

III. APPENDICES

A. ACTUARIAL ESTIMATES FOR THE OASDI AND HI PROGRAMS, COMBINED

In this appendix, long-range actuarial estimates for the OASDI and Hospital Insurance (HI) programs are combined to facilitate analysis of the adequacy of the combined income and assets of the trust funds relative to their combined expenditures. Combining cost and income rates as percentages of taxable payroll requires a note of caution. The taxable payrolls for the HI program are larger than those estimated for the OASDI program because of a larger contribution and benefit base beginning in 1991 and more extensive coverage of government and railroad employment. Therefore a cost rate of a given size represents more cost in dollars under the HI program than under the OASDI program. Even with this difference, combined OASDI and HI rates shown in this appendix 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.

Long-range estimates are subject to much uncertainty and should not be considered precise forecasts. Instead they should be considered as indicative of the general trend and range of costs that could reasonably be expected to occur. The emphasis in this appendix on combined operations, while significant, should not obscure the analysis of the financial status of the individual trust funds.

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 III.A.1.

TABLE III.A.1.—CONTRIBUTION RATES FOR THE OASDI AND HI PROGRAMS

[In percent]

Calendar years	Employees and employers, each			Self employed		
	OASDI	HI	Com- bined	OASDI	HI	Com- bined
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 ¹	5.70	1.35	7.05	11.40	2.70	14.10
1986-87 ¹	5.70	1.45	7.15	11.40	2.90	14.30
1988-89 ¹	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

¹See section entitled "Description of the Trust Funds" for description of tax credits allowed against the combined OASDI and HI taxes on net earnings from self-employment in 1984-89.

Table III.A.2 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 sets of assumptions, alternatives I, II, and III, described earlier in this report. Income rates exclude interest earned on trust fund assets. Table III.A.2 also shows the difference between income rates and cost rates, called balances. Estimates shown for the combined trust funds are theoretical because no authority currently exists for transferring assets from one trust fund to another.

Under all three sets of assumptions, combined OASDI and HI cost rates are projected to rise above current levels, with the sharpest increase occurring during the period 2010-2030. Under the more pessimistic set of assumptions, alternative III, annual deficits are projected to occur within the next 5 years, and to continue throughout the 75-year projection period. Cost rates are projected to rise to about three and one-half times their current level by the end of the projection period. Under the intermediate alternative II assumptions, annual deficits begin by the year 2010, with cost rates doubling by the end of the projection period. Under the more optimistic assumptions, alternative I, cost rates are projected to increase by over one-quarter, with annual deficits beginning before the year 2020.

Appendices

TABLE III.A.2.—COMPARISON OF ESTIMATED INCOME RATES AND COST RATES¹ FOR OASDI AND HI BY ALTERNATIVE, CALENDAR YEARS 1992-2070

[As a percentage of taxable payroll¹]

Calendar year	OASDI			HI			Combined		
	Income rate	Cost rate	Balance	Income rate	Cost rate	Balance	Income rate	Cost rate	Balance
Alternative I:									
1992.....	12.64	11.38	1.26	2.90	2.77	0.13	15.54	14.14	1.39
1993.....	12.64	11.21	1.43	2.90	2.83	.07	15.54	14.04	1.50
1994.....	12.63	11.00	1.64	2.90	2.91	-.01	15.53	13.91	1.62
1995.....	12.59	10.79	1.80	2.90	2.99	-.09	15.49	13.78	1.72
1996.....	12.63	10.59	2.04	2.90	3.06	-.16	15.53	13.64	1.89
1997.....	12.62	10.40	2.23	2.90	3.11	-.21	15.52	13.50	2.02
1998.....	12.62	10.23	2.40	2.90	3.15	-.25	15.52	13.38	2.14
1999.....	12.62	10.08	2.54	2.90	3.20	-.30	15.52	13.28	2.24
2000.....	12.62	9.96	2.66	2.90	3.24	-.34	15.52	13.20	2.32
2001.....	12.62	9.86	2.75	2.90	3.26	-.36	15.52	13.12	2.39
2005.....	12.68	9.73	2.95	2.90	3.38	-.48	15.58	13.11	2.46
2010.....	12.76	10.05	2.71	2.90	3.55	-.65	15.66	13.60	2.06
2015.....	12.83	10.94	1.89	2.90	3.84	-.94	15.73	14.78	.95
2020.....	12.90	12.14	.76	2.90	4.01	-1.11	15.80	16.14	-.35
2025.....	12.96	13.11	-.15	2.90	4.30	-1.40	15.86	17.41	-1.56
2030.....	12.99	13.57	-.58	2.90	4.60	-1.70	15.89	18.17	-2.28
2035.....	13.00	13.47	-.47	2.90	4.80	-1.90	15.90	18.27	-2.37
2040.....	12.98	13.03	-.05	2.90	4.96	-2.06	15.88	17.99	-2.11
2045.....	12.97	12.66	.31	2.90	5.08	-2.18	15.87	17.74	-1.87
2050.....	12.96	12.48	.48	2.90	5.18	-2.28	15.86	17.66	-1.80
2055.....	12.97	12.49	.48	2.90	5.32	-2.42	15.87	17.81	-1.94
2060.....	12.97	12.53	.44	2.90	5.54	-2.64	15.87	18.07	-2.20
2065.....	12.97	12.51	.46	2.90	5.76	-2.86	15.87	18.27	-2.40
2070.....	12.97	12.48	.49	2.90	5.99	-3.09	15.87	18.47	-2.60
Alternative II:									
1992.....	12.64	11.50	1.14	2.90	2.80	.10	15.54	14.30	1.24
1993.....	12.64	11.51	1.13	2.90	2.91	-.01	15.54	14.43	1.11
1994.....	12.64	11.48	1.16	2.90	3.05	-.15	15.54	14.53	1.01
1995.....	12.63	11.42	1.22	2.90	3.18	-.28	15.53	14.60	.93
1996.....	12.64	11.39	1.26	2.90	3.31	-.42	15.54	14.70	.84
1997.....	12.64	11.35	1.29	2.90	3.43	-.53	15.54	14.78	.76
1998.....	12.64	11.31	1.33	2.90	3.54	-.64	15.54	14.85	.69
1999.....	12.64	11.27	1.37	2.90	3.65	-.75	15.54	14.92	.62
2000.....	12.64	11.24	1.40	2.90	3.76	-.86	15.54	15.00	.54
2001.....	12.64	11.22	1.42	2.90	3.85	-.95	15.54	15.07	.47
2005.....	12.72	11.24	1.48	2.90	4.28	-1.38	15.62	15.51	.11
2010.....	12.82	11.66	1.16	2.90	4.87	-1.97	15.72	16.53	-.81
2015.....	12.90	12.74	.16	2.90	5.75	-2.85	15.80	18.49	-2.69
2020.....	12.99	14.25	-1.27	2.90	6.58	-3.68	15.89	20.84	-4.95
2025.....	13.07	15.66	-2.59	2.90	7.63	-4.73	15.97	23.28	-7.32
2030.....	13.12	16.58	-3.46	2.90	8.62	-5.72	16.02	25.19	-9.17
2035.....	13.15	16.92	-3.77	2.90	9.29	-6.39	16.05	26.20	-10.15
2040.....	13.15	16.86	-3.71	2.90	9.71	-6.81	16.05	26.57	-10.52
2045.....	13.16	16.84	-3.68	2.90	9.94	-7.04	16.06	26.78	-10.72
2050.....	13.17	17.02	-3.85	2.90	10.13	-7.23	16.07	27.15	-11.08
2055.....	13.19	17.42	-4.23	2.90	10.41	-7.51	16.09	27.83	-11.74
2060.....	13.21	17.84	-4.63	2.90	10.82	-7.92	16.11	28.67	-12.55
2065.....	13.23	18.14	-4.91	2.90	11.27	-8.37	16.13	29.41	-13.28
2070.....	13.24	18.35	-5.11	2.90	11.66	-8.76	16.14	30.01	-13.87
Alternative III:									
1992.....	12.64	11.62	1.02	2.90	2.83	.07	15.54	14.45	1.09
1993.....	12.65	11.70	.94	2.90	3.00	-.10	15.55	14.70	.84
1994.....	12.65	11.73	.92	2.90	3.18	-.28	15.55	14.91	.64
1995.....	12.69	11.97	.72	2.90	3.36	-.46	15.59	15.33	.26
1996.....	12.67	12.44	.23	2.90	3.60	-.70	15.57	16.04	-.47
1997.....	12.66	12.38	.28	2.90	3.76	-.86	15.56	16.14	-.58
1998.....	12.67	12.44	.22	2.90	3.96	-1.06	15.57	16.40	-.83
1999.....	12.67	12.51	.16	2.90	4.15	-1.25	15.57	16.66	-1.09
2000.....	12.67	12.58	.09	2.90	4.35	-1.45	15.57	16.94	-1.36

TABLE III.A.2.—COMPARISON OF ESTIMATED INCOME RATES AND COST RATES¹ FOR OASDI AND HI BY ALTERNATIVE, CALENDAR YEARS 1992-2070 (Cont.)

