxation of up to 85 percent of OASI and DI benefit payments is credited to the HI Trust Fund.)

For the short-range period, income to the trust funds from such taxation is estimated by applying the following two factors to total OASI and DI benefit payments: (1) the percentage of benefit payments (limited to 50 percent) that is taxable, and (2) the average marginal tax rate applicable to those benefits.

For the long-range period, income to the trust funds from such taxation is estimated by applying projected ratios of taxation of OASI and DI benefits to total OASI and DI benefit payments. Because the income thresholds used for benefit taxation are, by law, constant in the future, their values in relation to future income and benefit levels will decline. Thus, ratios of income from taxation of benefits to the amount of benefits are projected to increase gradually. Ultimate tax ratios for OASI and DI benefits are estimated by eliminating the current threshold amounts for taxation of OASDI benefits completely and adjusting the OASDI beneficiary distribution in a recent Current Population Survey for the projected 75th year age-sex distribution of the SSA beneficiary population.

VI. APPENDICES

A. HISTORY OF OASI AND DI TRUST FUND OPERATIONS

The Federal Old-Age and Survivors Insurance (OASI) Trust Fund was established on January 1, 1940 as a separate account in the United States Treasury. The Federal Disability Insurance (DI) Trust Fund, another separate account in the United States Treasury, was established on August 1, 1956. All the financial operations of the OASI and DI programs are handled through these respective funds. The Board of Trustees is responsible for overseeing the financial operations of these funds. The following paragraphs describe the various components of trust fund income and outgo. The tables at the end of this section present the historical operations of the separate trust funds since their inception, as well as the operations of the combined trust funds during the period when they have co-existed.

The primary receipts of these two funds are amounts appropriated to each of them under permanent authority on the basis of contributions payable by workers, their employers, and individuals with self-employment income, in work covered by the OASDI program. All employees, and their employers, in covered employment are required to pay contributions with respect to their wages. Employees, and their employers, are also required to pay contributions with respect to cash tips, if the individual's monthly cash tips amount to at least $20. All self-employed persons are required to pay contributions with respect to their covered net earnings from self-employment. In addition to paying the required employer contributions on the wages of covered Federal employees, the Federal Government also pays amounts equivalent to the combined employer and employee contributions that would be paid on deemed wage credits attributable to military service performed between 1957 and 2001 if such wage credits were covered wages.

In general, an individual's contributions, or taxes, are computed on wages or net earnings from self-employment, or both wages and net self-employment earnings combined, up to a specified maximum annual amount. The contributions are determined first on the wages and then on any net self-employment earnings, such that the total does not exceed the annual maximum amount. An employee who pays contributions on wages in excess of the annual maximum amount (because of employment with two or more employers) is eligible for a refund of the excess employee contributions.

The monthly benefit amount to which an individual (or his or her spouse and children) may become entitled under the OASDI program is based on the individual's taxable earnings during his or her lifetime. For almost all per-

sons who first become eligible to receive benefits in 1979 or later, the earnings used in the computation of benefits are indexed to reflect increases in average wage levels.

The contribution, or tax, rates applicable under current law in each calendar year and the allocation of these rates between the OASI and DI Trust Funds are shown in table VI.A1.[1] The maximum amount of earnings on which OASDI contributions are payable in a year, which is also the maximum amount of earnings creditable in that year for benefit-computation purposes, is called the contribution and benefit base. The contribution and benefit base for each year through 2007 is also shown in table VI.A1.

Table VI.A1.—Contribution and Benefit Base and Contribution Rates

Calendar years	Contribution and benefit base	Contribution rates (percent)					
		Employees and employers, each			Self-employed		
		OASDI	OASI	DI	OASDI	OASI	DI
1937-49	$3,000	1.000	1.000	—	—	—	—
1950.	3,000	1.500	1.500	—	—	—	—
1951-53	3,600	1.500	1.500	—	2.2500	2.2500	—
1954.	3,600	2.000	2.000	—	3.0000	3.0000	—
1955-56	4,200	2.000	2.000	—	3.0000	3.0000	—
1957-58	4,200	2.250	2.000	0.250	3.3750	3.0000	0.3750
1959.	4,800	2.500	2.250	.250	3.7500	3.3750	.3750
1960-61	4,800	3.000	2.750	.250	4.5000	4.1250	.3750
1962.	4,800	3.125	2.875	.250	4.7000	4.3250	.3750
1963-65	4,800	3.625	3.375	.250	5.4000	5.0250	.3750
1966.	6,600	3.850	3.500	.350	5.8000	5.2750	.5250
1967.	6,600	3.900	3.550	.350	5.9000	5.3750	.5250
1968.	7,800	3.800	3.325	.475	5.8000	5.0875	.7125
1969.	7,800	4.200	3.725	.475	6.3000	5.5875	.7125
1970.	7,800	4.200	3.650	.550	6.3000	5.4750	.8250
1971.	7,800	4.600	4.050	.550	6.9000	6.0750	.8250
1972.	9,000	4.600	4.050	.550	6.9000	6.0750	.8250
1973.	10,800	4.850	4.300	.550	7.0000	6.2050	.7950
1974.	13,200	4.950	4.375	.575	7.0000	6.1850	.8150
1975.	14,100	4.950	4.375	.575	7.0000	6.1850	.8150
1976.	15,300	4.950	4.375	.575	7.0000	6.1850	.8150
1977.	16,500	4.950	4.375	.575	7.0000	6.1850	.8150
1978.	17,700	5.050	4.275	.775	7.1000	6.0100	1.0900
1979.	22,900	5.080	4.330	.750	7.0500	6.0100	1.0400
1980.	25,900	5.080	4.520	.560	7.0500	6.2725	.7775
1981.	29,700	5.350	4.700	.650	8.0000	7.0250	.9750
1982.	32,400	5.400	4.575	.825	8.0500	6.8125	1.2375
1983.	35,700	5.400	4.775	.625	8.0500	7.1125	.9375
1984[1].	37,800	5.700	5.200	.500	11.4000	10.4000	1.0000
1985[1].	39,600	5.700	5.200	.500	11.4000	10.4000	1.0000

---

[1] The contribution rates for the Hospital Insurance (HI) program, and for the OASDI and HI programs combined, are shown in table VI.F1.

Table VI.A1.—Contribution and Benefit Base and Contribution Rates (Cont.)

	Contribution and benefit base	Contribution rates (percent)					
		Employees and employers, each			Self-employed		
Calendar years		OASDI	OASI	DI	OASDI	OASI	DI
1986[1].	$42,000	5.700	5.200	0.500	11.4000	10.4000	1.0000
1987[1].	43,800	5.700	5.200	.500	11.4000	10.4000	1.0000
1988[1].	45,000	6.060	5.530	.530	12.1200	11.0600	1.0600
1989[1].	48,000	6.060	5.530	.530	12.1200	11.0600	1.0600
1990	51,300	6.200	5.600	.600	12.4000	11.2000	1.2000
1991.	53,400	6.200	5.600	.600	12.4000	11.2000	1.2000
1992.	55,500	6.200	5.600	.600	12.4000	11.2000	1.2000
1993.	57,600	6.200	5.600	.600	12.4000	11.2000	1.2000
1994.	60,600	6.200	5.260	.940	12.4000	10.5200	1.8800
1995.	61,200	6.200	5.260	.940	12.4000	10.5200	1.8800
1996.	62,700	6.200	5.260	.940	12.4000	10.5200	1.8800
1997.	65,400	6.200	5.350	.850	12.4000	10.7000	1.7000
1998.	68,400	6.200	5.350	.850	12.4000	10.7000	1.7000
1999.	72,600	6.200	5.350	.850	12.4000	10.7000	1.7000
2000.	76,200	6.200	5.300	.900	12.4000	10.6000	1.8000
2001.	80,400	6.200	5.300	.900	12.4000	10.6000	1.8000
2002.	84,900	6.200	5.300	.900	12.4000	10.6000	1.8000
2003.	87,000	6.200	5.300	.900	12.4000	10.6000	1.8000
2004.	87,900	6.200	5.300	.900	12.4000	10.6000	1.8000
2005.	90,000	6.200	5.300	.900	12.4000	10.6000	1.8000
2006.	94,200	6.200	5.300	.900	12.4000	10.6000	1.8000
2007.	97,500	6.200	5.300	.900	12.4000	10.6000	1.8000
2008.	102,000	6.200	5.300	.900	12.4000	10.6000	1.8000
2009 and later	[2]/	6.200	5.300	.900	12.4000	10.6000	1.8000

[1] In 1984 only, an immediate credit of 0.3 percent of taxable wages was allowed against the OASDI contributions paid by employees, which resulted in an effective contribution rate of 5.4 percent. The appropriations of contributions to the trust funds, however, were based on the combined employee-employer rate of 11.4 percent, as if the credit for employees did not apply. Similar credits of 2.7 percent, 2.3 percent, and 2.0 percent were allowed against the combined OASDI and Hospital Insurance (HI) contributions on net earnings from self-employment in 1984, 1985, and 1986-89, respectively. Beginning in 1990, self-employed persons are allowed a deduction, for purposes of computing their net earnings, equal to half of the combined OASDI and HI contributions that would be payable without regard to the contribution and benefit base. The OASDI contribution rate is then applied to net earnings after this deduction, but subject to the OASDI base.
[2] Subject to automatic adjustment based on increases in average wages.

All contributions are collected by the Internal Revenue Service and deposited in the General Fund of the Treasury. The contributions are immediately and automatically appropriated to the trust funds on an estimated basis. The exact amount of contributions received is not known initially because the OASDI and HI contributions and individual income taxes are not separately identified in collection reports received by the Internal Revenue Service. Periodic adjustments are subsequently made to the extent that the estimates are found to differ from the amounts of contributions actually payable as determined from reported earnings. Adjustments are also made to account for any refunds to employees (with more than one employer) who paid contributions on wages in excess of the contribution and benefit base.

Beginning in 1984, up to one-half of an individual's or couple's OASDI benefits was subject to Federal income taxation under certain circumstances. Effective for taxable years beginning after 1993, the maximum percentage of benefits subject to taxation was increased from 50 percent to 85 percent. The proceeds from taxation of up to 50 percent of benefits are credited to the OASI and DI Trust Funds in advance, on an estimated basis, at the beginning of each calendar quarter, with no reimbursement to the general fund for interest costs attributable to the advance transfers.[1] Subsequent adjustments are made based on the actual amounts as shown on annual income tax records. The amounts appropriated from the General Fund of the Treasury are allocated to the OASI and DI Trust Funds on the basis of the income taxes paid on the benefits from each fund.[2]

Another source of income to the trust funds is interest received on investments held by the trust funds. That portion of each trust fund which is not required to meet the current cost of benefits and administration is invested, on a daily basis, primarily in interest-bearing obligations of the U.S. Government (including special public-debt obligations described below). Investments may also be made in obligations guaranteed as to both principal and interest by the United States, including certain Federally sponsored agency obligations that are designated in the laws authorizing their issuance as lawful investments for fiduciary and trust funds under the control and authority of the United States or any officer of the United States. These obligations may be acquired on original issue at the issue price or by purchase of outstanding obligations at their market price.

The Social Security Act authorizes the issuance of special public-debt obligations for purchase exclusively by the trust funds. The Act provides that the interest rate on new special obligations will be the average market yield, as of the last business day of a month, on all of the outstanding marketable U.S. obligations that are due or callable more than 4 years in the future. The rate so calculated is rounded to the nearest one-eighth of one percent and applies to new issues in the following month. Beginning January 1999, in calculating the average market yield rate for this purpose, the Treasury incorporates the yield to the call date when a callable bond's market price is above par.

---

[1] The additional tax revenues resulting from the increase to 85 percent are transferred to the HI Trust Fund.

[2] A special provision applies to benefits paid to nonresident aliens. Under Public Law 103-465, effective for taxable years beginning after 1994, a flat-rate tax, usually 25.5 percent, is withheld from the benefits before they are paid and, therefore, remains in the trust funds. From 1984 to 1994 the flat-rate tax that was withheld was usually 15 percent.

Although the special issues cannot be bought or sold in the open market, they are nonetheless redeemable at any time at par value and thus bear no risk of fluctuations in principal value due to changes in market yield rates. Just as in the case of marketable Treasury securities held by the public, all of the investments held by the trust funds are backed by the full faith and credit of the U.S. Government.

Income is also affected by provisions of the Social Security Act for: (1) transfers between the General Fund of the Treasury and the OASI and DI Trust Funds for any adjustments to prior payments for the cost arising from the granting of noncontributory wage credits for military service prior to 1957, according to periodic determinations; (2) annual reimbursements from the General Fund of the Treasury to the OASI Trust Fund for any costs arising from the special monthly cash payments to certain uninsured persons— i.e., those who attained age 72 before 1968 and who generally are not eligible for cash benefits under other provisions of the OASDI program; and (3) the receipt of unconditional money gifts or bequests made for the benefit of the trust funds or any activity financed through the funds.

The primary expenditures of the OASI and DI Trust Funds are for: (1) OASDI benefit payments, net of any reimbursements from the General Fund of the Treasury for unnegotiated benefit checks; and (2) expenses incurred by the Social Security Administration and the Department of the Treasury in administering the OASDI program and the provisions of the Internal Revenue Code relating to the collection of contributions. Such administrative expenses include expenditures for construction, rental and lease, or purchase of office buildings and related facilities for the Social Security Administration. The Social Security Act does not permit expenditures from the OASI and DI Trust Funds for any purpose not related to the payment of benefits or administrative costs for the OASDI program.

The expenditures of the trust funds also include (1) the costs of vocational rehabilitation services furnished as an additional benefit to disabled persons receiving cash benefits because of their disabilities where such services contributed to their successful rehabilitation, and (2) net costs resulting from the provisions of the Railroad Retirement Act which provide for a system of coordination and financial interchange between the Railroad Retirement program and the Social Security program. Under the latter provisions, transfers between the Railroad Retirement program's Social Security Equivalent Benefit Account and the trust funds are made on an annual basis in order to place each trust fund in the same position in which it would have been if railroad employment had always been covered under Social Security.

Appendices

The net worth of facilities and other fixed capital assets is not carried in the statements of the operations of the trust funds presented in this report. This is because the value of fixed capital assets is not available in the form of a financial asset redeemable for the payment of benefits or administrative expenditures, and therefore is not considered in assessing the actuarial status of the trust funds.

Table VI.A2.—Historical Operations of the OASI Trust Fund,
Calendar Years 1937-2007
[Amounts in billions]

Calendar year	Income				Expenditures				Assets		
	Total[1]	Net contri- butions[2]	Taxa- tion of benefits	Net interest[3]	Total	Benefit pay- ments[4]	Admin- istra- tive costs	RRB inter- change	Net increase during year	Amount at end of year	Trust Fund ratio[5]
1937 ..	$0.8	$0.8	—	6/	6/	6/	—	—	$0.8	$0.8	100
1938 ..	.4	.4	—	6/	6/	6/	—	—	.4	1.1	7,660
1939 ..	.6	.6	—	6/	6/	6/	—	—	.6	1.7	8,086
1940 ..	.4	.3	—	6/	$0.1	6/	6/	—	.3	2.0	2,781
1941 ..	.8	.8	—	$0.1	.1	$0.1	6/	—	.7	2.8	1,782
1942 ..	1.1	1.0	—	.1	.2	.1	6/	—	.9	3.7	1,737
1943 ..	1.3	1.2	—	.1	.2	.2	6/	—	1.1	4.8	1,891
1944 ..	1.4	1.3	—	.1	.2	.2	6/	—	1.2	6.0	2,025
1945 ..	1.4	1.3	—	.1	.3	.3	6/	—	1.1	7.1	1,975
1946 ..	1.4	1.3	—	.2	.4	.4	6/	—	1.0	8.2	1,704
1947 ..	1.7	1.6	—	.2	.5	.5	6/	—	1.2	9.4	1,592
1948 ..	2.0	1.7	—	.3	.6	.6	$0.1	—	1.4	10.7	1,542
1949 ..	1.8	1.7	—	.1	.7	.7	.1	—	1.1	11.8	1,487
1950 ..	2.9	2.7	—	.3	1.0	1.0	.1	—	1.9	13.7	1,156
1951 ..	3.8	3.4	—	.4	2.0	1.9	.1	—	1.8	15.5	698
1952 ..	4.2	3.8	—	.4	2.3	2.2	.1	—	1.9	17.4	681
1953 ..	4.4	3.9	—	.4	3.1	3.0	.1	—	1.3	18.7	564
1954 ..	5.6	5.2	—	.4	3.7	3.7	.1	6/	1.9	20.6	500
1955 ..	6.2	5.7	—	.5	5.1	5.0	.1	6/	1.1	21.7	405
1956 ..	6.7	6.2	—	.5	5.8	5.7	.1	6/	.9	22.5	371
1957 ..	7.4	6.8	—	.6	7.5	7.3	.2	6/	-.1	22.4	300
1958 ..	8.1	7.6	—	.6	8.6	8.3	.2	$0.1	-.5	21.9	259
1959 ..	8.6	8.1	—	.5	10.3	9.8	.2	.3	-1.7	20.1	212
1960 ..	11.4	10.9	—	.5	11.2	10.7	.2	.3	.2	20.3	180
1961 ..	11.8	11.3	—	.5	12.4	11.9	.2	.3	-.6	19.7	163
1962 ..	12.6	12.1	—	.5	14.0	13.4	.3	.4	-1.4	18.3	141
1963 ..	15.1	14.5	—	.5	14.9	14.2	.3	.4	.1	18.5	123
1964 ..	16.3	15.7	—	.6	15.6	14.9	.3	.4	.6	19.1	118
1965 ..	16.6	16.0	—	.6	17.5	16.7	.3	.4	-.9	18.2	109
1966 ..	21.3	20.6	—	.6	19.0	18.3	.3	.4	2.3	20.6	96
1967 ..	24.0	23.1	—	.8	20.4	19.5	.4	.5	3.7	24.2	101
1968 ..	25.0	23.7	—	.9	23.6	22.6	.5	.4	1.5	25.7	103
1969 ..	29.6	27.9	—	1.2	25.2	24.2	.5	.5	4.4	30.1	102
1970 ..	32.2	30.3	—	1.5	29.8	28.8	.5	.6	2.4	32.5	101
1971 ..	35.9	33.7	—	1.7	34.5	33.4	.5	.6	1.3	33.8	94
1972 ..	40.1	37.8	—	1.8	38.5	37.1	.7	.7	1.5	35.3	88
1973 ..	48.3	46.0	—	1.9	47.2	45.7	.6	.8	1.2	36.5	75
1974 ..	54.7	52.1	—	2.2	53.4	51.6	.9	.9	1.3	37.8	68
1975 ..	59.6	56.8	—	2.4	60.4	58.5	.9	1.0	-.8	37.0	63
1976 ..	66.3	63.4	—	2.3	67.9	65.7	1.0	1.2	-1.6	35.4	54
1977 ..	72.4	69.6	—	2.2	75.3	73.1	1.0	1.2	-2.9	32.5	47
1978 ..	78.1	75.5	—	2.0	83.1	80.4	1.1	1.6	-5.0	27.5	39
1979 ..	90.3	87.9	—	1.8	93.1	90.6	1.1	1.4	-2.9	24.7	30

**Table VI.A2.—Historical Operations of the OASI Trust Fund,
Calendar Years 1937-2007 (Cont.)**
[Amounts in billions]

| Calendar year | Income | | | | Expenditures | | | | Assets | | |
	Total[1]	Net contri- butions[2]	Taxa- tion of benefits	Net interest[3]	Total	Benefit pay- ments[4]	Admin- istra- tive costs	RRB inter- change	Net increase during year	Amount at end of year	Trust Fund ratio[5]
1980 ..	$105.8	$103.5	—	$1.8	$107.7	$105.1	$1.2	$1.4	-$1.8	$22.8	23
1981 ..	125.4	122.6	—	2.1	126.7	123.8	1.3	1.6	-1.3	21.5	18
1982 ..	125.2	123.7	—	.8	142.1	138.8	1.5	1.8	.6	22.1	15
1983 ..	150.6	138.3	—	6.7	153.0	149.2	1.5	2.3	-2.4	19.7	14
1984 ..	169.3	164.1	$2.8	2.3	161.9	157.8	1.6	2.4	7.4	27.1	20
1985 ..	184.2	177.0	3.2	1.9	171.2	167.2	1.6	2.3	[7]8.7	35.8	24
1986 ..	197.4	190.7	3.4	3.1	181.0	176.8	1.6	2.6	[7]3.2	39.1	28
1987 ..	210.7	202.7	3.3	4.7	187.7	183.6	1.5	2.6	23.1	62.1	30
1988 ..	240.8	229.8	3.4	7.6	200.0	195.5	1.8	2.8	40.8	102.9	41
1989 ..	264.7	250.2	2.4	12.0	212.5	208.0	1.7	2.8	52.2	155.1	59
1990 ..	286.7	267.5	4.8	16.4	227.5	223.0	1.6	3.0	59.1	214.2	78
1991 ..	299.3	272.6	5.9	20.8	245.6	240.5	1.8	3.4	53.7	267.8	87
1992 ..	311.2	281.0	5.9	24.3	259.9	254.9	1.8	3.1	51.3	319.2	103
1993 ..	323.3	290.9	5.3	27.0	273.1	267.8	2.0	3.4	50.2	369.3	117
1994 ..	328.3	293.3	5.0	29.9	284.1	279.1	1.6	3.4	44.1	413.5	130
1995 ..	342.8	304.6	5.5	32.8	297.8	291.6	2.1	4.1	45.0	458.5	139
1996 ..	363.7	321.6	6.5	35.7	308.2	302.9	1.8	3.6	55.5	514.0	149
1997 ..	397.2	349.9	7.4	39.8	322.1	316.3	2.1	3.7	75.1	589.1	160
1998 ..	424.8	371.2	9.1	44.5	332.3	326.8	1.9	3.7	92.5	681.6	177
1999 ..	457.0	396.4	10.9	49.8	339.9	334.4	1.8	3.7	117.2	798.8	201
2000 ..	490.5	421.4	11.6	57.5	358.3	352.7	2.1	3.5	132.2	931.0	223
2001 ..	518.1	441.5	11.9	64.7	377.5	372.3	2.0	3.3	140.6	1,071.5	247
2002 ..	539.7	455.2	12.9	71.2	393.7	388.1	2.1	3.5	146.0	1,217.5	272
2003 ..	543.8	456.1	12.5	75.2	406.0	399.8	2.6	3.6	137.8	1,355.3	300
2004 ..	566.3	472.8	14.6	79.0	421.0	415.0	2.4	3.6	145.3	1,500.6	322
2005 ..	604.3	506.9	13.8	84.0	441.9	435.4	3.0	3.6	162.4	1,663.0	340
2006 ..	642.2	534.8	15.6	91.8	461.0	454.5	3.0	3.5	181.3	1,844.3	361
2007 ..	675.0	560.9	17.2	97.0	495.7	489.1	3.1	3.6	179.3	2,023.6	372

[1] Includes payments from the General Fund of the Treasury to the trust funds (1) in 1947-51 and in 1966 and later, costs of noncontributory wage credits for military service performed before 1957; (2) in 1971-82, costs of deemed wage credits for military service performed after 1956; and (3) in 1968 and later, costs of benefits to certain uninsured persons who attained age 72 before 1968. Differences in past year total income and sum of individual column amounts are due to these payments. OASI historical payments from the General Fund of the Treasury may be found on the Internet at www.socialsecurity.gov/OACT/STATS/table4a1.html.
[2] Beginning in 1983, includes transfers from the General Fund of the Treasury representing contributions that would have been paid on deemed wage credits for military service in 1957 through 2001, if such credits were considered to be covered wages.
[3] Net interest includes net profits or losses on marketable investments. Beginning in 1967, administrative expenses are charged to the trust fund on an estimated basis, with a final adjustment, including interest, made in the following fiscal year. The amounts of these interest adjustments are included in net interest. For years prior to 1967, a description of the method of accounting for administrative expenses is contained in the 1970 Annual Report. Beginning in October 1973, the figures shown include relatively small amounts of gifts to the fund. Net interest for 1983-86 reflects payments from a borrowing trust fund to a lending trust fund for interest on amounts owed under the interfund borrowing provisions. During 1983-90, interest paid from the trust fund to the general fund on advance tax transfers is reflected. The amount shown for 1985 includes an interest adjustment of $88 million on unnegotiated checks issued before April 1985.
[4] Beginning in 1966, includes payments for vocational rehabilitation services furnished to disabled persons receiving benefits because of their disabilities. Beginning in 1983, amounts are reduced by amount of reimbursement for unnegotiated benefit checks.
[5] The "Trust fund ratio" column represents assets at the beginning of a year as a percentage of expenditures during the year. For years 1984-90, assets at the beginning of a year include January advance tax transfers.
[6] Less than $50 million.
[7] Reflects offset for repayment from the OASI Trust Fund of amounts borrowed from the DI and HI Trust Funds in 1982. The amount repaid in 1985 was $4.4 billion; in 1986, the amount was $13.2 billion.

Note: Totals do not necessarily equal the sums of rounded components.

**Table VI.A3.—Historical Operations of the DI Trust Fund,
Calendar Years 1957-2007**
[Amounts in billions]

Calendar year	Income				Expenditures				Assets		
	Total [1]	Net contri- butions [2]	Taxa- tion of benefits	Net interest [3]	Total	Benefit pay- ments [4]	Admin- istra- tive costs	RRB inter- change	Net increase during year	Amount at end of year	Trust Fund ratio [5]
1957 ..	$0.7	$0.7	—	6/	$0.1	$0.1	6/	—	$0.6	$0.6	100
1958 ..	1.0	1.0	—	6/	.3	.2	6/	—	.7	1.4	249
1959 ..	.9	.9	—	6/	.5	.5	$0.1	6/	.4	1.8	284
1960 ..	1.1	1.0	—	$0.1	.6	.6	6/	6/	.5	2.3	304
1961 ..	1.1	1.0	—	.1	1.0	.9	.1	6/	.1	2.4	239
1962 ..	1.1	1.0	—	.1	1.2	1.1	.1	6/	-.1	2.4	206
1963 ..	1.2	1.1	—	.1	1.3	1.2	.1	6/	-.1	2.2	183
1964 ..	1.2	1.2	—	.1	1.4	1.3	.1	6/	-.2	2.0	159
1965 ..	1.2	1.2	—	.1	1.7	1.6	.1	6/	-.4	1.6	121
1966 ..	2.1	2.0	—	.1	1.9	1.8	.1	6/	.1	1.7	82
1967 ..	2.4	2.3	—	.1	2.1	2.0	.1	6/	.3	2.0	83
1968 ..	3.5	3.3	—	.1	2.5	2.3	.1	6/	1.0	3.0	83
1969 ..	3.8	3.6	—	.2	2.7	2.6	.1	6/	1.1	4.1	111
1970 ..	4.8	4.5	—	.3	3.3	3.1	.2	6/	1.5	5.6	126
1971 ..	5.0	4.6	—	.4	4.0	3.8	.2	6/	1.0	6.6	140
1972 ..	5.6	5.1	—	.4	4.8	4.5	.2	6/	.8	7.5	140
1973 ..	6.4	5.9	—	.5	6.0	5.8	.2	6/	.5	7.9	125
1974 ..	7.4	6.8	—	.5	7.2	7.0	.2	6/	.2	8.1	110
1975 ..	8.0	7.4	—	.5	8.8	8.5	.3	6/	-.8	7.4	92
1976 ..	8.8	8.2	—	.4	10.4	10.1	.3	6/	-1.6	5.7	71
1977 ..	9.6	9.1	—	.3	11.9	11.5	.4	6/	-2.4	3.4	48
1978 ..	13.8	13.4	—	.3	13.0	12.6	.3	6/	.9	4.2	26
1979 ..	15.6	15.1	—	.4	14.2	13.8	.4	6/	1.4	5.6	30
1980 ..	13.9	13.3	—	.5	15.9	15.5	.4	6/	-2.0	3.6	35
1981 ..	17.1	16.7	—	.2	17.7	17.2	.4	6/	-.6	3.0	21
1982 ..	22.7	22.0	—	.5	18.0	17.4	.6	6/	-.4	2.7	17
1983 ..	20.7	18.0	—	1.6	18.2	17.5	.6	6/	2.5	5.2	15
1984 ..	17.3	15.9	$0.2	1.2	18.5	17.9	.6	6/	-1.2	4.0	35
1985 ..	19.3	17.2	.2	.9	19.5	18.8	.6	6/	7 2.4	6.3	27
1986 ..	19.4	18.4	.2	.8	20.5	19.9	.6	$0.1	7 1.5	7.8	38
1987 ..	20.3	19.7	6/	.6	21.4	20.5	.8	.1	-1.1	6.7	44
1988 ..	22.7	22.0	.1	.6	22.5	21.7	.7	.1	.2	6.9	38
1989 ..	24.8	24.0	.1	.7	23.8	22.9	.8	.1	1.0	7.9	38
1990 ..	28.8	28.5	.1	.9	25.6	24.8	.7	.1	3.2	11.1	40
1991 ..	30.4	29.1	.2	1.1	28.6	27.7	.8	.1	1.8	12.9	39
1992 ..	31.4	30.1	.2	1.1	32.0	31.1	.8	.1	-.6	12.3	40
1993 ..	32.3	31.2	.3	.8	35.7	34.6	1.0	.1	-3.4	9.0	35
1994 ..	52.8	51.4	.3	1.2	38.9	37.7	1.0	.1	14.0	22.9	23
1995 ..	56.7	54.4	.3	2.2	42.1	40.9	1.1	.1	14.6	37.6	55
1996 ..	60.7	57.3	.4	3.0	45.4	44.2	1.2	6/	15.4	52.9	83
1997 ..	60.5	56.0	.5	4.0	47.0	45.7	1.3	.1	13.5	66.4	113
1998 ..	64.4	59.0	.6	4.8	49.9	48.2	1.6	.2	14.4	80.8	133
1999 ..	69.5	63.2	.7	5.7	53.0	51.4	1.5	.1	16.5	97.3	152
2000 ..	77.9	71.1	.7	6.9	56.8	55.0	1.6	.2	21.1	118.5	171
2001 ..	83.9	74.9	.8	8.2	61.4	59.6	1.7	6/	22.5	141.0	193
2002 ..	87.4	77.3	.9	9.2	67.9	65.7	2.0	.2	19.5	160.5	208
2003 ..	88.1	77.4	.9	9.7	73.1	70.9	2.0	.2	15.0	175.4	219
2004 ..	91.4	80.3	1.1	10.0	80.6	78.2	2.2	.2	10.8	186.2	218
2005 ..	97.4	86.1	1.1	10.3	88.0	85.4	2.3	.3	9.4	195.6	212
2006 ..	102.6	90.8	1.2	10.6	94.5	91.7	2.3	.4	8.2	203.8	207
2007 ..	109.9	95.2	1.4	13.2	98.8	95.9	2.5	.4	11.1	214.9	206

[1] Includes payments from the General Fund of the Treasury to the trust funds (1) beginning in 1966 and later, costs of noncontributory wage credits for military service performed before 1957 and (2) in 1971-82, costs of deemed wage credits for military service performed after 1956. Differences in past year total income and sum of individual column amounts are due to these payments. DI historical payments from the General Fund of the Treasury may be found on the Internet at www.socialsecurity.gov/OACT/STATS/table4a2.html.

