

E. ACTUARIAL STATUS OF THE TRUST FUNDS

Historically, the actuarial status of the OASDI program has been measured by the actuarial balance, as described earlier in this section. Recent annual reports have shown both medium-range and long-range actuarial balances, which have been computed, respectively, for the 25-year and 75-year periods beginning with the calendar year of issuance of the report. Accordingly, the medium-range and long-range actuarial balances shown in this report pertain to the periods 1985-2009 and 1985-2059, respectively. Also presented are actuarial balances for the second and third 25-year subperiods of the 75-year projection period.

As described earlier in this section, a single measure of the actuarial balance over a long period may not reveal problems which could occur during that period. Therefore, in addition to the medium-range and long-range actuarial balances, two other indicators of the financial condition of the trust funds are shown in this report. One is the series of annual balances (that is, the year-by-year differences between the estimated total income rates and cost rates), and the other is the series of estimated trust fund ratios (assets at the beginning of the year expressed as a percentage of outgo during the year).

The estimates are sensitive to changes in the underlying economic and demographic assumptions. The degree of sensitivity, however, varies considerably among the various assumptions. For example, variations in assumed fertility rates have little effect on the medium-range estimates, because almost all of the projected covered workers and beneficiaries were born prior to the start of the projection period. Variations in economic factors, however, such as increases in earnings and prices, have significant effects on the estimates, even in the medium-range period. In general, the degree of confidence that can be placed in the assumptions and estimates is greater for the medium-range period than for the long-range period. Nonetheless, even for the medium-range period, the estimates are only an indication of the trend and general range of future program experience. Appendix B contains a more detailed discussion of the effects on the estimates of varying certain economic and demographic assumptions.

Table 28 presents a comparison of the estimated cost rates and total income rates of the OASDI program, based on alternatives II-A and II-B. On the basis of alternative II-A, annual surpluses are estimated until about 2020, after which annual deficits are estimated. These deficits are estimated to increase steadily to a peak of 1.67 percent of taxable payroll in 2035 and then decrease to about 1.3 percent by the end of the long-range projection period. This pattern of annual surpluses and deficits produces a long-range actuarial surplus of 0.38 percent of taxable payroll, which consists of average annual surpluses of 2.42 and 0.09 percent of taxable payroll for the first and second 25-year subperiods, respectively, and an average annual deficit of 1.38 percent for the third 25-year subperiod.

On the basis of alternative II-B, annual surpluses are estimated until about 2015, after which deficits are estimated for each year. These estimated deficits increase more rapidly than those based on alternative II-A, and peak around 2035 at 2.73 percent of taxable payroll. Although

the annual deficits thereafter are significantly larger than those based on alternative II-A, they follow a similar pattern, decreasing to about 2.3 percent by the end of the long-range projection period. This pattern of annual surpluses and deficits produces a long-range actuarial deficit of 0.41 percent of taxable payroll, which consists of an average annual surplus of 2.00 percent of taxable payroll for the first 25-year subperiod, and average annual deficits of 0.78 and 2.46 percent for the second and third 25-year subperiods, respectively.

TABLE 28.—COMPARISON OF ESTIMATED COST RATES AND INCOME RATES OF THE OASDI PROGRAM, ON THE BASIS OF ALTERNATIVES II-A AND II-B, CALENDAR YEARS 1985-2060
[As a percentage of taxable payroll]

Calendar year	Cost rate			Income rate			Balance
	OASI	DI	Total	Payroll tax	Taxation of benefits	Total	
Alternative II-A:							
1985	10.06	1.18	11.24	11.40	0.21	11.61	0.37
1986	9.87	1.09	10.96	11.40	.22	11.62	.66
1987	9.81	1.07	10.87	11.40	.24	11.64	.76
1988	9.75	1.04	10.79	12.12	.26	12.38	1.59
1989	9.70	1.03	10.73	12.12	.28	12.40	1.67
1990	9.77	1.02	10.79	12.40	.30	12.70	1.91
1991	9.73	1.01	10.74	12.40	.33	12.73	1.99
1992	9.70	1.01	10.71	12.40	.36	12.76	2.04
1993	9.67	1.01	10.69	12.40	.39	12.79	2.10
1994	9.64	1.02	10.66	12.40	.42	12.82	2.16
1995	9.46	1.03	10.49	12.40	.38	12.78	2.30
1996	9.26	1.04	10.30	12.40	.38	12.78	2.48
1997	9.04	1.05	10.09	12.40	.38	12.78	2.68
1998	8.81	1.06	9.86	12.40	.37	12.77	2.91
1999	8.63	1.06	9.69	12.40	.37	12.77	3.08
2000	8.53	1.08	9.61	12.40	.37	12.77	3.16
2001	8.45	1.10	9.56	12.40	.37	12.77	3.21
2002	8.38	1.13	9.51	12.40	.37	12.77	3.26
2003	8.32	1.16	9.48	12.40	.37	12.77	3.29
2004	8.27	1.20	9.46	12.40	.37	12.77	3.31
2005	8.25	1.23	9.48	12.40	.37	12.77	3.30
2006	8.27	1.27	9.54	12.40	.38	12.78	3.24
2007	8.30	1.31	9.62	12.40	.39	12.79	3.17
2008	8.36	1.35	9.72	12.40	.39	12.79	3.07
2009	8.48	1.39	9.87	12.40	.40	12.80	2.93
2010	8.62	1.41	10.03	12.40	.41	12.81	2.78
2015	9.68	1.52	11.20	12.40	.47	12.87	1.67
2020	11.06	1.58	12.64	12.40	.55	12.95	.31
2025	12.28	1.65	13.92	12.40	.63	13.03	-.90
2030	13.04	1.60	14.64	12.40	.68	13.08	-1.56
2035	13.21	1.56	14.77	12.40	.71	13.11	-1.67
2040	13.01	1.56	14.57	12.40	.72	13.12	-1.46
2045	12.84	1.61	14.45	12.40	.73	13.13	-1.32
2050	12.84	1.62	14.45	12.40	.73	13.13	-1.32
2055	12.83	1.60	14.43	12.40	.73	13.13	-1.30
2060	12.79	1.60	14.40	12.40	.73	13.13	-1.27
25-year averages:							
1985-2009	9.06	1.12	10.18	12.26	.35	12.60	2.42
2010-2034	11.31	1.57	12.88	12.40	.57	12.97	.09
2035-2059	12.91	1.59	14.50	12.40	.72	13.12	-1.38
75-year average:							
1985-2059	11.10	1.43	12.52	12.35	.55	12.90	.38