Calendar year	OASDI			HI			Combined		
	Income rate	Cost rate	Balance	Income rate	Cost rate	Balance	Income rate	Cost rate	Balance
	(As a percentage of taxable payroll ²)								
Alternative III: (Cont.)									
2001.....	12.67	12.67	0.00	2.90	4.53	-1.63	15.57	17.20	-1.63
2005.....	12.77	12.93	-1.16	2.90	5.39	-2.49	15.67	18.32	-2.65
2010.....	12.89	13.56	-0.67	2.90	6.71	-3.81	15.79	20.27	-4.48
2015.....	12.99	14.89	-1.91	2.90	8.66	-5.76	15.89	23.56	-7.67
2020.....	13.09	16.78	-3.68	2.90	10.88	-7.98	15.99	27.66	-11.67
2025.....	13.19	18.69	-5.49	2.90	13.56	-10.66	16.09	32.25	-16.15
2030.....	13.28	20.23	-6.95	2.90	16.17	-13.27	16.18	36.40	-20.22
2035.....	13.34	21.27	-7.93	2.90	18.04	-15.14	16.24	39.32	-23.07
2040.....	13.38	21.94	-8.56	2.90	19.11	-16.21	16.28	41.06	-24.78
2045.....	13.42	22.66	-9.24	2.90	19.58	-16.68	16.32	42.23	-25.92
2050.....	13.46	23.63	-10.16	2.90	19.97	-17.07	16.36	43.60	-27.23
2055.....	13.53	24.90	-11.37	2.90	20.52	-17.62	16.43	45.41	-28.99
2060.....	13.59	26.17	-12.58	2.90	21.35	-18.45	16.49	47.52	-31.03
2065.....	13.65	27.21	-13.57	2.90	22.22	-19.32	16.55	49.43	-32.88
2070.....	13.69	28.07	-14.38	2.90	23.11	-20.21	16.59	51.19	-34.60

¹The taxable payroll for HI is somewhat larger than the taxable payroll for OASDI because the HI taxable maximum amount is significantly higher than the taxable maximum for OASDI beginning 1991, 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 as a percent of taxable payroll are computed as the sum of the rates for the separate programs.

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

Table III.A.3 shows the estimates of summarized OASDI and HI income rates, cost rates and balances for various time periods, based on all three sets of assumptions. Values are summarized over the three 25-year subperiods (excluding the beginning fund balances and the cost of reaching and maintaining ending fund targets) as well as 25-year, 50-year, and 75-year valuation periods (for which beginning fund balances are included in the summarized income rates, and the costs of reaching and maintaining an ending fund balance equal to 100 percent of annual expenditures by the end of the period are included in the summarized cost rates). Estimates shown for the combined trust funds are theoretical because no authority currently exists for transferring assets from one trust fund to another.

Under alternative III, the combined OASDI and HI system is projected to experience large deficits during the 25-year, 50-year, and 75-year valuation periods (including beginning trust fund balances and the cost of ending fund targets). Deficits are projected to occur during each 25-year subperiod of the 75-year projection period (excluding beginning trust fund balances and the cost of ending fund targets). Under intermediate alternative II assumptions, deficits of smaller magnitude than those

Appendices

for alternative III are projected to occur for each of the three 25-year subperiods and for each of the three valuation periods. Under alternative I, the combined OASDI and HI system is projected to show positive balances for the 25-year and 50-year valuation periods and for the first 25-year subperiod. Relatively small deficits are projected for the full 75-year valuation period and for the second and third 25-year subperiods.

TABLE III.A.3.—COMPARISON OF SUMMARIZED INCOME RATES AND COST RATES¹ FOR OASDI AND HI BY ALTERNATIVE, CALENDAR YEARS 1992-2066

[As a percentage of taxable payroll¹]

Calendar year period	OASDI			HI			Combined		
	Income rate	Cost rate	Balance	Income rate	Cost rate	Balance	Income rate	Cost rate	Balance
Alternative I:									
25-year subperiods: ²									
1992-2016	12.67	10.34	2.33	2.90	3.34	-0.44	15.57	13.68	1.89
2017-2041	12.95	13.00	-0.05	2.90	4.47	-1.57	15.85	17.46	-1.61
2042-2066	12.96	12.59	.37	2.90	5.33	-2.43	15.86	17.91	-2.06
Valuation periods: ³									
25-year:									
1992-2016 ...	13.16	10.77	2.40	3.07	3.49	-.42	16.23	14.26	1.98
50-year:									
1992-2041 ...	13.07	11.75	1.32	2.99	3.93	-.94	16.06	15.68	.38
75-year:									
1992-2066 ...	13.04	11.94	1.09	2.97	4.31	-1.34	16.01	16.25	-2.25
Alternative II:									
25-year subperiods: ²									
1992-2016	12.70	11.62	1.09	2.90	4.20	-1.30	15.60	15.82	-2.1
2017-2041	13.07	15.86	-2.78	2.90	8.12	-5.22	15.97	23.97	-8.00
2042-2066	13.18	17.40	-4.22	2.90	10.41	-7.51	16.08	27.82	-11.73
Valuation periods: ³									
25-year:									
1992-2016 ...	13.23	12.11	1.12	3.08	4.43	-1.35	16.31	16.54	-2.3
50-year:									
1992-2041 ...	13.16	13.75	-.59	3.00	6.10	-3.10	16.16	19.85	-3.69
75-year:									
1992-2066 ...	13.16	14.63	-1.46	2.97	7.17	-4.20	16.13	21.80	-5.66
Alternative III:									
25-year subperiods: ²									
1992-2016	12.75	13.03	-.29	2.90	5.36	-2.46	15.65	18.39	-2.75
2017-2041	13.22	19.40	-6.18	2.90	14.89	-11.99	16.12	34.29	-18.17
2042-2066	13.50	24.59	-11.09	2.90	20.50	-17.60	16.40	45.10	-28.69
Valuation periods: ³									
25-year:									
1992-2016 ...	13.29	13.61	-.33	3.08	5.70	-2.62	16.37	19.31	-2.95
50-year:									
1992-2041 ...	13.26	16.19	-2.93	3.00	9.88	-6.88	16.26	26.07	-9.81
75-year:									
1992-2066 ...	13.32	18.21	-4.89	2.98	12.43	-9.45	16.30	30.64	-14.34

¹The taxable payroll for HI is considerably larger than the taxable payroll for OASDI because the HI taxable maximum amount is significantly higher than the taxable maximum for OASDI beginning 1991, 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.

²Income rates do not include beginning trust fund balances and cost rates do not include the cost of reaching ending fund targets.

³Income rates include beginning trust fund balances and cost rates include an ending fund target equal to 100 percent of annual expenditures by the end of the period.

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

**B. LONG-RANGE ESTIMATES OF SOCIAL SECURITY TRUST FUND
OPERATIONS IN DOLLARS**

This appendix 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. It provides the means to track the progress of the funds during the projection period. Meaningful comparison of current dollar values over long periods of time can be difficult because of the tendency toward 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 III.B.1 presents five such indices for adjustment.

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 3.0, 4.0, and 5.0 percent for alternatives I, II, and III, respectively. Constant-dollar values (those adjusted by the CPI) are provided in table III.B.2.

