

**D. PRINCIPAL ECONOMIC AND DEMOGRAPHIC ASSUMPTIONS**

The future income and outgo of the combined OASDI program depend on many economic and demographic factors, including gross domestic product, labor force, unemployment, average earnings, productivity, inflation, fertility, mortality, net immigration, marriage, divorce, retirement patterns, and disability incidence and termination. The income will depend on how these factors affect the size and composition of the working population and the level and distribution of earnings. Similarly, the outgo will depend on how these factors affect the size and composition of the beneficiary population and the general level of benefits.

Because precise prediction of these various factors is impossible, estimates are 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, alternative II, 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 alternative I is the more optimistic, and the high cost alternative III is the more pessimistic of the plausible economic and demographic conditions.

Although these sets of economic and demographic assumptions have been developed using the best available information, the resulting estimates should be interpreted with care. In particular, the resulting estimates are not intended to be exact predictions of the future status of the OASDI program, but rather, they are intended to be indicators of the trend and range of future income and outgo, under a variety of plausible economic and demographic conditions.

## Actuarial Analysis

### 1. Economic Assumptions

The principal economic assumptions for the three alternatives are summarized in table II.D1.

**TABLE II.D1.—SELECTED ECONOMIC ASSUMPTIONS BY ALTERNATIVE, CALENDAR YEARS 1960-2070**

Calendar year	Average annual percentage change in—						Average annual percentage increase in labor force <sup>6</sup>
	Real GDP <sup>1</sup>	Average annual wage in covered employment	Consumer Price Index <sup>2</sup>	Real-wage differential <sup>3</sup> (percent)	Average annual interest rate <sup>4</sup> (percent)	Average annual unemployment rate <sup>5</sup> (percent)	
Historical data:							
1960-64	3.9	3.4	1.3	2.1	3.7	5.7	1.3
1965-69	4.4	5.4	3.4	2.0	5.2	3.8	2.1
1970-74	2.4	6.3	6.1	.2	6.7	5.4	2.3
1975	-.8	6.7	9.1	-2.4	7.4	8.5	1.9
1976	4.9	8.7	5.7	3.0	7.1	7.7	2.4
1977	4.5	7.3	6.5	.8	7.1	7.1	2.9
1978	4.8	9.7	7.7	2.0	8.2	6.1	3.2
1979	2.5	9.8	11.4	-1.6	9.1	5.8	2.6
1980	-.5	9.0	13.4	-4.4	11.0	7.1	1.9
1981	1.8	9.8	10.3	-.5	13.3	7.6	1.6
1982	-2.2	6.5	6.0	.5	12.8	9.7	1.4
1983	3.9	5.1	3.0	2.1	11.0	9.6	1.2
1984	6.2	7.3	3.5	3.8	12.4	7.5	1.8
1985	3.2	4.3	3.5	.8	10.8	7.2	1.7
1986	2.9	5.1	1.6	3.5	8.0	7.0	2.0
1987	3.1	4.7	3.6	1.1	8.4	6.2	1.7
1988	3.9	4.8	4.0	.8	8.8	5.5	1.4
1989	2.5	4.3	4.8	-.5	8.7	5.3	1.8
1990	1.2	7 4.8	5.2	-.4	8.6	5.5	.7
1991	-.7	7 3.8	4.0	-.2	8.0	6.7	.4
1992	2.6	7 5.2	2.9	2.3	7.1	7.4	1.2
1993	7 2.9	7 2.4	2.8	-.5	6.1	6.8	.7
Intermediate:							
1994	3.2	2.7	2.7	.0	5.9	6.3	1.2
1995	2.8	4.8	3.2	1.6	5.9	6.2	1.0
1996	2.6	4.3	3.3	1.0	5.9	6.0	1.0
1997	2.4	4.3	3.4	1.0	6.1	6.0	.9
1998	2.2	4.3	3.5	.9	6.1	6.0	.9
1999	2.2	4.6	3.7	.9	6.2	6.0	.9
2000	2.1	4.8	3.9	.9	6.3	6.0	.9
2001	2.0	4.8	4.0	.8	6.4	5.9	.9
2002	2.0	5.0	4.0	1.0	6.4	5.9	.8
2003	2.0	5.1	4.0	1.1	6.4	5.9	.7
2010	1.7	5.1	4.0	1.1	6.3	6.0	.6
2020	1.3	5.0	4.0	1.0	6.3	6.0	.1
2030	1.3	5.0	4.0	1.0	6.3	6.0	.2
2040	1.2	5.0	4.0	1.0	6.3	6.0	.1
2050	1.2	5.0	4.0	1.0	6.3	6.0	.0
2060	1.2	5.0	4.0	1.0	6.3	6.0	.1
2070	1.2	5.0	4.0	1.0	6.3	6.0	.0