[2] Beginning in 1983, includes transfers from the General Fund of the Treasury representing contributions that would have been paid on deemed wage credits for military service in 1957 through 2001, if such credits were considered to be covered wages.

[3] Net interest includes net profits or losses on marketable investments. Beginning in 1967, administrative expenses are charged to the trust fund on an estimated basis, with a final adjustment, including interest, made in the following fiscal year. The amounts of these interest adjustments are included in net interest. For years prior to 1967, a description of the method of accounting for administrative expenses is contained in the 1970 Annual Report. Beginning in July 1974, the figures shown include relatively small amounts of gifts to the fund. Net interest for 1983-86 reflects payments from a borrowing trust fund to a lending trust fund for interest on amounts owed under the interfund borrowing provisions. During 1983-90, interest paid from the trust fund to the general fund on advance tax transfers is reflected. The amount shown for 1985 includes an interest adjustment of $14.8 million on unnegotiated checks issued before April 1985.

[4] Beginning in 1966, includes payments for vocational rehabilitation services furnished to disabled persons receiving benefits because of their disabilities. Beginning in 1983, amounts are reduced by amount of reimbursement for unnegotiated benefit checks.

[5] The "Trust fund ratio" column represents assets at the beginning of a year as a percentage of expenditures during the year. For years 1984-90, assets at the beginning of a year include January advance tax transfers.

[6] Less than $50 million.

[7] Reflects offset for repayment from the OASI Trust Fund of amounts borrowed from the DI Trust Fund in 1982. An amount of $2.5 billion was repaid in each year 1985 and 1986.

Note: Totals do not necessarily equal the sums of rounded components.

**Table VI.A4.—Historical Operations of the Combined OASI and DI Trust Funds,
Calendar Years 1957-2007**

[Amounts in billions]

Calendar year	Income				Expenditures				Assets		
	Total[1]	Net contributions[2]	Taxation of benefits	Net interest[3]	Total	Benefit payments[4]	Administrative costs	RRB interchange	Net increase during year	Amount at end of year	Trust Fund ratio[5]
1957 ..	$8.1	$7.5	—	$0.6	$7.6	$7.4	$0.2	[6/]	$0.5	$23.0	298
1958	9.1	8.5	—	.6	8.9	8.6	.2	$0.1	.2	23.2	259
1959 ..	9.5	8.9	—	.6	10.8	10.3	.2	.3	-1.3	22.0	215
1960 ..	12.4	11.9	—	.6	11.8	11.2	.2	.3	.6	22.6	186
1961 ..	12.9	12.3	—	.6	13.4	12.7	.3	.3	-.5	22.2	169
1962 ..	13.7	13.1	—	.6	15.2	14.5	.3	.4	-1.5	20.7	146
1963 ..	16.2	15.6	—	.6	16.2	15.4	.3	.4	[6/]	20.7	128
1964 ..	17.5	16.8	—	.6	17.0	16.2	.4	.4	.5	21.2	122
1965 ..	17.9	17.2	—	.7	19.2	18.3	.4	.5	-1.3	19.8	110
1966 ..	23.4	22.6	—	.7	20.9	20.1	.4	.5	2.5	22.3	95
1967 ..	26.4	25.4	—	.9	22.5	21.4	.5	.5	3.9	26.3	99
1968 ..	28.5	27.0	—	1.0	26.0	25.0	.6	.5	2.5	28.7	101
1969 ..	33.3	31.5	—	1.3	27.9	26.8	.6	.5	5.5	34.2	103
1970 ..	37.0	34.7	—	1.8	33.1	31.9	.6	.6	3.9	38.1	103
1971 ..	40.9	38.3	—	2.0	38.5	37.2	.7	.6	2.4	40.4	99
1972 ..	45.6	42.9	—	2.2	43.3	41.6	.9	.7	2.3	42.8	93
1973 ..	54.8	51.9	—	2.4	53.1	51.5	.8	.8	1.6	44.4	80
1974 ..	62.1	58.9	—	2.7	60.6	58.6	1.1	.9	1.5	45.9	73
1975 ..	67.6	64.3	—	2.9	69.2	67.0	1.2	1.0	-1.5	44.3	66
1976 ..	75.0	71.6	—	2.7	78.2	75.8	1.2	1.2	-3.2	41.1	57
1977 ..	82.0	78.7	—	2.5	87.3	84.7	1.4	1.2	-5.3	35.9	47
1978 ..	91.9	88.9	—	2.3	96.0	93.0	1.4	1.6	-4.1	31.7	37
1979 ..	105.9	103.0	—	2.2	107.3	104.4	1.5	1.5	-1.5	30.3	30
1980 ..	119.7	116.7	—	2.3	123.6	120.6	1.5	1.4	-3.8	26.5	25
1981 ..	142.4	139.4	—	2.2	144.4	141.0	1.7	1.6	-1.9	24.5	18
1982 ..	147.9	145.7	—	1.4	160.1	156.2	2.1	1.8	.2	24.8	15
1983 ..	171.3	156.3	—	8.3	171.2	166.7	2.2	2.3	.1	24.9	14
1984 ..	186.6	180.1	$3.0	3.4	180.4	175.7	2.3	2.4	6.2	31.1	21
1985 ..	203.5	194.1	3.4	2.7	190.6	186.1	2.2	2.4	[7]11.1	42.2	24
1986 ..	216.8	209.1	3.7	3.9	201.5	196.7	2.2	2.7	[7] 4.7	46.9	29
1987 ..	231.0	222.4	3.2	5.3	209.1	204.1	2.4	2.6	21.9	68.8	31
1988 ..	263.5	251.8	3.4	8.2	222.5	217.1	2.5	2.9	41.0	109.8	41
1989 ..	289.4	274.2	2.5	12.7	236.2	230.9	2.4	2.9	53.2	163.0	57
1990 ..	315.4	296.1	5.0	17.2	253.1	247.8	2.3	3.0	62.3	225.3	75
1991 ..	329.7	301.7	6.1	21.9	274.2	268.2	2.6	3.5	55.5	280.7	82
1992 ..	342.6	311.1	6.1	25.4	291.9	286.0	2.7	3.2	50.7	331.5	96
1993 ..	355.6	322.1	5.6	27.9	308.8	302.4	3.0	3.4	46.8	378.3	107
1994 ..	381.1	344.7	5.3	31.1	323.0	316.8	2.7	3.5	58.1	436.4	117
1995 ..	399.5	359.0	5.8	35.0	339.8	332.6	3.1	4.1	59.7	496.1	128
1996 ..	424.5	378.9	6.8	38.7	353.6	347.1	3.0	3.6	70.9	567.0	140
1997 ..	457.7	406.0	7.9	43.8	369.1	362.0	3.4	3.7	88.6	655.5	154
1998 ..	489.2	430.2	9.7	49.3	382.3	375.0	3.5	3.8	107.0	762.5	171
1999 ..	526.6	459.6	11.6	55.5	392.9	385.8	3.3	3.8	133.7	896.1	194
2000 ..	568.4	492.5	12.3	64.5	415.1	407.6	3.8	3.7	153.3	1,049.4	216
2001 ..	602.0	516.4	12.7	72.9	438.9	431.9	3.7	3.3	163.1	1,212.5	239
2002 ..	627.1	532.5	13.8	80.4	461.7	453.8	4.2	3.6	165.4	1,378.0	263
2003 ..	631.9	533.5	13.4	84.9	479.1	470.8	4.6	3.7	152.8	1,530.8	288
2004 ..	657.7	553.0	15.7	89.0	501.6	493.3	4.5	3.8	156.1	1,686.8	305
2005 ..	701.8	592.9	14.9	94.3	529.9	520.7	5.3	3.9	171.8	1,858.7	318
2006 ..	744.9	625.6	16.9	102.4	555.4	546.2	5.3	3.8	189.5	2,048.1	335
2007 ..	784.9	656.1	18.6	110.2	594.5	584.9	5.5	4.0	190.4	2,238.5	345

[1] Includes payments from the General Fund of the Treasury to the trust funds (1) beginning in 1966 and later, costs of noncontributory wage credits for military service performed before 1957; (2) in 1971-82, costs of deemed wage credits for military service performed after 1956; and (3) in 1968 and later, costs of benefits to certain uninsured persons who attained age 72 before 1968. Differences in past year total income and sum of individual column amounts are due to these payments. OASDI historical payments from the General Fund of the Treasury may be found on the Internet at www.socialsecurity.gov/OACT/STATS/table4a3.html.

[2] Beginning in 1983, includes transfers from the General Fund of the Treasury representing contributions that would have been paid on deemed wage credits for military service in 1957 through 2001, if such credits were considered to be covered wages.

[3] Net interest includes net profits or losses on marketable investments. Beginning in 1967, administrative expenses are charged to the trust funds on an estimated basis, with a final adjustment, including interest, made in the following fiscal year. The amounts of these interest adjustments are included in net interest. For years prior to 1967, a description of the method of accounting for administrative expenses is contained in the 1970 Annual Report. Beginning in October 1973, the figures shown include relatively small amounts of gifts to the funds. Net interest for 1983-86 reflects payments from a borrowing trust fund to a lending trust fund for interest on amounts owed under the interfund borrowing provisions. During 1983-90, interest paid from the trust funds to the general fund on advance tax transfers is reflected. The amount shown for 1985 includes an interest adjustment of $102.8 million on unnegotiated checks issued before April 1985.

[4] Beginning in 1966, includes payments for vocational rehabilitation services furnished to disabled persons receiving benefits because of their disabilities. Beginning in 1983, amounts are reduced by amount of reimbursement for unnegotiated benefit checks.

[5] The "Trust fund ratio" column represents assets at the beginning of a year as a percentage of expenditures during the year. For years 1984-90, assets at the beginning of a year include January advance tax transfers.

[6] Less than $50 million.

[7] Reflects offset for repayment from the OASI Trust Fund of amounts borrowed from the HI Trust Fund in 1982. The amount repaid in 1985 was $1.8 billion; in 1986, the amount was $10.6 billion.

Note: Totals do not necessarily equal the sums of rounded components.

Tables VI.A5 and VI.A6 show the total assets of the OASI Trust Fund and the DI Trust Fund, respectively, at the end of each calendar year 2006 and 2007. These assets are separated by interest rate and year of maturity. Assets grouped with multiple years of maturity are distributed evenly across those years. Bonds issued to the trust funds in 2007 had an interest rate of 5 percent, compared with an interest rate of 5.125 percent for bonds issued in 2006.

Appendices

Table VI.A5.—Assets of the OASI Trust Fund, End of Calendar Years 2006 and 2007

[In thousands]

	December 31, 2006	December 31, 2007
Obligations sold only to the trust funds (special issues):		
Certificates of indebtedness:		
4.000 percent, 2008	—	$73,768,095
4.500 percent, 2007	$69,954,173	—
4.500 percent, 2008	—	11,114,654
4.750 percent, 2007	11,593,669	—
5.000 percent, 2008	—	22,046,087
5.250 percent, 2007	41,491,126	—
Bonds:		
3.500 percent, 2008	9,513,751	—
3.500 percent, 2009-15.	66,596,257	66,596,257
3.500 percent, 2016-17.	19,027,504	19,027,504
3.500 percent, 2018	86,900,994	86,900,994
4.125 percent, 2008	10,516,946	—
4.125 percent, 2009-19.	115,686,406	115,686,406
4.125 percent, 2020	106,585,700	106,585,700
4.625 percent, 2008	9,167,664	—
4.625 percent, 2009-15.	64,173,648	64,173,648
4.625 percent, 2016-18.	27,502,989	27,502,989
4.625 percent, 2019	96,068,657	96,068,657
5.000 percent, 2009	—	12,454,234
5.000 percent, 2010-11.	—	24,908,466
5.000 percent, 2012-21.	—	124,542,320
5.000 percent, 2022	—	130,607,701
5.125 percent, 2008-09.	23,135,730	23,135,730
5.125 percent, 2010-19.	115,678,660	115,678,660
5.125 percent, 2020	11,567,769	11,567,769
5.125 percent, 2021	118,153,469	118,153,469
5.250 percent, 2008-15.	73,887,296	73,887,296
5.250 percent, 2016	9,235,911	9,235,911
5.250 percent, 2017	77,387,242	77,387,242
5.625 percent, 2007	9,621,438	—
5.625 percent, 2008-11.	38,485,752	38,485,752
5.625 percent, 2012-15.	38,485,748	38,485,748
5.625 percent, 2016	68,151,331	68,151,331
5.875 percent, 2007	6,169,273	—
5.875 percent, 2008-12.	30,846,365	30,846,365
5.875 percent, 2013	43,258,869	43,258,869
6.000 percent, 2007	6,693,627	—
6.000 percent, 2008-11.	26,774,508	26,774,508
6.000 percent, 2012-13.	13,387,256	13,387,256
6.000 percent, 2014	49,952,497	49,952,497
6.250 percent, 2007	3,150,974	—
6.250 percent, 2008	23,350,034	23,350,034
6.500 percent, 2007	11,008,650	—
6.500 percent, 2008-09.	22,017,300	22,017,300
6.500 percent, 2010	38,320,240	38,320,240
6.500 percent, 2011-14.	34,309,584	34,309,584
6.500 percent, 2015	58,529,893	58,529,893
6.875 percent, 2007	3,975,271	—
6.875 percent, 2008-09.	7,950,542	7,950,542
6.875 percent, 2010-11.	7,950,544	7,950,544
6.875 percent, 2012	37,089,596	37,089,596
7.000 percent, 2007	3,371,480	—
7.000 percent, 2008-10.	10,114,440	10,114,440
7.000 percent, 2011	33,114,324	33,114,324
7.250 percent, 2007	3,961,557	—
7.250 percent, 2008	3,961,557	3,961,557
7.250 percent, 2009	27,311,591	27,311,591
7.375 percent, 2007	20,199,060	—
Total investments	1,845,338,862	2,024,391,760
Undisbursed balances[1].	-1,035,134	-776,165
Total assets	1,844,303,728	2,023,615,595

[1] Negative figures represent an extension of credit against securities to be redeemed within the following few days.

Note: Amounts of special issues are shown at par value. Special issues are always purchased and redeemed at par value. Where equal amounts mature in two or more years at a given interest rate, they are grouped.

Table VI.A6.—Assets of the DI Trust Fund, End of Calendar Years 2006 and 2007
[In thousands]

	December 31, 2006	December 31, 2007
Obligations sold only to the trust funds (special issues):		
Certificates of indebtedness:		
4.000 percent, 2008	—	$8,467,836
4.500 percent, 2007	$8,252,811	—
4.500 percent, 2008	—	2,256,068
Bonds:		
3.500 percent, 2008	1,115,128	—
3.500 percent, 2009-11........................	3,345,384	3,345,384
3.500 percent, 2012-15........................	4,460,508	4,460,508
3.500 percent, 2016-17........................	2,230,256	2,230,256
3.500 percent, 2018	11,378,384	11,378,384
4.125 percent, 2008	677,386	—
4.125 percent, 2009-11........................	2,032,158	2,032,158
4.125 percent, 2012-17........................	4,064,310	4,064,310
4.125 percent, 2018-19........................	1,354,772	1,354,772
4.125 percent, 2020	12,911,283	12,911,283
4.625 percent, 2008	855,496	—
4.625 percent, 2009-11........................	2,566,491	2,566,491
4.625 percent, 2012-15........................	3,421,992	3,421,992
4.625 percent, 2016-18........................	2,566,491	2,566,491
4.625 percent, 2019	12,233,881	12,233,881
5.000 percent, 2009-19........................	—	5,242,446
5.000 percent, 2020-21........................	—	953,168
5.000 percent, 2022	—	14,052,982
5.125 percent, 2008	665,132	—
5.125 percent, 2009-17........................	5,986,179	5,986,179
5.125 percent, 2018-19........................	1,330,260	1,330,260
5.125 percent, 2020	665,115	665,115
5.125 percent, 2021	13,576,398	13,576,398
5.250 percent, 2008	1,363,407	—
5.250 percent, 2009-11........................	4,090,221	4,090,221
5.250 percent, 2012-16........................	6,817,040	6,817,040
5.250 percent, 2017	10,263,256	10,263,256
5.625 percent, 2008	1,524,968	205,332
5.625 percent, 2009-13........................	7,624,840	7,624,840
5.625 percent, 2014-15........................	3,049,934	3,049,934
5.625 percent, 2016	8,899,848	8,899,848
5.875 percent, 2008-12........................	4,581,430	4,581,430
5.875 percent, 2013	5,361,805	5,361,805
6.000 percent, 2008-12........................	3,479,830	3,479,830
6.000 percent, 2013	695,967	695,967
6.000 percent, 2014	6,057,772	6,057,772
6.500 percent, 2007	3,301,315	—
6.500 percent, 2008	4,381,228	4,381,228
6.500 percent, 2009-13........................	6,585,540	6,585,540
6.500 percent, 2014	1,317,109	1,317,109
6.500 percent, 2015	7,374,881	7,374,881
6.875 percent, 2007	265,250	—
6.875 percent, 2008-09........................	530,498	530,498
6.875 percent, 2010-12........................	13,336,560	13,336,560
7.000 percent, 2007	1,116,151	—
7.000 percent, 2008	1,116,151	1,116,151
7.000 percent, 2009	4,180,271	4,180,271
7.375 percent, 2007	916,460	—
Total investments............................	203,921,547	215,045,875
Undisbursed balances[1]........................	-113,509	-161,723
Total assets.................................	203,808,038	214,884,152

[1] Negative figures represent an extension of credit against securities to be redeemed within the following few days.

Note: Amounts of special issues are shown at par value. Special issues are always purchased and redeemed at par value. Where equal amounts mature in two or more years at a given interest rate, they are grouped.

B. HISTORY OF ACTUARIAL BALANCE ESTIMATES

This appendix chronicles the history of the principal summary measure of long-range actuarial status, namely the actuarial balance, since 1983. The 1983 report was the last report for which the actuarial balance was positive. Actuarial balance is defined in detail in section IV.B.4 Summarized Income Rates, Cost Rates, and Balances. Conceptually, the two basic components of actuarial balance are the summarized income rate and the summarized cost rate. Both rates are expressed as percentages of taxable payroll. For any given period, the actuarial balance is the difference between the present value of tax income for the period, and the present value of the cost for the period, each divided by the present value of taxable payroll for all years in the period. Also included in the calculation of the actuarial balance are:

- The amount of the trust fund balances on hand at the beginning of the valuation period, as shown in the reports for 1988 and later, and

- The present value of a target trust fund balance equal to 100 percent of the amount of annual cost to be reached and maintained by the end of the valuation period, as shown in the reports for 1991 and later.

It should be noted that the current method of calculating the actuarial balance based on present values, though used prior to the 1973 Annual Report, was not used for the annual reports of 1973-87. Instead, a simpler method that approximates the results of the present-value approach, called the average-cost method, was used during that period. Under the average-cost method, the sum of the annual cost rates (which are expressed as percentages of taxable payroll) over the 75-year projection period was divided by the total number of years, 75, to obtain the average cost rate per year. The average income rate was similarly calculated, and the difference between the average income rate and the average cost rate was called the actuarial balance.

In 1973, when the average-cost method was first used, the long-range financing of the program was more nearly on a pay-as-you-go basis. Also, based on the long-range demographic and economic assumptions then being used, the annual rate of growth in taxable payroll was about the same as the annual rate at which the trust funds earned interest. In either situation (i.e., pay-as-you-go financing, where the annual income rate is the same as the annual cost rate, or an annual rate of growth in taxable payroll equal to the annual interest rate), the average-cost method produces the same result as the present-value method. However, by 1988, neither of these situations still existed.

As a result of legislation enacted in 1977 and in 1983, substantial increases in the trust funds were estimated to occur well into the 21st century, so that the program was partially advance funded, rather than being funded on a pay-as-you-go basis. Also, because of reductions in long-range fertility rates and average real-wage growth that were assumed in the annual reports over the period 1973-87, the annual rate of growth in taxable earnings assumed for the long range became significantly lower than the assumed interest rate. Therefore, during the period 1973-87, the results of the average-cost method and the present-value method began to diverge, and by 1988 they were quite different. While the average-cost method still accounted for most of the effects of the assumed interest rate, it no longer accounted for all of the interest effects. The present-value method, of course, does account for the full effect of the assumed interest rates. So, in 1988, the present-value method of calculating the actuarial balance was reintroduced.

A positive actuarial balance indicates that estimated income is more than sufficient to meet estimated trust fund obligations for the period as a whole. A negative actuarial balance indicates that estimated income is insufficient to meet estimated trust fund obligations for the entire period. An actuarial balance of zero indicates that the estimated income exactly matches estimated trust fund obligations for the period.

Table VI.B1 shows the estimated OASDI actuarial balances, as well as the summarized income and cost rates, for the annual reports 1982-2007, along with the estimates for the current report. The values shown are based on the alternative II assumptions, or alternative II-B for years prior to 1991.

**Table VI.B1.—Long-Range OASDI Actuarial Balances [1] as Shown
in the Trustees Reports for 1982-2008**
[As a percentage of taxable payroll]

Year of report	Summarized income rate	Summarized cost rate	Actuarial balance	Change from previous year
1982	12.27	14.09	-1.82	2/
1983	12.87	12.84	+.02	+1.84
1984	12.90	12.95	-.06	-.08
1985	12.94	13.35	-.41	-.35
1986	12.96	13.40	-.44	-.03
1987	12.89	13.51	-.62	-.18
1988	12.94	13.52	-.58	+.04
1989	13.02	13.72	-.70	-.13
1990	13.04	13.95	-.91	-.21
1991	13.11	14.19	-1.08	-.17
1992	13.16	14.63	-1.46	-.38
1993	13.21	14.67	-1.46	2/
1994	13.24	15.37	-2.13	-.66
1995	13.27	15.44	-2.17	-.04
1996	13.33	15.52	-2.19	-.02
1997	13.37	15.60	-2.23	-.03
1998	13.45	15.64	-2.19	+.04
1999	13.49	15.56	-2.07	+.12
2000	13.51	15.40	-1.89	+.17
2001	13.58	15.44	-1.86	+.03
2002	13.72	15.59	-1.87	-.01
2003	13.78	15.70	-1.92	-.04
2004	13.84	15.73	-1.89	+.03
2005	13.87	15.79	-1.92	-.04
2006	13.88	15.90	-2.02	-.09
2007	13.92	15.87	-1.95	+.06
2008	13.94	15.63	-1.70	+.26

[1] Values shown are based on the alternative II assumptions for 1991-2008, and on the alternative II-B assumptions for 1982-90.
[2] Between -0.005 and 0.005 percent of taxable payroll.

Note: Totals do not necessarily equal the sums of rounded components.

For several of the years included in the table, significant legislative changes or definitional changes affected the estimated actuarial balance. The Social Security Amendments of 1983 accounted for the largest single change in recent history. The actuarial balance of -1.82 for the 1982 report improved to +0.02 for the 1983 report. In 1985, the estimated actuarial balance changed largely because of an adjustment made to the method for estimating the age distribution of immigrants.

Rebenchmarking of the National Income and Product Accounts and changes in demographic assumptions contributed to the change in the actuarial balance for 1987. Various changes in assumptions and methods for the 1988 report had roughly offsetting effects on the actuarial balance. In 1989 and

1990, changes in economic assumptions accounted for most of the changes in the estimated actuarial balance.

In 1991, the effect of legislation, changes in economic assumptions, and the introduction of the cost of reaching and maintaining an ending trust fund target combined to produce the change in the actuarial balance. In 1992, changes in disability assumptions and the method for projecting average benefit levels accounted for most of the change in the actuarial balance. In 1993, numerous small changes in assumptions and methods had offsetting effects on the actuarial balance. In 1994, changes in the real-wage assumptions, disability rates, and the earnings sample used for projecting average benefit levels accounted for most of the change in the actuarial balance. In 1995, numerous small changes had largely offsetting effects on the actuarial balance, including a substantial reallocation of the payroll tax rate, which reduced the OASI actuarial balance, but increased the DI actuarial balance.

In 1996, a change in the method of projecting dually-entitled beneficiaries produced a large increase in the actuarial balance, which almost totally offset decreases produced by changes in the valuation period and in the demographic and economic assumptions. Various changes in assumptions and methods for the 1997 report had roughly offsetting effects on the actuarial balance. In 1998, increases caused by changes in the economic assumptions, although partially offset by decreases produced by changes in the valuation period and in the demographic assumptions, accounted for most of the changes in the estimated actuarial balance. In 1999, increases caused by changes in the economic assumptions (related to improvements in the CPI by the Bureau of Labor Statistics) accounted for most of the changes in the estimated actuarial balance. For the 2000 report, changes in the actuarial balance resulted from changes in economic assumptions and methodology; however, these increases in the balance were partially offset by reductions caused by the change in valuation period and changes in demographic assumptions.

For the 2001 report, increases caused by changes in the demographic starting values, although partially offset by a decrease produced by the change in the valuation period, accounted for most of the changes in the estimated actuarial balance. For the 2002 report, the changes in the valuation period and the demographic assumptions—both decreases in the actuarial balance—were offset by changes in the economic assumptions, while the increase due to disability assumptions was slightly more than offset by the decrease due to changes in the projection methods and data. For the 2003 report, the increase due to the change in program assumptions was more than offset by decreases due to the change in valuation period and changes in demographic assumptions. For the 2004 report, increases due to changing the method of project-

ing benefit levels for higher earners more than offset decreases in the actuarial balance arising from the change in the valuation period and the net effect of other changes in programmatic data and methods. For the 2005 report, the increase due to changing the method of projecting future average benefit levels was more than offset by decreases due to changes in the valuation period, updated starting values for the economic assumptions, and other methodological changes.

In 2006, decreases in the actuarial balance due to the change in the valuation period, a reduction in the ultimate annual real interest rate, and improvements in calculating mortality for disabled workers, were greater in aggregate than increases in the actuarial balance due to changes in demographic starting values and the ultimate total fertility rate, as well as other programmatic data and method changes. For the 2007 report, increases in the actuarial balance arising from revised disability incidence rate assumptions, improvements in average benefit level projections, and changes in near-term economic projections, more than offset decreases in the balance due to the valuation period change and updated historical mortality data.