TABLE 28.—COMPARISON OF ESTIMATED COST RATES AND INCOME RATES OF THE OASDI PROGRAM, ON THE BASIS OF ALTERNATIVES II-A AND II-B, CALENDAR YEARS 1985-2060 (Cont.)
[As a percentage of taxable payroll]

Calendar year	Cost rate			Income rate			Balance
	OASI	DI	Total	Payroll tax	Taxation of benefits	Total	
Alternative II-B:							
1985.....	10.10	1.19	11.29	11.40	0.21	11.61	0.32
1986.....	9.98	1.11	11.09	11.40	.22	11.62	.53
1987.....	9.97	1.08	11.05	11.40	.24	11.64	.59
1988.....	9.97	1.06	11.04	12.12	.26	12.38	1.34
1989.....	9.95	1.05	11.00	12.12	.28	12.40	1.41
1990.....	10.03	1.04	11.07	12.40	.31	12.71	1.64
1991.....	10.01	1.03	11.04	12.40	.34	12.74	1.70
1992.....	10.00	1.03	11.03	12.40	.37	12.77	1.74
1993.....	9.98	1.03	11.01	12.40	.40	12.80	1.78
1994.....	9.96	1.04	11.00	12.40	.43	12.83	1.83
1995.....	9.81	1.05	10.86	12.40	.40	12.80	1.94
1996.....	9.65	1.07	10.72	12.40	.40	12.80	2.08
1997.....	9.47	1.08	10.55	12.40	.39	12.79	2.24
1998.....	9.26	1.09	10.35	12.40	.39	12.79	2.44
1999.....	9.11	1.10	10.21	12.40	.39	12.79	2.57
2000.....	9.04	1.12	10.17	12.40	.39	12.79	2.62
2001.....	8.98	1.15	10.13	12.40	.39	12.79	2.66
2002.....	8.93	1.18	10.11	12.40	.39	12.79	2.68
2003.....	8.88	1.21	10.09	12.40	.39	12.79	2.70
2004.....	8.84	1.25	10.09	12.40	.40	12.80	2.70
2005.....	8.83	1.29	10.12	12.40	.40	12.80	2.67
2006.....	8.86	1.34	10.20	12.40	.41	12.81	2.61
2007.....	8.91	1.38	10.29	12.40	.41	12.81	2.52
2008.....	8.98	1.42	10.40	12.40	.42	12.82	2.42
2009.....	9.11	1.46	10.56	12.40	.43	12.83	2.27
2010.....	9.26	1.48	10.74	12.40	.44	12.84	2.10
2015.....	10.38	1.60	11.98	12.40	.51	12.91	.93
2020.....	11.85	1.66	13.51	12.40	.59	12.99	-.52
2025.....	13.17	1.74	14.90	12.40	.67	13.07	-1.83
2030.....	14.01	1.69	15.70	12.40	.73	13.13	-2.57
2035.....	14.25	1.64	15.89	12.40	.76	13.16	-2.73
2040.....	14.06	1.65	15.71	12.40	.77	13.17	-2.54
2045.....	13.90	1.70	15.59	12.40	.78	13.18	-2.41
2050.....	13.88	1.70	15.58	12.40	.78	13.18	-2.40
2055.....	13.86	1.69	15.55	12.40	.78	13.18	-2.37
2060.....	13.83	1.69	15.51	12.40	.78	13.18	-2.33
25-year averages:							
1985-2009.....	9.46	1.15	10.62	12.26	.36	12.62	2.06
2010-2034.....	12.14	1.65	13.79	12.40	.61	13.01	-.78
2035-2059.....	13.96	1.68	15.64	12.40	.78	13.18	-2.46
75-year average:							
1985-2059.....	11.85	1.49	13.35	12.35	.58	12.94	-.41

The estimated average long-range income rates based on alternatives II-A and II-B are about 103.0 and 96.9 percent, respectively, of the estimated average long-range cost rates (of 12.52 and 13.35 percent of taxable payroll). Because, in each case, the estimated average income rate is between 95 and 105 percent of the estimated average cost rate, the program is in close actuarial balance, based on both alternatives II-A and II-B. These balances will tend to decline slowly over time as the valuation period moves forward and near-term years of surplus are replaced by distant years of deficit.