*Economic & Demographic Assumptions*

**TABLE II.D1.—SELECTED ECONOMIC ASSUMPTIONS BY ALTERNATIVE, CALENDAR YEARS 1960-2070 (Cont.)**

Calendar year	Average annual percentage change in—						Average annual percentage increase in labor force <sup>6</sup>
	Real GDP <sup>1</sup>	Average annual wage in covered employment	Consumer Price Index <sup>2</sup>	Real-wage differential <sup>3</sup> (percent)	Average annual interest rate <sup>4</sup> (percent)	Average annual unemployment rate <sup>5</sup> (percent)	
<b>Low Cost:</b>							
1994.....	4.1	2.9	2.4	0.5	5.9	6.1	1.3
1995.....	3.7	5.1	2.8	2.3	5.8	5.7	1.2
1996.....	3.5	4.8	3.0	1.8	5.8	5.5	1.2
1997.....	3.3	4.8	3.0	1.8	6.0	5.3	1.1
1998.....	3.1	4.7	3.0	1.7	6.1	5.1	1.1
1999.....	2.9	4.6	3.0	1.6	6.0	5.1	1.1
2000.....	2.7	4.6	3.0	1.6	6.0	5.0	1.1
2001.....	2.6	4.6	3.0	1.5	6.0	5.0	1.0
2002.....	2.5	4.6	3.0	1.7	6.0	5.0	.9
2003.....	2.4	4.7	3.0	1.7	6.0	5.0	.9
2010.....	2.3	4.7	3.0	1.7	6.0	5.0	.7
2020.....	1.9	4.5	3.0	1.5	6.0	5.0	.3
2030.....	2.1	4.5	3.0	1.5	6.0	5.0	.5
2040.....	2.1	4.5	3.0	1.5	6.0	5.0	.6
2050.....	2.1	4.5	3.0	1.5	6.0	5.0	.6
2060.....	2.2	4.5	3.0	1.5	6.0	5.0	.6
2070.....	2.1	4.5	3.0	1.5	6.0	5.0	.6
<b>High Cost:</b>							
1994.....	2.4	2.6	3.4	-.7	6.0	6.4	1.2
1995.....	-.5	4.2	4.0	.2	6.3	7.0	.7
1996.....	2.8	5.8	5.4	.4	7.0	6.8	.7
1997.....	1.3	6.2	6.4	-.2	7.8	6.6	.9
1998.....	-1.7	3.8	4.9	-1.1	8.0	7.7	.6
1999.....	3.0	5.7	5.0	.8	7.7	7.5	.6
2000.....	2.7	5.2	5.0	.2	7.0	7.0	.9
2001.....	1.8	5.1	5.0	.1	6.9	6.9	.9
2002.....	1.5	5.4	5.0	.4	6.7	6.9	.7
2003.....	1.5	5.6	5.0	.6	6.6	6.9	.6
2010.....	1.3	5.5	5.0	.5	6.5	7.0	.5
2020.....	.7	5.6	5.0	.6	6.5	7.0	-.1
2030.....	.6	5.5	5.0	.5	6.5	7.0	-.2
2040.....	.5	5.5	5.0	.5	6.5	7.0	-.2
2050.....	.3	5.5	5.0	.5	6.5	7.0	-.5
2060.....	.2	5.5	5.0	.5	6.5	7.0	-.6
2070.....	.2	5.5	5.0	.5	6.5	7.0	-.5

<sup>1</sup>The real GDP (gross domestic product) is the value of total output of goods and services, expressed in 1987 dollars.

<sup>2</sup>The Consumer Price Index is the annual average value for the calendar year of the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>3</sup>The real-wage differential is the difference between the percentage increases, before rounding, in (1) the average annual wage in covered employment, and (2) the average annual Consumer Price Index.

<sup>4</sup>The average annual 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.

<sup>5</sup>Through 2003, the rates shown are unadjusted civilian unemployment rates. After 2003, the rates are total rates (including military personnel), adjusted by age and sex based on the estimated total labor force for July 1, 1992.

<sup>6</sup>Labor force is the total for the U.S. (including military personnel) and reflects the average of the monthly numbers of persons in the labor force for each year.

<sup>7</sup>Preliminary.

## *Actuarial Analysis*

Alternatives I, II, and III present a range of generally consistent sets of economic assumptions which have been designed to encompass most of the possibilities that might be encountered. The intermediate set of assumptions (alternative II) represents the Trustees' consensus expectation of continued moderate to relatively strong economic growth through 1996 and a return to moderate growth thereafter. The low cost assumptions (alternative I) represent a more optimistic outlook, with an indefinite continuation of the more robust economic growth experienced since the fourth quarter of 1992. The high cost assumptions (alternative III) represent a relatively pessimistic forecast in which the economy experiences generally weak economic growth and business cycles with two recessions in the short-range period. Economic cycles are not included in assumptions beyond the first 5 to 10 years of the projection period because inclusion of such cycles has little effect on the long-range estimates of financial status.