Changes affecting the actuarial balance shown for the 2008 report are described in section IV.B.7 Reasons for Change in Actuarial Balance From Last Report.

C. FISCAL YEAR HISTORICAL DATA AND PROJECTIONS THROUGH 2017

Tables VI.C1, VI.C2, and VI.C3 present detailed operations of the OASI, DI, and the combined OASI and DI Trust Funds, respectively, for fiscal year 2007, the most recent fiscal year for which complete actual information is available. These tables are similar to the calendar year operations tables in section III.A. Please see that section for a description of the various items of income and outgo.

Table VI.C1.—Operations of the OASI Trust Fund, Fiscal Year 2007

[In millions]

Total assets, September 30, 2006		$1,792,220
Receipts:		
Contributions:		
Employment taxes	$555,311	
Payments from the General Fund of the Treasury for contributions subject to refund	-1,897	
Net contributions		553,414
Income based on taxation of benefit payments:		
Withheld from benefit payments to nonresident aliens	143	
All other, not subject to withholding	16,518	
Total income from taxation of benefits		16,661
Reimbursement from the general fund for costs of payments to uninsured persons who attained age 72 before 1968		1/
Investment income and interest adjustments:		
Interest on investments	95,330	
Interest adjustments [2]	-2,030	
Net investment income and interest adjustments		93,300
Gifts		1
Total receipts		663,376
Disbursements:		
Benefit payments:		
Monthly benefits and lump-sum death benefits	479,482	
Reimbursement from the general fund for excess amounts of voluntary income tax withholding	-849	
Transfer to the DI Trust Fund to correct a trust fund allocation error made on payments to certain dually entitled disabled beneficiaries	3,253	
Reimbursement from the general fund for unnegotiated checks	-60	
Payment for costs of vocational rehabilitation services for disabled beneficiaries	3	
Net benefit payments		481,828
Transfer to the Railroad Retirement "Social Security Equivalent Benefit Account"		3,575
Administrative expenses:		
Costs incurred by:		
Social Security Administration	2,569	
Department of the Treasury	586	
Offsetting receipts from sales of supplies, materials, etc.	1/	
Miscellaneous reimbursements from the general fund [3]	-4	
Net administrative expenses		3,151
Total disbursements		488,553
Net increase in assets		174,822
Total assets, September 30, 2007		1,967,042

[1] Between -$0.5 and $0.5 million.
[2] Includes (1) interest on transfers between the trust fund and the general fund account for the Supplemental Security Income program due to adjustments in the allocation of administrative expenses, (2) interest arising from the revised allocation of administrative expenses among the trust funds, and (3) interest on certain reimbursements to the trust fund.
[3] Reimbursements for costs incurred in performing certain legislatively mandated activities not directly related to administering the OASI program.

Note: Totals do not necessarily equal the sums of rounded components.

Table VI.C2.—Operations of the DI Trust Fund, Fiscal Year 2007
[In millions]

Total assets, September 30, 2006		$201,938
Receipts:		
Contributions:		
Employment taxes	$94,295	
Payments from the General Fund of the Treasury for contributions subject to refund.	-322	
Net contributions		93,973
Income based on taxation of benefit payments:		
Withheld from benefit payments to nonresident aliens	4	
All other, not subject to withholding	1,347	
Total income from taxation of benefits		1,351
Investment income and interest adjustments:		
Interest on investments.	10,673	
Interest adjustments[1]	2,399	
Total investment income and interest adjustments.		13,072
Total receipts		108,396
Disbursements:		
Benefit payments:		
Monthly benefits.	97,271	
Reimbursement from the general fund for excess amounts of voluntary income tax withholding	-90	
Transfer from the OASI Trust Fund to correct a trust fund allocation error made on payments to certain dually entitled disabled beneficiaries	-3,253	
Reimbursement from the general fund for unnegotiated checks	-28	
Payment for costs of vocational rehabilitation services for disabled beneficiaries .	56	
Net benefit payments		93,955
Transfer to the Railroad Retirement "Social Security Equivalent Benefit Account" . .		445
Administrative expenses:		
Costs incurred by:		
Social Security Administration.	2,238	
Department of the Treasury	106	
Miscellaneous reimbursements from the general fund[2].	14	
Total administrative expenses.		2,357
Total disbursements		96,758
Net increase in assets		11,638
Total assets, September 30, 2007		213,577

[1] Includes (1) interest on transfers between the trust fund and the general fund account for the Supplemental Security Income program due to adjustments in the allocation of administrative expenses, (2) interest arising from the revised allocation of administrative expenses among the trust funds, and (3) interest on certain reimbursements to the trust fund.

[2] Reimbursements for costs incurred in performing certain legislatively mandated activities not directly related to administering the DI program.

Note: Totals do not necessarily equal the sums of rounded components.

Table VI.C3.—Operations of the Combined OASI and DI Trust Funds, Fiscal Year 2007
[In millions]

Total assets, September 30, 2006		$1,994,158
Receipts:		
Contributions:		
Employment taxes	$649,607	
Payments from the General Fund of the Treasury for contributions subject to refund	-2,220	
Net contributions		647,387
Income based on taxation of benefit payments:		
Withheld from benefit payments to nonresident aliens	147	
All other, not subject to withholding	17,865	
Total income from taxation of benefits		18,012
Reimbursement from the general fund for costs of payments to uninsured persons who attained age 72 before 1968		[1]
Investment income and interest adjustments:		
Interest on investments	106,003	
Interest adjustments[2]	370	
Net investment income and interest adjustments		106,372
Gifts		1
Total receipts		771,772
Disbursements:		
Benefit payments:		
Monthly benefits and lump-sum death benefits	576,752	
Reimbursement from the general fund for excess amounts of voluntary income tax withholding	-939	
Reimbursement from the general fund for unnegotiated checks	-88	
Payment for costs of vocational rehabilitation services for disabled beneficiaries	58	
Net benefit payments		575,783
Transfer to the Railroad Retirement "Social Security Equivalent Benefit Account"		4,020
Administrative expenses:		
Costs incurred by:		
Social Security Administration	4,806	
Department of the Treasury	692	
Offsetting receipts from sales of supplies, materials, etc.	[1]	
Miscellaneous reimbursements from the general fund[3]	10	
Net administrative expenses		5,508
Total disbursements		585,311
Net increase in assets		186,461
Total assets, September 30, 2007		2,180,619

[1] Between -$0.5 and $0.5 million.
[2] Includes (1) interest on transfers between the trust funds and the general fund account for the Supplemental Security Income program due to adjustments in the allocation of administrative expenses, (2) interest arising from the revised allocation of administrative expenses among the trust funds, and (3) interest on certain reimbursements to the trust fund.
[3] Reimbursements for costs incurred in performing certain legislatively mandated activities not directly related to administering the OASI and DI programs.

Note: Totals do not necessarily equal the sums of rounded components.

Estimates of the operations and status of the OASI, DI and the combined OASI and DI Trust Funds during fiscal years (12 months ending on September 30) 2003-17 are presented in tables VI.C4, VI.C5 and VI.C6, respectively.

Table VI.C4.—Operations of the OASI Trust Fund in Fiscal Years 2003-17
[Amounts in billions]

Fiscal year	Total[1]	Income			Cost				Assets		
		Net contri- butions	Taxa- tion of benefits	Net interest	Total	Benefit pay- ments	Admin- istra- tive costs	RRB inter- change	Net increase during year	Amount at end of year	Trust fund ratio[2]
Historical data:											
2003 . .	$542.3	$456.0	$12.3	$74.0	$402.8	$396.7	$2.5	$3.6	$139.5	$1,313.1	291
2004 . .	556.5	466.8	13.3	76.4	417.1	411.2	2.3	3.6	139.5	1,452.6	315
2005 . .	600.0	503.0	15.3	81.7	436.9	430.4	2.9	3.6	163.1	1,615.6	332
2006 . .	632.2	530.0	15.2	87.3	455.6	449.2	2.9	3.5	176.6	1,792.2	355
2007 . .	663.4	553.4	16.7	93.3	488.6	481.8	3.2	3.6	174.8	1,967.0	367
Intermediate:											
2008 . .	698.9	577.3	18.5	103.0	509.5	502.7	3.2	3.6	189.4	2,156.4	386
2009 . .	738.5	607.1	21.2	110.2	537.4	530.5	3.4	3.6	201.1	2,357.5	401
2010 . .	788.7	644.8	23.4	120.4	569.6	562.7	3.3	3.6	219.1	2,576.7	414
2011 . .	835.9	677.4	25.5	133.0	605.6	598.6	3.3	3.7	230.4	2,807.0	425
2012 . .	882.0	706.7	28.2	147.1	645.9	638.7	3.3	3.9	236.1	3,043.1	435
2013 . .	931.6	738.8	31.4	161.3	691.9	684.5	3.4	4.0	239.7	3,282.8	440
2014 . .	981.2	771.1	34.2	176.0	742.5	734.9	3.4	4.2	238.8	3,521.6	442
2015 . .	1,031.2	803.5	37.1	190.5	796.3	788.4	3.5	4.4	234.8	3,756.4	442
2016 . .	1,091.4	846.1	40.4	204.8	853.9	845.8	3.5	4.5	237.5	3,993.9	440
2017 . .	1,142.1	879.1	43.9	219.1	915.7	907.2	3.6	4.9	226.4	4,220.3	436
Low Cost:											
2008 . .	702.3	580.6	18.5	103.2	509.3	502.5	3.2	3.6	193.0	2,160.0	386
2009 . .	747.5	615.4	21.1	111.0	535.8	528.9	3.4	3.5	211.7	2,371.7	403
2010 . .	795.0	651.4	23.2	120.4	564.6	557.7	3.3	3.6	230.4	2,602.1	420
2011 . .	840.8	684.4	25.1	131.3	594.6	587.8	3.3	3.6	246.1	2,848.3	438
2012 . .	884.8	713.2	27.4	144.3	627.7	620.6	3.3	3.8	257.2	3,105.5	454
2013 . .	931.5	743.5	30.2	157.8	665.4	658.2	3.3	3.9	266.1	3,371.6	467
2014 . .	978.3	773.0	32.5	172.8	707.0	699.7	3.3	4.0	271.4	3,642.9	477
2015 . .	1,025.1	802.3	35.0	187.8	750.9	743.5	3.4	4.1	274.2	3,917.1	485
2016 . .	1,081.4	840.8	37.8	202.8	797.7	790.2	3.4	4.1	283.7	4,200.8	491
2017 . .	1,129.6	870.4	40.7	218.6	847.7	839.8	3.5	4.4	281.9	4,482.7	496
High Cost:											
2008 . .	688.3	567.1	18.5	102.7	509.6	502.8	3.2	3.6	178.7	2,145.7	386
2009 . .	714.9	586.5	21.3	107.1	541.0	534.0	3.4	3.6	173.9	2,319.7	397
2010 . .	772.7	630.1	23.7	118.9	576.0	569.1	3.3	3.7	196.6	2,516.3	403
2011 . .	817.8	661.0	25.9	130.9	614.5	607.5	3.3	3.7	203.3	2,719.6	409
2012 . .	863.9	689.8	29.0	145.1	665.0	657.6	3.4	4.0	198.9	2,918.5	409
2013 . .	949.1	744.3	33.2	171.6	731.8	724.0	3.5	4.2	217.3	3,135.8	399
2014 . .	1,020.2	788.0	37.1	195.3	806.1	797.9	3.6	4.6	214.3	3,350.1	389
2015 . .	1,079.2	827.3	41.1	210.8	880.6	871.9	3.7	5.0	198.6	3,548.7	380
2016 . .	1,143.2	876.0	45.2	221.9	954.9	945.9	3.8	5.2	188.2	3,737.0	372
2017 . .	1,197.2	913.3	49.5	234.3	1,032.8	1,023.2	3.9	5.7	164.4	3,901.4	362

[1] "Total Income" column includes transfers made between the OASI Trust Fund and the General Fund of the Treasury that are not included in the separate components of income shown. These transfers consist of pay- ments for (1) the cost of noncontributory wage credits for military service before 1957, and (2) the cost of benefits to certain uninsured persons who attained age 72 before 1968. In December 2005, $350 million was transferred from the OASI Trust Fund to the General Fund of the Treasury for the cost of pre-1957 military service wage credits. After 2007 such transfers are estimated to be less than $500,000 in each year.
[2] The "Trust fund ratio" column represents assets at the beginning of a year (which are identical to assets at the end of the prior year shown in the "Amount at end of year" column) as a percentage of cost for the year.

Note: Totals do not necessarily equal the sums of rounded components.

Table VI.C5.—Operations of the DI Trust Fund in Fiscal Years 2003-17
[Amounts in billions]

	Income				Cost				Assets		
Fiscal year	Total[1]	Net contri-butions	Taxa-tion of benefits	Net interest	Total	Benefit pay-ments	Admin-istra-tive costs	RRB inter-change	Net increase during year	Amount at end of year	Trust fund ratio[2]
Historical data:											
2003..	$87.9	$77.4	$0.9	$9.6	$71.9	$69.8	$2.0	$0.2	$16.0	$171.3	216
2004..	90.1	79.3	1.0	9.8	78.5	76.2	2.1	.2	11.6	182.9	218
2005..	96.8	85.4	1.2	10.2	86.4	83.7	2.3	.3	10.4	193.3	212
2006..	101.6	90.0	1.2	10.4	92.9	90.1	2.4	.4	8.6	201.9	208
2007..	108.4	94.0	1.4	13.1	96.8	94.0	2.4	.4	11.6	213.6	209
Intermediate:											
2008..	110.6	98.0	1.6	11.0	106.4	103.5	2.5	.4	4.2	217.8	201
2009..	115.9	103.1	1.8	11.0	113.1	110.0	2.6	.5	2.8	220.6	193
2010..	122.7	109.5	2.1	11.1	120.0	116.7	2.7	.5	2.7	223.3	184
2011..	128.5	115.0	2.3	11.2	126.9	123.4	2.9	.6	1.6	224.9	176
2012..	133.9	120.0	2.6	11.2	134.7	131.1	3.1	.5	-.9	224.1	167
2013..	139.7	125.3	3.0	11.2	142.8	138.9	3.3	.6	-3.1	221.0	157
2014..	145.2	130.9	3.3	11.0	150.8	146.8	3.5	.6	-5.5	215.5	147
2015..	150.7	136.4	3.6	10.8	159.2	155.0	3.7	.6	-8.5	207.0	135
2016..	157.8	143.7	3.9	10.2	168.0	163.6	3.9	.5	-10.2	196.7	123
2017..	163.3	149.3	4.2	9.8	177.1	172.5	4.1	.5	-13.8	182.9	111
Low Cost:											
2008..	111.1	98.6	1.5	11.0	105.2	102.3	2.5	.4	5.9	219.5	203
2009..	117.5	104.5	1.8	11.2	109.8	106.7	2.6	.4	7.7	227.2	200
2010..	124.1	110.6	2.0	11.5	114.3	111.1	2.7	.5	9.8	237.0	199
2011..	130.3	116.2	2.2	11.9	118.4	115.0	2.9	.6	11.9	248.9	200
2012..	136.0	121.1	2.4	12.5	123.0	119.5	3.1	.5	12.9	261.8	202
2013..	142.0	126.3	2.7	13.1	127.7	123.9	3.2	.5	14.4	276.1	205
2014..	148.0	131.3	2.9	13.9	132.2	128.3	3.4	.5	15.8	292.0	209
2015..	154.1	136.2	3.0	14.8	137.1	133.0	3.6	.5	17.0	309.0	213
2016..	161.8	142.8	3.3	15.8	142.1	137.9	3.7	.5	19.7	328.6	217
2017..	168.1	147.8	3.5	16.8	147.3	142.9	3.9	.5	20.8	349.4	223
High Cost:											
2008..	108.9	96.3	1.6	11.0	107.6	104.7	2.5	.4	1.2	214.8	198
2009..	112.1	99.6	1.9	10.6	116.9	113.8	2.6	.5	-4.8	210.0	184
2010..	119.5	107.0	2.2	10.3	126.0	122.8	2.7	.5	-6.5	203.5	167
2011..	124.6	112.2	2.5	9.9	135.1	131.7	2.9	.6	-10.5	193.0	151
2012..	129.3	117.1	2.9	9.3	146.7	143.0	3.2	.6	-17.4	175.6	132
2013..	138.1	126.4	3.4	8.3	160.8	156.8	3.4	.6	-22.7	152.9	109
2014..	144.5	133.8	3.8	6.9	175.3	171.0	3.7	.6	-30.8	122.1	87
2015..	150.0	140.5	4.2	5.3	189.5	185.0	3.9	.6	-39.5	82.6	64
2016..	156.9	148.8	4.7	3.4	203.2	198.5	4.1	.6	-46.3	36.3	41
2017..	3/	155.1	5.2	3/	217.3	212.3	4.4	.6	3/	3/	17

[1] "Total Income" column includes transfers made between the DI Trust Fund and the General Fund of the Treasury that are not included in the separate components of income shown. These transfers consist of payments for the cost of noncontributory wage credits for military service before 1957. In particular, a transfer was made in December 2007 in the amount of $7.7 million from the General Fund of the Treasury to the DI Trust Fund. After 2007 such transfers are estimated to be less than $500,000 in each year.

[2] The "Trust fund ratio" column represents assets at the beginning of a year (which are identical to assets at the end of the prior year shown in the "Amount at end of year" column) as a percentage of cost for the year.

[3] Under the high cost assumptions, the DI Trust Fund is projected to be exhausted in 2017. Therefore, certain trust fund operation values for that year are not meaningful under present law and are not shown in this table.

Note: Totals do not necessarily equal the sums of rounded components.

**Table VI.C6.—Operations of the Combined OASI and DI Trust Funds
in Fiscal Years 2003-17**
[Amounts in billions]

	Income				Cost				Assets		
Fiscal year	Total[1]	Net contri- butions	Taxa- tion of benefits	Net interest	Total	Benefit pay- ments	Admin- istra- tive costs	RRB inter- change	Net increase during year	Amount at end of year	Trust fund ratio[2]
Historical data:											
2003 ..	$630.3	$533.4	$13.3	$83.5	$474.7	$466.5	$4.5	$3.7	$155.5	$1,484.3	280
2004 ..	646.6	546.1	14.3	86.2	495.5	487.3	4.3	3.8	151.1	1,635.4	300
2005 ..	696.8	588.4	16.5	91.8	523.3	514.2	5.2	3.9	173.5	1,808.9	313
2006 ..	733.7	620.0	16.4	97.7	548.5	539.3	5.3	3.8	185.2	1,994.2	330
2007 ..	771.8	647.4	18.0	106.4	585.3	575.8	5.5	4.0	186.5	2,180.6	341
Intermediate:											
2008 ..	809.4	675.4	20.1	114.0	615.9	606.1	5.7	4.0	193.6	2,374.2	354
2009 ..	854.4	710.2	23.0	121.2	650.5	640.5	6.0	4.0	203.9	2,578.1	365
2010 ..	911.4	754.3	25.5	131.5	689.6	679.4	6.0	4.1	221.9	2,800.0	374
2011 ..	964.5	792.4	27.8	144.2	732.5	722.0	6.2	4.2	232.0	3,032.0	382
2012 ..	1,015.9	826.8	30.8	158.3	780.6	769.8	6.4	4.4	235.2	3,267.2	388
2013 ..	1,071.2	864.3	34.4	172.5	834.6	823.4	6.6	4.6	236.6	3,503.8	391
2014 ..	1,126.5	902.0	37.5	187.0	893.3	881.6	6.9	4.8	233.2	3,737.0	392
2015 ..	1,181.9	939.9	40.7	201.3	955.6	943.5	7.1	5.0	226.3	3,963.4	391
2016 ..	1,249.2	989.8	44.3	215.0	1,021.9	1,009.5	7.4	5.0	227.3	4,190.6	388
2017 ..	1,305.4	1,028.4	48.1	228.8	1,092.8	1,079.7	7.7	5.4	212.6	4,403.2	383
Low Cost:											
2008 ..	813.4	679.1	20.0	114.2	614.5	604.8	5.7	4.0	198.9	2,379.5	355
2009 ..	865.0	719.9	22.9	122.2	645.6	635.6	6.0	4.0	219.4	2,598.9	369
2010 ..	919.1	762.0	25.2	131.9	679.0	668.8	6.0	4.1	240.2	2,839.1	383
2011 ..	971.1	800.7	27.2	143.2	713.1	702.7	6.2	4.2	258.0	3,097.1	398
2012 ..	1,020.8	834.3	29.8	156.7	750.7	740.1	6.3	4.3	270.1	3,367.2	413
2013 ..	1,073.5	869.7	32.9	170.9	793.1	782.2	6.5	4.4	280.5	3,647.7	425
2014 ..	1,126.4	904.2	35.4	186.7	839.2	828.0	6.7	4.5	287.2	3,934.9	435
2015 ..	1,179.2	938.6	38.1	202.6	888.0	876.5	6.9	4.6	291.2	4,226.0	443
2016 ..	1,243.2	983.6	41.0	218.6	939.8	928.1	7.1	4.6	303.4	4,529.4	450
2017 ..	1,297.7	1,018.2	44.2	235.4	995.0	982.8	7.4	4.9	302.7	4,832.1	455
High Cost:											
2008 ..	797.2	663.4	20.1	113.7	617.3	607.5	5.7	4.0	179.9	2,360.5	353
2009 ..	827.0	686.0	23.2	117.8	657.8	647.8	6.0	4.0	169.2	2,529.7	359
2010 ..	892.2	737.1	25.9	129.2	702.1	691.9	6.0	4.2	190.1	2,719.8	360
2011 ..	942.4	773.3	28.4	140.8	749.6	739.1	6.2	4.3	192.8	2,912.6	363
2012 ..	993.2	806.9	31.9	154.4	811.7	800.6	6.5	4.6	181.5	3,094.1	359
2013 ..	1,087.2	870.7	36.6	179.9	892.6	880.8	7.0	4.8	194.6	3,288.6	347
2014 ..	1,165.0	921.8	40.9	202.2	981.5	969.0	7.3	5.2	183.5	3,472.2	335
2015 ..	1,229.2	967.8	45.3	216.1	1,070.1	1,056.8	7.6	5.6	159.2	3,631.4	324
2016 ..	1,300.0	1,024.8	49.9	225.3	1,158.1	1,144.4	7.9	5.8	141.9	3,773.3	314
2017 ..	1,358.5	1,068.4	54.7	235.4	1,250.0	1,235.5	8.3	6.3	108.5	3,881.7	302

[1] "Total Income" column includes transfers made between the OASI and DI Trust Funds and the General Fund of the Treasury that are not included in the separate components of income shown. These transfers consist of payments for (1) the cost of noncontributory wage credits for military service before 1957, and (2) the cost of benefits to certain uninsured persons who attained age 72 before 1968.

[2] The "Trust fund ratio" column represents assets at the beginning of a year (which are identical to assets at the end of the prior year shown in the "Amount at end of year" column) as a percentage of cost for the year.

Note: Totals do not necessarily equal the sums of rounded components.

D. LONG-RANGE SENSITIVITY ANALYSIS

This appendix presents estimates which illustrate the sensitivity of the long-range actuarial status of the OASDI program to changes in selected individual assumptions. The estimates based on the three alternative sets of assumptions (see sections IV.B, V.A, V.B, and V.C) illustrate the effects of varying all of the principal assumptions simultaneously in order to portray a generally more optimistic or pessimistic future, in terms of the financial status of the OASDI program. In the sensitivity analysis presented in this appendix, the intermediate alternative II projection is used as the reference point, and one assumption at a time is varied within that alternative. The variation used for each individual assumption reflects the levels used for that assumption in the low cost alternative I and high cost alternative III projections.

Each table in this section shows the effects of changing a particular assumption on the OASDI summarized income rates, summarized cost rates, and actuarial balances for 25-year, 50-year, and 75-year valuation periods. Because the annual payroll tax rate is constant for the entire 75-year valuation period, the income rate varies only slightly with changes in assumptions and, therefore, is not considered in the discussion of the tables. The change in each of the actuarial balances is approximately equal to the change in the corresponding cost rate, but in the opposite direction.

1. Total Fertility Rate

Table VI.D1 shows the estimated OASDI income rates, cost rates, and actuarial balances, on the basis of alternative II with various assumptions about the ultimate total fertility rate. These assumptions are that the ultimate total fertility rate will be 1.7, 2.0, and 2.3 children per woman as assumed for alternatives III, II, and I, respectively. The rate is assumed to change gradually from its current level and to reach the various ultimate values in 2032.

Table VI.D1.—Sensitivity to Varying Fertility Assumptions
[As a percentage of taxable payroll]

Valuation period	Ultimate total fertility rate [1] [2]		
	1.7	2.0	2.3
Summarized income rate:			
25-year: 2008-32	14.81	14.81	14.82
50-year: 2008-57	14.15	14.14	14.13
75-year: 2008-82	13.98	13.94	13.89
Summarized cost rate:			
25-year: 2008-32	14.41	14.43	14.46
50-year: 2008-57	15.38	15.28	15.20
75-year: 2008-82	16.04	15.63	15.25
Actuarial balance:			
25-year: 2008-32	+.40	+.38	+.36
50-year: 2008-57	-1.23	-1.14	-1.07
75-year: 2008-82	-2.06	-1.70	-1.36
Annual balance for 2082	-6.56	-4.20	-2.33
Year of combined trust fund exhaustion	2041	2041	2041

[1] The total fertility rate for any year is the average number of children who would be born to a woman in her lifetime if she were to experience the birth rates by age observed in, or assumed for, the selected year, and if she were to survive the entire childbearing period. The ultimate total fertility rate is assumed to be reached in 2032.

[2] Ultimate total fertility rates used for this analysis are 1.7 from the alternative III assumptions, 2.0 from the alternative II assumptions, and 2.3 from the alternative I assumptions. All other assumptions used for this analysis are from alternative II.

For the 25-year period, the cost rate for the three fertility assumptions varies by only about 0.05 percent of taxable payroll. In contrast, the 75-year cost rate varies over a wide range, decreasing from 16.04 to 15.25 percent, as the assumed ultimate total fertility rate increases from 1.7 to 2.3. Similarly, while the 25-year actuarial balance varies by only 0.05 percent of taxable payroll, the 75-year actuarial balance varies over a much wider range, from -2.06 to -1.36 percent.

During the 25-year period, the very slight increases in the working population resulting from increases in fertility are more than offset by decreases in the female labor force and increases in the number of child beneficiaries. Hence, the program cost slightly increases with higher fertility. For the 75-year long-range period, however, changes in fertility have a relatively greater impact on the labor force than on the beneficiary population. As a result, an increase in fertility significantly reduces the cost rate. Each increase of 0.1 in the ultimate total fertility rate increases the long-range actuarial balance by about 0.12 percent of taxable payroll.

2. Death Rates

Table VI.D2 shows the estimated OASDI income rates, cost rates, and actuarial balances, on the basis of alternative II with various assumptions about future reductions in death rates for the period 2007-82. These assumptions are the same as those used for alternatives I, II, and III, which are described in section V.A.2. The age-sex-adjusted death rates decline at average annual rates of 0.30 percent, 0.75 percent, and 1.26 percent for alternatives I, II, and III, respectively.

Table VI.D2.—Sensitivity to Varying Death-Rate Assumptions
[As a percentage of taxable payroll]

Valuation period	Average annual death-rate reduction [1] [2]		
	0.30 percent	0.75 percent	1.26 percent
Summarized income rate:			
25-year: 2008-32	14.81	14.81	14.81
50-year: 2008-57	14.13	14.14	14.16
75-year: 2008-82	13.91	13.94	13.96
Summarized cost rate:			
25-year: 2008-32	14.27	14.43	14.59
50-year: 2008-57	14.85	15.28	15.72
75-year: 2008-82	15.00	15.63	16.28
Actuarial balance:			
25-year: 2008-32	+.55	+.38	+.22
50-year: 2008-57	-.72	-1.14	-1.56
75-year: 2008-82	-1.09	-1.70	-2.32
Annual balance for 2082	-2.75	-4.20	-5.70
Year of combined trust fund exhaustion	2044	2041	2039

[1] The average annual death-rate reduction is the average annual geometric rate of decline in the age-sex-adjusted death rate between 2007 and 2082. The overall decreases from the age-sex-adjusted death rate in 2007 to the corresponding rate in 2082 are 20 percent, 43 percent, and 61 percent for alternatives I, II, and III, respectively.

[2] The average annual death-rate reductions used for this analysis are 0.30 percent from the alternative I assumptions, 0.75 percent from the alternative II assumptions, and 1.26 percent from the alternative III assumptions. All other assumptions used for this analysis are from alternative II.