The estimated cost rates increase rapidly after the medium-range period, primarily because the number of beneficiaries is projected to increase more rapidly than is the number of covered workers. This occurs because the relatively large number of persons born during the period of high fertility rates from the end of World War II through the early 1960s will reach retirement age, and begin to receive benefits, while the relatively small number of persons born during the subsequent periods of low fertility rates will comprise the labor force. During the

last years of the projection period, the cost rates generally stabilize at a fairly high level, which reflects the stabilization in the projected ratio of the number of beneficiaries to the number of covered workers. Such stabilization results from the relatively smooth pattern of the assumed fertility rates. A comparison of the numbers of beneficiaries and covered workers, both historical and as projected on the basis of all four alternatives, is shown in table 29.

TABLE 29.—COMPARISON OF OASDI BENEFICIARIES AND COVERED WORKERS
BY ALTERNATIVE, CALENDAR YEARS 1945-2060

Calendar year	Covered workers ¹ (in thousands)	Beneficiaries ² (in thousands)			Covered workers per OASDI beneficiary	Beneficiaries per 100 covered workers
		OASI	DI	Total		
1945	48,390	1,108	—	1,108	41.9	2
1950	48,280	2,930	—	2,930	18.5	6
1955	65,200	7,563	—	7,563	8.6	12
1960	72,530	13,740	—	14,282	5.1	20
1965	80,680	18,509	1,648	20,157	4.0	25
1970	93,090	22,618	2,568	25,186	3.7	27
1975	100,200	26,998	4,125	31,123	3.2	31
1980	*113,000	30,385	4,734	35,119	*3.2	*31
1981	*113,400	31,074	4,636	35,710	*3.2	*31
1982	*112,600	31,207	4,184	35,391	*3.2	*31
1983	*113,400	31,833	3,993	35,726	*3.2	*32
1984	*118,930	32,251	3,789	36,039	*3.3	*30
Alternative I:						
1985	123,111	32,781	3,857	36,638	3.4	30
1990	135,369	35,610	3,804	39,414	3.4	29
1995	142,242	37,254	3,846	41,100	3.5	29
2000	152,565	38,197	4,243	42,440	3.6	28
2005	160,632	39,565	4,901	44,466	3.6	28
2010	165,021	42,929	5,618	48,547	3.4	29
2015	167,830	48,606	6,046	54,652	3.1	33
2020	169,891	55,541	6,288	61,829	2.7	36
2025	172,319	62,207	6,561	68,768	2.5	40
2030	175,896	66,940	6,483	73,423	2.4	42
2035	180,584	68,962	6,425	75,407	2.4	42
2040	185,678	68,930	6,535	75,465	2.5	41
2045	191,131	68,959	6,845	75,804	2.5	40
2050	197,070	69,640	7,064	76,704	2.6	39
2055	203,556	70,885	7,259	78,144	2.6	38
2060	210,359	72,441	7,451	79,892	2.6	38
Alternative II-A:						
1985	123,100	32,805	3,878	36,683	3.4	30
1990	134,371	35,921	4,046	39,967	3.4	30
1995	140,775	37,721	4,467	42,188	3.3	30
2000	148,656	39,029	5,145	44,174	3.4	30
2005	154,696	40,689	6,070	46,759	3.3	30
2010	157,456	44,314	7,013	51,327	3.1	33
2015	158,093	50,261	7,560	57,821	2.7	37
2020	157,560	57,496	7,846	65,342	2.4	41
2025	156,868	64,519	8,154	72,673	2.2	46
2030	156,834	69,872	7,993	77,865	2.0	50
2035	157,454	72,107	7,842	79,949	2.0	51
2040	158,009	72,353	7,884	80,237	2.0	51
2045	158,542	72,547	8,155	80,702	2.0	51
2050	159,246	73,189	8,244	81,433	2.0	51
2055	160,281	73,874	8,248	82,122	2.0	51
2060	161,469	74,376	8,335	82,711	2.0	51
Alternative II-B:						
1985	122,902	32,805	3,878	36,683	3.4	30
1990	133,300	35,921	4,043	39,964	3.3	30
1995	139,485	37,719	4,466	42,185	3.3	30
2000	146,113	39,023	5,142	44,165	3.3	30
2005	151,562	40,676	6,065	46,741	3.2	31
2010	154,247	44,291	7,004	51,295	3.0	33
2015	154,856	50,228	7,547	57,775	2.7	37
2020	154,308	57,452	7,828	65,280	2.4	42
2025	153,588	64,462	8,131	72,593	2.1	47
2030	153,521	69,603	7,967	77,570	2.0	51
2035	154,108	72,028	7,815	79,843	1.9	52
2040	154,658	72,264	7,855	80,119	1.9	52
2045	155,184	72,450	8,124	80,574	1.9	52
2050	155,872	73,082	8,213	81,295	1.9	52
2055	156,871	73,759	8,216	81,975	1.9	52
2060	158,033	74,256	8,303	82,559	1.9	52

TABLE 29.—COMPARISON OF OASDI BENEFICIARIES AND COVERED WORKERS
BY ALTERNATIVE, CALENDAR YEARS 1945-2060 (Cont.)