The period of sustained real economic growth, which began in 1982, ended with the recession that started with the third quarter of 1990. After a total decline in real GDP of 1.6 percent through the first quarter of 1991, and a three-quarter period of slow, but positive, growth following the recession, the return to steady economic growth which began in 1992 is assumed to continue through the end of the decade, and beyond, for alternatives I and II. Real growth is assumed to be stronger for alternative I than for alternative II.

For alternative III, moderate growth and an increasing rate of price inflation are assumed through the third quarter of 1994. The first projected recession begins in the fourth quarter of 1994, lasts 3 quarters, and results in a total decline in real GDP of 1.4 percent. After 8 quarters of recovery, a second recession, with a total decline in real GDP of 3.0 percent, is assumed to begin in the third quarter of 1997, lasting 4 quarters. A two-and-one-half-year period of moderately strong economic recovery and stable rates of inflation is assumed through the year 2000. Thereafter, steady, but relatively slow, growth is assumed for alternative III. The total declines in real GDP for the two projected recessions are slightly less than those of recent recessions; however, the duration of recovery between these recessions is assumed to be much shorter than for recoveries experienced in the past 2 decades.

After the year 2003, the projected rates of growth in real GDP, for all three alternatives, are determined by the assumed rates of growth

in employment, average hours worked, and labor productivity.

Assumed values for the unemployment rates reflect the pattern of real GDP growth for each alternative. For alternatives I and II, the unemployment rate is assumed to move gradually toward ultimate average levels of 5.0 and 6.0 percent, respectively, after 1993. For alternative III, the unemployment rate is assumed to reach its ultimate average level of 7.0 percent after the recovery that is assumed to follow the second projected recession.

Unemployment rates through 2003 are in the most commonly cited form, the civilian rate, which describes the differences between aggregate civilian labor force and aggregate civilian employment. For years after 2003, however, total rates are presented. These include the military (which reduces the rate by about 0.1 percent relative to the civilian rate) and are age-sex adjusted to the 1992 labor force. Such total rates better represent the total population covered by the OASDI program and adjust for the changing age-sex distribution of the labor force, which can obscure the comparison of unemployment rates over different time periods.

Unemployment rates measured and published by the Bureau of Labor Statistics are expected to be somewhat higher than would otherwise be expected starting in 1994, as a result of a change in survey methodology that will reclassify some people from being out of the labor force to being in the labor force, but unemployed. This change is not reflected in either the historical or projected values in this report, as insufficient data based on the new methodology were available at the time of preparation of the report.

For the intermediate projection, each of the other economic parameters is selected reflecting what the Trustees believe to be the most likely future course of the economy at the time of preparation of this report, consistent with the assumed pattern of real GDP growth. The annual rate of change in the average wage in covered employment is assumed to rise, generally, from the estimated 2.4-percent increase for 1993, averaging about 4.5 percent for the period 1994 through 2003. Between 2003 and 2015, growth in the average covered wage is slightly higher than the assumed ultimate rate of 5.0 percent, reflecting the gradual movement toward complete inclusion of Fed-

## *Actuarial Analysis*

eral civilian employees. After 2015, the average covered wage growth rate remains at the ultimate assumed rate of 5.0 percent.

The annual rate of increase in the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) declined from 4.0 percent in 1991 to 2.8 percent in 1993. Thereafter, it is assumed to increase, generally, reaching the ultimate assumed rate of 4.0 percent by the year 2001. The CPI-W (hereinafter denoted as "CPI") is used to determine automatic cost-of-living benefit increases under the OASDI program.

The real-wage differential (i.e., the difference between the annual rates of change in the average wage in covered employment and in the CPI) is estimated to be -0.5 percent in 1993. After 1993, under the intermediate alternative, the real-wage differential is projected to rise, with levels between 0.8 and 1.6 percent for years 1995 through the year 2015, thereafter remaining at the ultimate assumed differential of 1.0 percent. This represents a reduction of 0.1 percent from the ultimate assumption used in last year's report. This reduction reflects the expectation that many of the factors that have contributed to slower growth over the past 30 years (0.8 percent per year, on average, from 1962 to 1992) than for the prior 10 years (2.6 percent per year, on average, from 1952 to 1962) are likely to continue for the foreseeable future.

Under the intermediate alternative, the average annual interest rate is assumed to change very little from 6.1 percent in 1993, reaching its ultimate value of 6.3 percent by 2004. The annual rate of growth in total labor force decreased from 1.2 percent in 1992 to 0.7 percent in 1993. After 1993 the labor force is projected to increase at about 1.0 percent per year, on the average, through 2000, and to increase more slowly thereafter, reflecting the projected slowing of growth in the working-age population as compared with the experience of the 1980s and early 1990s.

For alternatives I and III, respectively, values for each of the economic parameters are selected which, in general, result in a more optimistic and a more pessimistic future financial status of the program.

## **2. Demographic Assumptions**

The principal demographic assumptions for the three alternatives are shown in table II.D2.