Another type of standardization combines the effects of price inflation with real-wage growth. The wage index presented here is the "SSA 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 4.7, 5.1, and 5.6 percent under alternatives I, II, and III, respectively.

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.

Appendices

The OASDI taxable payroll consists of all earnings subject to OASDI taxation, adjusted for the lower effective tax rate on multiple-employer “excess wages,” and including deemed wage credits for military service.

The gross domestic product (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 III.C) 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 economic and demographic assumptions, as discussed in section II.H.

Discounting with 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. 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 compounded semiannually, are assumed to be approximately 6.0, 6.3, and 6.5 percent for alternatives I, II, and III, respectively.

**TABLE III.B.1.—SELECTED ECONOMIC VARIABLES BY ALTERNATIVE,
CALENDAR YEARS 1992-2070**

[GDP and taxable payroll in billions]

Calendar year	Adjusted CPI ¹	SSA average wage index ²	Taxable payroll ³	Gross domestic product	Compound interest-rate factor ⁴
Alternative I:					
1992.....	100.00	\$22,807	\$2,553	\$5,948	1.0000
1993.....	102.82	23,867	2,714	6,340	1.0608
1994.....	105.89	25,010	2,894	6,761	1.1219
1995.....	109.06	26,268	3,088	7,207	1.1883
1996.....	112.33	27,591	3,293	7,672	1.2597
1997.....	115.70	28,969	3,508	8,157	1.3365
1998.....	119.16	30,398	3,732	8,661	1.4178
1999.....	122.74	31,908	3,965	9,183	1.5042
2000.....	126.42	33,490	4,208	9,724	1.5958
2001.....	130.21	35,139	4,460	10,294	1.6949
2005.....	146.56	42,225	5,551	12,828	2.1470
2010.....	169.90	53,126	7,215	16,738	2.8854
2015.....	196.96	66,841	9,309	21,670	3.8777
2020.....	228.33	84,096	11,915	27,861	5.2114
2025.....	264.70	105,806	15,237	35,801	7.0036
2030.....	306.85	133,120	19,584	46,236	9.4123
2035.....	355.73	167,485	25,348	60,132	12.6493
2040.....	412.39	210,722	32,854	78,314	16.9996
2045.....	478.07	265,121	42,544	101,898	22.8461
2050.....	554.21	333,562	55,015	132,399	30.7032
2055.....	642.48	419,673	71,165	172,087	41.2626
2060.....	744.82	528,012	92,117	223,819	55.4535
2065.....	863.45	664,321	119,323	291,311	74.5248
2070.....	1,000.97	835,817	154,491	378,978	100.1551

**TABLE III.B.1.—SELECTED ECONOMIC VARIABLES BY ALTERNATIVE,
CALENDAR YEARS 1992-2070 (Cont.)**

[GDP and taxable payroll in billions]

Calendar year	Adjusted CPI ¹	SSA average wage index ²	Taxable payroll ³	Gross domestic product	Compound interest-rate factor ⁴
Alternative II:					
1992.....	100.00	\$22,761	\$2,532	\$5,908	1.0000
1993.....	103.33	23,737	2,667	6,258	1.0625
1994.....	107.03	24,828	2,825	6,643	1.1269
1995.....	111.21	26,090	3,000	7,068	1.1984
1996.....	115.65	27,450	3,188	7,522	1.2769
1997.....	120.27	28,879	3,386	8,002	1.3613
1998.....	125.08	30,387	3,599	8,514	1.4512
1999.....	130.08	31,989	3,827	9,058	1.5471
2000.....	135.29	33,688	4,067	9,636	1.6492
2001.....	140.69	35,467	4,320	10,241	1.7561
2005.....	164.59	43,275	5,429	12,939	2.2500
2010.....	200.25	55,495	7,171	17,237	3.0670
2015.....	243.63	71,165	9,370	22,707	4.1809
2020.....	296.42	91,260	12,099	29,593	5.6992
2025.....	360.84	117,030	15,550	38,400	7.7688
2030.....	438.77	150,076	20,028	49,935	10.5901
2035.....	533.83	192,453	25,918	65,242	14.4359
2040.....	649.49	246,796	33,531	85,215	19.6784
2045.....	790.21	316,484	43,268	111,016	26.8247
2050.....	961.41	405,850	55,654	144,167	36.5662
2055.....	1,169.70	520,451	71,486	186,956	49.8453
2060.....	1,423.11	667,411	91,820	242,436	67.9468
2065.....	1,731.44	855,868	118,044	314,668	92.6220
2070.....	2,106.56	1,097,540	151,762	408,427	126.2580
Alternative III:					
1992.....	100.00	22,602	2,514	5,868	1.0000
1993.....	105.18	23,748	2,659	6,281	1.0696
1994.....	111.94	25,299	2,861	6,817	1.1514
1995.....	118.83	26,868	3,053	7,274	1.2488
1996.....	124.53	27,980	3,179	7,567	1.3512
1997.....	130.76	29,831	3,414	8,198	1.4536
1998.....	137.29	31,511	3,640	8,752	1.5559
1999.....	144.16	33,324	3,881	9,328	1.6647
2000.....	151.37	35,294	4,133	9,947	1.7791
2001.....	158.93	37,352	4,399	10,607	1.8991
2005.....	193.18	46,449	5,595	13,613	2.4500
2010.....	246.55	60,995	7,534	18,576	3.3686
2015.....	314.67	80,097	10,023	25,032	4.6316
2020.....	401.61	105,181	13,137	33,270	6.3680
2025.....	512.56	138,120	17,074	43,867	8.7555
2030.....	654.17	181,374	22,175	57,794	12.0381
2035.....	834.91	238,175	28,836	76,238	16.5514
2040.....	1,065.58	312,763	37,395	100,292	22.7568
2045.....	1,359.98	410,710	48,261	131,303	31.2887

**TABLE III.B.1.—SELECTED ECONOMIC VARIABLES BY ALTERNATIVE,
CALENDAR YEARS 1992-2070 (Cont.)**

[GDP and taxable payroll in billions]

Calendar year	Adjusted CPI ¹	SSA average wage index ²	Taxable payroll ³	Gross domestic product	Compound interest-rate factor ⁴
Alternative III: (Cont.)					
2050.....	1,735.72	\$539,331	\$61,944	\$170,960	43.0193
2055.....	2,215.27	708,231	79,206	221,752	59.1481
2060.....	2,827.31	930,025	101,164	287,310	81.3237
2065.....	3,608.44	1,221,277	129,354	372,667	111.8134
2070.....	4,605.38	1,603,740	165,435	483,484	153.7342

¹The CPI used to adjust OASDI benefits is the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI), as defined by the Bureau of Labor Statistics, Department of Labor. The values shown are adjusted by dividing the calendar-year annual average CPI by the analogous value for 1992, and multiplying the result by 100, thereby initializing the CPI at 100 for 1992.

²The "SSA average wage index" is defined in section 215(i)(1)(G) of the Social Security Act; it is used in the calculations of initial benefits and the automatic adjustment of the contribution and benefit base and other wage-indexed program amounts.

³Taxable payroll consists of total earnings subject to OASDI contribution rates, adjusted to include deemed wages based on military service and to reflect the lower effective contribution rates (compared to the combined employee-employer rate) which apply to multiple-employer "excess wages."

⁴The 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 III.B.2 shows estimated operations of the combined OASI and DI Trust Funds in constant 1992 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 outgo, 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. Outgo 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 three sets of assumptions I, II, and III described earlier in this report.

Figure III.B.1 provides a comparison of total annual income including interest with annual income excluding interest, for the OASDI program under alternative II assumptions. Both values are expressed in constant dollars, as shown in table III.B.2. The difference between the values for each year is equal to the trust fund interest earnings. Thus the figure illustrates the amounts of total program income that are attributable to the trust fund interest and to other sources.