The variation in cost for the 25-year period is less pronounced than the variation for the 75-year period because the decreases in death rates are assumed to occur gradually. The 25-year cost rate increases from 14.27 percent (for an average annual death-rate reduction of 0.30 percent) to 14.59 percent (for an average annual death-rate reduction of 1.26 percent). The 75-year cost rate increases from 15.00 to 16.28 percent. The actuarial balance decreases from +0.55 to +0.22 percent for the 25-year period, and from -1.09 to -2.32 percent for the 75-year period.

Lower death rates cause both the income (through increased taxable payroll) and the cost of the OASDI program to be higher than they would otherwise

be. The relative increase in cost, however, exceeds the relative increase in taxable payroll. For any given year, reductions in the death rates for people who are age 62 and over (ages at which death rates are the highest) increase the number of retired-worker beneficiaries (and, therefore, the amount of retirement benefits paid) without adding significantly to the number of covered workers (and, therefore, to the taxable payroll). Although reductions for people at ages 50 to retirement eligibility age do result in significant increases to the taxable payroll, those increases are not large enough to offset the sum of the additional retirement benefits mentioned above and the disability benefits paid to additional beneficiaries at these pre-retirement ages, which are ages of high disability incidence. At ages under 50, death rates are so low that even substantial reductions would not result in significant increases in the numbers of covered workers or beneficiaries. Consequently, if death rates for all ages are lowered by about the same relative amount, cost increases at a rate greater than the rate of growth in payroll, thereby resulting in higher cost rates and, therefore, lower actuarial balances. Each additional 0.1-percentage-point increase in the average annual rate of decline in the death rate decreases the long-range actuarial balance by about 0.13 percent of taxable payroll.

3. Net Immigration

Table VI.D3 shows the estimated OASDI income rates, cost rates, and actuarial balances, under alternative II with various assumptions about the magnitude of net immigration. These assumptions are that the annual net immigration will average, over the long-range period, 790,000 persons, 1,070,000 persons, and 1,375,000 persons as assumed for alternatives III, II, and I, respectively.

Table VI.D3.—Sensitivity to Varying Net-Immigration Assumptions
[As a percentage of taxable payroll]

	Average annual net immigration[1][2]		
Valuation period	790,000	1,070,000	1,375,000
Summarized income rate:			
25-year: 2008-32	14.83	14.81	14.79
50-year: 2008-57	14.17	14.14	14.11
75-year: 2008-82	13.97	13.94	13.90
Summarized cost rate:			
25-year: 2008-32	14.54	14.43	14.32
50-year: 2008-57	15.47	15.28	15.09
75-year: 2008-82	15.85	15.63	15.41
Actuarial balance:			
25-year: 2008-32	+.30	+.38	+.47
50-year: 2008-57	-1.29	-1.14	-.98
75-year: 2008-82	-1.88	-1.70	-1.51
Annual balance for 2082	-4.61	-4.20	-3.82
Year of combined trust fund exhaustion	2040	2041	2042

[1] Net immigration per year is the assumed annual net immigration to the Social Security area, including both legal and other immigration, averaged over the 75-year projection period.
[2] The average annual net immigration assumptions used for this analysis are 790,000 from the alternative III assumptions, 1,070,000 from the alternative II assumptions, and 1,375,000 from the alternative I assumptions. All other assumptions used for this analysis are from alternative II.

For all three periods, the cost rate decreases with increasing rates of net immigration. For the 25-year period, the cost rate decreases from 14.54 percent of taxable payroll (for average annual net immigration of 790,000 persons) to 14.32 percent (for average annual net immigration of 1,375,000 persons). For the 50-year period, it decreases from 15.47 percent to 15.09 percent, and for the 75-year period, it decreases from 15.85 percent to 15.41 percent. The actuarial balance increases from +0.30 to +0.47 percent for the 25-year period, from -1.29 to -0.98 percent for the 50-year period, and from -1.88 to -1.51 percent for the 75-year period.

The cost rate decreases with an increase in net immigration because immigration occurs at relatively young ages, thereby increasing the numbers of covered workers earlier than the numbers of beneficiaries. Increasing average annual net immigration by 100,000 persons improves the long-range actuarial balance by about 0.06 percent of taxable payroll.

4. Real-Wage Differential

Table VI.D4 shows the estimated OASDI income rates, cost rates, and actuarial balances, on the basis of alternative II with various assumptions about the real-wage differential. These assumptions are that the ultimate real-wage differential will be 0.6 percentage point, 1.1 percentage points, and 1.6 percentage points as assumed for alternatives III, II, and I, respectively. In each

case, the ultimate annual increase in the CPI is assumed to be 2.8 percent (as assumed for alternative II), yielding ultimate percentage increases in average annual wages in covered employment of 3.4, 3.9, and 4.4 percent.

For the 25-year period, the cost rate decreases from 14.87 percent (for a real-wage differential of 0.6 percentage point) to 14.00 percent (for a differential of 1.6 percentage points). For the 50-year period, it decreases from 15.95 to 14.64 percent, and for the 75-year period it decreases from 16.37 to 14.92 percent. The actuarial balance increases from +0.05 to +0.71 percent for the 25-year period, from -1.67 to -0.62 percent for the 50-year period, and from -2.28 to -1.12 percent for the 75-year period.

Table VI.D4.—Sensitivity to Varying Real-Wage Assumptions
[As a percentage of taxable payroll]

	Ultimate percentage increase in wages-CPI[1] [2]		
Valuation period	3.4-2.8	3.9-2.8	4.4-2.8
Summarized income rate:			
25-year: 2008-32	14.92	14.81	14.71
50-year: 2008-57	14.28	14.14	14.01
75-year: 2008-82	14.09	13.94	13.79
Summarized cost rate:			
25-year: 2008-32	14.87	14.43	14.00
50-year: 2008-57	15.95	15.28	14.64
75-year: 2008-82	16.37	15.63	14.92
Actuarial balance:			
25-year: 2008-32	+.05	+.38	+.71
50-year: 2008-57	-1.67	-1.14	-.62
75-year: 2008-82	-2.28	-1.70	-1.12
Annual balance for 2082	-5.56	-4.20	-3.00
Year of combined trust fund exhaustion	2037	2041	2048

[1] The first value in each pair is the assumed ultimate annual percentage increase in average wages in covered employment. The second value is the assumed ultimate annual percentage increase in the Consumer Price Index. The difference between the two values is the ultimate real-wage differential.
[2] The ultimate real-wage differentials of 0.6, 1.1, and 1.6 percentage points are the same as in alternatives III, II, and I, respectively. All other assumptions used for this analysis are from alternative II.

The cost rate decreases with increasing real-wage differentials. This is because higher wages increase taxable payroll immediately, but increase benefit levels only gradually as new beneficiaries become entitled. In addition, cost-of-living adjustments (COLAs) to benefits are not affected by changes in wages, but only in prices. Each 0.5-percentage-point increase in the assumed real-wage differential increases the long-range actuarial balance by about 0.58 percent of taxable payroll.

5. Consumer Price Index

Table VI.D5 shows the estimated OASDI income rates, cost rates, and actuarial balances, on the basis of alternative II with various assumptions about the rate of increase for the Consumer Price Index (CPI). These assumptions are that the ultimate annual increase in the CPI will be 1.8 percent, 2.8 percent, and 3.8 percent as assumed for alternatives I, II, and III, respectively. In each case, the ultimate real-wage differential is assumed to be 1.1 percentage points (as assumed for alternative II), yielding ultimate percentage increases in average annual wages in covered employment of 2.9, 3.9, and 4.9 percent.

Table VI.D5.—Sensitivity to Varying CPI-Increase Assumptions
[As a percentage of taxable payroll]

	Ultimate percentage increase in wages-CPI[1] [2]		
Valuation period	2.9-1.8	3.9-2.8	4.9-3.8
Summarized income rate:			
25-year: 2008-32	14.86	14.81	14.77
50-year: 2008-57	14.18	14.14	14.11
75-year: 2008-82	13.97	13.94	13.91
Summarized cost rate:			
25-year: 2008-32	14.59	14.43	14.28
50-year: 2008-57	15.50	15.28	15.08
75-year: 2008-82	15.88	15.63	15.40
Actuarial balance:			
25-year: 2008-32	+.27	+.38	+.49
50-year: 2008-57	-1.32	-1.14	-.96
75-year: 2008-82	-1.91	-1.70	-1.50
Annual balance for 2082	-4.52	-4.20	-3.89
Year of combined trust fund exhaustion	2039	2041	2043

[1] The first value in each pair is the assumed ultimate annual percentage increase in average wages in covered employment. The second value is the assumed ultimate annual percentage increase in the Consumer Price Index. The difference between the two values is the ultimate real-wage differential.
[2] The ultimate CPI increases of 1.8, 2.8, and 3.8 percent are the same as in alternatives I, II, and III, respectively. The ultimate real-wage differential of 1.1 percentage points is the same as in alternative II. All other assumptions used for this analysis are also from alternative II.

For all three periods, the cost rate decreases with greater assumed rates of increase in the CPI. For the 25-year period, the cost rate decreases from 14.59 (for CPI increases of 1.8 percent) to 14.28 percent (for CPI increases of 3.8 percent). For the 50-year period, it decreases from 15.50 to 15.08 percent, and for the 75-year period, it decreases from 15.88 to 15.40 percent. The actuarial balance increases from +0.27 to +0.49 percent for the 25-year period, from -1.32 to -0.96 percent for the 50-year period, and from -1.91 to -1.50 percent for the 75-year period.

The patterns described above result primarily from the time lag between the effects of the CPI changes on taxable payroll and on benefit payments. When assuming a greater rate of increase in the CPI (in combination with a constant real-wage differential), the effect on taxable payroll due to a greater rate of increase in average wages is experienced immediately, while the effect on benefits due to a larger COLA is experienced with a lag of about 1 year. Thus, the higher taxable payrolls have a stronger effect than the higher benefits, thereby resulting in lower cost rates. The effect of each 1.0-percentage-point increase in the rate of change assumed for the CPI is an increase in the long-range actuarial balance of about 0.21 percent of taxable payroll.

6. Real Interest Rate

Table VI.D6 shows the estimated OASDI income rates, cost rates, and actuarial balances, on the basis of alternative II with various assumptions about the annual real interest rate for special public-debt obligations issuable to the trust funds, which are compounded semiannually. These assumptions are that the ultimate annual real interest rate will be 2.1 percent, 2.9 percent, and 3.6 percent as assumed for alternatives III, II, and I, respectively. In each case, the ultimate annual increase in the CPI is assumed to be 2.8 percent (as assumed for alternative II), resulting in ultimate annual yields of 5.0, 5.8, and 6.5 percent.

Table VI.D6.—Sensitivity to Varying Real-Interest Assumptions
[As a percentage of taxable payroll]

	Ultimate annual real interest rate [1] [2]		
Valuation period	2.1 percent	2.9 percent	3.6 percent
Summarized income rate:			
25-year: 2008-32	14.71	14.81	14.90
50-year: 2008-57	14.01	14.14	14.26
75-year: 2008-82	13.79	13.94	14.07
Summarized cost rate:			
25-year: 2008-32	14.58	14.43	14.31
50-year: 2008-57	15.51	15.28	15.09
75-year: 2008-82	15.93	15.63	15.38
Actuarial balance:			
25-year: 2008-32	+.13	+.38	+.60
50-year: 2008-57	-1.50	-1.14	-.82
75-year: 2008-82	-2.14	-1.70	-1.31
Annual balance for 2082	-4.20	-4.20	-4.20
Year of combined trust fund exhaustion	2038	2041	2044

[1] The ultimate real interest rate is defined to be the effective annual yield on assets held by the trust funds divided by the annual rate of growth in the CPI.
[2] The ultimate annual real interest rates used for this analysis are 2.1 percent from the alternative III assumptions, 2.9 percent from the alternative II assumptions, and 3.6 percent from the alternative I assumptions. All other assumptions used for this analysis are from alternative II.

For the 25-year period, the cost rate decreases with increasing real interest rates, from 14.58 percent (for an ultimate real interest rate of 2.1 percent) to 14.31 percent (for an ultimate real interest rate of 3.6 percent). For the 50-year period, it decreases from 15.51 to 15.09 percent, and for the 75-year period, it decreases from 15.93 to 15.38 percent. The actuarial balance increases from +0.13 to +0.60 percent for the 25-year period, from -1.50 to -0.82 percent for the 50-year period, and from -2.14 to -1.31 percent for the 75-year period. Each 0.5-percentage-point increase in the assumed real interest rate increases the long-range actuarial balance by about 0.28 percent of taxable payroll.

7. Disability Incidence Rates

Table VI.D7 shows the estimated OASDI income rates, cost rates, and actuarial balances, on the basis of alternative II with various assumptions concerning future disability incidence rates. For all three alternatives, incidence rates by age and sex are assumed to vary during the early years of the projection period before attaining ultimate levels in 2027. In comparison to the historical period 1970 through 2007, the ultimate age-sex-adjusted incidence rate is 1 percent higher for alternative II, 19 percent lower for alternative I, and 20 percent higher for alternative III.

Table VI.D7.—Sensitivity to Varying Disability Incidence Assumptions
[As a percentage of taxable payroll]

Valuation period	Disability incidence rates based on alternative—		
	I	II	III
Summarized income rate:			
25-year: 2008-32	14.81	14.81	14.82
50-year: 2008-57	14.14	14.14	14.15
75-year: 2008-82	13.93	13.94	13.94
Summarized cost rate:			
25-year: 2008-32	14.23	14.43	14.64
50-year: 2008-57	15.03	15.28	15.54
75-year: 2008-82	15.36	15.63	15.90
Actuarial balance:			
25-year: 2008-32	+.58	+.38	+.18
50-year: 2008-57	-.89	-1.14	-1.39
75-year: 2008-82	-1.43	-1.70	-1.96
Annual balance for 2082	-3.88	-4.20	-4.52
Year of combined trust fund exhaustion	2044	2041	2039

For the 25-year period, the cost rate increases with increasing disability incidence rates, from 14.23 percent (for the relatively low rates assumed for

alternative I) to 14.64 percent (for the relatively high rates assumed for alternative III). For the 50-year period, it increases from 15.03 to 15.54 percent, and for the 75-year period, it increases from 15.36 to 15.90 percent. The actuarial balance decreases from +0.58 to +0.18 percent for the 25-year period, from -0.89 to -1.39 percent for the 50-year period, and from -1.43 to -1.96 percent for the 75-year period.

8. Disability Termination Rates

Table VI.D8 shows the estimated OASDI income rates, cost rates, and actuarial balances, on the basis of alternative II with various assumptions about future disability termination rates. For all three alternatives, death rates are assumed to decline throughout the long-range period. For alternative II, the age-sex-adjusted[1] death rate is assumed to decline to a level at the end of the 75-year period that is about 56 percent lower than the level in 2007. For alternative I, the age-sex-adjusted death rate is assumed to decline to a level in 2085 that is about 23 percent lower than the level in 2007. For alternative III, the age-sex-adjusted death rate is assumed to decline to a level at the end of the 75-year period that is about 72 percent lower than the level in 2007.

For all three alternatives, ultimate recovery-termination rates by age, sex, and duration are assumed to be attained in the twentieth year of the projection period. For alternative II, the age-sex-adjusted[1] recovery rate in 2027 is about 11 recoveries per thousand disabled-worker beneficiaries. For alternative I, the age-sex-adjusted recovery rate in 2027 is about 13 recoveries per thousand disabled-worker beneficiaries. For alternative III, the age-sex-adjusted recovery rate in 2027 is about 9 recoveries per thousand disabled-worker beneficiaries.

---

[1] Age adjusted to the total disabled workers in current-payment status as of the year 2000.

Table VI.D8.—Sensitivity to Varying Disability Termination Assumptions
[As a percentage of taxable payroll]

Valuation period	Disability termination rates based on alternative—		
	I	II	III
Summarized income rate:			
25-year: 2008-32	14.81	14.81	14.81
50-year: 2008-57	14.14	14.14	14.14
75-year: 2008-82	13.94	13.94	13.94
Summarized cost rate:			
25-year: 2008-32	14.39	14.43	14.46
50-year: 2008-57	15.23	15.28	15.32
75-year: 2008-82	15.58	15.63	15.67
Actuarial balance:			
25-year: 2008-32	+.43	+.38	+.35
50-year: 2008-57	-1.09	-1.14	-1.18
75-year: 2008-82	-1.65	-1.70	-1.73
Annual balance for 2082	-4.14	-4.20	-4.21
Year of combined trust fund exhaustion	2041	2041	2040

For the 25-year period, the cost rate increases with decreasing disability termination rates, from 14.39 percent (for the relatively high rates assumed for alternative I) to 14.46 percent (for the relatively low rates assumed for alternative III). For the 50-year period, it increases from 15.23 to 15.32 percent, and for the 75-year period, it increases from 15.58 to 15.67 percent. The actuarial balance decreases from +0.43 to +0.35 percent for the 25-year period, from -1.09 to -1.18 percent for the 50-year period, and from -1.65 to -1.73 percent for the 75-year period.

E. STOCHASTIC PROJECTIONS

Significant uncertainty surrounds the estimates under the intermediate assumptions, especially for a period as long as 75 years. This appendix presents a way to illustrate the uncertainty of these estimates. It is intended to supplement the traditional methods of examining such uncertainty and to illustrate the potential value of new techniques.

1. Background

The Trustees Report has traditionally shown additional estimates using the low cost and high cost sets of specified assumptions to reflect the presence of uncertainty. These additional estimates provide a range of possible outcomes for the projections. However, they provide no indication of the probability that actual future experience will be inside or outside the range of these estimates. This appendix presents the results of a model, based on stochastic modeling techniques, that estimates a probability distribution of future outcomes of the financial status of the combined OASI and DI Trust Funds.

It should be noted that this model is subject to further development. Future improvements and refinements are expected to be more likely to expand rather than reduce the indicated range of uncertainty.

2. Methodology

Other sections of this report provide estimates of the financial status of the combined OASI and DI Trust Funds using a "deterministic" model. For the deterministic model, certain assumptions are made regarding levels of fertility, changes in mortality, legal and other immigration levels, legal and other emigration levels, the Consumer Price Index, average real wages, unemployment rates, trust fund real yield rates, and disability incidence and recovery rates. Each of these variables will reach an assumed ultimate value at a specific point during the long-range period and will maintain that value throughout the remainder of the period. As mentioned above, three deterministic scenarios are developed assuming separate, specified values for each of these variables.

In contrast, the results of 5,000 independent stochastic simulations are presented in this appendix. Each of the 5,000 simulations is determined by allowing the above variables to vary throughout the long-range period. The fluctuation in each variable is projected by using standard time-series modeling, a method designed to help make inferences based on historical data. Generally, each variable is modeled by an equation that captures a relationship between current and prior years' values of the variable and introduces year-by-year random variation, as reflected in the historical period. For some

variables, the equations additionally reflect relationships with other variables. Parameters for the equations are estimated using historical data for periods between 20 years and 110 years depending on the nature and quality of data available. Each time-series equation is designed such that, in the absence of random variation, the value of the variable would equal the value assumed under the intermediate set of assumptions. More detail on this model, and stochastic modeling in general, is available on the Social Security website.[1]

For each simulation of the model, values for most of the variables listed above are determined by using Monte Carlo techniques to randomly assign the year-by-year variations. The one exception is that net other immigration is modeled rather than individually modeling other immigration and other emigration. Each simulation produces an estimate of the financial status of the combined OASI and DI Trust Funds. Results shown in this section, based on 5,000 simulations of the model, reflect the distribution of results.

The results from this model should be interpreted with caution and with a full understanding of the inherent limitations. Results are very sensitive to equation specifications, degrees of interdependence among variables, and the historical periods used for the estimates. For some variables, using the variations exhibited in a relatively recent historical period may not provide a realistic representation of the potential variation for the future. In addition, results would differ if random variations had been applied to additional variables other than those mentioned above (such as labor force participation rates, retirement rates, marriage rates, and divorce rates). Furthermore, additional variability could result from incorporating statistical approaches that would more fully model change in the long-range central tendencies of the variables. The historical period available for most variables is relatively homogeneous and does not reflect many substantial shifts. The time-series modeling reflects what occurred in the historical period. As a result, the variation indicated in this appendix should be viewed as the minimum plausible variation for the future. Substantial shifts, as predicted by many experts and as seen in prior centuries, are not fully reflected in the current model.

---

[1] www.socialsecurity.gov/OACT/stochastic/index.html

3. Results

Simulated probability distributions of the annual trust fund ratios for the combined OASI and DI Trust Funds are shown in figure VI.E1. The two extreme lines in this figure illustrate the range within which future annual trust fund ratios are estimated to occur 95 percent of the time (i.e., a 95-percent confidence interval). In other words, actual future trust fund ratios in a given year would be expected to exceed the upper bound only 2.5 percent of the time or to fall below the lower bound 2.5 percent of the time. Other lines in the figure display additional confidence intervals (80-percent, 60-percent, 40-percent, and 20-percent) around future annual trust fund ratios. The median estimate for each year indicates the trust fund ratio which is projected by this model to fall exactly in the middle of possible outcomes for that year. It is important to note that these lines do not represent the results of individual stochastic simulations. Instead, for each given year, they represent the percentile distribution of trust fund ratios based on all stochastic simulations for that year.

The median estimate for each year indicates that the assets of the combined OASI and DI Trust Funds would be exhausted by the end of 2041 with a probability of 50 percent. This exhaustion date is the same as the year of exhaustion projected under the intermediate assumptions. Figure VI.E1 shows that the 95-percent confidence interval for the trust fund ratio in 2030 ranges from 379 to 87 percent of annual cost. In comparison, the 2030 trust fund ratios for the low cost and high cost alternatives are each outside this range, at 429 and 28 percent, respectively. By 2082, the range represented by the low cost and high cost projections increases substantially beyond the boundaries of the 95-percent stochastic confidence interval, as seen from the values for the open group unfunded obligation in table VI.E1. This increased variation of the alternatives relative to the stochastic confidence interval is also seen in the positive trust fund ratio for the low cost scenario for 2082.

Figure VI.E1.—Annual Trust Fund Ratios
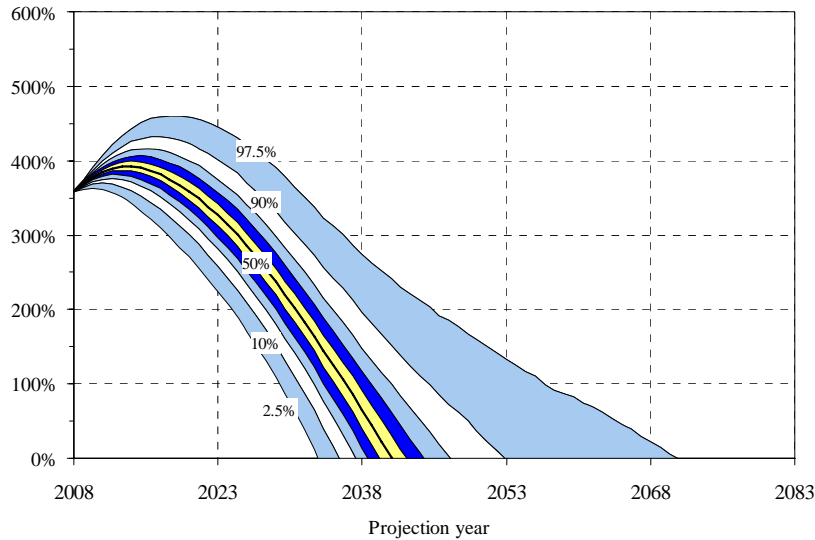
The probability distribution of the year-by-year OASDI cost rates (i.e., cost as a percentage of taxable payroll) is shown in figure VI.E2. The range of the cost rates widens as the projections move further into the future, reflecting increasing uncertainty. The income rate under the intermediate assumptions is also included in the figure in order to give some indication of the patterns of cash flow for the OASDI program. Only this income rate is included because of the relatively small variation in income rates throughout the projection period. The lines in figure VI.E2 display the median set (50th percentile) of estimated annual cost rates and the 95-percent, 80-percent, 60-percent, 40-percent, and 20-percent confidence intervals expected for future annual cost rates. It is important to note that these lines do not represent the results of individual stochastic simulations. Instead, for each given year, they represent the percentile distribution of cost rates based on all stochastic simulations for that year. The projected cost rates for the year 2035 for the low cost and high cost alternatives described earlier are 14.65 percent of payroll and 19.34 percent of payroll, respectively. These are close to the limits of the 95-percent confidence interval (14.58 and 19.46 percent of payroll), as can be seen in figure VI.E2. By 2082, the cost rates for these alternatives, 12.62 and 24.81 percent of payroll, are still close to the limits of the 95-percent confidence interval (13.13 and 24.84 percent of payroll).

Figure VI.E2.—Annual Cost Rates

Projection year
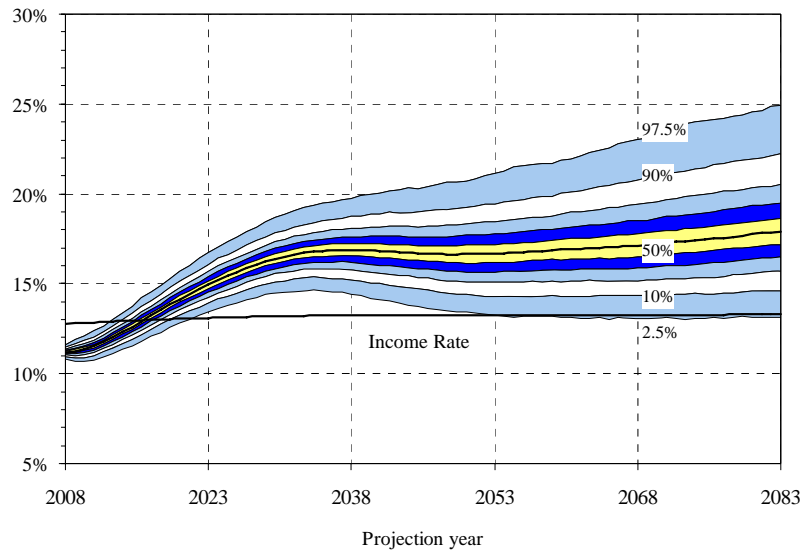
Table VI.E1 displays long-range actuarial estimates that illustrate uncertainty for the combined OASDI program using both the deterministic and stochastic approaches. Actuarial estimates included in the table are for the long-range period, 2008-82. Stochastic estimates are shown for the median (50th percentile) and for the 95-percent and 80-percent confidence intervals. For comparison, deterministic estimates are shown for the intermediate, low cost, and high cost assumptions. Each individual stochastic estimate displayed in the table represents the level at that percentile from the distribution of the 5,000 simulations. However, for each given percentile, the stochastic estimates shown for the different long-range actuarial measures are generally not from the same stochastic simulation.

Median stochastic estimates for the actuarial measures displayed in table VI.E1 are the same or slightly more pessimistic for the combined OASI and DI Trust Funds than those projected under the intermediate assumptions. The median estimate of the long-range actuarial balance is -1.79 percent of taxable payroll, about 0.09 percentage point lower than projected under the intermediate assumptions. The median estimate for the first year cost exceeds tax income is 2016. This is 1 year earlier than projected under the intermediate assumptions. The median estimate for the year assets first become exhausted is 2041. This is the same as the year projected under the intermediate assumptions. The median estimate for the annual cost in the 75th year of the projection period is 17.85 as a percentage of taxable payroll

and 5.92 as a percentage of GDP. The comparable estimates using the intermediate assumptions are 17.50 and 5.82, respectively.

The 95-percent confidence interval determined by the stochastic modeling projections can be compared to the range of variation defined by the traditional low cost and high cost alternatives. For three of the measures in table VI.E1 (the actuarial balance, the open group unfunded obligation, and the first year assets become exhausted), the 95-percent stochastic projection range is narrower than the range defined by the low cost and high cost alternatives. That is, for these measures, the estimates under the low cost and high cost alternatives fall outside the 95-percent confidence interval determined by the stochastic modeling projections. In contrast, for two other measures in the table (the first year cost exceeds tax income and the annual cost in the 75th year of the projection period expressed as a percentage of GDP), the 95-percent stochastic projection range includes the estimates under the low cost and high cost alternatives. For the remaining measure in the table (the annual cost in the 75th year of the projection period expressed as a percentage of taxable payroll), the 95-percent stochastic projection range includes the estimate under the high cost alternative, but does not include the low cost estimate.