For the intermediate projection, the assumed ultimate total fertility rate of 1.9 children per woman is attained in 2018 after a gradual decline from the preliminary estimate for 1993 of 2.05 children per woman. The age-sex-adjusted death rate is assumed to decrease gradually during the entire projection period, with a total reduction of 35 percent from the 1993 level by 2068. Life expectancies at birth in 2070 are 77.9 years for men and 84.0 years for women, compared to 72.1 and 79.0 years, respectively, in 1993. Life expectancies at age 65 in 2070 are projected to be 18.5 years for men and 22.3 years for women, compared to 15.2 and 19.1 years, respectively, in 1993. The projected death rates reflect the effects of assumed cases of Acquired Immunodeficiency Syndrome (AIDS), using estimates prepared by the Centers for Disease Control and Prevention (CDC) as a starting point. Total net immigration is assumed to rise over the next several years reaching an ultimate level of 850,000 persons per year by the year 2000. The ultimate assumed level of net annual immigration is the combination of 650,000 net legal immigrants per year and 200,000 net other-than-legal immigrants per year.

For alternative I, the total fertility rate is assumed to rise to an ultimate level of 2.2 children per woman by 2018. The age-sex-adjusted death rate is assumed to decrease more slowly than for alternative II, with the total reduction from the 1993 level being 16 percent by 2068. Life expectancies at birth in 2070 are 75.2 years for men and 80.9 years for women, while at age 65 they are 16.2 and 19.7 years, respectively. Total net immigration is ultimately assumed to be 1,100,000 persons per year. The assumed level of net annual immigration is the combination of 750,000 net legal immigrants per year and 350,000 net other-than-legal immigrants per year.

For alternative III, the total fertility rate is assumed to decrease to an ultimate level of 1.6 by 2018. The age-sex-adjusted death rate is assumed to decrease more rapidly than for alternative II, with the total reduction from the 1993 level being 54 percent by 2068. Life expectancies at birth in 2070 are 81.8 years for men and 88.0 years for women, while at age 65 they are 21.6 and 25.5 years, respectively. Total net immigration is ultimately assumed to be 700,000 persons

## Actuarial Analysis

per year, the combination of 600,000 net legal immigrants per year and 100,000 net other-than-legal immigrants per year.

**TABLE II.D2.—SELECTED DEMOGRAPHIC ASSUMPTIONS BY ALTERNATIVE, CALENDAR YEARS 1940-2070**

Calendar year	Total fertility rate <sup>1</sup>	Age-sex-adjusted death rate <sup>2</sup> (per 100,000)	Life expectancy <sup>3</sup>			
			At birth		At age 65	
			Male	Female	Male	Female
<b>Historical data:</b>						
1940	2.23	1,532.8	61.4	65.7	11.9	13.4
1945	2.42	1,366.4	62.9	68.4	12.6	14.4
1950	3.03	1,225.3	65.6	71.1	12.8	15.1
1955	3.50	1,134.2	66.7	72.8	13.1	15.6
1960	3.61	1,128.6	66.7	73.2	12.9	15.9
1965	2.88	1,103.6	66.8	73.8	12.9	16.3
1970	2.43	1,041.8	67.1	74.9	13.1	17.1
1975	1.77	934.0	68.7	76.6	13.7	18.0
1976	1.74	923.2	69.1	76.8	13.7	18.1
1977	1.79	898.0	69.4	77.2	13.9	18.3
1978	1.76	892.4	69.6	77.2	13.9	18.3
1979	1.82	864.2	70.0	77.7	14.2	18.6
1980	1.85	878.1	69.9	77.5	14.0	18.4
1981	1.83	853.8	70.4	77.8	14.2	18.6
1982	1.83	828.5	70.8	78.2	14.5	18.8
1983	1.81	836.1	70.9	78.1	14.3	18.6
1984	1.80	829.6	71.1	78.2	14.4	18.7
1985	1.84	831.8	71.1	78.2	14.4	18.6
1986	1.84	824.8	71.1	78.3	14.5	18.7
1987	1.87	816.1	71.3	78.4	14.6	18.7
1988	1.93	824.5	71.2	78.3	14.6	18.7
1989	2.01	804.1	71.5	78.6	14.8	18.9
1990	2.07	789.0	71.8	78.8	15.0	19.0
1991	2.07	791.6	71.8	78.8	15.0	19.0
1992 <sup>4</sup>	2.05	757.7	72.4	79.2	15.5	19.3
1993 <sup>4</sup>	2.05	774.9	72.1	79.0	15.2	19.1
<b>Intermediate:</b>						
1995	2.04	761.6	72.3	79.2	15.4	19.2
2000	2.01	731.0	73.0	79.7	15.6	19.4
2005	1.98	701.1	73.8	80.2	15.8	19.5
2010	1.95	678.4	74.3	80.5	16.0	19.7
2015	1.92	659.2	74.7	80.9	16.3	19.9
2020	1.90	641.0	75.0	81.2	16.5	20.2
2025	1.90	623.8	75.3	81.5	16.7	20.4
2030	1.90	607.3	75.6	81.8	16.9	20.6
2035	1.90	591.6	75.9	82.1	17.1	20.9
2040	1.90	576.7	76.2	82.3	17.3	21.1
2045	1.90	562.4	76.5	82.6	17.5	21.3
2050	1.90	548.8	76.8	82.9	17.7	21.5
2055	1.90	535.7	77.1	83.2	17.9	21.7
2060	1.90	523.3	77.4	83.5	18.1	21.9
2065	1.90	511.4	77.6	83.7	18.3	22.1
2070	1.90	500.0	77.9	84.0	18.5	22.3