Calendar year	Covered workers ¹ (in thousands)	Beneficiaries ² (in thousands)			Covered workers per OASDI beneficiary	Beneficiaries per 100 covered workers
		OASI	DI	Total		
Alternative III:						
1985.....	122,050	32,829	3,893	36,722	3.3	30
1990.....	129,140	36,211	4,285	40,496	3.2	31
1995.....	137,035	38,142	5,095	43,237	3.2	32
2000.....	141,577	39,785	6,031	45,816	3.1	32
2005.....	145,209	41,784	7,179	48,963	3.0	34
2010.....	146,028	45,825	8,306	54,131	2.7	37
2015.....	144,156	52,312	8,934	61,246	2.4	42
2020.....	140,645	60,222	9,225	69,447	2.0	49
2025.....	136,365	68,083	9,524	77,607	1.8	57
2030.....	132,202	74,242	9,230	83,472	1.6	63
2035.....	128,330	77,743	8,928	86,671	1.5	68
2040.....	124,090	78,996	8,827	87,823	1.4	71
2045.....	119,632	80,057	8,958	89,015	1.3	74
2050.....	115,232	81,261	8,754	90,015	1.3	78
2055.....	111,200	81,685	8,358	90,043	1.2	81
2060.....	107,476	81,121	8,017	89,138	1.2	83

¹Workers who pay OASDI taxes at some time during the year.

²Beneficiaries with monthly benefits in current-payment status as of June 30.

³Preliminary.

Note: The numbers of beneficiaries do not include certain uninsured persons, most of whom both attained age 72 before 1968 and have fewer than 3 quarters of coverage, in which cases the costs are reimbursed by the general fund of the Treasury. The number of such uninsured persons was 45,098 as of June 30, 1984, and is estimated to be less than 500 by the turn of the century.

Table 29 shows that the number of covered workers per beneficiary, which was about 3.3 in 1984, is estimated to decline in the future. Based on alternative I, for which high fertility rates and small reductions in death rates are assumed, the ratio declines to an ultimate level of about 2.6. Based on alternative III, for which low fertility rates and substantial reductions in death rates are assumed, the decline is much greater, reaching 1.2 workers per beneficiary. Based on alternatives II-A and II-B, the ratio declines to 2.0 and 1.9 workers per beneficiary, respectively. The impact of these changes on OASDI financing is indicated by the projected number of beneficiaries per 100 workers. Based on alternatives I, II-A, II-B, and III, this rises by the end of the long-range period to levels of 38, 51, 52, and 83, respectively. These levels are, respectively, 27, 70, 73, and 177 percent higher than the current level of 30 beneficiaries per 100 covered workers.

The implication of this demographic shift is a significantly higher cost rate during the last third of the long-range period than during the first two-thirds. Based on all but the most optimistic of the four alternative sets of assumptions used in this report, the OASDI program is estimated to have substantial annual deficits during the last 25 years. Based on alternatives II-B and III, such deficits are also estimated for the middle 25 years of the long-range projection period; even based on alternative II-A, the estimated average annual surplus for those middle years is small. Therefore, at some point, either the costs would need to be reduced or the income would need to be raised in order to maintain actuarial balance.

Table 30 shows the OASDI cost rates on the basis of the four alternatives. Based on alternatives I and II-A, the cost rates generally decline for the next 20 years. Based on alternative II-B, the cost rates remain fairly level for about a decade before following a similar

downward pattern. Based on alternative III, the cost rates fluctuate for about a decade at levels higher than currently experienced, and then decline for a few years. During the latter part of the medium-range period, the cost rates begin to rise, based on all four alternatives.

After the medium-range period, on the basis of each alternative, the cost rates increase rapidly (because of the demographic shift discussed earlier). Based on alternative I, the cost rates peak around 2030, after which they decrease through the end of the projection period. Based on alternatives II-A and II-B, they follow a similar pattern, except that the peak occurs about 2035 and the decline thereafter is less. Based on alternative III, the cost rates continuously increase through the end of the long-range projection period.

The OASDI cost rates based on alternatives I and III differ by about 16 percentage points at the end of the long-range period, although the difference is only 3.93 percentage points at the end of the medium-range period. The average long-range cost rate for the OASDI program varies from 10.24 percent on the basis of alternative I, to 17.84 percent on the basis of alternative III, while the average medium-range cost rate varies much less—from 9.44 to 11.85 percent.

TABLE 30.—ESTIMATED COST RATES OF THE OASDI PROGRAM BY ALTERNATIVE, CALENDAR YEARS 1985-2060
[As a percentage of taxable payroll]