Table VI.E1.—Long-Range Estimates Relating to the Actuarial Status of the Combined OASDI Program

[Comparison of deterministic and stochastic results]

	Traditional deterministic model			Stochastic model					
					80-percent confidence interval		95-percent confidence interval		
	Interme-diate	Low Cost	High Cost	Median 50th percentile	10th percentile	90th percentile	2.5th percentile	97.5th percentile	
Actuarial balance	-1.70	0.57	-4.66	-1.79	-2.90	-0.78	-3.52	-0.28	
Open group unfunded obligation (in trillions)	$4.3	-$1.9	$12.5	$4.6	$7.9	$1.8	$10.0	$0.4	
First year cost exceeds tax income.	2017	2021	2014	2016	2014	2019	2013	2021	
First year assets become exhausted[1].	2041	2/	2031	2041	2035	2052	2033	2070	
Annual cost in 75th year (percent of taxable pay-roll)	17.50	12.62	24.81	17.85	14.60	22.11	13.13	24.84	
Annual cost in 75th year (percent of GDP).	5.82	4.55	7.60	5.92	4.77	7.41	4.27	8.37	

[1] For some stochastic simulations, the first year in which trust fund assets become exhausted does not indicate a permanent exhaustion of assets.

[2] The fund is not estimated to be exhausted within the projection period.

F. ESTIMATES FOR OASDI AND HI, SEPARATE AND COMBINED

In this appendix, long-range actuarial estimates for the OASDI and Hospital Insurance (HI) programs are presented separately and on a combined basis. These estimates facilitate analysis of the adequacy of the income and assets of these programs relative to their cost under current law. Estimates for the Supplementary Medical Insurance (SMI) program are not included in this appendix because adequate financing is guaranteed in the law, and because the SMI program is not financed through a payroll tax.

The emphasis in this appendix on combined operations, while significant, should not obscure the analysis of the financial status of the individual trust funds, which are legally separate and cannot be commingled. In addition, the factors which determine the costs of the OASI, DI, and HI programs differ substantially.

1. Estimates as a Percentage of Taxable Payroll

Comparing and combining cost and income rates for the OASDI and HI programs as percentages of taxable payroll require a note of caution. The taxable payrolls for the HI program are larger than those estimated for the OASDI program because (1) a larger maximum taxable amount was established for the HI program in 1991, with the maximum being eliminated altogether for the HI program in 1994, (2) a larger proportion of Federal, State, and local government employees have their wages covered under the HI program, and (3) the earnings of railroad workers are included directly in the HI taxable payroll but not in the OASDI taxable payroll (railroad contributions for the equivalent of OASDI benefits are accounted for in a net interchange that occurs annually between the OASDI and Railroad Retirement programs). As a result, the HI taxable payroll is about 25 percent larger than the OASDI taxable payroll throughout the long-range period. Nonetheless, combined OASDI and HI rates shown in this section are computed by adding the separately derived rates for the programs. The resulting combined rates may be interpreted as those applicable to the taxable payroll in the amount of the OASDI payroll, with the separate HI rates being additionally applicable to the excess of the HI payroll over the OASDI payroll.

As with the OASI and DI Trust Funds, income to the HI Trust Fund comes primarily from contributions paid by employees, employers, and self-employed persons. The combined OASDI and HI contribution rate for employees and their employers is often referred to as the FICA tax, because it is authorized by the Federal Insurance Contributions Act. Contribution rates for the OASDI and HI programs are shown in table VI.F1.

Table VI.F1.—Contribution Rates for the OASDI and HI Programs
[In percent]

Calendar years	Employees and employers, each			Self employed		
	OASDI	HI	Combined	OASDI	HI	Combined
1966	3.85	0.35	4.20	5.80	0.35	6.15
1967	3.90	.50	4.40	5.90	.50	6.40
1968	3.80	.60	4.40	5.80	.60	6.40
1969-70	4.20	.60	4.80	6.30	.60	6.90
1971-72	4.60	.60	5.20	6.90	.60	7.50
1973	4.85	1.00	5.85	7.00	1.00	8.00
1974-77	4.95	.90	5.85	7.00	.90	7.90
1978	5.05	1.00	6.05	7.10	1.00	8.10
1979-80	5.08	1.05	6.13	7.05	1.05	8.10
1981	5.35	1.30	6.65	8.00	1.30	9.30
1982-83	5.40	1.30	6.70	8.05	1.30	9.35
1984[1]	5.70	1.30	7.00	11.40	2.60	14.00
1985	5.70	1.35	7.05	11.40	2.70	14.10
1986-87	5.70	1.45	7.15	11.40	2.90	14.30
1988-89	6.06	1.45	7.51	12.12	2.90	15.02
1990 and later.	6.20	1.45	7.65	12.40	2.90	15.30

[1] See footnote 1 under table VI.A1 in the appendix titled "History of OASI and DI Trust Fund Operations" for a description of tax credits allowed against the combined OASDI and HI taxes on net earnings from self-employment in 1984-89.

Table VI.F2 shows estimated annual income rates and cost rates for the OASDI program, the HI program, and the combined OASDI and HI programs, based on the low cost, intermediate, and high cost sets of assumptions (alternatives I, II, and III) described earlier in this report. These annual rates are intended to indicate the cash-flow operation of the programs. Therefore, income rates exclude interest earned on trust fund assets. Table VI.F2 also shows the differences between income rates and cost rates, called balances. Estimates shown for the combined trust funds are theoretical because no authority currently exists for borrowing by or transfers among these trust funds.

Under all three sets of assumptions, the combined OASDI and HI cost rate is projected to rise above current levels, with the sharpest increase occurring during the period 2010-30. Under the high cost set of assumptions, annual deficits are projected to occur beginning in 2012, and to continue for the remainder of the 75-year projection period. The cost rate is projected to rise to over three times its current level by the end of the projection period. Under the intermediate assumptions, annual deficits begin in 2015, with the cost rate doubling by the end of the projection period. Under the low cost assumptions, the cost rate is projected to increase by about 27 percent by the end of the period, with annual deficits beginning in 2021.

**Table VI.F2.—Estimated OASDI and HI Annual Income Rates, Cost Rates,
and Balances, Calendar Years 2008-85**

[As a percentage of taxable payroll[1]]

Calendar year	OASDI Income rate	Cost rate	Balance	HI Income rate	Cost rate	Balance	Combined Income rate	Cost rate	Balance
Intermediate:									
2008	12.77	11.20	1.57	3.10	3.24	-0.14	15.86	14.44	1.43
2009	12.81	11.26	1.54	3.12	3.30	-.18	15.93	14.56	1.37
2010	12.82	11.37	1.46	3.13	3.34	-.21	15.96	14.71	1.25
2011	12.84	11.53	1.31	3.13	3.38	-.25	15.97	14.91	1.06
2012	12.87	11.76	1.11	3.15	3.45	-.30	16.02	15.21	.81
2013	12.90	12.03	.87	3.17	3.53	-.36	16.07	15.56	.51
2014	12.92	12.32	.60	3.18	3.61	-.44	16.09	15.93	.16
2015	12.94	12.62	.32	3.19	3.70	-.51	16.13	16.32	-.19
2016	12.96	12.92	.04	3.20	3.79	-.59	16.17	16.72	-.55
2017	12.99	13.24	-.25	3.22	3.90	-.68	16.20	17.14	-.93
2020	13.04	14.14	-1.09	3.25	4.24	-1.00	16.29	18.38	-2.09
2025	13.13	15.43	-2.30	3.29	4.97	-1.68	16.41	20.40	-3.99
2030	13.19	16.41	-3.21	3.32	5.81	-2.49	16.51	22.22	-5.70
2035	13.23	16.84	-3.61	3.34	6.64	-3.30	16.57	23.48	-6.92
2040	13.23	16.81	-3.58	3.34	7.35	-4.01	16.58	24.16	-7.59
2045	13.23	16.62	-3.39	3.34	7.90	-4.56	16.57	24.52	-7.95
2050	13.23	16.52	-3.29	3.34	8.36	-5.02	16.57	24.88	-8.31
2055	13.23	16.57	-3.33	3.34	8.79	-5.45	16.58	25.36	-8.78
2060	13.24	16.69	-3.44	3.35	9.28	-5.93	16.59	25.97	-9.37
2065	13.25	16.82	-3.57	3.35	9.79	-6.44	16.61	26.61	-10.00
2070	13.26	16.99	-3.72	3.36	10.32	-6.95	16.63	27.30	-10.68
2075	13.28	17.18	-3.91	3.37	10.80	-7.43	16.64	27.98	-11.34
2080	13.29	17.41	-4.12	3.37	11.24	-7.87	16.66	28.64	-11.98
2085	13.30	17.63	-4.33	3.38	11.56	-8.18	16.68	29.20	-12.51
Low Cost:									
2008	12.76	11.08	1.69	3.09	3.11	-.02	15.86	14.19	1.67
2009	12.80	11.05	1.75	3.12	3.11	[2]	15.92	14.16	1.76
2010	12.81	11.05	1.77	3.13	3.10	.03	15.94	14.14	1.80
2011	12.83	11.08	1.75	3.13	3.07	.05	15.95	14.15	1.80
2012	12.85	11.18	1.67	3.14	3.08	.06	15.99	14.26	1.73
2013	12.88	11.34	1.54	3.16	3.09	.07	16.03	14.43	1.61
2014	12.89	11.52	1.36	3.16	3.10	.07	16.05	14.62	1.43
2015	12.90	11.73	1.18	3.18	3.11	.06	16.08	14.84	1.24
2016	12.92	11.94	.98	3.19	3.13	.06	16.11	15.07	1.04
2017	12.94	12.16	.78	3.20	3.15	.05	16.14	15.31	.83
2020	12.99	12.86	.14	3.22	3.23	-.01	16.21	16.09	.12
2025	13.06	13.85	-.80	3.25	3.44	-.19	16.31	17.29	-.98
2030	13.11	14.52	-1.42	3.28	3.65	-.37	16.38	18.17	-1.79
2035	13.12	14.65	-1.53	3.29	3.79	-.50	16.41	18.44	-2.03
2040	13.11	14.34	-1.22	3.28	3.87	-.58	16.40	18.20	-1.80
2045	13.10	13.88	-.78	3.27	3.92	-.64	16.37	17.79	-1.42
2050	13.08	13.52	-.44	3.27	3.99	-.72	16.35	17.51	-1.16
2055	13.07	13.29	-.22	3.26	4.13	-.86	16.33	17.42	-1.08
2060	13.07	13.13	-.06	3.26	4.35	-1.09	16.33	17.48	-1.15
2065	13.06	12.95	.11	3.26	4.59	-1.33	16.32	17.54	-1.22
2070	13.05	12.78	.28	3.25	4.83	-1.58	16.31	17.61	-1.31
2075	13.05	12.64	.40	3.25	5.06	-1.81	16.30	17.71	-1.41
2080	13.05	12.61	.44	3.25	5.27	-2.02	16.29	17.88	-1.58
2085	13.05	12.66	.39	3.25	5.42	-2.17	16.30	18.08	-1.78

**Table VI.F2.—Estimated OASDI and HI Annual Income Rates, Cost Rates,
and Balances, Calendar Years 2008-85 (Cont.)**

[As a percentage of taxable payroll [1]]

Calendar year	OASDI			HI			Combined		
	Income rate	Cost rate	Balance	Income rate	Cost rate	Balance	Income rate	Cost rate	Balance
High Cost:									
2008	12.78	11.51	1.27	3.10	3.41	-0.31	15.88	14.92	0.96
2009	12.82	11.70	1.13	3.13	3.53	-.40	15.95	15.22	.73
2010	12.84	11.86	.98	3.14	3.63	-.49	15.98	15.49	.49
2011	12.86	12.16	.70	3.14	3.77	-.63	16.01	15.93	.07
2012	12.89	12.47	.42	3.16	3.92	-.76	16.06	16.39	-.33
2013	12.93	12.83	.10	3.18	4.05	-.88	16.11	16.89	-.78
2014	12.96	13.29	-.33	3.19	4.24	-1.04	16.15	17.52	-1.38
2015	12.98	13.74	-.75	3.21	4.43	-1.22	16.19	18.17	-1.97
2016	13.01	14.16	-1.14	3.23	4.63	-1.41	16.24	18.79	-2.55
2017	13.04	14.59	-1.55	3.24	4.85	-1.61	16.28	19.44	-3.16
2020	13.11	15.68	-2.57	3.28	5.59	-2.32	16.39	21.27	-4.89
2025	13.21	17.26	-4.05	3.32	7.21	-3.89	16.54	24.47	-7.94
2030	13.29	18.53	-5.24	3.37	9.29	-5.92	16.66	27.82	-11.16
2035	13.35	19.34	-5.99	3.40	11.69	-8.29	16.74	31.03	-14.28
2040	13.38	19.71	-6.34	3.41	14.00	-10.59	16.79	33.71	-16.92
2045	13.39	19.93	-6.53	3.42	15.96	-12.54	16.81	35.88	-19.07
2050	13.41	20.26	-6.84	3.43	17.54	-14.11	16.85	37.80	-20.95
2055	13.44	20.76	-7.32	3.45	18.77	-15.32	16.89	39.52	-22.63
2060	13.48	21.38	-7.90	3.47	19.82	-16.35	16.95	41.19	-24.25
2065	13.52	22.07	-8.55	3.49	20.91	-17.42	17.01	42.98	-25.98
2070	13.56	22.88	-9.31	3.51	22.03	-18.52	17.08	44.91	-27.83
2075	13.61	23.71	-10.10	3.54	23.07	-19.53	17.15	46.78	-29.64
2080	13.66	24.51	-10.86	3.56	24.01	-20.45	17.22	48.52	-31.30
2085	13.69	25.19	-11.50	3.58	24.70	-21.12	17.27	49.89	-32.62

[1] The taxable payroll for HI is significantly larger than the taxable payroll for OASDI because the HI taxable maximum amount was eliminated beginning in 1994, and because HI covers all Federal civilian employees, including those hired before 1984, all State and local government employees hired after April 1, 1986, and railroad employees. Combined OASDI and HI rates are computed as the sum of the separately derived rates for each program.

[2] Between -0.005 and 0.005 percent of taxable payroll.

Notes:

1. The income rate excludes interest income and certain transfers from the General Fund of the Treasury.

2. Totals do not necessarily equal the sums of rounded components.

In table VI.F3 values are summarized over the 25-year, 50-year, and 75-year valuation periods (for which beginning fund balances are included in the summarized income rates, and the cost of accumulating an ending fund balance equal to 100 percent of annual cost by the end of the period is included in the summarized cost rates). Estimates shown for the combined trust funds are theoretical because no authority currently exists for borrowing by or transfers among these trust funds.

175

Table VI.F3.—Summarized OASDI and HI Income Rates and Cost Rates for Valuation Periods,[1] Calendar Years 2008-82

[As a percentage of taxable payroll[2]]

Valuation period	OASDI			HI			Combined		
	Income rate	Cost rate	Actuarial balance	Income rate	Cost rate	Actuarial balance	Income rate	Cost rate	Actuarial balance
Intermediate:									
25-years:									
2008-32.	14.81	14.43	0.38	3.43	4.57	-1.15	18.24	19.00	-0.77
50-years:									
2008-57.	14.14	15.28	-1.14	3.39	5.92	-2.53	17.53	21.20	-3.67
75-years:									
2008-82.	13.94	15.63	-1.70	3.38	6.92	-3.54	17.32	22.55	-5.24
Low Cost:									
25-years:									
2008-32.	14.76	13.19	1.57	3.41	3.41	-.01	18.17	16.60	1.56
50-years:									
2008-57.	14.06	13.42	.64	3.35	3.62	-.27	17.41	17.04	.37
75-years:									
2008-82.	13.82	13.24	.57	3.33	3.90	-.57	17.15	17.14	3/
High Cost:									
25-years:									
2008-32.	14.87	15.93	-1.07	3.45	6.32	-2.87	18.32	22.25	-3.94
50-years:									
2008-57.	14.23	17.58	-3.35	3.44	10.30	-6.86	17.67	27.88	-10.21
75-years:									
2008-82.	14.07	18.73	-4.66	3.45	12.96	-9.50	17.52	31.69	-14.16

[1] Income rates include beginning trust fund balances and cost rates include the cost of reaching an ending fund target equal to 100 percent of annual cost by the end of the period.

[2] The taxable payroll for HI is significantly larger than the taxable payroll for OASDI because the HI taxable maximum amount was eliminated beginning 1994, and because HI covers all Federal civilian employees, including those hired before 1984, all State and local government employees hired after April 1, 1986, and railroad employees. Combined OASDI and HI rates are computed as the sum of the separately derived rates for each program.

[3] Between -0.005 and 0.005 percent of taxable payroll.

Note: Totals do not necessarily equal the sums of rounded components.

Under the high cost assumptions, the combined OASDI and HI system is projected to experience large actuarial deficits for the 25-year, 50-year, and 75-year valuation periods. Under the intermediate assumptions, actuarial deficits smaller than those for the high cost assumptions are projected for all three valuation periods. Under the low cost assumptions, the combined OASDI and HI system is projected to have positive actuarial balances for the 25-year and the 50-year valuation periods, and a very small positive actuarial balance for the 75-year valuation period.

2. Estimates as a Percentage of Gross Domestic Product

This section presents long-range projections of the operations of the combined Old-Age and Survivors Insurance and Disability Insurance (OASI and DI) Trust Funds and of the Hospital Insurance (HI) Trust Fund expressed as a percentage of gross domestic product (GDP). While expressing these fund operations as a percentage of taxable payroll is the most useful approach for assessing the financial status of the programs (see table IV.B1 and section IV.B.1), analyzing them as a percentage of GDP provides an additional perspective on these fund operations in relation to the total value of goods and services produced in the United States.

Table VI.F4 shows estimated income excluding interest, total cost, and the resulting balance of the combined OASI and DI Trust Funds, of the HI Trust Fund, and of the combined OASI, DI, and HI Trust Funds, expressed as percentages of GDP on the basis of each of the three alternative sets of assumptions. The estimated GDP on which these percentages are based is also shown in table VI.F4. For OASDI, income excluding interest consists of payroll-tax contributions, proceeds from taxation of benefits, and various reimbursements from the General Fund of the Treasury. Total cost consists of benefit payments, administrative expenses, net transfers from the trust funds to the Railroad Retirement program, and payments for vocational rehabilitation services for disabled beneficiaries. For HI, income excluding interest consists of payroll-tax contributions (including contributions from railroad employment) and proceeds from taxation of OASDI benefits. Total cost consists of outlays (benefits and administrative expenses) for insured beneficiaries. Both the HI income and cost are on an incurred basis.

The OASDI annual balance (income excluding interest, less cost) as a percentage of GDP is projected to be positive on the basis of the low cost assumptions until 2021. After 2020, deficits increase to a peak in 2033 and decrease thereafter. By 2063, the OASDI balance becomes positive, reaching 0.14 percent of GDP in 2082. The OASDI balance is projected to be positive through 2016 on the basis of the intermediate assumptions and through 2013 on the basis of the high cost assumptions, at which time balances become permanently negative, with increasing deficits thereafter. The HI balance is projected to be negative in the first projection year under all three sets of assumptions, with deficits increasing steadily thereafter under the intermediate and high cost assumptions. The projected HI balance as a percentage of GDP is positive from 2009 through 2019 on the basis of the low cost assumptions. The combined OASDI and HI balance as a percentage of GDP is projected to be positive through 2020 under the low cost assumptions, through 2014 under the intermediate assumptions, and through 2010 under the high cost assumptions. Between 2010 and about 2035, under all three sets

of assumptions, both the OASDI and HI balances as percentages of GDP are projected to decline (or deficits increase) substantially because the baby-boom generation reaches retirement eligibility age during these years. After balances cease to be positive under the intermediate and high cost assumptions, the annual deficits increase fairly steadily for the combined OASDI and HI programs.

By 2080, the combined OASDI and HI balances as percentages of GDP, are projected to range from a deficit of 0.76 percent for the low cost assumptions to a deficit of 11.39 percent for the high cost assumptions. Projected balances differ by a much smaller amount for the tenth year, 2017, ranging from a positive balance of 0.31 percent for the low cost assumptions to a deficit of 1.34 percent for the high cost assumptions.

The summarized long-range (75-year) balance as a percentage of GDP for the combined OASDI and HI programs varies among the three alternatives, by a relatively large amount (from a deficit of 0.05 percent, based on the low cost assumptions, to a deficit of 5.80 percent, based on the high cost assumptions). The 25-year summarized balance varies by a smaller amount (from a positive balance of 0.60 percent to a deficit of 1.73 percent). Summarized rates are calculated on the present-value basis including the trust fund balances on January 1, 2008, and the cost of reaching a target trust fund level equal to 100 percent of the following year's annual cost at the end of the period. (See section IV.B.4 for further explanation.)

Table VI.F4.—OASDI and HI Annual and Summarized Income, Cost, and Balance as a Percentage of GDP, Calendar Years 2008-85

Calendar year	OASDI Income[1]	OASDI Cost	OASDI Balance	HI Income[1]	HI Cost	HI Balance	Combined Income[1]	Combined Cost	Combined Balance	GDP in dollars (billions)
Intermediate:										
2008	4.86	4.32	0.55	1.49	1.56	-0.07	6.35	5.87	0.48	$14,445
2009	4.93	4.35	.57	1.51	1.59	-.08	6.43	5.94	.49	15,163
2010	4.94	4.39	.55	1.51	1.61	-.10	6.45	6.00	.45	15,944
2011	4.94	4.44	.49	1.51	1.63	-.12	6.45	6.07	.38	16,733
2012	4.94	4.52	.42	1.51	1.66	-.15	6.45	6.18	.27	17,554
2013	4.93	4.61	.32	1.52	1.69	-.17	6.45	6.30	.15	18,418
2014	4.92	4.70	.22	1.52	1.73	-.21	6.44	6.43	.01	19,313
2015	4.91	4.80	.11	1.52	1.77	-.24	6.44	6.57	-.13	20,227
2016	4.91	4.90	2/	1.52	1.80	-.28	6.43	6.71	-.28	21,189
2017	4.90	5.01	-.11	1.53	1.85	-.32	6.42	6.85	-.43	22,192
2020	4.88	5.30	-.42	1.53	2.00	-.47	6.41	7.30	-.89	25,440
2025	4.85	5.71	-.86	1.53	2.31	-.78	6.37	8.02	-1.65	31,826
2030	4.81	6.00	-1.19	1.52	2.67	-1.14	6.34	8.66	-2.33	39,773
2035	4.77	6.09	-1.32	1.52	3.02	-1.50	6.29	9.10	-2.82	49,839
2040	4.73	6.02	-1.29	1.50	3.30	-1.80	6.23	9.32	-3.09	62,511
2045	4.68	5.89	-1.21	1.49	3.52	-2.03	6.17	9.42	-3.25	78,425
2050	4.64	5.81	-1.17	1.48	3.69	-2.22	6.12	9.50	-3.39	98,187
2055	4.60	5.77	-1.17	1.47	3.85	-2.39	6.07	9.63	-3.56	122,786
2060	4.57	5.77	-1.20	1.46	4.03	-2.58	6.02	9.80	-3.78	153,485
2065	4.53	5.76	-1.23	1.45	4.22	-2.78	5.98	9.99	-4.01	191,872
2070	4.50	5.77	-1.27	1.44	4.41	-2.97	5.93	10.18	-4.25	239,750
2075	4.46	5.79	-1.33	1.43	4.58	-3.15	5.89	10.37	-4.48	299,416
2080	4.43	5.81	-1.38	1.42	4.73	-3.31	5.85	10.54	-4.69	373,590
2085	4.40	5.84	-1.44	1.35	4.62	-3.27	5.75	10.47	-4.72	465,848
Summarized rates: [3]										
25-year:										
2008-32 . . .	5.57	5.43	.14	1.62	2.15	-.54	7.19	7.58	-.40	
50-year:										
2008-57 . . .	5.19	5.61	-.42	1.56	2.73	-1.16	6.75	8.34	-1.58	
75-year										
2008-82 . . .	5.02	5.63	-.61	1.53	3.13	-1.60	6.55	8.76	-2.21	
Low Cost:										
2008	4.86	4.26	.59	1.49	1.50	-.01	6.35	5.76	.58	14,572
2009	4.94	4.27	.67	1.50	1.50	2/	6.45	5.77	.67	15,317
2010	4.95	4.28	.67	1.51	1.49	.02	6.46	5.77	.69	16,071
2011	4.95	4.29	.67	1.51	1.48	.03	6.46	5.77	.69	16,829
2012	4.96	4.32	.64	1.51	1.48	.03	6.47	5.80	.67	17,599
2013	4.96	4.38	.58	1.52	1.48	.03	6.48	5.86	.62	18,373
2014	4.96	4.44	.51	1.52	1.48	.03	6.47	5.92	.55	19,163
2015	4.95	4.51	.44	1.52	1.49	.03	6.47	6.00	.47	19,963
2016	4.95	4.59	.37	1.52	1.49	.03	6.47	6.08	.39	20,785
2017	4.95	4.66	.29	1.52	1.50	.02	6.47	6.16	.31	21,667
2020	4.93	4.89	.04	1.52	1.53	-.01	6.46	6.42	.04	24,493
2025	4.91	5.22	-.31	1.52	1.61	-.09	6.43	6.83	-.40	29,914
2030	4.89	5.43	-.54	1.52	1.69	-.17	6.41	7.12	-.71	36,505
2035	4.86	5.43	-.58	1.52	1.75	-.23	6.37	7.18	-.81	44,741
2040	4.83	5.29	-.46	1.51	1.77	-.27	6.33	7.06	-.73	55,078
2045	4.80	5.10	-.30	1.50	1.79	-.29	6.30	6.89	-.59	67,997
2050	4.78	4.95	-.17	1.49	1.82	-.33	6.27	6.77	-.50	83,954
2055	4.76	4.85	-.09	1.48	1.87	-.39	6.25	6.73	-.48	103,714
2060	4.75	4.78	-.03	1.48	1.97	-.49	6.23	6.75	-.53	128,194
2065	4.74	4.71	.03	1.47	2.07	-.60	6.21	6.78	-.57	158,705
2070	4.72	4.63	.09	1.47	2.18	-.71	6.19	6.81	-.62	196,692
2075	4.71	4.57	.14	1.46	2.28	-.82	6.17	6.85	-.68	243,869
2080	4.70	4.55	.15	1.46	2.36	-.91	6.16	6.91	-.76	302,126
2085	4.69	4.56	.13	1.40	2.33	-.93	6.08	6.88	-.80	373,893

179

**Table VI.F4.—OASDI and HI Annual and Summarized Income, Cost, and Balance
as a Percentage of GDP, Calendar Years 2008-85 (Cont.)**

	Percentage of GDP									GDP in dollars (billions)
	OASDI			HI			Combined			
Calendar year	Income[1]	Cost	Balance	Income[1]	Cost	Balance	Income[1]	Cost	Balance	
Low Cost (cont.):										
Summarized rates: [3]										
25-year:										
2008-32 . . .	5.62	5.03	0.60	1.62	1.62	[2]	7.24	6.65	0.60	
50-year:										
2008-57 . . .	5.28	5.04	.24	1.57	1.69	-0.12	6.85	6.73	.12	
75-year										
2008-82 . . .	5.14	4.93	.21	1.54	1.80	-.26	6.68	6.73	-.05	
High Cost:										
2008	4.89	4.45	.44	1.49	1.64	-.15	6.38	6.09	.29	$14,045
2009	4.89	4.52	.37	1.51	1.70	-.19	6.39	6.22	.18	14,798
2010	4.92	4.56	.36	1.51	1.75	-.24	6.43	6.30	.13	15,653
2011	4.93	4.67	.26	1.51	1.81	-.30	6.44	6.48	-.04	16,316
2012	4.90	4.75	.15	1.51	1.87	-.36	6.41	6.62	-.22	17,450
2013	4.84	4.82	.02	1.52	1.93	-.42	6.36	6.75	-.39	18,976
2014	4.83	4.97	-.14	1.52	2.01	-.50	6.35	6.98	-.63	20,196
2015	4.84	5.14	-.30	1.52	2.10	-.58	6.36	7.24	-.88	21,251
2016	4.84	5.28	-.44	1.52	2.19	-.66	6.36	7.47	-1.10	22,345
2017	4.83	5.42	-.59	1.52	2.28	-.76	6.36	7.70	-1.34	23,498
2020	4.81	5.76	-.96	1.53	2.60	-1.08	6.33	8.37	-2.04	27,318
2025	4.77	6.24	-1.48	1.52	3.31	-1.78	6.29	9.55	-3.26	35,047
2030	4.72	6.60	-1.88	1.52	4.19	-2.67	6.24	10.79	-4.55	44,915
2035	4.67	6.78	-2.11	1.51	5.20	-3.69	6.18	11.98	-5.80	57,546
2040	4.61	6.81	-2.20	1.50	6.14	-4.65	6.11	12.96	-6.85	73,555
2045	4.55	6.79	-2.24	1.48	6.91	-5.43	6.04	13.70	-7.66	93,725
2050	4.50	6.81	-2.31	1.47	7.49	-6.02	5.96	14.30	-8.34	118,830
2055	4.44	6.88	-2.43	1.45	7.91	-6.45	5.90	14.79	-8.89	150,199
2060	4.39	6.98	-2.59	1.44	8.23	-6.79	5.83	15.22	-9.38	189,431
2065	4.34	7.11	-2.76	1.43	8.57	-7.14	5.77	15.68	-9.90	238,530
2070	4.29	7.26	-2.97	1.42	8.90	-7.48	5.71	16.16	-10.45	299,564
2075	4.25	7.42	-3.17	1.41	9.19	-7.78	5.66	16.61	-10.95	375,759
2080	4.20	7.55	-3.35	1.40	9.43	-8.03	5.60	16.98	-11.39	470,518
2085	4.15	7.65	-3.50	1.33	9.17	-7.85	5.48	16.83	-11.35	589,051
Summarized rates: [3]										
25-year:										
2008-32 . . .	5.49	5.88	-.39	1.61	2.95	-1.34	7.10	8.83	-1.73	
50-year:										
2008-57 . . .	5.08	6.27	-1.19	1.55	4.65	-3.10	6.63	10.92	-4.29	
75-year										
2008-82 . . .	4.88	6.50	-1.62	1.52	5.70	-4.18	6.40	12.20	-5.80	

[1] Income for individual years excludes interest on the trust funds. Interest is implicitly reflected in all summarized values.