**TABLE II.D2.—SELECTED DEMOGRAPHIC ASSUMPTIONS BY ALTERNATIVE, CALENDAR YEARS 1940-2070 (Cont.)**

Calendar year	Total fertility rate <sup>1</sup>	Age-sex-adjusted death rate <sup>2</sup> (per 100,000)	Life expectancy <sup>3</sup>			
			At birth		At age 65	
			Male	Female	Male	Female
<b>Low Cost:</b>						
1985 .....	2.06	766.4	72.6	79.1	15.2	19.0
2000 .....	2.10	758.4	72.9	79.1	15.2	18.9
2005 .....	2.13	753.0	73.2	79.2	15.2	18.8
2010 .....	2.16	745.1	73.4	79.3	15.3	18.8
2015 .....	2.18	735.8	73.6	79.5	15.3	18.8
2020 .....	2.20	726.6	73.7	79.6	15.4	18.9
2025 .....	2.20	717.8	73.9	79.8	15.5	19.0
2030 .....	2.20	709.2	74.1	79.9	15.6	19.1
2035 .....	2.20	700.9	74.2	80.0	15.7	19.2
2040 .....	2.20	692.8	74.4	80.2	15.7	19.3
2045 .....	2.20	685.0	74.5	80.3	15.8	19.4
2050 .....	2.20	677.4	74.6	80.4	15.9	19.4
2055 .....	2.20	670.0	74.8	80.5	16.0	19.5
2060 .....	2.20	662.9	74.9	80.7	16.0	19.6
2065 .....	2.20	655.9	75.0	80.8	16.1	19.7
2070 .....	2.20	649.1	75.2	80.9	16.2	19.7
<b>High Cost:</b>						
1995 .....	2.01	751.6	72.3	79.5	15.5	19.4
2000 .....	1.93	712.3	72.7	80.2	16.0	19.9
2005 .....	1.83	663.3	73.9	81.0	16.4	20.3
2010 .....	1.74	614.9	75.3	81.7	16.8	20.7
2015 .....	1.65	579.9	76.1	82.3	17.2	21.1
2020 .....	1.60	551.1	76.7	82.9	17.6	21.5
2025 .....	1.60	525.3	77.2	83.4	18.0	21.9
2030 .....	1.60	501.1	77.7	84.0	18.4	22.3
2035 .....	1.60	478.3	78.2	84.5	18.8	22.8
2040 .....	1.60	456.5	78.7	85.0	19.2	23.2
2045 .....	1.60	436.0	79.2	85.5	19.6	23.6
2050 .....	1.60	416.6	79.8	86.0	20.0	24.0
2055 .....	1.60	398.2	80.3	86.5	20.4	24.4
2060 .....	1.60	380.9	80.8	87.0	20.8	24.8
2065 .....	1.60	364.5	81.3	87.5	21.2	25.2
2070 .....	1.60	349.0	81.8	88.0	21.6	25.5

<sup>1</sup>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 child-bearing period. The ultimate total fertility rate is assumed to be reached in 2018.

<sup>2</sup>The age-sex-adjusted death rate is the crude rate that would occur in the enumerated total population as of April 1, 1980, if that population were to experience the death rates by age and sex observed in, or assumed for, the selected year.

<sup>3</sup>The life expectancy for any year is the average number of years of life remaining for a person if that person were to experience the death rates by age observed in, or assumed for, the selected year.

<sup>4</sup>Preliminary.

The values assumed after the early years for both the economic and the demographic factors are intended to represent the average experience and are not intended to be exact predictions of year-by-year values. Actual future values will likely exhibit fluctuations or cyclical patterns, as in the past.

In addition to the assumptions discussed above, many other factors

## *Actuarial Analysis*

are necessary to prepare the estimates presented in this report. Section II.H includes a discussion of many of those factors.

The ultimate values presented in tables II.D1 and II.D2 reflect little change from the ultimate values used for the 1993 Annual Report. Different levels, as opposed to rates of change, in several factors reflect, primarily, different starting levels based on additional data collected since the last report. The ultimate real-wage differential is reduced by 0.1 percent for the intermediate alternative to 1.0 percent from the level of 1.1 percent used in last year's report, based on a reassessment of historical experience and expectations for the future. The effect on the financing of the OASDI program of this and other changes is discussed in section II.F.2.