Calendar year	I	II-A	II-B	III
1985	11.20	11.24	11.29	11.52
1986	10.67	10.96	11.09	11.79
1987	10.72	10.87	11.05	11.75
1988	10.58	10.79	11.04	11.81
1989	10.43	10.73	11.00	12.14
1990	10.42	10.79	11.07	12.15
1991	10.18	10.74	11.04	12.04
1992	10.30	10.71	11.03	11.96
1993	10.10	10.69	11.01	11.93
1994	10.14	10.66	11.00	12.01
1995	9.71	10.49	10.86	11.94
1996	9.63	10.30	10.72	11.87
1997	9.35	10.09	10.55	11.76
1998	9.07	9.86	10.35	11.61
1999	8.85	9.69	10.21	11.52
2000	8.70	9.61	10.17	11.53
2001	8.59	9.56	10.13	11.56
2002	8.50	9.51	10.11	11.59
2003	8.42	9.48	10.09	11.62
2004	8.35	9.46	10.09	11.68
2005	8.32	9.48	10.12	11.77
2006	8.34	9.54	10.20	11.90
2007	8.37	9.62	10.29	12.06
2008	8.43	9.72	10.40	12.23
2009	8.54	9.87	10.56	12.47
2010	8.65	10.03	10.74	12.71
2015	9.53	11.20	11.98	14.44
2020	10.58	12.64	13.51	16.68
2025	11.42	13.92	14.90	19.00
2030	11.72	14.64	15.70	20.82
2035	11.51	14.77	15.89	22.04
2040	11.04	14.57	15.71	22.88
2045	10.67	14.45	15.59	23.82
2050	10.44	14.45	15.58	24.85
2055	10.27	14.43	15.55	25.82
2060	10.15	14.40	15.51	26.17
25-year averages:				
1985-2009	9.44	10.18	10.62	11.85
2010-2034	10.62	12.88	13.79	17.49
2035-2059	10.87	14.50	15.64	24.18
75-year average:				
1985-2059	10.24	12.52	13.35	17.84

Future OASDI cost rates will not necessarily be within the range defined by the results based on alternatives I and III. Nonetheless, because alternatives I and III define a reasonably wide range of economic and demographic conditions, the resulting estimates delineate a reasonable range for future program costs.

The variations in cost, as reflected in the patterns of the cost rates based on the four alternative sets of assumptions, are also reflected in the patterns of the cost as a percentage of Gross National Product (GNP) based on the four alternatives. Table 31 shows a comparison of the OASDI cost as a percentage of GNP on the basis of the four alternatives. Various similarities exist between the patterns of these cost percentages and the cost rates shown in the previous table. Based on alternatives I and II-A, the percentages generally decline slowly for the next 20 years. Based on alternative II-B, the percentages remain fairly level for about a decade before following a similar downward pattern. Based on alternative III, the percentages fluctuate for about a decade at levels slightly higher than currently experienced, and then decline for several years. During the latter part of the medium-range period, the percentages begin to rise slightly on the basis of all four alternatives. Shortly after the end of the medium-range period, based on each alternative, the percentages increase rapidly (because of the demographic shift discussed earlier) and peak around 2030 based on alternatives I, II-A, and II-B, while continuing to increase through the end of the long-range projection period based on alternative III.

Another similarity is that the costs as a percentage of GNP also differ by a relatively large amount at the end of the long-range period (about 4.6 percentage points between alternatives I and III), although differing by a much smaller amount at the end of the medium-range period (1.38 percentage points). In addition, the average long-range cost as a percentage of GNP varies by a relatively large amount (from 4.46 percent based on alternative I, to 6.86 percent based on alternative III), while the average medium-range cost varies by a much smaller amount (from 4.16 to 5.03 percent).

TABLE 31.—ESTIMATED COST OF THE OASDI PROGRAM AS A PERCENTAGE OF GNP BY ALTERNATIVE, CALENDAR YEARS 1985-2060

Calendar year	I	II-A	II-B	III
1985	4.91	4.92	4.94	5.03
1986	4.65	4.81	4.86	5.10
1987	4.71	4.76	4.82	5.06
1988	4.63	4.72	4.80	5.08
1989	4.58	4.70	4.79	5.21
1990	4.57	4.72	4.82	5.17
1991	4.43	4.71	4.81	5.13
1992	4.53	4.69	4.80	5.11
1993	4.41	4.68	4.79	5.11
1994	4.46	4.66	4.78	5.16
1995	4.28	4.58	4.71	5.12
1996	4.25	4.50	4.64	5.07
1997	4.13	4.41	4.57	5.02
1998	4.01	4.30	4.48	4.94
1999	3.91	4.23	4.41	4.90
2000	3.85	4.19	4.38	4.89
2001	3.81	4.17	4.37	4.89
2002	3.76	4.15	4.35	4.89
2003	3.73	4.13	4.34	4.89
2004	3.70	4.12	4.33	4.91
2005	3.69	4.12	4.33	4.93
2006	3.70	4.14	4.36	4.97
2007	3.71	4.17	4.38	5.02
2008	3.73	4.21	4.42	5.08

TABLE 31.—ESTIMATED COST OF THE OASDI PROGRAM AS A PERCENTAGE OF GNP
BY ALTERNATIVE, CALENDAR YEARS 1985-2060 (Cont.)