[2] Between -0.005 and 0.005 percent of GDP.

[3] Summarized rates are calculated on the present-value basis including the value of the trust funds on January 1, 2008, and the cost of reaching a target trust fund level equal to 100 percent of annual cost at the end of the period.

Note: Totals do not necessarily equal the sums of rounded components.

The difference between trust fund operations expressed as percentages of taxable payroll and those expressed as percentages of GDP can be understood by analyzing the estimated ratios of OASDI taxable payroll to GDP, which are presented in table VI.F5. HI taxable payroll is about 25 percent larger than the OASDI taxable payroll throughout the long-range period (see

Appendix VI.F.1 for a detailed description of the difference). The cost as a percentage of GDP is equal to the cost as a percentage of taxable payroll multiplied by the ratio of taxable payroll to GDP.

Table VI.F5.—Ratio of OASDI Taxable Payroll to GDP, Calendar Years 2008-85

Calendar year	Intermediate	Low Cost	High Cost
2008	0.385	0.385	0.387
2009	.386	.387	.387
2010	.386	.387	.384
2011	.385	.387	.384
2012	.384	.387	.381
2013	.383	.386	.375
2014	.382	.385	.374
2015	.381	.385	.374
2016	.379	.384	.373
2017	.378	.383	.371
2020	.375	.381	.368
2025	.370	.377	.362
2030	.366	.374	.356
2035	.362	.371	.351
2040	.358	.369	.346
2045	.355	.367	.341
2050	.352	.366	.336
2055	.349	.365	.331
2060	.346	.364	.327
2065	.343	.363	.322
2070	.340	.363	.317
2075	.337	.362	.313
2080	.334	.361	.308
2085	.331	.360	.304

Projections of GDP are based on the projected increases in U.S. employment, labor productivity, average hours worked, and the GDP implicit price deflator. Projections of taxable payroll reflect the projected growth in GDP, along with assumed changes in the ratio of worker compensation to GDP, the ratio of earnings to worker compensation, the ratio of OASDI covered earnings to total earnings, and the ratio of taxable to total covered earnings.

Over the long-range period, projected growth in taxable payroll differs from projected growth in GDP primarily due to the assumed trend in the ratio of wages to total employee compensation—i.e., wages plus fringe benefits. The ratio of earnings to total worker compensation declined at an average annual rate of 0.25 percent for the 40 years from 1966 to 2006. For the 10-year periods 1966-76, 1976-86, 1986-96, and 1996-2006, the average annual rates of change were -0.57, -0.30, 0.04 and -0.15 percent, respectively. Ultimate future annual rates of decline in the ratio of wages to employee compensation are assumed to be 0.1, 0.2, and 0.3 percent for the low cost, intermediate, and high cost assumptions, respectively. An additional factor that has made the overall ratio of taxable payroll to GDP decline in recent years is the decline in the ratio of taxable wages to covered wages, as a result of the relatively greater increases in wages for persons earning above the contribution and benefit base. This decline in the taxable ratio is assumed to continue at a slower pace through 2017, with no further decline thereafter.

3. Estimates in Dollars

This section presents long-range projections in dollars of the operations of the combined OASI and DI Trust Funds and in some cases the HI Trust Fund. Meaningful comparison of current dollar values over long periods of time can be difficult because of the effect of inflation. Some means of removing inflation is thus generally desirable. Several economic series or indices are provided to allow current dollars to be adjusted for changes in prices, wages, and certain other aspects of economic growth during the projection period.

The selection of a particular index for adjustment of current dollars depends upon the analyst's decision as to which index provides the most useful standard for adjusting dollar amounts, over time, to create values that are appropriately comparable. Table VI.F6 presents five such indices for adjustment. Adjustment of any series of values is accomplished by dividing the value for each year by the corresponding index values for the year. This adjustment removes the inflation in the index from the series of values.

One of the most common forms of standardization is based on some measure of change in the prices of consumer goods. One such price index is the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W, hereafter referred to as CPI), which is published by the Bureau of Labor Statistics, Department of Labor. This is the index used to determine annual increases in OASDI monthly benefits payable after the year of initial eligibility. The CPI is assumed to increase ultimately at annual rates of 1.8, 2.8, and 3.8 percent for the low cost, intermediate, and high cost sets of assumptions, respectively. Constant-dollar values (those calculated by dividing by the adjusted CPI in table VI.F6) indicate the relative purchasing power of the values over time. Constant-dollar values are provided in table VI.F7.

Another type of standardization combines the effects of price inflation and real-wage growth. The wage index presented here is the national average wage index, as defined in section 215(i)(1)(G) of the Social Security Act. This index is used to make annual adjustments to many earnings-related quantities embodied in the Social Security Act, such as the contribution and benefit base. The average annual wage is assumed to increase ultimately by 3.4, 3.9, and 4.4 percent under the low cost, intermediate, and high cost assumptions, respectively. Wage-indexed values indicate the level of a series relative to the standard-of-living of workers over time.

The taxable payroll index adjusts for the effects of changes in the number of workers and changes in the proportion of earnings that are taxable, as well as

for the effects of price inflation and real-wage growth. The OASDI taxable payroll consists of all earnings subject to OASDI taxation, adjusted for the lower effective tax rate on multiple-employer excess wages. Values adjusted by dividing by the taxable payroll indicate the percentage of payroll that each value represents, and thus the extent to which the series of values increases or decreases as a percent of payroll over time.

The GDP index adjusts for the growth in the aggregate amount of goods and services produced in the United States. Values adjusted by GDP (see Appendix VI.F.2) indicate their relative share of the total output of the economy. No explicit assumptions are made about growth in taxable payroll or GDP. These series are computed reflecting the other more basic demographic and economic assumptions, as discussed in sections V.A and V.B, respectively.

Discounting at the rate of interest is another way of adjusting current dollars. The series of interest-rate factors included here is based on the average of the assumed annual interest rates for special public-debt obligations issuable to the trust funds for each year. This series is slightly different from the interest rates used to create summarized values elsewhere in this report, where the actual yield on currently-held trust fund assets is used for each year. Ultimate nominal interest rates, which, in practice, are compounded semiannually, are assumed to be approximately 5.4, 5.7, and 5.9 percent for the low cost, intermediate, and high cost assumptions, respectively.

Appendices

Table VI.F6.—Selected Economic Variables, Calendar Years 2007-85
[GDP and taxable payroll in billions]

Calendar year	Adjusted CPI[1]	Average wage index[2]	Taxable payroll[3]	Gross domestic product	Compound interest-rate factor[4]
Intermediate:					
2007	97.27	$40,307.02	$5,280	$13,841	0.9578
2008	100.00	41,953.05	5,567	14,445	1.0000
2009	102.50	43,679.27	5,859	15,163	1.0514
2010	105.35	45,434.85	6,155	15,944	1.1107
2011	108.30	47,226.12	6,449	16,733	1.1751
2012	111.33	49,089.78	6,746	17,554	1.2436
2013	114.45	51,050.68	7,055	18,418	1.3162
2014	117.65	53,053.07	7,373	19,313	1.3929
2015	120.95	55,091.11	7,701	20,227	1.4742
2016	124.33	57,198.35	8,039	21,189	1.5602
2017	127.81	59,376.44	8,390	22,192	1.6505
2020	138.85	66,519.41	9,539	25,440	1.9536
2025	159.41	80,374.08	11,777	31,826	2.5875
2030	183.02	97,201.39	14,539	39,773	3.4271
2035	210.11	117,744.99	18,017	49,839	4.5391
2040	241.22	142,731.42	22,373	62,511	6.0119
2045	276.94	173,040.96	27,812	78,425	7.9625
2050	317.94	209,684.21	34,514	98,187	10.5462
2055	365.02	253,940.95	42,793	122,786	13.9681
2060	419.06	307,496.83	53,039	153,485	18.5003
2065	481.11	372,437.07	65,746	191,872	24.5032
2070	552.35	451,130.41	81,460	239,750	32.4537
2075	634.13	546,425.73	100,875	299,416	42.9840
2080	728.02	661,813.96	124,794	373,590	56.9311
2085	835.81	801,870.10	154,350	465,848	75.4035
Low Cost:					
2007	97.46	40,296.93	5,280	13,844	.9560
2008	100.00	42,140.73	5,610	14,572	1.0000
2009	101.94	43,833.37	5,920	15,317	1.0481
2010	103.77	45,416.45	6,223	16,071	1.1003
2011	105.64	46,995.78	6,515	16,829	1.1583
2012	107.54	48,607.27	6,805	17,599	1.2199
2013	109.48	50,237.06	7,092	18,373	1.2861
2014	111.45	51,888.66	7,384	19,163	1.3561
2015	113.45	53,561.45	7,679	19,963	1.4300
2016	115.50	55,284.42	7,980	20,785	1.5079
2017	117.57	57,114.87	8,298	21,667	1.5900
2020	124.04	63,063.16	9,321	24,493	1.8652
2025	135.61	74,370.57	11,272	29,914	2.4337
2030	148.26	87,706.73	13,637	36,505	3.1754
2035	162.10	103,538.47	16,596	44,741	4.1433
2040	177.22	122,362.74	20,320	55,078	5.4060
2045	193.75	144,699.76	24,985	67,997	7.0537
2050	211.83	171,105.66	30,746	83,954	9.2035
2055	231.59	202,390.60	37,877	103,714	12.0086
2060	253.20	239,459.36	46,699	128,194	15.6686
2065	276.83	283,374.40	57,677	158,705	20.4441
2070	302.65	335,360.13	71,319	196,692	26.6751
2075	330.89	396,877.24	88,220	243,869	34.8051
2080	361.76	469,579.70	109,027	302,126	45.4131
2085	395.51	555,779.76	134,637	373,893	59.2541

Table VI.F6.—Selected Economic Variables, Calendar Years 2007-85 (Cont.)
[GDP and taxable payroll in billions]

Calendar year	Adjusted CPI[1]	Average wage index[2]	Taxable payroll[3]	Gross domestic product	Compound interest-rate factor[4]
High Cost:					
2007	96.64	$40,262.64	$5,280	$13,818	0.9642
2008	100.00	41,159.10	5,436	14,045	1.0000
2009	102.97	43,165.02	5,721	14,798	1.0553
2010	106.06	45,054.20	6,012	15,653	1.1184
2011	110.72	46,635.97	6,266	16,316	1.1873
2012	117.03	49,647.24	6,645	17,450	1.2843
2013	123.53	53,160.38	7,125	18,976	1.3996
2014	129.32	55,984.77	7,557	20,196	1.5024
2015	134.41	58,436.60	7,953	21,251	1.5970
2016	139.52	60,908.74	8,338	22,345	1.6934
2017	144.82	63,499.11	8,725	23,498	1.7943
2020	161.97	72,170.68	10,042	27,318	2.1359
2025	195.17	89,345.44	12,675	35,047	2.8555
2030	235.18	110,813.91	15,991	44,915	3.8177
2035	283.39	137,730.54	20,184	57,546	5.1041
2040	341.49	171,257.01	25,429	73,555	6.8239
2045	411.49	212,850.37	31,949	93,725	9.1232
2050	495.85	264,313.27	39,941	118,830	12.1973
2055	597.50	327,657.55	49,775	150,199	16.3072
2060	719.99	405,911.67	61,884	189,431	21.8020
2065	867.58	502,931.56	76,805	238,530	29.1482
2070	1,045.44	623,153.76	95,060	299,564	38.9697
2075	1,259.75	772,164.34	117,501	375,759	52.1005
2080	1,518.00	956,879.67	144,973	470,518	69.6558
2085	1,829.19	1,186,350.40	178,908	589,051	93.1264

[1] The adjusted CPI is the CPI-W indexed to calendar year 2008.
[2] The average wage index is used to automatically adjust the contribution and benefit base and other wage-indexed program amounts. (See "Average wage index" in the glossary.)
[3] Taxable payroll consists of total earnings subject to OASDI contribution rates, adjusted to reflect the lower effective contribution rates (compared to the combined employee-employer rate) which apply to multiple-employer "excess wages."
[4] The compound interest-rate factor is based on the average of the assumed annual interest rates for special public-debt obligations issuable to the trust funds in the 12 months of the year, under each alternative.

Table VI.F7 shows estimated operations of the combined OASI and DI Trust Funds in constant 2008 dollars (i.e., adjusted by the CPI indexing series as discussed above). Items included in the table are: income excluding interest, interest income, total income, total cost, and assets at the end of the year. Income excluding interest consists of payroll-tax contributions, income from taxation of benefits, and miscellaneous reimbursements from the General Fund of the Treasury. Cost consists of benefit payments, administrative expenses, net transfers from the OASI and DI Trust Funds to the Railroad Retirement program under the financial-interchange provisions, and payments for vocational rehabilitation services for disabled beneficiaries. These estimates are based on the low cost, intermediate, and high cost sets of assumptions.

**Table VI.F7.—Operations of the Combined OASI and DI Trust Funds,
in Constant 2008 Dollars,[1] Calendar Years 2008-85**

[In billions]

Calendar year	Income excluding interest	Interest income	Total income	Cost	Assets at end of year
Intermediate:					
2008	$702.5	$117.1	$819.7	$623.5	$2,434.7
2009	728.9	122.6	851.5	643.9	2,582.8
2010	747.3	130.7	878.0	664.1	2,727.0
2011	763.1	139.5	902.6	686.7	2,868.6
2012	778.5	148.5	926.9	712.7	3,004.8
2013	793.5	157.0	950.5	741.6	3,131.8
2014	807.6	164.9	972.5	772.0	3,247.0
2015	821.8	172.0	993.8	803.3	3,349.1
2016	836.2	178.7	1,014.9	835.6	3,437.1
2017	850.5	185.3	1,035.8	869.1	3,510.1
2020	894.2	198.3	1,092.6	971.1	3,631.8
2025	967.9	195.3	1,163.2	1,140.2	3,466.1
2030	1,045.9	160.6	1,206.5	1,303.4	2,785.9
2035	1,131.8	98.7	1,230.5	1,444.1	1,624.3
2040[2]	1,224.8	15.9	1,240.7	1,559.6	94.3
Low Cost:					
2008	707.7	117.8	825.5	621.5	2,442.5
2009	742.4	124.3	866.7	641.7	2,621.1
2010	766.3	132.2	898.5	662.4	2,810.9
2011	789.4	141.7	931.0	683.3	3,008.9
2012	811.7	152.2	963.8	707.4	3,212.1
2013	832.4	163.2	995.6	734.6	3,416.3
2014	852.0	174.6	1,026.6	763.6	3,618.8
2015	871.4	185.5	1,056.8	793.8	3,817.9
2016	891.0	196.5	1,087.5	825.3	4,012.5
2017	911.6	208.1	1,119.7	858.2	4,203.0
2020	974.2	242.0	1,216.2	966.0	4,734.3
2025	1,083.2	285.5	1,368.7	1,151.6	5,451.2
2030	1,203.1	311.4	1,514.5	1,335.8	5,915.5
2035	1,340.9	328.5	1,669.4	1,500.0	6,228.5
2040	1,500.6	347.4	1,848.0	1,643.7	6,597.3
2045	1,685.1	378.8	2,064.0	1,789.2	7,219.3
2050	1,894.6	427.6	2,322.2	1,962.2	8,173.4
2055	2,133.5	495.3	2,628.8	2,173.7	9,488.5
2060	2,404.9	583.3	2,988.2	2,421.4	11,191.1
2065	2,715.3	696.7	3,412.0	2,697.8	13,389.2
2070	3,069.3	843.0	3,912.3	3,011.2	16,224.6
2075	3,471.0	1,030.0	4,501.0	3,371.1	19,845.3
2080	3,923.3	1,263.4	5,186.6	3,799.8	24,349.6
2085	4,432.6	1,545.3	5,977.9	4,309.0	29,779.5
High Cost:					
2008	686.9	115.3	802.2	625.6	2,415.1
2009	702.6	119.2	821.8	649.8	2,517.4
2010	726.2	126.9	853.1	672.5	2,624.7
2011	726.7	133.1	859.9	688.2	2,685.8
2012	730.1	141.4	871.5	708.2	2,704.4
2013	743.8	155.3	899.1	740.1	2,721.0
2014	754.8	162.2	917.0	776.3	2,739.9
2015	765.8	164.5	930.3	812.7	2,753.8
2016	775.5	165.3	940.8	846.0	2,747.7
2017	783.8	165.0	948.8	879.2	2,716.7
2020	810.9	148.7	959.6	972.3	2,474.0
2025	855.8	96.1	951.9	1,120.8	1,551.3
2030 [2]	901.7	11.6	913.3	1,260.3	5.0

[1] The adjustment from current to constant dollars is by the adjusted CPI indexing series shown in table VI.F6.
[2] Estimates for later years are not shown because the combined OASI and DI Trust Funds are estimated to become exhausted in 2041 under the intermediate assumptions and in 2031 under the high cost assumptions.
Note: Totals do not necessarily equal the sums of rounded components.

Figure VI.F1 provides a comparison of annual cost with total annual income (including interest) and annual income excluding interest, for the OASDI program under intermediate assumptions. All values are expressed in constant dollars, as shown in table VI.F7. The difference between the income values for each year is equal to the trust fund interest earnings. Thus the figure illustrates the fact that, under intermediate assumptions, combined OASDI cost will be payable from (1) current tax income alone through 2016, (2) current tax income plus amounts from the trust funds that are less than annual interest income for years 2017 through 2026, and (3) current tax income plus amounts from the trust funds that are greater than annual interest income for years 2027 through 2040, i.e., through the year preceding the year of trust fund exhaustion.

Figure VI.F1.—Estimated OASDI Income and Cost in Constant Dollars, Based on Intermediate Assumptions
[In billions]
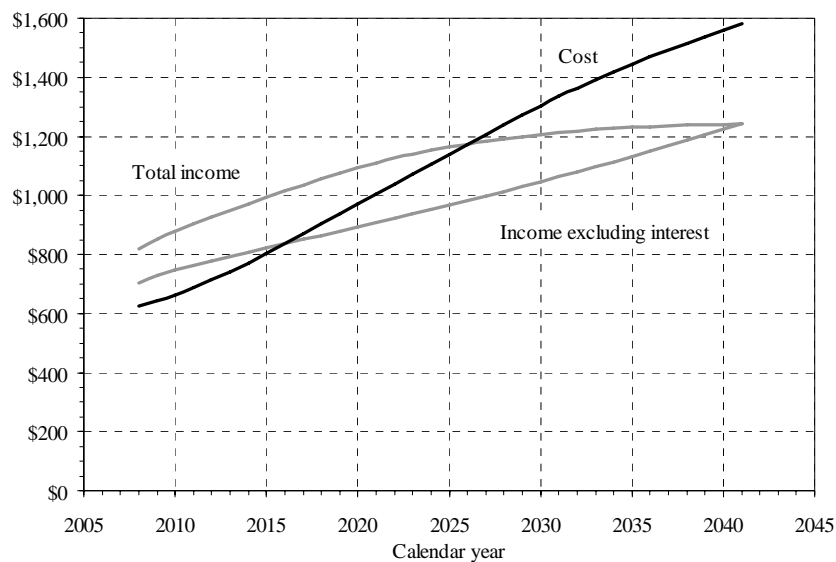
Table VI.F8 shows estimated operations of the combined OASI and DI Trust Funds in current dollars—that is in dollars unadjusted for price inflation. Items included in the table are: income excluding interest, interest income, total income, total cost, and assets at the end of the year. These estimates, based on the low cost, intermediate, and high cost sets of demographic and economic assumptions, are presented to facilitate independent analysis.

Appendices

**Table VI.F8.—Operations of the Combined OASI and DI Trust Funds,
in Current Dollars, Calendar Years 2008-85**
[In billions]

Calendar year	Income excluding interest	Interest income	Total income	Cost	Assets at end of year
Intermediate:					
2008	$702.5	$117.1	$819.7	$623.5	$2,434.7
2009	747.1	125.7	872.8	660.0	2,647.5
2010	787.3	137.6	925.0	699.6	2,872.8
2011	826.4	151.1	977.5	743.7	3,106.6
2012	866.7	165.3	1,031.9	793.4	3,345.2
2013	908.2	179.7	1,087.8	848.8	3,584.2
2014	950.1	194.0	1,144.2	908.3	3,820.2
2015	993.9	208.1	1,201.9	971.6	4,050.5
2016	1,039.6	222.2	1,261.8	1,039.0	4,273.4
2017	1,087.1	236.8	1,323.9	1,110.8	4,486.4
2020	1,241.6	275.4	1,517.0	1,348.4	5,042.8
2025	1,542.9	311.4	1,854.2	1,817.6	5,525.5
2030	1,914.1	294.0	2,208.1	2,385.5	5,098.7
2035	2,378.1	207.5	2,585.5	3,034.2	3,412.8
2040[1]	2,954.5	38.3	2,992.8	3,762.1	227.4
Low Cost:					
2008	707.7	117.8	825.5	621.5	2,442.5
2009	756.8	126.7	883.5	654.1	2,671.9
2010	795.2	137.1	932.4	687.4	2,916.9
2011	833.9	149.7	983.5	721.8	3,178.6
2012	872.9	163.6	1,036.5	760.8	3,454.4
2013	911.3	178.6	1,089.9	804.3	3,740.0
2014	949.6	194.5	1,144.1	851.0	4,033.1
2015	988.6	210.4	1,199.0	900.6	4,331.5
2016	1,029.1	226.9	1,256.0	953.2	4,634.3
2017	1,071.8	244.7	1,316.5	1,009.1	4,941.7
2020	1,208.4	300.2	1,508.5	1,198.2	5,872.4
2025	1,469.0	387.2	1,856.2	1,561.7	7,392.4
2030	1,783.7	461.7	2,245.5	1,980.6	8,770.5
2035	2,173.5	532.5	2,706.0	2,431.5	10,096.1
2040	2,659.4	615.6	3,275.0	2,913.0	11,691.7
2045	3,265.0	734.0	3,999.0	3,466.2	13,987.7
2050	4,013.4	905.8	4,919.2	4,156.5	17,313.8
2055	4,941.1	1,147.1	6,088.2	5,034.2	21,974.9
2060	6,089.4	1,476.9	7,566.2	6,131.1	28,336.2
2065	7,516.8	1,928.6	9,445.3	7,468.3	37,064.7
2070	9,289.3	2,551.3	11,840.6	9,113.4	49,104.2
2075	11,485.2	3,408.2	14,893.4	11,154.6	65,666.3
2080	14,192.9	4,570.4	18,763.3	13,746.3	88,087.5
2085	17,531.5	6,112.0	23,643.5	17,042.7	117,782.1
High Cost:					
2008	686.9	115.3	802.2	625.6	2,415.1
2009	723.4	122.8	846.2	669.1	2,592.2
2010	770.2	134.6	904.9	713.3	2,783.8
2011	804.7	147.4	952.0	762.0	2,973.8
2012	854.5	165.5	1,020.0	828.8	3,165.0
2013	918.9	191.8	1,110.7	914.2	3,361.4
2014	976.2	209.7	1,185.9	1,004.0	3,543.3
2015	1,029.3	221.1	1,250.5	1,092.4	3,701.4
2016	1,082.0	230.7	1,312.6	1,180.4	3,833.7
2017	1,135.1	239.0	1,374.1	1,273.3	3,934.5
2020	1,313.4	240.9	1,554.2	1,574.7	4,007.0
2025	1,670.3	187.5	1,857.8	2,187.4	3,027.8
2030 [1]	2,120.6	27.2	2,147.8	2,964.0	11.7

[1] Estimates for later years are not shown because the combined OASI and DI Trust Funds are estimated to become exhausted in 2041 under the intermediate assumptions and in 2031 under the high cost assumptions.

Note: Totals do not necessarily equal the sums of rounded components.

Table VI.F9 shows, in current dollars, estimated income (excluding interest) and estimated total cost (excluding the cost of accumulating target trust fund balances) of the combined OASI and DI Trust Funds, of the HI Trust Fund, and of the combined OASI, DI, and HI Trust Funds, based on the low cost, intermediate, and high cost sets of assumptions described earlier in this report. For OASDI, income excluding interest consists of payroll-tax contributions, proceeds from taxation of OASDI benefits, and miscellaneous transfers from the General Fund of the Treasury. Cost consists of benefit payments, administrative expenses, net transfers from the trust funds to the Railroad Retirement program, and payments for vocational rehabilitation services for disabled beneficiaries. For HI, income excluding interest consists of payroll-tax contributions (including contributions from railroad employment) and proceeds from the taxation of OASDI benefits. Total cost consists of outlays (scheduled benefits and administrative expenses) for insured beneficiaries. Income and cost estimates are shown on a cash basis for the OASDI program and on an incurred basis for the HI program.

Table VI.F9 also shows the difference between income excluding interest and cost, which is called the balance. The balance indicates the size of the difference between tax income and cost.