## **E. AUTOMATIC ADJUSTMENTS**

The Social Security Act specifies that certain program amounts affecting the determination of OASDI benefits are to be adjusted annually, in general, to reflect changes in the economy. The law prescribes specific formulas that, when applied to reported statistics, produce "automatic" revisions in these program amounts and hence in the benefit-computation procedures.

In this section, values are shown for the program amounts that are subject to automatic adjustment, from the time that such adjustments became effective through 2003. Projected values for future years are based on the economic assumptions described in the preceding section of this report. Appendix F, in addition to providing the most recent determinations of program amounts under the automatic adjustment provisions, also provides a more complete description of such amounts.

Under the automatic-adjustment provisions affecting cost-of-living increases, benefits generally are increased once a year. These provisions were originally enacted in 1972 and first became effective with the benefit increase effective for June 1975. The 1983 amendments changed the effective month to December for years after 1982. For persons becoming eligible for benefits in 1979 and later, the increases generally begin with the year in which the worker reaches age 62, or becomes disabled or dies, if earlier. An automatic cost-of-living benefit increase of 2.6 percent, effective for December 1993, was announced in October 1993, as described in Appendix F. The automatic cost-of-living benefit increase for any year is normally based on the change in the CPI from the third quarter of the previous year to the third quarter of the current year.<sup>1</sup>

Under section 215(b)(3) of the Social Security Act, the average amount of total wages for each year after 1950 is used to index the earnings of most workers first becoming eligible for benefits in 1979 or later. This procedure converts a worker's past earnings to approximately their equivalent values near the time of the worker's retirement or other eligibility, and these indexed values are used to calculate the worker's benefit. The average amount of total wages for each year,

<sup>1</sup> If the combined assets of the OASI and DI Trust Funds at the beginning of a year represent less than 20 percent of annual expenditures for that year, then the automatic benefit increase for December is limited to the lesser of the increases in wages or prices. This "stabilizer" provision has not affected any benefit increases since its enactment in 1983. Based on the projected operations of the trust funds shown in this report under the alternative sets of assumptions, the stabilizer provision is unlikely to affect any future OASDI benefit increases under present law.

## Actuarial Analysis

generally referred to as the “average wage index,” is also used to adjust most of the program amounts that are subject to the automatic-adjustment provisions. Table II.E1 shows the average wage index as determined for each year 1951 through 1992.

**TABLE II.E1.—AVERAGE WAGE INDEX, CALENDAR YEARS 1951-92**

Year	Amount	Year	Amount	Year	Amount
1951	\$2,799.16	1966	\$4,938.36	1981	\$13,773.10
1952	2,973.32	1967	5,213.44	1982	14,531.34
1953	3,139.44	1968	5,571.76	1983	15,239.24
1954	3,155.64	1969	5,893.76	1984	16,135.07
1955	3,301.44	1970	6,186.24	1985	16,822.51
1956	3,532.36	1971	6,497.08	1986	17,321.82
1957	3,641.72	1972	7,133.80	1987	18,426.51
1958	3,673.80	1973	7,580.16	1988	19,334.04
1959	3,855.80	1974	8,030.76	1989	20,099.55
1960	4,007.12	1975	8,630.92	1990	21,027.98
1961	4,086.76	1976	9,226.48	1991	21,811.60
1962	4,291.40	1977	9,779.44	1992	22,935.42
1963	4,396.64	1978	10,556.03		
1964	4,576.32	1979	11,479.46		
1965	4,658.72	1980	12,513.46		

The law provides for an automatic increase in the OASDI program’s contribution and benefit base, based on the increase in the average wage index, for the year following a year in which an automatic benefit increase became effective. As described in Appendix F, the contribution and benefit base for 1994 was determined to be \$60,600.

Under the retirement earnings test, earnings below certain amounts are exempted from the withholding of benefits payable to beneficiaries under age 70. Different exempt amounts apply for beneficiaries under age 65 and for those aged 65 to 69. The automatic adjustment provisions require that such exempt amounts be increased in the year following a year in which an automatic cost-of-living benefit increase becomes effective. Increases in the exempt amounts are based on increases in the average wage index.

Table II.E2 shows historical automatic cost-of-living benefit increases for the years 1975-93 and assumed increases through 2003. The table also shows historical year-to-year percentage increases in the average wage index for 1975-92 and assumed increases through 2003. As noted above, the OASDI contribution and benefit base and the retirement test exempt amounts are adjusted on the basis of such wage increases. The historical and projected amounts for this base and the exempt amounts are also shown in table II.E2. The projections are

*Automatic Adjustments*

shown under the three alternative sets of economic assumptions described in the previous section.