Calendar year	I	II-A	II-B	III
2009.....	3.78	4.27	4.48	5.16
2010.....	3.83	4.34	4.55	5.25
2015.....	4.21	4.81	5.01	5.86
2020.....	4.65	5.37	5.57	6.64
2025.....	4.99	5.86	6.06	7.42
2030.....	5.10	6.11	6.29	7.98
2035.....	4.99	6.10	6.28	8.29
2040.....	4.76	5.96	6.12	8.44
2045.....	4.58	5.86	5.99	8.62
2050.....	4.46	5.80	5.90	8.83
2055.....	4.36	5.74	5.81	8.83
2060.....	4.29	5.67	5.71	8.95
25-year averages:				
1985-2009.....	4.16	4.44	4.59	5.03
2010-2034.....	4.66	5.45	5.64	6.88
2035-2059.....	4.57	5.86	5.97	6.68
75-year average:				
1985-2059.....	4.46	5.25	5.40	6.86

Table 32 shows a comparison of the estimated average cost rates and the estimated average total income rates, by trust fund. In the medium range, actuarial surpluses are estimated for the OASI program, on the basis of all four alternatives, and for the DI program on the basis of all but alternative III. The combined OASDI medium-range actuarial surplus ranges from 0.82 percent of taxable payroll based on alternative III, to 3.14 percent based on alternative I.

In the long range, actuarial surpluses are estimated for the OASI program based on alternatives I and II-A, and deficits are estimated based on alternatives II-B and III. For the DI program, similar patterns are estimated, except that a negligible deficit—that is, less than 0.005 percent of payroll—is estimated based on alternative II-A. The combined OASDI long-range actuarial balance ranges from a surplus of 2.55 percent of taxable payroll based on alternative I, to a deficit of 4.69 percent based on alternative III.

TABLE 32.—COMPARISON OF ESTIMATED AVERAGE COST RATES AND TOTAL INCOME RATES
BY ALTERNATIVE AND TRUST FUND
[As a percentage of taxable payroll]

Calendar years	Average cost rate			Average total income rate			Balance		
	OASI	DI	Total	OASI	DI	Total	OASI	DI	Total
Alternative I:									
1985-2009.....	8.50	0.94	9.44	11.30	1.28	12.58	+2.80	+0.34	+3.14
2010-2034.....	9.51	1.12	10.62	11.40	1.47	12.87	+1.90	+35	+2.25
2035-2059.....	9.61	1.06	10.67	11.46	1.47	12.93	+1.85	+41	+2.26
1985-2059.....	9.20	1.04	10.24	11.39	1.41	12.79	+2.18	+37	+2.55
Alternative II-A:									
1985-2009.....	9.06	1.12	10.18	11.32	1.29	12.60	+2.26	+17	+2.42
2010-2034.....	11.31	1.57	12.88	11.48	1.49	12.97	+17	-0.08	+0.09
2035-2059.....	12.91	1.59	14.50	11.62	1.50	13.12	-1.29	-0.09	-1.38
1985-2059.....	11.10	1.43	12.52	11.48	1.42	12.90	+3.38	-0.00	+3.38
Alternative II-B:									
1985-2009.....	9.46	1.15	10.62	11.33	1.29	12.62	+1.87	+13	+2.00
2010-2034.....	12.14	1.65	13.79	11.52	1.49	13.01	-0.62	-1.16	-0.78
2035-2059.....	13.96	1.88	15.64	11.68	1.50	13.18	-2.28	-1.18	-2.46
1985-2059.....	11.85	1.49	13.35	11.51	1.43	12.94	-0.35	-0.07	-0.41
Alternative III:									
1985-2009.....	10.46	1.39	11.85	11.37	1.30	12.66	+1.91	-0.09	+1.82
2010-2034.....	15.21	2.28	17.49	11.66	1.52	13.18	-3.56	-0.76	-4.31
2035-2059.....	21.63	2.55	24.18	12.06	1.54	13.60	-9.57	-1.01	-10.58
1985-2059.....	15.77	2.07	17.84	11.69	1.45	13.15	-4.07	-0.62	-4.69

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

Table 33 shows the estimated trust fund ratios for the OASI and DI programs, on the basis of all four alternatives. The OASI and DI ratios are estimated to be relatively low for the next several years, before increasing to very high levels thereafter. Based on alternative I, they increase throughout the long-range projection period to extremely high levels, around 1,700 percent for OASI and 2,600 percent for DI. In contrast, based on alternative III, the OASI ratio, after peaking around 215 percent, decreases rapidly until the fund is exhausted in 2024; the DI ratio decreases rapidly from its current level, and the fund becomes exhausted in 1987.