TABLE III.B.2.—ESTIMATED OPERATIONS OF THE COMBINED OASI AND DI TRUST FUNDS IN CONSTANT 1992 DOLLARS¹ BY ALTERNATIVE, CALENDAR YEARS 1992-2070

(In billions)

Calendar year	Income excluding interest	Interest income	Total income	Outgo	Assets at end of year
Alternative I:					
1992	\$315.8	\$25.1	\$340.9	\$290.5	\$331.1
1993	331.5	27.4	358.9	295.8	385.1
1994	344.6	30.0	374.5	300.7	447.8
1995	355.3	33.1	388.4	305.6	517.6
1996	369.4	36.8	406.2	310.4	598.4
1997	381.5	41.2	422.8	315.2	688.5
1998	394.1	46.2	440.4	320.3	788.5
1999	406.4	51.8	458.2	325.8	897.9
2000	418.8	58.0	476.8	331.6	1,016.9
2001	431.2	65.0	496.2	337.9	1,145.5
2005	479.1	97.4	576.6	368.6	1,744.9
2010	540.9	148.7	689.6	426.9	2,652.7
2015	605.1	205.3	810.4	517.0	3,626.5
2020	671.8	258.3	930.1	633.3	4,529.5
2025	744.4	303.5	1,047.9	754.7	5,295.4
2030	827.4	343.0	1,170.3	865.9	5,971.6
2035	924.1	384.6	1,308.8	959.7	6,700.3
2040	1,032.2	438.6	1,470.8	1,038.3	7,655.4
2045	1,151.8	511.3	1,663.1	1,126.7	8,938.1
2050	1,284.3	603.9	1,888.2	1,239.3	10,563.2
2055	1,433.3	715.2	2,148.5	1,383.1	12,506.6
2060	1,601.0	844.7	2,445.8	1,550.0	14,767.2
2065	1,789.1	996.2	2,785.3	1,729.2	17,413.8
2070	1,998.1	1,175.4	3,173.5	1,926.6	20,543.8
Alternative II:					
1992	313.4	25.0	338.4	291.4	327.8
1993	324.5	26.8	351.3	297.3	371.3
1994	333.1	28.8	361.8	303.1	417.2
1995	339.6	30.9	370.5	308.1	463.9
1996	347.7	33.4	381.1	313.9	513.4
1997	354.9	36.2	391.1	319.6	565.1
1998	362.7	39.1	401.8	325.5	619.7
1999	370.7	42.3	413.0	331.6	677.2
2000	378.9	45.6	424.5	338.0	737.6
2001	387.3	49.1	436.4	344.6	801.1
2005	418.6	63.9	482.5	370.7	1,080.5
2010	458.1	85.9	544.0	417.5	1,456.0
2015	495.1	104.3	599.3	490.1	1,746.5
2020	529.0	109.1	638.1	581.8	1,801.8
2025	562.2	94.7	656.9	675.0	1,534.7
2030	597.7	60.7	658.4	756.8	947.9
2035 ²	637.1	10.7	647.9	821.4	105.8
Alternative III:					
1992	311.2	25.0	336.2	292.2	324.8
1993	317.7	26.4	344.1	295.9	356.9
1994	322.4	28.0	350.4	299.9	385.8
1995	325.0	30.4	355.4	307.6	411.3
1996	322.7	32.2	354.9	317.5	429.9
1997	329.1	33.3	362.4	323.3	448.5
1998	334.9	34.1	369.1	329.9	466.3
1999	339.7	34.7	374.4	336.7	481.9
2000	344.8	35.1	379.9	343.6	495.2
2001	349.8	35.4	385.2	350.7	506.1
2005	368.9	33.5	402.4	374.5	530.8
2010	393.0	30.9	423.9	414.5	497.9
2015 ²	412.7	19.9	432.6	474.5	302.0

¹The adjustment from current to constant dollars is by the CPI indexing series shown in table III.B.1.

²Estimates for later years are not shown because the combined OASI and DI Trust Funds are estimated to become exhausted in 2036 under alternative II and in 2019 under alternative III.

FIGURE III.B.1.—ESTIMATED OASDI INCOME IN CONSTANT DOLLARS, BASED ON ALTERNATIVE II, CALENDAR YEARS 1992-2036

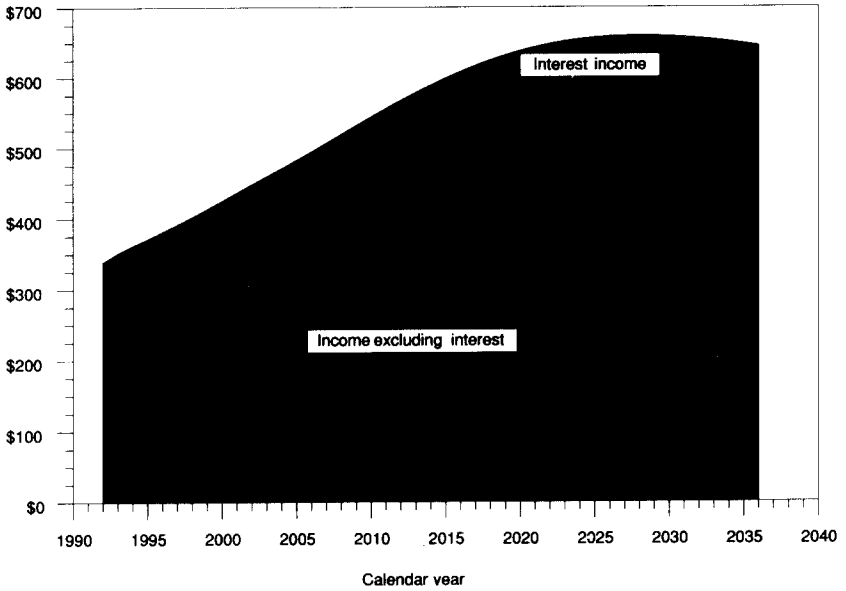


Table III.B.3 shows estimated operations of the combined OASI and DI Trust Funds in current dollars—that is in dollars unadjusted for inflation. Items included in the table are: income excluding interest, interest income, total income, total outgo, and assets at the end of the year. These estimates, based on the three sets of economic and demographic assumptions I, II, and III described earlier in this report, are presented to facilitate independent analysis.

TABLE III.B.3.—ESTIMATED OPERATIONS OF THE COMBINED OASI AND DI TRUST FUNDS IN CURRENT DOLLARS BY ALTERNATIVE, CALENDAR YEARS 1992-2070

[In billions]

Calendar year	Income excluding interest	Interest income	Total income	Outgo	Assets at end of year
Alternative I:					
1992	\$315.8	\$25.1	\$340.9	\$290.5	\$331.1
1993	340.8	28.2	369.0	304.1	396.0
1994	364.9	31.7	396.6	318.4	474.2
1995	387.5	36.1	423.6	333.3	564.5
1996	414.9	41.4	456.3	348.7	672.1
1997	441.4	47.7	489.1	364.7	796.5
1998	469.7	55.1	524.7	381.7	939.6
1999	498.8	63.6	562.4	399.9	1,102.1
2000	529.4	73.3	602.7	419.3	1,285.6
2001	561.5	84.6	646.1	440.0	1,491.6
2005	702.2	142.8	845.0	540.1	2,557.3
2010	919.0	252.7	1,171.7	725.3	4,506.9
2015	1,191.9	404.3	1,596.2	1,018.3	7,142.6
2020	1,533.9	589.8	2,123.7	1,446.0	10,342.1
2025	1,970.3	803.4	2,773.7	1,997.7	14,016.7
2030	2,538.8	1,052.4	3,591.3	2,657.1	18,324.0
2035	3,287.4	1,368.2	4,655.7	3,414.0	23,835.0
2040	4,256.6	1,808.6	6,065.2	4,281.9	31,570.0
2045	5,506.3	2,444.2	7,950.5	5,386.3	42,730.5
2050	7,117.7	3,346.8	10,464.5	6,868.1	58,542.4
2055	9,209.0	4,594.8	13,803.8	8,886.5	80,353.0
2060	11,924.7	6,291.7	18,216.4	11,544.4	109,988.3
2065	15,447.7	8,602.0	24,049.7	14,930.8	150,358.8
2070	20,000.3	11,765.3	31,765.6	19,284.3	205,636.9
Alternative II:					
1992	313.4	25.0	338.4	291.4	327.8
1993	335.3	27.7	363.0	307.2	383.6
1994	356.5	30.8	387.3	324.4	446.5
1995	377.6	34.4	412.0	342.6	515.9
1996	402.1	38.6	440.8	363.0	593.7
1997	426.8	43.5	470.3	384.4	679.6
1998	453.6	49.0	502.6	407.1	775.1
1999	482.2	55.0	537.2	431.4	880.9
2000	512.6	61.7	574.4	457.3	998.0
2001	544.8	69.1	614.0	484.9	1,127.1
2005	689.0	105.1	794.1	610.1	1,778.4
2010	917.3	172.0	1,089.3	836.1	2,915.6
2015	1,206.2	254.0	1,460.2	1,194.1	4,255.1
2020	1,568.0	323.5	1,891.6	1,724.6	5,341.0
2025	2,027.5	341.6	2,369.1	2,434.4	5,534.6
2030	2,622.7	266.3	2,889.0	3,320.4	4,158.9
2035 ¹	3,401.1	57.4	3,458.5	4,384.8	564.9
Alternative III:					
1992	311.2	25.0	336.2	292.2	324.8
1993	334.2	27.7	361.9	311.3	375.4
1994	360.9	31.4	392.3	335.7	431.9
1995	386.2	36.1	422.3	365.5	488.8
1996	401.9	40.2	442.0	395.5	535.3
1997	430.3	43.6	473.9	422.7	586.5
1998	459.8	46.9	506.7	452.9	640.2
1999	489.8	50.0	539.8	485.3	694.7
2000	521.9	53.2	575.1	520.2	749.6
2001	556.0	56.2	612.2	557.4	804.4
2005	712.6	64.8	777.4	723.5	1,025.3
2010	968.9	76.2	1,045.1	1,021.9	1,227.7
2015 ¹	1,298.7	62.7	1,361.4	1,493.0	950.2