**TABLE II.E2.—COST-OF-LIVING BENEFIT INCREASES, AVERAGE WAGE INDEX INCREASES, OASDI CONTRIBUTION AND BENEFIT BASES, AND RETIREMENT EARNINGS TEST EXEMPT AMOUNTS, 1975-2003**

Calendar year	OASDI benefit increases <sup>1</sup> (percent)	Increase in average wage index <sup>2</sup> (percent)	OASDI contribution and benefit base <sup>3</sup>	Retirement earnings test exempt amount	
				Under age 65	Ages 65 and over <sup>4</sup>
<b>Historical data:</b>					
1975	8.0	7.5	\$14,100	\$2,520	\$2,520
1976	6.4	6.9	15,300	2,760	2,760
1977	5.9	6.0	16,500	3,000	3,000
1978	6.5	7.9	17,700	3,240	<sup>5</sup> 4,000
1979	9.9	8.7	<sup>5</sup> 22,900	3,480	<sup>5</sup> 4,500
1980	14.3	9.0	<sup>5</sup> 25,900	3,720	<sup>5</sup> 5,000
1981	11.2	10.1	<sup>5</sup> 29,700	4,080	<sup>5</sup> 5,500
1982	7.4	5.5	32,400	4,440	<sup>5</sup> 6,000
1983	3.5	4.9	35,700	4,920	6,600
1984	3.5	5.9	37,800	5,160	6,960
1985	3.1	4.3	39,600	5,400	7,320
1986	1.3	3.0	42,000	5,760	7,800
1987	4.2	6.4	43,800	6,000	8,160
1988	4.0	4.9	45,000	6,120	8,400
1989	4.7	4.0	48,000	6,480	8,880
1990	5.4	4.6	51,300	6,840	9,360
1991	3.7	3.7	53,400	7,080	9,720
1992	3.0	5.2	55,500	7,440	10,200
1993	2.6	<sup>6</sup> 2.4	57,600	7,680	10,560
<b>Intermediate:</b>					
1994	2.9	2.6	<sup>7</sup> 60,600	<sup>7</sup> 8,040	<sup>7</sup> 11,160
1995	3.2	4.6	62,100	8,280	11,400
1996	3.3	4.2	63,600	8,520	11,640
1997	3.3	4.2	66,600	8,880	12,120
1998	3.5	4.3	69,300	9,240	12,600
1999	3.7	4.5	72,300	9,600	13,080
2000	3.9	4.7	75,300	9,960	13,680
2001	4.0	4.7	78,600	10,440	14,280
2002	4.0	4.9	82,200	10,920	15,000
2003	4.0	5.0	86,100	11,400	15,720
<b>Low Cost:</b>					
1994	2.6	2.8	<sup>7</sup> 60,600	<sup>7</sup> 8,040	<sup>7</sup> 11,160
1995	2.8	4.9	62,400	8,280	11,520
1996	3.1	4.7	64,200	8,520	11,880
1997	3.0	4.6	67,500	9,000	12,480
1998	3.0	4.6	70,800	9,480	13,080
1999	3.0	4.6	74,100	9,960	13,680
2000	3.0	4.5	77,400	10,440	14,280
2001	3.0	4.5	81,000	10,920	14,880
2002	3.0	4.5	84,600	11,400	15,600
2003	3.0	4.6	88,500	11,880	16,320

*Actuarial Analysis*

**TABLE II.E2.—COST-OF-LIVING BENEFIT INCREASES, AVERAGE WAGE INDEX INCREASES, OASDI CONTRIBUTION AND BENEFIT BASES, AND RETIREMENT EARNINGS TEST EXEMPT AMOUNTS, 1975-2003 (Cont.)**

Calendar year	OASDI benefit increases <sup>1</sup> (percent)	Increase in average wage index <sup>2</sup> (percent)	OASDI contribution and benefit base <sup>3</sup>	Retirement earnings test exempt amount	
				Under age 65	Ages 65 and over <sup>4</sup>
<b>High Cost:</b>					
1994.....	3.8	2.6	7 \$60,600	7 \$8,040	7 \$11,160
1995.....	3.8	4.1	61,800	8,160	11,400
1996.....	5.7	5.6	63,300	8,400	11,640
1997.....	6.5	6.0	66,000	8,760	12,120
1998.....	4.7	3.8	69,600	9,240	12,840
1999.....	5.0	5.6	73,800	9,840	13,560
2000.....	5.0	5.1	76,500	10,200	14,040
2001.....	5.0	5.0	80,700	10,800	14,880
2002.....	5.0	5.3	84,900	11,400	15,600
2003.....	5.0	5.5	89,100	12,000	16,320

<sup>1</sup> Effective with benefits payable for June in each year 1975-82, and for December in each year after 1982.

<sup>2</sup> Increase in the average wage index from prior year to the year shown. See footnote 6 below and table III.B1 for projected dollar amounts of the average wage index.

<sup>3</sup> The bases for years after 1989 were increased slightly by changes to the indexing procedure, as required by Public Law 101-239. Prior to 1991, the Hospital Insurance (HI) contribution base was the same as the OASDI contribution and benefit base. Higher HI bases of \$125,000, \$130,200, and \$135,000 applied for 1991-93, respectively. Public Law 103-66 repealed the HI contribution base.