**Table VI.F9.—OASDI and HI Annual Income Excluding Interest, Cost, and
Balance in Current Dollars, Calendar Years 2008-85**

[In billions]

Calendar year	OASDI			HI			Combined		
	Income excluding interest	Cost	Balance	Income excluding interest	Cost	Balance	Income excluding interest	Cost	Balance
Intermediate:									
2008	$703	$623	$79	$215	$225	-$10	$918	$849	$69
2009	747	660	87	228	241	-13	976	901	74
2010	787	700	88	241	257	-16	1,028	957	72
2011	826	744	83	253	272	-20	1,079	1,016	63
2012	867	793	73	266	291	-26	1,132	1,085	48
2013	908	849	59	280	312	-32	1,188	1,161	27
2014	950	908	42	293	334	-40	1,244	1,242	1
2015	994	972	22	308	357	-49	1,302	1,329	-27
2016	1,040	1,039	1	323	382	-60	1,362	1,421	-59
2017	1,087	1,111	-24	339	410	-72	1,426	1,521	-95
2020	1,242	1,348	-107	389	508	-119	1,630	1,856	-226
2025	1,543	1,818	-275	486	735	-249	2,029	2,552	-524
2030	1,914	2,385	-471	606	1,060	-454	2,520	3,446	-926
2035	2,378	3,034	-656	755	1,503	-748	3,134	4,538	-1,404
2040	2,955	3,762	-808	940	2,066	-1,126	3,894	5,828	-1,934
2045	3,671	4,623	-952	1,168	2,761	-1,594	4,839	7,384	-2,545
2050	4,556	5,702	-1,147	1,449	3,628	-2,178	6,005	9,330	-3,325
2055	5,651	7,089	-1,438	1,799	4,733	-2,934	7,450	11,822	-4,372
2060	7,009	8,852	-1,842	2,235	6,190	-3,955	9,244	15,042	-5,798
2065	8,695	11,059	-2,364	2,775	8,100	-5,325	11,470	19,159	-7,689
2070	10,782	13,837	-3,055	3,446	10,576	-7,131	14,227	24,414	-10,186
2075	13,364	17,333	-3,970	4,276	13,718	-9,442	17,640	31,051	-13,411
2080	16,549	21,721	-5,172	5,303	17,665	-12,362	21,851	39,386	-17,534
2085	20,488	27,216	-6,728	6,297	21,545	-15,248	26,786	48,762	-21,976
Low Cost:									
2008	708	621	86	217	218	-1	925	840	85
2009	757	654	103	230	230	1/	987	884	103
2010	795	687	108	243	240	2	1,038	927	110
2011	834	722	112	254	249	4	1,088	971	117
2012	873	761	112	266	260	5	1,139	1,021	118
2013	911	804	107	278	272	6	1,190	1,077	113
2014	950	851	99	290	284	6	1,240	1,135	105
2015	989	901	88	303	297	6	1,292	1,197	94
2016	1,029	953	76	316	310	6	1,345	1,263	82
2017	1,072	1,009	63	330	325	5	1,401	1,334	68
2020	1,208	1,198	10	373	374	-1	1,581	1,573	9
2025	1,469	1,562	-93	456	482	-26	1,925	2,043	-119
2030	1,784	1,981	-197	555	618	-62	2,339	2,598	-259
2035	2,174	2,432	-258	678	781	-103	2,852	3,213	-361
2040	2,659	2,913	-254	830	977	-147	3,489	3,890	-401
2045	3,265	3,467	-202	1,017	1,217	-200	4,282	4,683	-401
2050	4,013	4,157	-143	1,249	1,525	-276	5,262	5,682	-420
2055	4,941	5,034	-93	1,536	1,943	-407	6,478	6,977	-500
2060	6,089	6,131	-42	1,893	2,525	-632	7,982	8,656	-674
2065	7,517	7,468	48	2,335	3,291	-956	9,852	10,760	-907
2070	9,289	9,113	176	2,884	4,288	-1,403	12,174	13,401	-1,227
2075	11,485	11,155	331	3,565	5,553	-1,989	15,050	16,708	-1,658
2080	14,193	13,746	447	4,405	7,142	-2,737	18,598	20,888	-2,291
2085	17,531	17,043	489	5,217	8,698	-3,482	22,748	25,741	-2,993

**Table VI.F9.—OASDI and HI Annual Income Excluding Interest, Cost, and
Balance in Current Dollars, Calendar Years 2008-85 (Cont.)**

[In billions]

Calendar year	OASDI			HI			Combined		
	Income excluding interest	Cost	Balance	Income excluding interest	Cost	Balance	Income excluding interest	Cost	Balance
High Cost:									
2008	$687	$626	$61	$209	$230	-$21	$896	$856	$40
2009	723	669	54	223	251	-28	946	920	26
2010	770	713	57	237	273	-37	1,007	987	20
2011	805	762	43	246	296	-49	1,051	1,058	-7
2012	854	829	26	264	327	-63	1,118	1,156	-38
2013	919	914	5	288	367	-79	1,206	1,281	-75
2014	976	1,004	-28	306	407	-100	1,282	1,410	-128
2015	1,029	1,092	-63	323	446	-123	1,352	1,538	-186
2016	1,082	1,180	-98	340	488	-148	1,422	1,669	-247
2017	1,135	1,273	-138	358	536	-178	1,493	1,809	-316
2020	1,313	1,575	-261	417	712	-295	1,730	2,286	-556
2025	1,670	2,187	-517	534	1,159	-625	2,204	3,346	-1,142
2030	2,121	2,964	-843	683	1,883	-1,200	2,803	4,847	-2,044
2035	2,688	3,904	-1,216	870	2,993	-2,123	3,557	6,896	-3,339
2040	3,393	5,013	-1,619	1,101	4,518	-3,417	4,495	9,531	-5,036
2045	4,269	6,366	-2,098	1,388	6,474	-5,086	5,657	12,841	-7,184
2050	5,345	8,091	-2,746	1,742	8,901	-7,159	7,087	16,992	-9,905
2055	6,676	10,333	-3,657	2,182	11,874	-9,692	8,858	22,207	-13,349
2060	8,323	13,230	-4,908	2,730	15,598	-12,868	11,052	28,828	-17,776
2065	10,360	16,953	-6,593	3,410	20,443	-17,032	13,770	37,396	-23,625
2070	12,865	21,748	-8,883	4,253	26,673	-22,420	17,118	48,421	-31,303
2075	15,957	27,864	-11,906	5,297	34,544	-29,247	21,254	62,408	-41,153
2080	19,754	35,533	-15,780	6,583	44,381	-37,798	26,337	79,914	-53,578
2085	24,446	45,067	-20,621	7,828	54,044	-46,216	32,274	99,111	-66,837

[1] Between -$500 million and $500 million.

Note: Totals do not necessarily equal the sums of rounded components.

Table VI.F10 shows projected future benefit amounts payable upon retirement at either the normal retirement age (NRA) or age 65, for workers attaining age 65 in 2008 and subsequent years. Illustrative benefit levels are shown for workers with four separate pre-retirement earnings patterns. All estimates are based on the intermediate assumptions in this report. The benefit amounts are shown in constant 2008 dollars (adjusted to 2008 levels by the CPI indexing series shown in table VI.F6). Benefit amounts are also shown as percentages of the career-average relative earnings level for each case, wage indexed to the year prior to retirement. These percentages thus represent the benefit "replacement rate" of the career-average level of earnings.

The normal retirement age is 65 for individuals who reached age 62 before 2000, was increased to age 66 during the period 2000-05 (at a rate of 2 months per year as workers attained age 62) and is scheduled to increase to age 67 during the period 2017-22 (also by 2 months per year as workers

attain age 62). Thus, for the illustrative cases shown in table VI.F10, benefit levels shown for retirement at 65 are lower than the levels shown for retirement at NRA, primarily because of the actuarial reduction for "early" (pre-NRA) retirement.

Four different pre-retirement earnings patterns are represented in table VI.F10. Three of these cases are for workers with scaled-earnings patterns,[1] reflecting low, medium, and high career-average levels of pre-retirement earnings starting at age 21. The fourth case is the steady maximum earner. The three scaled-earnings cases have earnings patterns that reflect differences by age in the probability of work and in average earnings levels experienced by insured workers during the period 1991-2004. The general, career-average level of earnings for the scaled cases is set relative to the national average wage index (AWI) so that benefit levels are consistent with levels for "steady-earnings" cases that were shown in the 2000 and earlier Trustees Reports. For the scaled medium earner, the general, career-average earnings level is about equal to the AWI. For the scaled low and high earners, the general, career-average earnings level is set at about 45 percent and 160 percent of the AWI, respectively. The steady maximum earner is assumed to have earnings at (or above) the OASDI contribution and benefit base for each year prior to retirement starting at age 22.

As noted above, the scaled-earnings cases were constructed so that their career-average earnings levels are consistent with those of the corresponding steady low, average, and high earners that were illustrated in the 2000 and earlier Trustees Reports. As a result, values in this table for benefits under the present-law Social Security benefit formula are essentially comparable to those in earlier reports. Scaled-earnings cases are now being used instead of steady-earnings cases because they more accurately illustrate the differences in benefit levels under the wide variety of reform proposals considered in recent years.

---

[1] More details are provided on scaled-earnings patterns in the Social Security Administration Actuarial Note Number 2007.3, located at the following internet address: www.socialsecurity.gov/OACT/NOTES/ran3/an2007-3.html.

**Table VI.F10.—Estimated Annual Scheduled Benefit Amounts[1] for Retired Workers
With Various Pre-Retirement Earnings Patterns Based on
Intermediate Assumptions, Calendar Years 2008-85**

	Retirement at normal retirement age			Retirement at age 65		
Year attain age 65[2]	Age at retirement	Constant 2008 dollars[3]	Percent of earnings	Age at retirement	Constant 2008 dollars[3]	Percent of earnings
Scaled low earnings:[4]						
2008	66:0	$10,252	55.7	65:0	$9,549	52.6
2010	66:0	10,307	54.6	65:0	9,624	51.6
2015	66:0	11,135	55.8	65:0	10,392	52.6
2020	66:2	11,764	56.0	65:0	10,854	52.3
2025	67:0	12,373	55.5	65:0	10,722	49.1
2030	67:0	13,022	55.4	65:0	11,284	49.1
2035	67:0	13,721	55.3	65:0	11,890	49.0
2040	67:0	14,481	55.3	65:0	12,550	49.0
2045	67:0	15,289	55.3	65:0	13,251	49.0
2050	67:0	16,145	55.3	65:0	13,993	49.0
2055	67:0	17,041	55.4	65:0	14,769	49.0
2060	67:0	17,977	55.4	65:0	15,579	49.0
2065	67:0	18,961	55.4	65:0	16,433	49.0
2070	67:0	20,004	55.4	65:0	17,336	49.0
2075	67:0	21,106	55.4	65:0	18,293	49.0
2080	67:0	22,267	55.4	65:0	19,299	49.0
2085	67:0	23,493	55.3	65:0	20,360	49.0
Scaled medium earnings:[5]						
2008	66:0	16,893	41.3	65:0	15,732	39.0
2010	66:0	17,004	40.5	65:0	15,870	38.3
2015	66:0	18,352	41.4	65:0	17,135	39.1
2020	66:2	19,389	41.5	65:0	17,879	38.8
2025	67:0	20,391	41.1	65:0	17,671	36.4
2030	67:0	21,461	41.1	65:0	18,599	36.4
2035	67:0	22,610	41.0	65:0	19,595	36.3
2040	67:0	23,856	41.0	65:0	20,673	36.3
2045	67:0	25,193	41.0	65:0	21,833	36.3
2050	67:0	26,605	41.0	65:0	23,054	36.3
2055	67:0	28,079	41.1	65:0	24,335	36.3
2060	67:0	29,620	41.1	65:0	25,671	36.4
2065	67:0	31,244	41.0	65:0	27,078	36.3
2070	67:0	32,961	41.0	65:0	28,566	36.3
2075	67:0	34,775	41.0	65:0	30,138	36.3
2080	67:0	36,689	41.0	65:0	31,797	36.3
2085	67:0	38,708	41.0	65:0	33,546	36.3
Scaled high earnings:[6]						
2008	66:0	22,383	34.3	65:0	20,854	32.4
2010	66:0	22,534	33.6	65:0	21,030	31.7
2015	66:0	24,331	34.3	65:0	22,714	32.4
2020	66:2	25,701	34.4	65:0	23,701	32.1
2025	67:0	27,031	34.1	65:0	23,428	30.2
2030	67:0	28,452	34.1	65:0	24,653	30.1
2035	67:0	29,972	34.0	65:0	25,972	30.1
2040	67:0	31,622	34.0	65:0	27,405	30.1
2045	67:0	33,393	34.0	65:0	28,939	30.1
2050	67:0	35,265	34.0	65:0	30,560	30.1
2055	67:0	37,218	34.0	65:0	32,256	30.1
2060	67:0	39,262	34.0	65:0	34,026	30.1
2065	67:0	41,412	34.0	65:0	35,891	30.1
2070	67:0	43,689	34.0	65:0	37,864	30.1
2075	67:0	46,096	34.0	65:0	39,950	30.1
2080	67:0	48,632	34.0	65:0	42,148	30.1
2085	67:0	51,307	34.0	65:0	44,465	30.1

**Table VI.F10.—Estimated Annual Scheduled Benefit Amounts[1] for Retired Workers
With Various Pre-Retirement Earnings Patterns Based on
Intermediate Assumptions, Calendar Years 2008-85 (Cont.)**

Year attain age 65[2]	Retirement at normal retirement age			Retirement at age 65		
	Age at retirement	Constant 2008 dollars[3]	Percent of earnings	Age at retirement	Constant 2008 dollars[3]	Percent of earnings
Steady maximum earnings:[7]						
2008	66:0	$26,455	28.4	65:0	$24,415	26.9
2010	66:0	26,889	27.6	65:0	24,890	26.1
2015	66:0	29,574	27.6	65:0	27,458	26.0
2020	66:2	31,391	27.6	65:0	28,846	25.7
2025	67:0	33,228	27.3	65:0	28,581	24.0
2030	67:0	35,007	27.3	65:0	30,126	24.0
2035	67:0	36,895	27.2	65:0	31,754	24.0
2040	67:0	38,893	27.2	65:0	33,473	24.0
2045	67:0	41,070	27.2	65:0	35,354	24.0
2050	67:0	43,308	27.3	65:0	37,282	24.0
2055	67:0	45,715	27.3	65:0	39,351	24.0
2060	67:0	48,222	27.3	65:0	41,512	24.0
2065	67:0	50,858	27.3	65:0	43,781	24.0
2070	67:0	53,652	27.3	65:0	46,183	24.0
2075	67:0	56,604	27.3	65:0	48,726	24.0
2080	67:0	59,720	27.3	65:0	51,408	24.0
2085	67:0	63,004	27.3	65:0	54,235	24.0

[1] Annual scheduled benefit amounts are the total for the 12-month period starting with the month of retirement.

[2] Assumed to attain age 65 in January of the year.

[3] The adjustment for constant dollars is made using the adjusted CPI indexing series shown in table VI.F6.

[4] Career-average earnings at about 45 percent of the national average wage index (AWI).

[5] Career-average earnings at about 100 percent of the AWI.

[6] Career-average earnings at about 160 percent of the AWI.

[7] Earnings for each year equal to the OASDI contribution and benefit base.

G. ANALYSIS OF BENEFIT DISBURSEMENTS FROM THE OASI TRUST FUND WITH RESPECT TO DISABLED BENEFICIARIES
(Required by section 201(c) of the Social Security Act)

Effective January 1957, monthly benefits have been payable from the OASI Trust Fund to disabled children aged 18 and over of retired and deceased workers in those cases for which the disability began before age 18. The age before which disability is required to have begun was subsequently changed to age 22. Effective February 1968, reduced monthly benefits have been payable from this trust fund to disabled widows and widowers at ages 50 and over. Effective January 1991, the requirements for the disability of the widow or widower were made less restrictive.

On December 31, 2007, about 850,000 persons were receiving monthly benefits from the OASI Trust Fund because of their disabilities or the disabilities of children. This total includes 25,000 mothers and fathers (wives or husbands under age 65 of retired-worker beneficiaries and widows or widowers of deceased insured workers) who met all other qualifying requirements and were receiving unreduced benefits solely because they had disabled-child beneficiaries (or disabled children aged 16 or 17) in their care. Benefits paid from this trust fund to the persons described above totaled $7,293 million in calendar year 2007. Table VI.G1 shows these and similar figures for selected calendar years during 1960-2007, and estimated experience for 2008-17 based on the intermediate set of assumptions.

**Table VI.G1.—Benefit Disbursements From the OASI Trust Fund
With Respect to Disabled Beneficiaries**
[Beneficiaries in thousands; benefit payments in millions]

Calendar year	Disabled beneficiaries, end of year			Amount of benefit payments[1]		
	Total	Children[2]	Widows-widowers[3]	Total	Children[2]	Widows-widowers[4]
Historical data:						
1960	117	117	—	$59	$59	—
1965	214	214	—	134	134	—
1970	316	281	36	301	260	$41
1975	435	376	58	664	560	104
1980	519	460	59	1,223	1,097	126
1985	594	547	47	2,072	1,885	187
1986	614	565	49	2,219	2,022	197
1987	629	580	49	2,331	2,128	203
1988	640	591	48	2,518	2,307	211
1989	651	602	49	2,680	2,459	221
1990	662	613	49	2,882	2,649	233
1991	687	627	61	3,179	2,875	304
1992	715	643	72	3,459	3,079	380
1993	740	659	81	3,752	3,296	456
1994	758	671	86	3,973	3,481	492
1995	772	681	91	4,202	3,672	531
1996	782	687	94	4,410	3,846	565
1997	789	693	96	4,646	4,050	596
1998	797	698	99	4,838	4,210	627
1999	805	702	102	4,991	4,336	655
2000	811	707	104	5,203	4,523	680
2001	817	712	105	5,520	4,802	718
2002	823	717	106	5,773	5,024	749
2003	826	721	105	5,746	4,979	764
2004	828	723	105	5,945	5,162	781
2005	835	728	108	6,288	5,386	843
2006	839	732	108	6,737	5,848	885
2007	850	743	107	7,293	6,412	878
Estimates:						
2008	863	756	106	7,602	6,690	907
2009	876	770	106	7,988	7,051	934
2010	889	783	106	8,384	7,422	959
2011	902	797	105	8,836	7,847	985
2012	914	810	103	9,297	8,282	1,010
2013	925	823	102	9,772	8,733	1,033
2014	934	835	99	10,242	9,192	1,044
2015	943	846	97	10,720	9,660	1,054
2016	950	857	93	11,206	10,144	1,057
2017	958	868	90	11,711	10,642	1,062

[1] Beginning in 1966, includes payments for vocational rehabilitation services.

[2] Also includes certain mothers and fathers (see text).

[3] In 1984 and later years, only disabled widows and widowers aged 50-59 are included because disabled widows and widowers aged 60-64 would be eligible for the same benefit as a nondisabled aged widow or widower; therefore, they are not receiving benefits solely because of a disability.

[4] In 1983 and prior years, reflects the offsetting effect of lower benefits payable to disabled widows and widowers who continued to receive benefits after attaining age 60 (62, for disabled widowers, prior to 1973) as compared to the higher nondisabled widow's and widower's benefits that would otherwise be payable. In 1984 and later years, only benefit payments to disabled widows and widowers aged 50-59 are included (see footnote 3).

Note: Totals do not necessarily equal the sums of rounded components.

Total benefit payments from the OASI Trust Fund with respect to disabled beneficiaries are estimated to increase from $7,602 million in calendar year 2008 to $11,711 million in calendar year 2017, based on the intermediate assumptions.

In calendar year 2007, benefit payments (including expenditures for vocational rehabilitation services) with respect to disabled persons from the OASI Trust Fund and from the DI Trust Fund (including payments from the latter fund to all children and spouses of disabled-worker beneficiaries) totaled $106,439 million. Of this amount, $7,293 million or 6.9 percent represented payments from the OASI Trust Fund. These and similar figures for selected calendar years during 1960-2007 and estimates for calendar years 2008-17 are presented in table VI.G2.

**Table VI.G2.—Benefit Disbursements Under the OASDI Program
With Respect to Disabled Beneficiaries**
[Amounts in millions]

Calendar year	Total [1]	DI Trust Fund [2]	OASI Trust Fund	
			Amount [3]	Percentage of total
Historical data:				
1960	$627	$568	$59	9.4
1965	1,707	1,573	134	7.9
1970	3,386	3,085	301	8.9
1975	9,169	8,505	664	7.2
1980	16,738	15,515	1,223	7.3
1985	20,908	18,836	2,072	9.9
1990	27,717	24,835	2,882	10.4
1991	30,877	27,698	3,179	10.3
1992	34,583	31,124	3,459	10.0
1993	38,378	34,626	3,752	9.8
1994	41,730	37,757	3,973	9.5
1995	45,140	40,937	4,202	9.3
1996	48,615	44,205	4,410	9.1
1997	50,358	45,712	4,646	9.2
1998	53,062	48,224	4,838	9.1
1999	56,390	51,399	4,991	8.9
2000	60,204	55,001	5,203	8.6
2001	65,157	59,637	5,520	8.5
2002	71,493	65,721	5,773	8.1
2003	76,698	70,952	5,746	7.5
2004	84,197	78,251	5,945	7.1
2005	91,674	85,386	6,288	6.9
2006	99,182	[4] 92,446	6,737	6.8
2007	106,439	[5] 99,147	7,293	6.9

**Table VI.G2.—Benefit Disbursements Under the OASDI Program
With Respect to Disabled Beneficiaries (Cont.)**
[Amounts in millions]

| Calendar year | Total [1] | DI Trust Fund [2] | OASI Trust Fund | |
			Amount [3]	Percentage of total
Estimates:				
2008	$112,547	$104,945	$7,602	6.8
2009	119,713	111,725	7,988	6.7
2010	126,908	118,524	8,384	6.6
2011	134,021	125,186	8,836	6.6
2012	142,351	133,053	9,297	6.5
2013	150,644	140,873	9,772	6.5
2014	159,033	148,791	10,242	6.4
2015	167,875	157,155	10,720	6.4
2016	177,044	165,838	11,206	6.3
2017	186,496	174,785	11,711	6.3

[1] Beginning in 1966, includes payments for vocational rehabilitation services.
[2] Benefit payments to disabled workers and their children and spouses.
[3] Benefit payments to disabled children aged 18 and over, to certain mothers and fathers (see text), and to disabled widows and widowers (see footnote 4, table VI.G1).
[4] Excludes reimbursement of $0.7 billion for excess amounts of voluntary income tax withholding in 1999-2005.
[5] Excludes interfund transfer to correct a trust fund allocation error made on payments to certain disabled beneficiaries. The transfer amounted to $3.3 billion from OASI to DI.

Note: Totals do not necessarily equal the sums of rounded components.

H. GLOSSARY

Actuarial balance. The difference between the summarized income rate and the summarized cost rate over a given valuation period.

Actuarial deficit. A negative actuarial balance.

Administrative expenses. Expenses incurred by the Social Security Administration and the Department of the Treasury in administering the OASDI program and the provisions of the Internal Revenue Code relating to the collection of contributions. Such administrative expenses are paid from the OASI and DI Trust Funds.

Advance tax transfers. Amounts representing the estimated total OASDI tax contributions for a given month. From May 1983 through November 1990, such amounts were credited to the OASI and DI Trust Funds at the beginning of each month. Reimbursements were made from the trust funds to the General Fund of the Treasury for the associated loss of interest. Advance tax transfers are no longer made unless needed in order to pay benefits.

Alternatives I, II, or III. See "Assumptions."

Annual balance. The difference between the income rate and the cost rate in a given year.

Assets. Treasury notes and bonds, other securities guaranteed by the Federal Government, certain Federally sponsored agency obligations, and cash, held by the trust funds for investment purposes.

Assumptions. Values relating to future trends in certain key factors which affect the balance in the trust funds. Demographic assumptions include fertility, mortality, net immigration, marriage, and divorce. Economic assumptions include unemployment rates, average earnings, inflation, interest rates, and productivity. Program-specific assumptions include retirement patterns, and disability incidence and termination rates. Three sets of demographic, economic, and program-specific assumptions are presented in this report—

- Alternative II is the intermediate set of assumptions, and represents the Trustees' best estimates of likely future demographic, economic, and program-specific conditions.

- Alternative I is characterized as a low cost set—it assumes relatively rapid economic growth, low inflation, and favorable (from the standpoint of program financing) demographic and program-specific conditions.

- Alternative III is characterized as a high cost set—it assumes relatively slow economic growth, high inflation, and unfavorable (from the standpoint of program financing) demographic and program-specific conditions.

See tables V.A1, V.B1, and V.B2.

Automatic cost-of-living benefit increase. The annual increase in benefits, effective for December, reflecting the increase in the cost of living. The benefit increase equals the percentage increase in the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) measured from the average over July, August, and September of the preceding year to the average for the same 3 months in the current year. If the increase is less than one-tenth of 1 percent, when rounded, there is no automatic increase for the current year; the increase for the next year would reflect the net increase in the CPI over a 2-year period. See table V.C1.

Auxiliary benefits. Monthly benefits payable to a spouse or child of a retired or disabled worker, or to a survivor of a deceased worker.

Average indexed monthly earnings—AIME. The amount of earnings used in determining the primary insurance amount (PIA) for most workers who attain age 62, become disabled, or die after 1978. A worker's actual past earnings are adjusted by changes in the average wage index, in order to bring them up to their approximately equivalent value at the time of retirement or other eligibility for benefits.

Average wage index—AWI. The average amount of total wages for each year after 1950, including wages in noncovered employment and wages in covered employment in excess of the OASDI contribution and benefit base. (See Title 20, Chapter III, section 404.211(c) of the Code of Federal Regulations for a more precise definition.) These average wage amounts are used to index the taxable earnings of most workers first becoming eligible for benefits in 1979 or later, and for automatic adjustments in the contribution and benefit base, bend points, earnings test exempt amounts, and other wage-indexed amounts. See table V.C1.

Award. An administrative determination that an individual is entitled to receive a specified type of OASDI benefit. Awards can represent not only new entrants to the benefit rolls but also persons already on the rolls who become entitled to a different type of benefit. Awards usually result in the immediate payment of benefits, although payments may be deferred or withheld depending on the individual's particular circumstances.

Baby boom. The period from the end of World War II through the mid-1960s marked by unusually high birth rates.

Bend points. The dollar amounts defining the AIME or PIA brackets in the benefit formulas. For the bend points for years 1979 and later, see table V.C2.

Beneficiary. A person who has been awarded benefits on the basis of his or her own or another's earnings record. The benefits may be either in current-payment status or withheld.

Benefit award. See "Award."

Benefit payments. The amounts disbursed for OASI and DI benefits by the Department of the Treasury in specified periods.

Benefit termination. See "Termination."

Best estimate assumptions. See "Assumptions."

Board of Trustees. A Board established by the Social Security Act to oversee the financial operations of the Federal Old-Age and Survivors Insurance Trust Fund and the Federal Disability Insurance Trust Fund. The Board is composed of six members, four of whom serve automatically by virtue of their positions in the Federal Government: the Secretary of the Treasury, who is the Managing Trustee, the Secretary of Labor, the Secretary of Health and Human Services, and the Commissioner of Social Security. The other two members are appointed by the President to serve as public representatives.

Cash flow. The cash flow for the OASI and DI Trust Funds is defined generally as actual or projected revenue and costs reflecting the levels of tax rates and benefits scheduled in the law. Net cash flow is the difference between tax revenue and cost on this basis.

Closed group unfunded obligation. This measure is computed like the open group unfunded obligation except that individuals under the age of 15 (or not yet born) are excluded. In other words, only persons who attain age 15 or older during the first year of the projection period are included in the calculations.

Constant dollars. Amounts adjusted by the CPI to the value of the dollar in a particular year.

Consumer Price Index—CPI. An official measure of inflation in consumer prices. In this report, all references to the CPI relate to the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W). Historical values for the CPI-W are published by the Bureau of Labor Statistics, Department of Labor.

Contribution and benefit base. Annual dollar amount above which earnings in employment covered under the OASDI program are neither taxable nor creditable for benefit-computation purposes. (Also referred to as maximum contribution and benefit base, annual creditable maximum, taxable maximum, and maximum taxable.) See tables V.C1 and VI.A1. See "HI contribution base."

Contributions. The amount based on a percent of earnings, up to an annual maximum, that must be paid by—

- employers and employees on wages from employment under the Federal Insurance Contributions Act,
- the self-employed on net earnings from self-employment under the Self-Employment Contributions Act, and

- States on the wages of State and local government employees covered under the Social Security Act through voluntary agreements under section 218 of the Act.

Generally, employers withhold contributions from wages, add an equal amount of contributions, and pay both on a current basis. Also referred to as taxes.

Cost. The cost for a year is defined to include scheduled benefit payments, special monthly payments to certain uninsured persons who have 3 or more quarters of coverage (and whose payments are therefore not reimbursable from the General Fund of the Treasury), administrative expenses, net transfers from the trust funds to the Railroad Retirement program under the financial-interchange provisions, and payments for vocational rehabilitation services for disabled beneficiaries; it excludes special monthly payments to certain uninsured persons whose payments are reimbursable from the General Fund of the Treasury (as described above), and transfers under the interfund borrowing provisions.

Cost-of-living adjustment. See "Automatic cost-of-living benefit increase."

Cost rate. The cost rate for a year is the ratio of the cost of the program to the taxable payroll for the year.

Covered earnings. Earnings in employment covered by the OASDI program.

Covered employment. All employment for which earnings are creditable for Social Security purposes. Almost all employment is covered under the program. Some exceptions are:

- State and local government employees whose employer has not elected to be covered under Social Security and who are participating in an employer-provided pension plan.
- Current Federal civilian workers hired before 1984 who have not elected to be covered.
- Self-employed workers earning less than $400 in a calendar year.

Covered worker. A person who has earnings creditable for Social Security purposes on the basis of services for wages in covered employment and/or on the basis of income from covered self-employment.

Creditable earnings. Wage or self-employment earnings posted to a worker's earnings record, upon which eligibility for and amount of benefits on that worker's record is based. The maximum amount of creditable earnings for each worker in a calendar year is determined by the contribution and benefit base.

Current-cost financing. See "Pay-as-you-go financing."

Current dollars. Amounts expressed in nominal dollars with no adjustment for inflationary changes in the value of the dollar over time.

Current-payment status. Status of a beneficiary to whom a benefit is being paid for a given month (with or without deductions, provided the deductions add to less than a full month's benefit).

Deemed wage credit. See "Military service wage credits."

Delayed retirement credits. Increases the benefit amount for certain individuals who did not receive benefits for months after attainment of the normal retirement age but before age 70. Delayed retirement credits are applicable for January benefits of the year following the year they are earned or for the month of attainment of age 70, whichever comes first. See table V.C3.

Demographic assumptions. See "Assumptions."