¹Estimates for later years are not shown because the combined OASI and DI Trust Funds are estimated to become exhausted in 2036 under alternative II and in 2019 under alternative III.

Table III.B.4 shows estimated income excluding interest and estimated total outgo 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 three sets of assumptions I, II, and III described earlier in this report. For OASDI, income excluding interest consists of payroll-tax contributions, proceeds from taxation of benefits, and miscellaneous transfers from the general fund of the Treasury. Outgo 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 contributions (including contributions from railroad employment) and payments from the general fund of the Treasury for contributions on deemed wage credits for military service. Total outgo consists of outlays (benefits and administrative expenses) for insured beneficiaries. Income and outgo estimates are shown on a cash basis for the OASDI program and on an incurred basis for the HI program.

Table III.B.4 also shows the difference between income excluding interest and outgo, which is called the balance. The balance indicates the size of the net cash flow from tax income and expenditures to the funds.

TABLE III.B.4.—ESTIMATED OASDI AND HI INCOME EXCLUDING INTEREST, OUTGO, AND BALANCE IN CURRENT DOLLARS BY ALTERNATIVE, CALENDAR YEARS 1992-2070

[In billions]									
Calendar year	OASDI			HI			Combined		
	Income excluding interest	Outgo	Balance	Income excluding interest	Outgo	Balance	Income excluding interest	Outgo	Balance
Alternative I:									
1992	\$316	\$290	\$25	\$83	\$79	\$4	\$399	\$370	\$29
1993	341	304	37	88	86	2	429	390	39
1994	365	318	46	94	95	0	459	413	46
1995	387	333	54	101	104	-3	488	437	51
1996	415	349	66	107	113	-6	522	462	60
1997	441	365	77	114	122	-8	555	487	69
1998	470	382	88	121	132	-10	591	513	77
1999	499	400	99	129	142	-13	627	542	86
2000	529	419	110	136	152	-16	666	571	94
2001	561	440	121	144	162	-18	706	602	104
2005	702	540	162	178	207	-30	880	747	133
2010	919	725	194	231	282	-51	1,150	1,008	142
2015	1,192	1,018	174	298	395	-97	1,490	1,413	77
2020	1,534	1,446	88	382	528	-146	1,916	1,974	-58
2025	1,970	1,998	-27	489	725	-236	2,459	2,723	-264
2030	2,539	2,657	-118	628	997	-369	3,167	3,654	-487
2035	3,287	3,414	-127	813	1,346	-532	4,101	4,760	-659
2040	4,257	4,282	-25	1,054	1,801	-747	5,311	6,083	-772
2045	5,506	5,386	120	1,365	2,388	-1,024	6,871	7,775	-903
2050	7,118	6,868	250	1,765	3,150	-1,386	8,882	10,018	-1,136
2055	9,209	8,886	323	2,283	4,186	-1,903	11,492	13,073	-1,581
2060	11,925	11,544	380	2,955	5,639	-2,685	14,879	17,184	-2,304
2065	15,448	14,931	517	3,827	7,602	-3,775	19,275	22,533	-3,258
2070	20,000	19,284	716	4,955	10,235	-5,280	24,955	29,519	-4,564

Appendices

TABLE III.B.4.—ESTIMATED OASDI AND HI INCOME EXCLUDING INTEREST, OUTGO, AND BALANCE IN CURRENT DOLLARS BY ALTERNATIVE, CALENDAR YEARS 1992-2070(Cont.)

[In billions]									
Calendar year	OASDI			HI			Combined		
	Income excluding interest	Outgo	Balance	Income excluding interest	Outgo	Balance	Income excluding interest	Outgo	Balance
Alternative II:									
1992	\$313	\$291	\$22	\$83	\$80	\$3	\$396	\$371	\$25
1993	335	307	28	87	87	0	422	395	28
1994	356	324	32	92	97	-5	449	421	27
1995	378	343	35	98	107	-10	475	450	25
1996	402	363	39	104	119	-15	506	482	24
1997	427	384	42	110	130	-20	537	515	22
1998	454	407	46	117	143	-26	571	550	21
1999	482	431	51	124	157	-32	606	588	18
2000	513	457	55	132	171	-39	645	629	16
2001	545	485	60	140	186	-46	685	671	14
2005	689	610	79	174	256	-82	863	866	-4
2010	917	836	81	230	386	-156	1,147	1,222	-75
2015	1,206	1,194	12	300	595	-295	1,506	1,790	-283
2020	1,568	1,725	-157	388	881	-493	1,956	2,606	-650
2025	2,027	2,434	-407	499	1,313	-813	2,527	3,747	-1,220
2030	2,623	3,320	-698	643	1,911	-1,268	3,266	5,231	-1,965
2035	3,401	4,385	-984	832	2,665	-1,833	4,233	7,050	-2,817
2040	4,402	5,655	-1,253	1,077	3,604	-2,527	5,479	9,259	-3,780
2045	5,681	7,284	-1,603	1,389	4,764	-3,374	7,071	12,048	-4,977
2050	7,314	9,471	-2,157	1,787	6,243	-4,456	9,101	15,714	-6,613
2055	9,411	12,454	-3,043	2,295	8,238	-5,942	11,706	20,692	-8,986
2060	12,109	16,384	-4,275	2,948	11,003	-8,055	15,057	27,387	-12,330
2065	15,588	21,414	-5,826	3,790	14,725	-10,935	19,378	36,139	-16,761
2070	20,057	27,846	-7,789	4,872	19,594	-14,722	24,929	47,440	-22,511
Alternative III:									
1992	311	292	19	82	80	2	393	372	21
1993	334	311	23	87	90	-3	421	401	20
1994	361	336	25	94	102	-9	454	438	16
1995	386	365	21	100	116	-16	486	481	5
1996	402	395	6	104	129	-25	506	524	-19
1997	430	423	8	111	145	-33	542	567	-26
1998	460	453	7	119	162	-43	579	615	-36
1999	490	485	4	126	181	-55	616	666	-50
2000	522	520	2	135	202	-67	657	722	-66
2001	556	557	-1	143	224	-80	699	781	-82
2005	713	724	-11	180	334	-154	892	1,058	-165
2010	969	1,022	-53	242	560	-318	1,211	1,582	-371
2015	1,299	1,493	-194	322	962	-640	1,621	2,455	-834
2020	1,716	2,204	-488	422	1,585	-1,163	2,138	3,789	-1,650
2025	2,248	3,191	-943	549	2,569	-2,020	2,797	5,760	-2,962
2030	2,938	4,487	-1,549	714	3,980	-3,266	3,652	8,467	-4,814
2035	3,838	6,134	-2,296	928	5,774	-4,846	4,767	11,909	-7,142
2040	4,992	8,206	-3,213	1,204	7,932	-6,729	6,196	16,138	-9,942
2045	6,461	10,934	-4,474	1,553	10,484	-8,931	8,014	21,418	-13,404
2050	8,323	14,636	-6,313	1,993	13,727	-11,734	10,316	28,363	-18,047
2055	10,693	19,720	-9,028	2,549	18,030	-15,482	13,241	37,750	-24,509
2060	13,723	26,473	-12,750	3,255	23,962	-20,707	16,978	50,435	-33,457
2065	17,616	35,199	-17,583	4,162	31,883	-27,721	21,778	67,082	-45,304
2070	22,602	46,440	-23,839	5,322	42,419	-39,097	27,924	88,859	-60,935

Note: Annual figures are available from the Office of the Actuary, Social Security Administration.