TABLE 33.—ESTIMATED TRUST FUND RATIOS BY ALTERNATIVE AND TRUST FUND, CALENDAR YEARS 1985-2060

Calendar year	Alternative I			Alternative II-A			Alternative II-B			Alternative III		
	OASI	DI	Total									
1985	24	27	24	24	26	24	24	26	24	24	26	24
1986	26	33	27	25	28	25	24	27	25	22	23	22
1987	29	44	31	27	35	28	26	33	27	20	20	20
1988	38	45	39	34	31	34	30	28	30	20	(¹)	19
1989	56	56	56	50	35	48	43	29	41	23	(¹)	21
1990	77	72	76	67	41	64	57	33	54	25	(¹)	21
1991	102	106	103	86	61	84	73	50	71	30	(¹)	26
1992	126	139	127	106	82	104	86	69	87	36	(¹)	32
1993	154	177	156	126	103	124	105	87	104	43	(¹)	39
1994	178	210	181	147	123	145	122	105	121	51	(¹)	45
1995	212	251	218	170	142	167	141	122	139	59	(¹)	53
1996	244	287	248	196	160	192	162	137	159	68	(¹)	61
1997	282	329	286	225	176	220	184	151	181	78	(¹)	69
1998	325	372	330	257	191	250	210	163	205	90	(¹)	78
1999	371	416	375	292	206	282	237	174	230	103	(¹)	89
2000	417	453	420	325	218	313	263	182	254	116	(¹)	99
2001	463	510	468	359	244	345	288	204	279	127	(¹)	110
2002	512	565	517	393	268	378	314	224	304	139	(¹)	119
2003	562	613	568	428	287	411	341	239	328	151	(¹)	129
2004	614	655	618	464	302	444	367	250	353	163	(¹)	138
2005	665	692	668	499	313	475	394	258	376	174	(¹)	146
2006	716	725	717	534	321	506	420	262	399	185	(¹)	153
2007	766	754	764	568	325	535	445	264	420	195	(¹)	159
2008	813	779	809	599	327	561	468	262	440	203	(¹)	163
2009	853	805	847	625	328	583	487	259	455	209	(¹)	166
2010	889	833	882	647	328	602	503	256	468	213	(¹)	166
2015	1,007	962	1,001	707	315	654	537	223	495	196	(¹)	135
2020	1,039	1,099	1,046	689	289	639	504	177	463	119	(¹)	53
2025	1,044	1,220	1,062	635	248	590	433	115	396	(¹)	(¹)	(¹)
2030	1,061	1,419	1,095	572	214	533	347	51	315	(¹)	(¹)	(¹)
2035	1,117	1,651	1,187	518	196	484	261	(¹)	234	(¹)	(¹)	(¹)
2040	1,223	1,857	1,284	478	177	446	180	(¹)	156	(¹)	(¹)	(¹)
2045	1,352	2,006	1,418	443	147	410	102	(¹)	81	(¹)	(¹)	(¹)
2050	1,479	2,182	1,551	405	112	372	24	(¹)				
2055	1,607	2,372	1,686	365	78	333	(¹)					
2060	1,735	2,568	1,822	325	48	294	(¹)					
Trust fund is estimated to be exhausted in:	(¹)	2050	2034	2049	2024	1987	2021					

¹The fund is estimated to be exhausted.

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

Note: The OASDI ratios shown for years after a given fund is estimated to be exhausted are theoretical and are shown for informational purposes only.

Table 34 itemizes the reasons for the changes in the medium-range and long-range actuarial balances, based on alternative II-B, between last year's report and this report. Also shown are the estimated effects associated with each reason for change.

TABLE 34.—CHANGE IN ESTIMATED MEDIUM-RANGE AND LONG-RANGE ACTUARIAL BALANCE ON THE BASIS OF ALTERNATIVE II-B BY TRUST FUND AND REASON FOR CHANGE
[As a percentage of taxable payroll]

Item	Medium range			Long range		
	OASI	DI	Total	OASI	DI	Total
Shown in last year's report: ¹						
Average total income rate	11.29	1.27	12.56	11.48	1.42	12.90
Average cost rate	9.45	1.10	10.54	11.51	1.45	12.95
Actuarial balance	+1.84	+1.17	+2.01	-0.03	-0.03	-0.06
Changes in actuarial balance due to changes in:						
Legislation	-0.00	-0.01	-0.01	-0.00	-0.01	-0.01
Valuation period	+0.08	+0.01	+0.09	-0.03	+0.00	-0.03
Economic assumptions	-0.01	-0.00	-0.01	+0.08	+0.01	+0.09
Demographic assumptions	+0.06	+0.00	+0.06	-0.02	-0.00	-0.02
Disability assumptions	-0.00	-0.05	-0.05	-0.00	-0.04	-0.04
Correction of immigration methods	-0.02	-0.00	-0.02	-0.22	-0.02	-0.24
All other factors	-0.08	+0.01	-0.07	-0.12	+0.02	-0.09
Total change in actuarial balance	+0.03	-0.04	-0.01	-0.32	-0.04	-0.35
Shown in this report: ²						
Actuarial balance	+1.87	+1.13	+2.00	-0.35	-0.07	-0.41
Average cost rate	9.46	1.15	10.62	11.85	1.49	13.35
Average total income rate	11.33	1.29	12.62	11.51	1.43	12.94

¹Cost rates, total income rates, and taxable payroll are calculated on the basis of the 1984 alternative II-B, for which the ultimate assumptions include annual increases of 5.5 percent in average earnings in covered employment and 4.0 percent in the CPI, an annual unemployment rate of 6.0 percent, and a total fertility rate of 2.0 children per woman. The averages are computed for projection periods commencing with 1984.

²Cost rates, total income rates, and taxable payroll are calculated on the basis of the 1985 alternative II-B, for which the assumptions are described in a preceding subsection. The averages are computed for projection periods commencing with 1985.

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

Since the issuance of last year's report, several laws affecting the OASDI program were enacted. Those having a perceptible effect on the financial status of the program are described in Section III of this report. Most of those laws have only short-term financial implications and, therefore, only negligible effects on the medium-range and long-range actuarial balances. The small effects shown in table 34 for changes in legislation are virtually entirely attributable to the enactment of the Social Security Disability Benefits Reform Act of 1984 (Public Law 98-460).