Deterministic model. A model with specified assumptions for and relationships among variables. Under such a model, any specified set of assumptions determines a single outcome directly reflecting the specifications.

Disability. For Social Security purposes, the inability to engage in substantial gainful activity (see "Substantial gainful activity—SGA") by reason of any medically determinable physical or mental impairment that can be expected to result in death or to last for a continuous period of not less than 12 months. Special rules apply for workers at ages 55 and over whose disability is based on blindness.

The law generally requires that a person be disabled continuously for 5 months before he or she can qualify for a disabled-worker benefit.

Disability conversion ratio. For a given year, the ratio of the number of disability conversions to the average number of disabled-worker beneficiaries during the year.

Disability conversion. Upon attainment of normal retirement age, a disabled-worker beneficiary is automatically converted to retired-worker status.

Disability incidence rate. The proportion of workers in a given year, insured for but not receiving disability benefits, who apply for and are awarded disability benefits.

Disability Insurance (DI) Trust Fund. See "Trust fund."

Disability prevalence rate. The proportion of persons insured for disability benefits who are disabled-worker beneficiaries in current-payment status.

Disability termination rate. The proportion of disabled-worker beneficiaries in a given year whose disability benefits terminate as a result of the individual's recovery or death.

Disabled-worker benefit. A monthly benefit payable to a disabled worker under normal retirement age and insured for disability. Before November 1960, disability benefits were limited to disabled workers aged 50-64.

Disbursements. Actual expenditures (outgo) made or expected to be made under current law, including benefits paid or payable, special monthly payments to certain uninsured persons who have 3 or more quarters of coverage (and whose payments are therefore not reimbursable from the General Fund of the Treasury), administrative expenses, net transfers from the trust funds to the Railroad Retirement program under the financial-interchange provisions, and payments for vocational rehabilitation services for disabled beneficiaries; it excludes special monthly payments to certain uninsured persons whose payments are reimbursable from the General Fund of the Treasury (as described above), and transfers under the interfund borrowing provisions.

Earnings. Unless otherwise qualified, all wages from employment and net earnings from self-employment, whether or not taxable or covered.

Earnings test. The provision requiring the withholding of benefits if beneficiaries under normal retirement age have earnings in excess of certain exempt amounts. See table V.C1.

Economic assumptions. See "Assumptions."

Effective interest rate. See "Interest rate."

Excess wages. Wages in excess of the contribution and benefit base on which a worker initially pays taxes (usually as a result of working for more than one employer during a year). Employee taxes on excess wages are refundable to affected employees, while the employer taxes are not refundable.

Expenditures. See "Disbursements."

Federal Insurance Contributions Act—FICA. Provision authorizing taxes on the wages of employed persons to provide for Retirement, Survivors, and Disability Insurance, and for Hospital Insurance. The tax is paid in equal amounts by workers and their employers.

Financial interchange. Provisions of the Railroad Retirement Act providing for transfers between the trust funds and the Social Security Equivalent Benefit Account of the Railroad Retirement program in order to place each trust fund in the same position it would have been in if railroad employment had always been covered under Social Security.

Fiscal year. The accounting year of the United States Government. Since 1976, a fiscal year is the 12-month period ending September 30. For example, fiscal year 2008 began October 1, 2007, and will end September 30, 2008.

Full advance funding. A financing scheme where taxes or contributions are established to match the full cost of future benefits as these costs are incurred

204

through current service. Such financing methods also provide for amortization over a fixed period of any financial liability that is incurred at the beginning of the program (or subsequent modification) as a result of granting credit for past service.

General Fund of the Treasury. Funds held by the Treasury of the United States, other than receipts collected for a specific purpose (such as Social Security) and maintained in a separate account for that purpose.

General fund reimbursements. Transfers from the General Fund of the Treasury to the trust funds for specific purposes defined in the law, such as:

- The costs associated with providing special payments made to uninsured persons who attained age 72 before 1968, and who had fewer than 3 quarters of coverage.
- Payments corresponding to the employee-employer taxes on deemed wage credits for military personnel.
- Interest on checks which are not negotiated 6 months after the month of issue. (For checks issued before October, 1989, the principal was returned to the trust funds as a general fund reimbursement; since that time, the principal amount is automatically returned to the issuing fund when the check is uncashed after a year.)
- Administrative expenses incurred as a result of furnishing information on deferred vested benefits to pension plan participants, as required by the Employee Retirement Income Security Act of 1974 (Public Law 93-406).

Gross domestic product—GDP. The total dollar value of all goods and services produced by labor and property located in the United States, regardless of who supplies the labor or property.

HI contribution base. Annual dollar amount above which earnings in employment covered under the HI program are not taxable. (Also referred to as maximum contribution base, taxable maximum, and maximum taxable.) Beginning in 1994, the HI contribution base was eliminated.

High cost assumptions. See "Assumptions."

Hospital Insurance (HI) Trust Fund. See "Trust fund."

Immigration. See "Legal immigration" and "Other immigration."

Income. Income for a given year is the sum of tax revenues on a liability basis (payroll-tax contributions and income from the taxation of scheduled benefits) and interest credited to the trust funds.

Income rate. Ratio of income from tax revenues on a liability basis (payroll-tax contributions and income from the taxation of scheduled benefits) to the OASDI taxable payroll for the year.

Inflation. An increase in the volume of money and credit relative to available goods, resulting in an increase in the general price level.

Insured status. The state or condition of having sufficient quarters of coverage to meet the eligibility requirements for retired-worker or disabled-worker benefits, or to permit the worker's spouse and children or survivors to establish eligibility for benefits in the event of his or her disability, retirement, or death. See "Quarters of coverage."

Interest. A payment in exchange for the use of money during a specified period.

Interest rate. Interest rates on new public-debt obligations issuable to Federal trust funds (see "Special public-debt obligation") are determined monthly. Such rates are set equal to the average market yield on all outstanding marketable U.S. securities not due or callable until after 4 years from the date the rate is determined. See table V.B2 for historical and assumed future interest rates on new special-issue securities. The effective interest rate for a trust fund is the ratio of the interest earned by the fund over a given period of time to the average level of assets held by the fund during the period. The effective rate of interest thus represents a measure of the overall average interest earnings on the fund's portfolio of assets.

Interfund borrowing. The borrowing of assets by a trust fund (OASI, DI, or HI) from another of the trust funds when the first fund is in danger of exhaustion. Interfund borrowing was permitted by the Social Security Act only during 1982 through 1987; all amounts borrowed were to be repaid prior to the end of 1989. The only exercise of this authority occurred in 1982, when the OASI Trust Fund borrowed assets from the DI and HI Trust Funds. The final repayment of borrowed amounts occurred in 1986.

Intermediate assumptions. See "Assumptions."

Legal emigration. Legal emigration for a given year consists of those legal permanent residents and native-born citizens who leave the Social Security area during the year.

Legal immigration. Consistent with the definition used by the Department of Homeland Security, legal immigration for a given year consists of foreign-born individuals who are granted legal permanent residence status during the year.

Life expectancy. Average remaining number of years expected prior to death. Period life expectancy is calculated for a given year using the actual or expected death rates at each age for that year. Cohort life expectancy, sometimes referred to as generational life expectancy, is calculated for individuals at a specific age in a given year using actual or expected death rates from the years in which the individuals would actually reach each succeeding age if he or she survives.

Long range. The next 75 years. Long-range actuarial estimates are made for this period because it is approximately the maximum remaining lifetime of current Social Security participants.

Low cost assumptions. See "Assumptions."

Lump-sum death benefit. A lump sum, generally $255, payable on the death of a fully or currently insured worker. The lump sum is payable to the surviving spouse of the worker, under most circumstances, or to the worker's children.

Maximum family benefit. The maximum monthly amount that can be paid on a worker's earnings record. Whenever the total of the individual monthly benefits payable to all the beneficiaries entitled on one earnings record exceeds the maximum, each dependent's or survivor's benefit is proportionately reduced to bring the total within the maximum. Benefits payable to divorced spouses or surviving divorced spouses are not reduced under the family maximum provision.

Medicare. A nationwide, Federally administered health insurance program authorized in 1965 to cover the cost of hospitalization, medical care, and some related services for most people age 65 and over. In 1972, coverage was extended to people receiving Social Security Disability Insurance payments for 2 years, and people with End-Stage Renal Disease. In 2006, prescription drug coverage was also added. Medicare consists of two separate but coordinated programs—Hospital Insurance (HI, Part A) and Supplementary Medical Insurance (SMI). The SMI program is composed of three separate accounts—the Part B Account, the Part D Account, and the Transitional Assistance Account. Almost all persons who are aged 65 and over or disabled and who are entitled to HI are eligible to enroll in Part B and Part D on a voluntary basis by paying monthly premiums. Health insurance protection is available to Medicare beneficiaries without regard to income.

Military service wage credits. Credits recognizing that military personnel receive wages in kind (such as food and shelter) in addition to their basic pay and other cash payments. Noncontributory wage credits of $160 were provided for each month of active military service from September 16, 1940, through December 31, 1956. For years after 1956, the basic pay of military personnel is covered under the Social Security program on a contributory basis. In addition to the contributory credits for basic pay, noncontributory wage credits of $300 were granted for each calendar quarter, from January 1957 through December 1977, in which a person received pay for military service. Noncontributory wage credits of $100 were granted for each $300 of military wages, up to a maximum credit of $1,200 per calendar year, from January 1978 through December 2001.

National average wage index—AWI. See "Average wage index—AWI."

Normal retirement age. The age at which a person may first become entitled to retirement benefits without reduction based on age. For persons reaching age 62 before 2000, the normal retirement age is 65. It will increase gradually to 67 for persons reaching that age in 2027 or later, beginning with an increase to 65 years and 2 months for persons reaching age 65 in 2003. See table V.C3.

Old-Age and Survivors Insurance (OASI) Trust Fund. See "Trust fund."

Old-law base. Amount the contribution and benefit base would have been if the discretionary increases in the base under the 1977 amendments had not been enacted. The Social Security Amendments of 1972 provided for automatic annual indexing of the contribution and benefit base. The Social Security Amendments of 1977 provided ad hoc increases to the bases for 1979-81, with subsequent bases updated in accordance with the normal indexing procedure. See table V.C2.

Open group unfunded obligation. This measure is computed as the excess of the present value of the projected cost of the program over a specified time period (for example the next 75 years or the infinite future) over the sum of (1) the value of trust fund assets at the beginning of the period and (2) the present value of the projected tax income of the program, assuming scheduled tax rates and benefit levels.

Other emigration. Other emigration for a given year consists of individuals from the other-immigrant population who leave the Social Security area during the year or who adjust status to become legal permanent residents during the year.

Other immigration. Other immigration for a given year consists of individuals who enter the Social Security area and stay 6 months or more but without legal permanent residence status, such as undocumented immigrants and temporary workers and students.

Outgo. See "Disbursements."

Par value. The value printed on the face of a bond. For both public and special issues held by the trust funds, par value is also the redemption value at maturity.

Partial advance funding. A financing scheme where taxes are scheduled to provide a substantial accumulation of trust fund assets, thereby generating additional interest income to the trust funds and reducing the need for payroll tax increases in periods when costs are relatively high. (Higher general taxes or additional borrowing may be required, however, to support the payment of such interest.) While substantial, the trust fund buildup under partial advance funding is much smaller than it would be with full advance funding.

Pay-as-you-go financing. A financing scheme where taxes are scheduled to produce just as much income as required to pay current benefits, with trust

fund assets built up only to the extent needed to prevent exhaustion of the fund by random economic fluctuations.

Payment cycling. Beneficiaries on the rolls before May 1, 1997, are paid on the third of the month. Persons applying for OASDI benefits after April 1997, however, generally are paid on the second, third, or fourth Wednesday of the month following the month for which payment is due. The particular Wednesday payment date is based on the earner's date of birth. For those born on the first through tenth, the benefit payment day is the second Wednesday of the month; for those born on the eleventh through the twentieth, the benefit payment day is the third Wednesday of the month; and for those born after the twentieth of the month, the payment day is the fourth Wednesday of the month.

Payroll taxes. A tax levied on the gross wages of workers. See tables VI.A1 and VI.F1.

Population in the Social Security area. See "Social Security area population."

Present value. The equivalent value, at the present time, of a future stream of payments (either income or cost). The present value of a future stream of payments may be thought of as the lump-sum amount that, if invested today, together with interest earnings would be just enough to meet each of the payments as they fell due. Present values are widely used in calculations involving financial transactions over long periods of time to account for the time value of money (interest). For the purpose of present-value calculations for this report, values are discounted by the effective yield on trust fund assets.

Primary insurance amount—PIA. The monthly amount payable to a retired worker who begins to receive benefits at normal retirement age or (generally) to a disabled worker. This amount, which is related to the worker's average monthly wage or average indexed monthly earnings, is also the amount used as a base for computing all types of benefits payable on the basis of one individual's earnings record.

Primary-insurance-amount formula. The mathematical formula relating the PIA to the AIME for workers who attain age 62, become disabled, or die after 1978. The PIA is equal to the sum of 90 percent of AIME up to the first bend point, plus 32 percent of AIME above the first bend point up to the second bend point, plus 15 percent of AIME in excess of the second bend point. Automatic benefit increases are applied beginning with the year of eligibility. See table V.C2 for historical and assumed future bend points and table V.C1 for historical and assumed future benefit increases.

Quarters of coverage. Basic unit of measurement for determining insured status. In 2008, a worker receives one quarter of coverage (up to a total of four) for each $1,050 of annual covered earnings. The amount of earnings required for a quarter of coverage is subject to annual automatic increases in

proportion to increases in average wages. For amounts applicable for years after 1978, see table V.C2.

Railroad retirement. A Federal insurance program, somewhat similar to Social Security, designed for workers in the railroad industry. The provisions of the Railroad Retirement Act provide for a system of coordination and financial interchange between the Railroad Retirement program and the Social Security program.

Reallocation of tax rates. An increase in the tax rate payable to either the OASI or DI Trust Fund, with a corresponding reduction in the rate for the other fund, so that the total OASDI tax rate is not changed.

Real-wage differential. The difference between the percentage increases in (1) the average annual wage in covered employment and (2) the average annual Consumer Price Index. See table V.B1.

Recession. A period of adverse economic conditions; in particular, two or more successive calendar quarters of negative growth in gross domestic product.

Retired-worker benefit. A monthly benefit payable to a fully insured retired worker aged 62 or older or to a person entitled under the transitionally insured status provision in the law. Retired-worker benefit data do not include special age-72 benefits.

Retirement earnings test. See "Earnings test."

Retirement eligibility age. The age (62) at which a fully insured individual first becomes eligible to receive retired-worker benefits.

Retirement test. See "Earnings test."

Self-employment. Operation of a trade or business by an individual or by a partnership in which an individual is a member.

Self-Employment Contributions Act–SECA. Provision authorizing Social Security taxes on the net earnings of most self-employed persons.

Short range. The next 10 years. Short-range actuarial estimates are prepared for this period because of the short-range test of financial adequacy. The Social Security Act requires estimates for 5 years; estimates are prepared for an additional 5 years to help clarify trends which are only starting to develop in the mandated first 5-year period.

Social Security Act. Provisions of the law governing most operations of the Social Security program. Original Social Security Act is Public Law 74-271, enacted August 14, 1935. With subsequent amendments, the Social Security Act consists of 20 titles, of which four have been repealed. The Old-Age, Survivors, and Disability Insurance program is authorized by title II of the Social Security Act.

Social Security area population. The population comprised of (i) residents of the 50 States and the District of Columbia (adjusted for net census under-

count); (ii) civilian residents of Puerto Rico, the Virgin Islands, Guam, American Samoa and the Northern Mariana Islands; (iii) Federal civilian employees and persons in the U.S. Armed Forces abroad and their dependents; (iv) crew members of merchant vessels; and (v) all other U.S. citizens abroad.

Solvency. A program is solvent at a point in time if it is able to pay scheduled benefits when due with scheduled financing. For example, the OASDI program is considered solvent over any period for which the trust funds maintain a positive balance throughout the period.

Special public-debt obligation. Securities of the United States Government issued exclusively to the OASI, DI, HI, and SMI Trust Funds and other Federal trust funds. Section 201(d) of the Social Security Act provides that the public-debt obligations issued for purchase by the OASI and DI Trust Funds shall have maturities fixed with due regard for the needs of the funds. The usual practice has been to spread the holdings of special issues, as of each June 30, so that the amounts maturing in each of the next 15 years are approximately equal. Special public-debt obligations are redeemable at par value at any time and carry interest rates determined by law (see "Interest rate"). See tables VI.A5 and VI.A6 for a listing of the obligations held by the OASI and DI Trust Funds, respectively.

Statutory blindness. Central visual acuity of 20/200 or less in the better eye with the use of a correcting lens or tunnel vision of 20º or less.

Stochastic model. A model used for projecting a probability distribution of potential outcomes. Such models allow for random variation in one or more variables through time. The random variation is generally based on fluctuations observed in historical data for a selected period. Distributions of potential outcomes are derived from a large number of simulations, each of which reflects random variation in the variable(s).

Substantial gainful activity—SGA. The level of work activity used to establish disability. A finding of disability requires that a person be unable to engage in substantial gainful activity. A person who is earning more than a certain monthly amount (net of impairment-related work expenses) is ordinarily considered to be engaging in SGA. The amount of monthly earnings considered as SGA depends on the nature of a person's disability. The Social Security Act specifies a higher SGA amount for statutorily blind individuals; Federal regulations specify a lower SGA amount for non-blind individuals. Both SGA amounts increase with increases in the national average wage index.

Summarized balance. The difference between the summarized cost rate and the summarized income rate, expressed as a percentage of taxable payroll.

Summarized cost rate. The ratio of the present value of cost to the present value of the taxable payroll for the years in a given period, expressed as a

percentage. This percentage can be used as a measure of the relative level of cost during the period in question. For purposes of evaluating the financial adequacy of the program, the summarized cost rate is adjusted to include the cost of reaching and maintaining a target trust fund level. Because a trust fund level of about 1 year's cost is considered to be an adequate reserve for unforeseen contingencies, the targeted trust fund ratio used in determining summarized cost rates is 100 percent of annual cost. Accordingly, the adjusted summarized cost rate is equal to the ratio of (a) the sum of the present value of the cost during the period plus the present value of the targeted ending trust fund level, to (b) the present value of the taxable payroll during the projection period.

Summarized income rate. The ratio of the present value of scheduled tax income to the present value of taxable payroll for the years in a given period, expressed as a percentage. This percentage can be used as a measure of the relative level of income during the period in question. For purposes of evaluating the financial adequacy of the program, the summarized income rate is adjusted to include assets on hand at the beginning of the period. Accordingly, the adjusted summarized income rate equals the ratio of (a) the sum of the trust fund balance at the beginning of the period plus the present value of the total income from taxes during the period, to (b) the present value of the taxable payroll for the years in the period.

Supplemental Security Income—SSI. A Federally administered program (often with State supplementation) of cash assistance for needy aged, blind, or disabled persons. SSI is funded through the General Fund of the Treasury and administered by the Social Security Administration.

Supplementary Medical Insurance (SMI) Trust Fund. See "Trust fund."

Survivor benefit. Benefit payable to a survivor of a deceased worker.

Sustainable solvency. Sustainable solvency for the financing of the program is achieved when the program has positive trust fund ratios throughout the 75-year projection period and these ratios are stable or rising at the end of the period.

Taxable earnings. Wages and/or self-employment income, in employment covered by the OASDI and/or HI programs, that is under the applicable annual maximum taxable limit. For 1994 and later, no maximum taxable limit applies to the HI program.

Taxable payroll. A weighted average of taxable wages and taxable self-employment income. When multiplied by the combined employee-employer tax rate, it yields the total amount of taxes incurred by employees, employers, and the self-employed for work during the period.

Taxable self-employment income. The maximum amount of net earnings from self-employment by an earner which, when added to any taxable

wages, does not exceed the contribution and benefit base. For HI beginning in 1994, all of net earnings from self-employment.

Taxable wages. See "Taxable earnings."

Taxation of benefits. During 1984-93, up to one-half of an individual's or a couple's OASDI benefits was potentially subject to Federal income taxation under certain circumstances. The revenue derived from this provision was allocated to the OASI and DI Trust Funds on the basis of the income taxes paid on the benefits from each fund. Beginning in 1994, the maximum portion of OASDI benefits potentially subject to taxation was increased to 85 percent. The additional revenue derived from taxation of benefits in excess of one-half, up to 85 percent, is allocated to the HI Trust Fund.

Taxes. See "Contributions."

Termination. Cessation of payment of a specific type of benefit because the beneficiary is no longer entitled to receive it. For example, benefits might terminate as a result of the death of the beneficiary, the recovery of a disabled beneficiary, or the attainment of age 18 by a child beneficiary. In some cases, the individual may become immediately entitled to another type of benefit (such as the conversion of a disabled-worker beneficiary at normal retirement age to a retired-worker beneficiary).

Test of long-range close actuarial balance. Summarized income rates and cost rates are calculated for each of 66 valuation periods within the full 75-year long-range projection period. The first of these periods consists of the next 10 years. Each succeeding period becomes longer by 1 year, culminating with the period consisting of the next 75 years. The long-range test is met if, for each of the 66 valuation periods, the actuarial balance is not less than zero or is negative by, at most, a specified percentage of the summarized cost rate for the same time period. The percentage allowed for a negative actuarial balance is 0 percent for the 10-year period, grading uniformly to 5 percent for the full 75-year period. The criterion for meeting the test is less stringent for the longer periods in recognition of the greater uncertainty associated with estimates for more distant years. The test is applied to OASI and DI separately, as well as combined, based on the intermediate set of assumptions.

Test of short-range financial adequacy. The conditions required to meet this test are as follows:

- If the trust fund ratio for a fund exceeds 100 percent at the beginning of the projection period, then it must be projected to remain at or above 100 percent throughout the 10-year projection period;

- Alternatively, if the fund ratio is initially less than 100 percent, it must be projected to reach a level of at least 100 percent within 5 years (and not be depleted at any time during this period) and then remain at or

above 100 percent throughout the remainder of the 10-year period. In addition, the fund's estimated assets at the beginning of each month of the 10-year period must be sufficient to cover that month's disbursements.

These conditions apply to each trust fund separately, as well as to the combined funds, and are evaluated based on the intermediate set of assumptions.

Total fertility rate. The average number of children who would be born to a woman in her lifetime if she were to experience the birth rates by age observed in, or assumed for, a specified year, and if she were to survive the entire childbearing period.

Trust fund. Separate accounts in the United States Treasury in which are deposited the taxes received under the Federal Insurance Contributions Act and the Self-Employment Contributions Act, as well as taxes resulting from coverage of State and local government employees; any sums received under the financial interchange with the railroad retirement account; voluntary hospital and medical insurance premiums; and transfers of Federal general revenues. Funds not withdrawn for current monthly or service benefits, the financial interchange, and administrative expenses are invested in interest-bearing Federal securities, as required by law; the interest earned is also deposited in the trust funds.

- **Old-Age and Survivors Insurance (OASI).** The trust fund used for paying monthly benefits to retired-worker (old-age) beneficiaries and their spouses and children and to survivors of deceased insured workers.

- **Disability Insurance (DI).** The trust fund used for paying monthly benefits to disabled-worker beneficiaries and their spouses and children and for providing rehabilitation services to the disabled.

- **Hospital Insurance (HI).** The trust fund used for paying part of the costs of inpatient hospital services and related care for aged and disabled individuals who meet the eligibility requirements. Also known as Medicare Part A.

- **Supplementary Medical Insurance (SMI).** The Medicare trust fund composed of the Part B Account, the Part D Account, and the Transitional Assistance Account. The Part B Account pays for a portion of the costs of physicians' services, outpatient hospital services, and other related medical and health services for voluntarily enrolled aged and disabled individuals. The Part D Account pays private plans to provide prescription drug coverage, beginning in 2006. The Transitional Assistance Account paid for transitional assistance under the prescription drug card program in 2004 and 2005.

Trust fund ratio. A measure of the adequacy of the trust fund level. Defined as the assets at the beginning of a year, including advance tax transfers (if

any), expressed as a percentage of the cost during the year. The trust fund ratio represents the proportion of a year's cost which could be paid with the funds available at the beginning of a year.

Unfunded obligation. See "Open group unfunded obligation" and "Closed group unfunded obligation".

Unnegotiated check. A check which has not been cashed 6 months after the end of the month in which the check was issued. When a check has been outstanding for a year (i) the check is administratively cancelled by the Department of the Treasury and (ii) the issuing trust fund is reimbursed separately for the amount of the check and interest for the period the check was outstanding. The appropriate trust fund also receives an interest adjustment for the time the check was outstanding if it is cashed 6-12 months after the month of issue. If a check is presented for payment after it is administratively cancelled, a replacement check is issued.

Valuation period. A period of years which is considered as a unit for purposes of calculating the financial status of a trust fund.

Vocational rehabilitation. Services provided to disabled persons to help enable them to return to gainful employment. Reimbursement from the trust funds for the costs of such services is made only in those cases where the services contributed to the successful rehabilitation of the beneficiaries.

Year of exhaustion. The year in which a trust fund would become unable to pay benefits when due because the assets of the fund were exhausted.

II. OVERVIEW

III. FINANCIAL OPERATIONS OF THE TRUST FUNDS AND LEGISLATIVE CHANGES IN THE LAST YEAR

IV. ACTUARIAL ESTIMATES

V. ASSUMPTIONS AND METHODS UNDERLYING
ACTUARIAL ESTIMATES

VI. APPENDICES

A. HISTORY OF OASI AND DI TRUST FUND OPERATIONS

B. HISTORY OF ACTUARIAL BALANCE ESTIMATES

C. FISCAL YEAR HISTORICAL DATA AND PROJECTIONS THROUGH 2017

D. LONG-RANGE SENSITIVITY ANALYSIS

E. STOCHASTIC PROJECTIONS

F. ESTIMATES FOR OASDI AND HI, SEPARATE AND COMBINED

G. ANALYSIS OF BENEFIT DISBURSEMENTS FROM THE OASI TRUST FUND WITH RESPECT TO DISABLED BENEFICIARIES

List of Figures

II. OVERVIEW

IV. ACTUARIAL ESTIMATES

V. ASSUMPTIONS AND METHODS UNDERLYING ACTUARIAL ESTIMATES

VI. APPENDICES

Index

A
Actuarial balance 8, 10, 43, 108, 144, 155
Actuarial balance, long-range test 66
Actuarial deficit 2, 10, 18, 58, 176
Actuarial estimates, LR 43
Actuarial estimates, SR 32
Adjusted program amounts 100
Administrative expenses 4, 29, 44, 128, 135, 149, 177, 185
Advance tax transfers 53, 137
Amendments 31
Annual balance 16, 43, 68
Assets 2, 4, 7, 23, 32, 44, 136, 149, 162, 172, 183
Assumptions 2, 7, 44, 72, 87, 100, 144, 155, 173, 177, 182, 195
Automatic cost-of-living benefit increase 4, 36, 88, 100
Auxiliary benefits 110
Average benefits 128
Average earnings assumptions 89
Average indexed monthly earnings (AIME) 103
Average wage index 100, 182
Award 111

B
Baby-boom generation 2, 9, 18, 36, 45, 93, 119, 127, 178
Bend points 103
Beneficiaries, DI 117
Beneficiary 9, 36, 49, 72, 101, 147, 156, 177, 185, 195
Beneficiary, OASI 111
Benefit payments 4, 8, 33, 44, 128, 135, 149, 162, 177, 185, 197
Benefit termination 6, 39
Best estimate 6, 18, 32, 72
Board of Trustees 32, 87, 131

C
Close actuarial balance 43, 63
Closed group unfunded obligation 62, 63, 201
Constant dollars 187
Consumer Price Index 88, 161, 182, 200
Contribution and benefit base 34, 89, 101, 132, 182, 200
Contributions 4, 131, 149, 172, 177, 185, 199
Cost rate 3, 8, 44, 108, 172
Cost-of-living adjustment 100
Covered earnings 4, 100, 181
Covered employment 6, 34, 89, 107, 131, 160
Covered worker 49, 107, 158

Index

I

L

M

N

O

P

Index

STATEMENT OF ACTUARIAL OPINION

It is my opinion that (1) the techniques and methodology used herein to evaluate the financial and actuarial status of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds are based upon sound principles of actuarial practice and are generally accepted within the actuarial profession; and (2) the assumptions used and the resulting actuarial estimates are, individually and in the aggregate, reasonable for the purpose of evaluating the financial and actuarial status of the trust funds, taking into consideration the past experience and future expectations for the population, the economy, and the program.

Stephen C. Goss,

Associate of the Society of Actuaries,
Member of the American Academy of Actuaries,
Chief Actuary, Social Security Administration