Table III.B.5 shows estimated future benefit amounts payable to persons attaining age 65 in various years based on retirement at the normal

retirement age and at age 65, for various steady levels of pre-retirement earnings, based on alternative II assumptions. The benefit amount is shown in current dollars, constant dollars (adjusted by the CPI indexing series shown in table III.B.1), and as a percentage of earnings in the 12-month period preceding retirement. The normal retirement age is currently 65, and is scheduled to increase to age 66 during the period 2000-2005 (at a rate of 2 months per year as workers attain age 62), and to age 67 during the period 2017-2022 (also by 2 months per year as workers attain age 62). The pre-retirement earnings levels shown are: low (earnings at 45 percent of the projected SSA average wage index), average (earnings at the amount of the projected SSA average wage index), and maximum (earnings at the amount of the projected SSA contribution and benefit base).

Appendices

TABLE III.B.5.—ESTIMATED AVERAGE BENEFIT AMOUNT PAYABLE¹ TO RETIRED WORKERS WITH VARIOUS STEADY PRE-RETIREMENT EARNINGS LEVELS BASED ON ALTERNATIVE II ASSUMPTIONS, CALENDAR YEARS 1992-2070

Year attain age 65 ³	Age at retirement	Current dollars			Constant 1992 dollars ²			Percent of earnings		
		Low ⁴	Average	Maximum ⁵	Low ⁴	Average	Maximum ⁵	Low ⁴	Average	Maximum ⁵
Retirement at normal retirement age:										
1992	65:0	\$5,786	\$9,552	\$13,089	\$5,786	\$9,552	\$13,089	58.8	43.7	24.5
1995	65:0	6,369	10,511	14,653	5,728	9,453	13,178	57.0	42.3	24.4
2000	65:0	8,067	13,329	19,324	5,963	9,853	14,284	56.0	41.7	25.3
2005	65:6	10,625	17,559	26,438	6,330	10,461	15,751	55.9	41.6	26.1
2010	66:0	13,979	23,129	35,963	6,712	11,106	17,268	56.0	41.7	26.9
2015	66:0	17,927	29,666	46,944	7,075	11,708	18,527	56.0	41.7	27.4
2020	66:2	23,160	38,298	60,843	7,464	12,342	19,608	55.9	41.6	27.4
2025	67:0	30,846	51,098	81,090	7,908	13,100	20,789	55.7	41.5	27.4
2030	67:0	39,551	65,522	104,026	8,334	13,806	21,920	55.7	41.5	27.4
2035	67:0	50,713	84,039	133,379	8,783	14,555	23,100	55.7	41.5	27.4
2040	67:0	65,040	107,770	170,992	9,258	15,341	24,341	55.7	41.5	27.4
2045	67:0	83,413	138,207	219,297	9,759	16,170	25,658	55.7	41.6	27.4
2050	67:0	106,963	177,228	281,218	10,286	17,043	27,044	55.7	41.5	27.4
2055	67:0	137,172	227,279	360,610	10,842	17,965	28,503	55.7	41.6	27.4
2060	67:0	175,905	291,452	462,384	11,428	18,935	30,040	55.7	41.5	27.4
2065	67:0	225,582	373,757	592,885	12,046	19,958	31,659	55.7	41.6	27.4
2070	67:0	289,280	479,295	760,286	13,732	22,752	36,092	55.7	41.6	27.4
Retirement at age 65:										
1992	65:0	\$5,786	\$9,552	\$13,089	\$5,786	\$9,552	\$13,089	58.8	43.7	24.5
1995	65:0	6,369	10,511	14,653	5,728	9,453	13,178	57.0	42.3	24.4
2000	65:0	8,067	13,329	19,324	5,963	9,853	14,284	56.0	41.7	25.3
2005	65:0	10,066	16,640	25,019	6,116	10,110	15,201	54.3	40.4	25.3
2010	65:0	12,497	20,648	31,990	6,241	10,311	15,975	52.6	39.1	25.1
2015	65:0	16,025	26,464	41,875	6,577	10,862	17,187	52.6	39.1	25.7
2020	65:0	20,311	33,544	53,361	6,852	11,316	18,002	52.0	38.6	25.5
2025	65:0	24,477	40,430	64,378	6,787	11,211	17,851	48.8	36.3	24.0
2030	65:0	31,388	51,845	82,594	7,154	11,816	18,824	48.8	36.3	24.0
2035	65:0	40,261	66,485	105,904	7,542	12,454	19,838	48.9	36.3	24.0
2040	65:0	51,627	85,267	135,775	7,949	13,128	20,905	48.9	36.3	24.0
2045	65:0	66,208	109,347	174,147	8,379	13,838	22,038	48.9	36.3	24.0
2050	65:0	84,906	140,229	223,318	8,831	14,586	23,228	48.9	36.3	24.0
2055	65:0	108,889	179,829	286,371	9,309	15,374	24,482	48.9	36.3	24.0
2060	65:0	139,628	230,602	367,196	9,811	16,204	25,802	48.9	36.3	24.0
2065	65:0	179,059	295,726	470,824	10,342	17,080	27,193	48.9	36.3	24.0
2070	65:0	229,623	379,224	603,741	10,900	18,002	28,660	48.9	36.3	24.0

¹Annual benefit amount is the benefit payable for the 12-month period starting with the month of retirement.

²The adjustment from current to constant dollars is made using the CPI indexing series shown in table III.B.1.

³Assumed to attain age 65 in January of the year.

⁴Earnings equal to 45 percent of average.

⁵Earnings equal to the contribution and benefit base.

C. LONG-RANGE ESTIMATES OF SOCIAL SECURITY TRUST FUND OPERATIONS AS A PERCENTAGE OF THE GROSS DOMESTIC PRODUCT

This appendix 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 the 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 II.F.12 and section III.A), 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 III.C.1 shows estimated income excluding interest, total outgo, 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 III.C.1. 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 outgo 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 contributions (including contributions from railroad employment) and payments from the general fund of the Treasury for contributions on deemed wage credits for military service. Total outgo consists of outlays (benefits and administrative expenses) for insured beneficiaries. Both the HI income and outgo are on an incurred basis.

For the next 13 years, the OASDI balance (income excluding interest less outgo) as a percentage of GDP is projected to increase on the basis of alternatives I and II, and to decline on the basis of alternative III. The projected HI balance as a percentage of GDP, however, decreases through 2005 under all three alternatives. The combined OASDI and HI balance as a percentage of GDP is projected, for the next 13 years, to increase under alternative I, and to decline under alternatives II and III. Between 2005 and about 2030, under all three alternatives, both the OASDI and HI balances as percentages of GDP are projected to decline

substantially because the “baby-boom” generation reaches retirement age during these years. By 2020, balances are projected to become permanently negative in each case except for the OASDI program under alternative I. After 2020, both the HI and OASDI deficits (negative balances) as percentages of GDP are projected to continue to increase in size, except for OASDI under alternative I, for which the balance as a percentage of GDP is projected to be negative for a brief period and a small positive thereafter.