<sup>4</sup> In 1955-82, the retirement earnings test did not apply at ages 72 and over; beginning in 1983, it does not apply at ages 70 and over.

<sup>5</sup> Amount specified by the Social Security Amendments of 1977.

<sup>6</sup> Based on an estimated average wage index of \$23,475.93 for 1993.

<sup>7</sup> Actual amount, as determined and announced in October 1993.

Other wage-indexed amounts are shown in table II.E3. The table provides historical values from 1978, when the amount of earnings required for a quarter of coverage was first indexed, through 1994, and also shows projected amounts under the intermediate assumptions through the year 2003. These other wage-indexed program amounts are described in the following paragraphs.

As noted earlier, a worker who becomes eligible for benefits in 1979 or later generally receives a benefit based on his or her indexed earnings. The indexed earnings are used to calculate the worker's Average Indexed Monthly Earnings (AIME). The basic formula used to compute the Primary Insurance Amount (PIA) for workers who reach age 62, become disabled, or die in 1994 is:

- 90 percent of the first \$422 of AIME, plus
- 32 percent of AIME in excess of \$422
- but not in excess of \$2,545, plus
- 15 percent of AIME in excess of \$2,545.

## *Automatic Adjustments*

The amounts separating the individual's AIME into intervals—the “bend points”—are adjusted automatically by the changes in average wages as specified in section 215(a)(1)(B) of the Social Security Act.

A similar formula is used to compute the maximum total amount of monthly benefits payable on the basis of the earnings of a retired or deceased individual. This formula is a function of the individual's PIA, and is shown below for workers who first became eligible for benefits, or who died before becoming eligible, in 1994:

150 percent of the first \$539 of PIA, plus  
272 percent of the PIA in excess of \$539  
but not in excess of \$779, plus  
134 percent of the PIA in excess of \$779  
but not in excess of \$1,016, plus  
175 percent of the PIA in excess of \$1,016.

These PIA-interval bend points are adjusted automatically in accordance with section 203(a)(2) of the Act.

An individual's insured status depends on the number of quarters of coverage he or she has earned while in covered employment. The 1977 amendments specified the amount of earnings required in 1978 to be credited with a quarter of coverage and provided for automatic adjustment of this amount for years thereafter.

The law provides for the determination of the OASDI contribution and benefit bases that would have been in effect in each year after 1978 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.<sup>1</sup> 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.<sup>2</sup> In addition, it is used for certain purposes under the Railroad Retirement program and the Employee Retirement Income Security Act of 1974.

---

<sup>1</sup> For special minimum purposes, “low earnings” means earnings of at least 15 percent of the old-law base. Prior to 1991, the definition required earnings of at least 25 percent of the old-law base.

<sup>2</sup> The first percentage applied to a person's AIME to calculate his or her Primary Insurance Amount varies from 40 percent to 90 percent, depending on the individual's years of coverage. An individual earns a year of coverage when his or her earnings for the year are at least 25 percent of the old-law base.

Actuarial Analysis

**TABLE II.E3.—SELECTED OASDI PROGRAM AMOUNTS DETERMINED UNDER THE AUTOMATIC-ADJUSTMENT PROVISIONS, CALENDAR YEARS 1978-94, AND PROJECTED FUTURE AMOUNTS, CALENDAR YEARS 1995-2003, ON THE BASIS OF THE INTERMEDIATE SET OF ASSUMPTIONS**

Calendar year	AIME "bend points" in PIA formula		PIA "bend points" in maximum-family-benefit formula			Earnings required for a quarter of coverage <sup>1</sup>	"Old law" contribution and benefit base <sup>2</sup>
	First	Second	First	Second	Third		
<b>Historical data:</b>							
1978 .....	(3)	(3)	(3)	(3)	(3)	<sup>4</sup> \$250	(3)
1979 .....	<sup>4</sup> \$180	<sup>4</sup> \$1,085	<sup>4</sup> \$230	<sup>4</sup> \$332	<sup>4</sup> \$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
<b>Estimates:</b>							
1995 .....	432	2,605	552	797	1,039	640	46,200
1996 .....	443	2,673	567	818	1,067	650	47,400
1997 .....	464	2,795	593	855	1,116	680	49,500
1998 .....	483	2,912	617	891	1,162	710	51,600
1999 .....	503	3,035	643	929	1,211	740	53,700
2000 .....	525	3,164	671	968	1,263	770	56,100
2001 .....	548	3,306	701	1,011	1,319	810	58,500
2002 .....	574	3,460	733	1,059	1,381	840	61,200
2003 .....	601	3,623	768	1,109	1,446	880	64,200

<sup>1</sup>See Appendix F for a description of quarter-of-coverage requirements prior to 1978.

<sup>2</sup>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.

<sup>3</sup>No provision in law for this amount in this year.

<sup>4</sup>Amount specified for first year by Social Security Amendments of 1977; amounts for subsequent years subject to automatic-adjustment provisions.