By the year 2070, the combined OASDI and HI balances as percentages of GDP, based on the three alternatives, are projected to differ by a relatively large amount: from a deficit of 0.95 percent for alternative I to a deficit of 11.37 percent for alternative III. Projected balances differ by a much smaller amount by the year 2015: from a positive balance of 0.35 percent for alternative I to a deficit of 3.33 percent for alternative III. In addition, the summarized long-range (75-year) balance as a percentage of GDP varies by a relatively large amount (from a deficit of 0.16 percent, based on alternative I, to a deficit of 5.97 percent, based on alternative III), while the 25-year summarized balance varies by a smaller amount (from a positive of 0.84 percent to a deficit of 1.31 percent). Summarized rates are calculated on the present-value basis including the trust fund balances on January 1, 1992 and the cost of reaching and maintaining a target trust fund level equal to 100 percent of annual expenditures by the end of the period. (See section II.F for further explanation.)

TABLE III.C.1.—ESTIMATED OASDI AND HI INCOME EXCLUDING INTEREST, OUTGO, AND BALANCE AS A PERCENTAGE OF GDP BY ALTERNATIVE, CALENDAR YEARS 1992-2070

Calendar year	Percentage of GDP									GDP in dollars (billions)
	OASDI			HI			Combined			
	In-come ¹	Out-go	Bal-ance	In-come ¹	Out-go	Bal-ance	In-come ¹	Outgo	Bal-ance	
Alternative I:										
1992	5.31	4.88	0.42	1.40	1.33	0.06	6.71	6.22	0.49	5,948
1993	5.38	4.80	.58	1.39	1.36	.03	6.77	6.16	.61	6,340
1994	5.40	4.71	.69	1.39	1.40	-.01	6.79	6.11	.68	6,762
1995	5.38	4.62	.75	1.40	1.44	-.04	6.77	6.06	.71	7,207
1996	5.41	4.54	.86	1.40	1.47	-.08	6.80	6.02	.79	7,672
1997	5.41	4.47	.94	1.40	1.50	-.10	6.81	5.97	.84	8,158
1998	5.42	4.41	1.02	1.40	1.52	-.12	6.82	5.93	.89	8,661
1999	5.43	4.35	1.08	1.40	1.54	-.14	6.83	5.90	.93	9,183
2000	5.44	4.31	1.13	1.40	1.57	-.16	6.85	5.88	.97	9,725
2001	5.45	4.27	1.18	1.40	1.58	-.17	6.86	5.85	1.01	10,294
2005	5.47	4.21	1.26	1.38	1.61	-.23	6.86	5.82	1.03	12,829
2010	5.49	4.33	1.16	1.38	1.69	-.31	6.87	6.02	.85	16,739
2015	5.50	4.70	.80	1.38	1.82	-.45	6.88	6.52	.35	21,671
2020	5.51	5.19	.32	1.37	1.89	-.52	6.88	7.08	-.21	27,862
2025	5.50	5.58	-.08	1.37	2.03	-.66	6.87	7.60	-.74	35,802
2030	5.49	5.75	-.26	1.36	2.16	-.80	6.85	7.90	-1.05	46,237
2035	5.47	5.68	-.21	1.35	2.24	-.89	6.82	7.92	-1.10	60,132
2040	5.44	5.47	-.03	1.35	2.30	-.95	6.78	7.77	-.99	78,314
2045	5.40	5.29	.12	1.34	2.34	-1.00	6.74	7.63	-.89	101,898

TABLE III.C.1.—ESTIMATED OASDI AND HI INCOME EXCLUDING INTEREST, OUTGO, AND BALANCE AS A PERCENTAGE OF GDP BY ALTERNATIVE, CALENDAR YEARS 1992-2070 (Cont.)

Calendar year	Percentage of GDP									GDP in dollars (billions)
	OASDI			HI			Combined			
	In-come ¹	Out-go	Bal-ance	In-come ¹	Out-go	Bal-ance	In-come ¹	Outgo	Bal-ance	
Alternative I:										
2050	5.38	5.19	0.19	1.33	2.38	-1.05	6.71	7.57	-0.86	132,400
2055	5.35	5.16	.19	1.33	2.43	-1.11	6.68	7.60	-.92	172,087
2060	5.33	5.16	.17	1.32	2.52	-1.20	6.65	7.68	-1.03	223,819
2065	5.30	5.13	.18	1.31	2.61	-1.30	6.62	7.73	-1.12	291,312
2070	5.28	5.09	.19	1.31	2.70	-1.39	6.58	7.79	-1.20	378,978
Summarized rates: ²										
25-year:										
1992-2016	5.68	4.64	1.03	1.48	1.67	-1.19	7.15	6.31	.84	---
50-year:										
1992-2041	5.59	5.03	.56	1.43	1.86	-.44	7.02	6.89	.13	---
75-year:										
1992-2066	5.53	5.07	.46	1.40	2.02	-.62	6.93	7.09	-.16	---
Alternative II:										
1992	5.30	4.93	.37	1.40	1.35	.05	6.70	6.28	.42	5,909
1993	5.36	4.91	.45	1.39	1.40	-.01	6.75	6.30	.44	6,259
1994	5.37	4.88	.48	1.39	1.46	-.07	6.75	6.34	.41	6,643
1995	5.34	4.85	.50	1.38	1.52	-.14	6.72	6.36	.36	7,069
1996	5.35	4.83	.52	1.38	1.58	-.20	6.73	6.40	.32	7,522
1997	5.33	4.80	.53	1.38	1.63	-.25	6.71	6.43	.28	8,003
1998	5.33	4.78	.55	1.37	1.68	-.30	6.70	6.46	.24	8,515
1999	5.32	4.76	.56	1.37	1.73	-.36	6.70	6.49	.20	9,058
2000	5.32	4.75	.57	1.37	1.78	-.41	6.69	6.52	.17	9,637
2001	5.32	4.73	.59	1.37	1.82	-.45	6.69	6.55	.14	10,242
2005	5.32	4.71	.61	1.34	1.98	-.64	6.67	6.70	-.03	12,940
2010	5.32	4.85	.47	1.33	2.24	-.91	6.65	7.09	-.44	17,237
2015	5.31	5.26	.05	1.32	2.62	-1.30	6.63	7.88	-1.25	22,708
2020	5.30	5.83	-.53	1.31	2.98	-1.67	6.61	8.80	-2.20	29,594
2025	5.28	6.34	-1.06	1.30	3.42	-2.12	6.58	9.76	-3.18	38,400
2030	5.25	6.65	-1.40	1.29	3.83	-2.54	6.54	10.48	-3.94	49,936
2035	5.21	6.72	-1.51	1.28	4.09	-2.81	6.49	10.81	-4.32	65,242
2040	5.17	6.64	-1.47	1.26	4.23	-2.97	6.43	10.86	-4.44	85,215
2045	5.12	6.56	-1.44	1.25	4.29	-3.04	6.37	10.85	-4.48	111,016
2050	5.07	6.57	-1.50	1.24	4.33	-3.09	6.31	10.90	-4.59	144,168
2055	5.03	6.66	-1.63	1.23	4.41	-3.18	6.26	11.07	-4.81	186,956
2060	4.99	6.76	-1.76	1.22	4.54	-3.32	6.21	11.30	-5.09	242,437
2065	4.95	6.81	-1.85	1.20	4.68	-3.48	6.16	11.48	-5.33	314,669
2070	4.91	6.82	-1.91	1.19	4.80	-3.60	6.10	11.62	-5.51	408,428
Summarized rates: ²										
25-year:										
1992-2016	5.56	5.09	.47	1.45	2.06	-.61	7.00	7.15	-.14	---
50-year:										
1992-2041	5.42	5.67	-.24	1.38	2.77	-1.40	6.80	8.44	-1.64	---
75-year:										
1992-2066	5.33	5.92	-.59	1.34	3.20	-1.86	6.66	9.12	-2.46	---

TABLE III.C.1.—ESTIMATED OASDI AND HI INCOME EXCLUDING INTEREST, OUTGO, AND BALANCE AS A PERCENTAGE OF GDP BY ALTERNATIVE, CALENDAR YEARS 1992-2070(Cont.)

Calendar year	Percentage of GDP									GDP in dollars (billions)
	OASDI			HI			Combined			
	In- come ¹	Out- go	Bal- ance	In- come ¹	Out- go	Bal- ance	In- come ¹	Outgo	Bal- ance	
Alternative III:										
1992.....	5.30	4.98	0.32	1.40	1.36	0.03	6.70	6.34	0.36	5,869
1993.....	5.32	4.96	.36	1.38	1.43	-.05	6.70	6.38	.32	6,281
1994.....	5.29	4.92	.37	1.37	1.50	-.13	6.67	6.43	.24	6,817
1995.....	5.31	5.02	.29	1.37	1.59	-.22	6.68	6.62	.07	7,274
1996.....	5.31	5.23	.08	1.37	1.70	-.33	6.68	6.93	-.25	7,567
1997.....	5.25	5.16	.09	1.36	1.76	-.40	6.61	6.92	-.31	8,199
1998.....	5.25	5.18	.08	1.36	1.85	-.49	6.61	7.03	-.41	8,752
1999.....	5.25	5.20	.05	1.36	1.94	-.58	6.61	7.14	-.54	9,329
2000.....	5.25	5.23	.02	1.35	2.03	-.68	6.60	7.26	-.66	9,948
2001.....	5.24	5.25	-.01	1.35	2.11	-.76	6.59	7.36	-.77	10,607
2005.....	5.23	5.31	-.08	1.32	2.45	-1.13	6.55	7.77	-1.21	13,614
2010.....	5.22	5.50	-.29	1.30	3.01	-1.71	6.52	8.51	-2.00	18,576
2015.....	5.19	5.96	-.78	1.29	3.84	-2.56	6.47	9.81	-3.33	25,033
2020.....	5.16	6.62	-1.47	1.27	4.76	-3.49	6.43	11.39	-4.96	33,271
2025.....	5.12	7.27	-2.15	1.25	5.86	-4.60	6.38	13.13	-6.75	43,867
2030.....	5.08	7.76	-2.68	1.24	6.89	-5.65	6.32	14.65	-8.33	57,795
2035.....	5.03	8.05	-3.01	1.22	7.57	-6.36	6.25	15.62	-9.37	76,238
2040.....	4.98	8.18	-3.20	1.20	7.91	-6.71	6.18	16.09	-9.91	100,293
2045.....	4.92	8.33	-3.41	1.18	7.98	-6.80	6.10	16.31	-10.21	131,303
2050.....	4.87	8.56	-3.69	1.17	8.03	-6.86	6.03	16.59	-10.56	170,961
2055.....	4.82	8.89	-4.07	1.15	8.13	-6.98	5.97	17.02	-11.05	221,752
2060.....	4.78	9.21	-4.44	1.13	8.34	-7.21	5.91	17.55	-11.64	287,310
2065.....	4.73	9.45	-4.72	1.12	8.56	-7.44	5.84	18.00	-12.16	372,667
2070.....	4.67	9.61	-4.93	1.10	8.77	-7.67	5.78	18.38	-12.60	483,485
Summarized rates:²										
25-year:										
1992-2016	5.48	5.61	-1.13	1.43	2.60	-1.18	6.90	8.22	-1.31	---
50-year:										
1992-2041	5.30	6.48	-1.17	1.34	4.38	-3.03	6.65	10.85	-4.21	---
75-year:										
1992-2066	5.18	7.09	-1.90	1.29	5.36	-4.07	6.47	12.45	-5.97	---

¹Income excludes interest on the trust funds.

²Summarized rates are calculated on the present-value basis including the value of the trust funds on January 1, 1992 and the cost of reaching and maintaining a target trust fund level equal to 100 percent of annual expenditures by the end of the period.

The difference between trust fund operations expressed as percentages of taxable payroll and those expressed as percentages of GDP can be seen by analyzing the estimated ratios of taxable payroll to GDP, which are presented in table III.C.2. The cost as a percentage of GDP is approximately equal to the cost as a percentage of taxable payroll multiplied by the ratio of taxable payroll to GDP.

Projections of GDP for the first several years were based on assumed quarterly changes in real GDP and the GDP price deflator. Thereafter, projections of GDP were based on the projected increases in U.S. employment, labor productivity, and the GDP price deflator. Productivity projections are consistent with assumed changes in the level of

average earnings, the ratio of earnings to worker compensation, the ratio of worker compensation to GDP, and average hours worked per year (see section II.H).

Projections of taxable payroll, which are described in detail in section II.H, were based on the projected increases in covered employment and average taxable earnings. Therefore, the projected increases in taxable payroll differ from projected increases in GDP primarily to the extent that average taxable earnings are assumed to increase more slowly than is productivity and to the extent that OASDI program coverage of employment changes over time.

TABLE III.C.2.—RATIO OF TAXABLE PAYROLL TO GDP BY ALTERNATIVE, CALENDAR YEARS 1992-2070

Calendar year	I	II	III
1992.....	0.429	0.429	0.428
1993.....	.428	.426	.423
1994.....	.428	.425	.420
1995.....	.429	.424	.420
1996.....	.429	.424	.420
1997.....	.430	.423	.416
1998.....	.431	.423	.416
1999.....	.432	.423	.416
2000.....	.433	.422	.416
2001.....	.433	.422	.415
2005.....	.433	.420	.411
2010.....	.431	.416	.406
2015.....	.430	.413	.400
2020.....	.428	.409	.395
2025.....	.426	.405	.389
2030.....	.424	.401	.384
2035.....	.422	.397	.378
2040.....	.420	.393	.373
2045.....	.418	.390	.368
2050.....	.416	.386	.362
2055.....	.414	.382	.357
2060.....	.412	.379	.352
2065.....	.410	.375	.347
2070.....	.408	.372	.342

The long-range trend in the ratio of taxable payroll to GDP reflects the assumed trend in the ratio of wages to total employee compensation—i.e., wages plus fringe benefits. The ratio of wages to total employee compensation declined at average annual rates of 0.33 percent for the 30 years 1961-90 and 0.30, 0.63, and 0.06 percent for the 10-year periods 1961-70, 1971-80, and 1981-90, 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 alternatives I, II, and III, 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 earnings to covered earnings, as a result the relatively greater increases in earnings for persons with earnings above the benefit and contribution

Appendices

base. This decline in the taxable ratio is assumed to continue at a slower pace through the end of this century.

Between 1983 and 2015, however, the tendency toward decreases in the ratio of taxable payroll to GDP, discussed above, is at least partially offset by the gradually expanding OASDI coverage of Federal civilian employment resulting from the 1983 amendments.

For alternative I, the ratio of taxable payroll to GDP is projected to rise slowly through the year 2001, and then to decrease for the remainder of the long-range period. For alternatives II and III, the ratio of taxable payroll to GDP is projected to decrease essentially throughout the long-range period.

D. TEN YEAR HISTORY OF ACTUARIAL BALANCE ESTIMATES

This appendix chronicles the recent history of the primary measure of long-range actuarial status, namely the actuarial balance, as shown in the annual reports for 1982 and later. Actuarial balance is defined in detail in section II.F, Actuarial Estimates. 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 outgo 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:

1. 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
2. The present value of a target trust fund balance equal to 100 percent of the amount of annual outgo 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 economic and demographic 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.

Appendices

As a result of legislation enacted in 1977 and in 1983, substantial increases in the trust funds were estimated to occur well into the next century, so that the program was partially "advance funded," rather than being funded on a pay-as-you-go basis. Also, because of declines 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 resumed.

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 III.D.1 shows the estimated OASDI actuarial balances, as well as the summarized income and cost rates, for the last 10 annual reports (1982-1991), along with the estimates for the current report. The values shown are based on the intermediate alternative II assumptions, or alternative II-B for years prior to 1991.

TABLE III.D.1.—LONG-RANGE ACTUARIAL BALANCES FOR THE OASDI PROGRAM AS SHOWN FOR THE INTERMEDIATE ASSUMPTIONS¹ IN THE TRUSTEES REPORTS ISSUED IN YEARS 1982-1992

(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	0.00
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

¹Values shown are based on the intermediate alternative II assumptions for 1991 and 1992, and on the intermediate alternative II-B assumptions for 1982-90.

For several of the years included in the table, significant legislative changes or definitional changes have affected the estimated actuarial balance. The Social Security Amendments of 1983 accounted for the largest single change in the past 10 years. 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 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 actuarial balance. Changes affecting the actuarial balance shown for the 1992 report are described in section II.F.2 of this report.