In changing from the valuation periods of last year's report, which were 1984-2008 and 1984-2058 for the medium-range and long-range periods, respectively, to the valuation periods of this report, 1985-2009 and 1985-2059, 1984 is replaced by 2009 in the medium range and by 2059 in the long range. For the OASI program, the estimated surplus for 1984 shown in last year's report (0.41 percent of taxable payroll) is replaced by a larger surplus for 2009 (2.49 percent) and by a deficit for 2059 (2.14 percent), thereby increasing the medium-range actuarial balance and decreasing the long-range actuarial balance. For the DI program, the estimated deficit for 1984 shown in last year's report (0.14 percent) is replaced by a surplus for 2009 (0.06 percent), thereby increasing the medium-range actuarial balance; it is replaced by a deficit for 2059 of 0.13 percent, which is so similar in magnitude that the resulting increase in the long-range actuarial balance is negligible. The

net effects of the OASI and DI changes are OASDI actuarial balances that are higher in the medium range and lower in the long range.

Various economic assumptions were revised for this year's report. As compared with last year's report, labor force participation rates are assumed to be slightly lower, average real earnings in covered employment through 1994 are assumed to increase slightly more rapidly, the index of average earnings used in the projection of benefits better reflects net earnings from self-employment, and taxable payroll better reflects the relative levels of wages, salaries, and net earnings from self-employment. These changes result in a small decrease in the medium-range actuarial balance and an increase in the long-range actuarial balance.

Various demographic assumptions were changed for this report. The starting population was decreased slightly to reflect updated U.S. population estimates prepared by the Bureau of the Census. The ultimate total fertility rate is the same, but the rates for the early years are lower, because the most recent estimates of the rates for 1983 and 1984 are lower than they were a year ago. Net immigration is assumed to be 500,000 persons per year, rather than 400,000 as in last year's report; the effect of this change alone is an increase in the long-range actuarial balance of 0.11 percent of taxable payroll. The net effect of all the demographic changes is an increase in the medium-range actuarial balance and a decrease in the long-range actuarial balance.

The most significant change in disability assumptions is the use of death-termination rates for disabled-worker beneficiaries that vary with time. For estimates in past reports, these death-termination rates were assumed to remain at constant levels throughout the projection period. For this report, the rates are assumed to decline in a manner similar to that assumed for total U.S. mortality rates. This change results in longer durations of entitlement to disability benefits and, therefore, higher costs and lower actuarial balances.

After last year's report was issued, a computational error was discovered in the method used to develop the age distribution of the assumed number of immigrants, for purposes of projecting the total population. This error had existed since the 1980 Census data were incorporated into the projection methodology, in 1982 (after the issuance of the 1982 Annual Report). Although the error did not distort the aggregate net number of immigrants, it affected the age distribution such that, on average, a lower age was assumed than is indicated by the historical data. Correcting this error in methodology results in higher cost rates and lower actuarial balances, because of decreased taxable payrolls (from the decreased numbers of younger immigrants) and increased aggregate benefits (from the increased numbers of older immigrants).

Numerous changes were made in other items. These changes result in increases in the DI actuarial balances and decreases in the OASI and combined OASDI actuarial balances.

VII. CONCLUSION

The actuarial estimates shown in this report indicate that the assets of the OASI and DI Trust Funds, on a combined basis, will be sufficient to permit the timely payment of OASDI benefits for many years into the future, on the basis of all four sets of economic and demographic assumptions. As before, the trust fund levels are estimated to remain relatively low through about 1987; the financial condition of the DI program, in particular, will need to be carefully monitored for the next several years. After 1987, the OASDI program's ability to withstand temporary economic downturns is expected to improve steadily. The long-range estimates indicate that the program is in close actuarial balance, as defined below, based on the two intermediate sets of assumptions.

In the short range, the estimates for the trust funds, separately, indicate that the OASI program would operate satisfactorily during this period, based on all four sets of assumptions. The DI program would also operate satisfactorily in the short range, based on optimistic or intermediate assumptions like those designated as alternatives I, II-A, and II-B. In the event of adverse experience, however, similar to that illustrated by the pessimistic alternative III set of assumptions, the DI program would become unable to make timely benefit payments by the end of 1987.

The assets of the DI Trust Fund, in the short range, are estimated to be significantly lower than shown in the 1984 Annual Report, primarily because of the effects of higher benefit costs. The higher costs reflect the effects of Administration initiatives concerning the continuing disability review process and the disability reforms that were enacted into law in October 1984. The effect of these changes is to lower the estimated trust fund balances to the extent that, based on the pessimistic assumptions, the DI program would experience near-term financial problems.

In the short range (and for several decades thereafter), the combined assets of the OASI and DI Trust Funds are estimated to increase each year, on the basis of alternatives I, II-A, and II-B. Based on alternative III, the assets of the OASI Trust Fund are estimated to be more than sufficient to prevent the depletion of the DI fund during the short range. Thus, if financial problems similar to those illustrated by alternative III were to become imminent, they could be prevented from occurring by a reallocation of contribution rates between OASI and DI. This remedy would not involve any increases in total OASDI taxes, nor any reductions in OASDI benefits.

The estimates based on alternatives I, II-A, and II-B indicate that the growth in the combined assets of the OASI and DI Trust Funds would require the complete repayment, by January 1987, of the \$10.6 billion currently owed from the OASI Trust Fund to the DI Trust Fund. Based on alternative III, the repayment would take longer, with about \$0.3 billion being repaid in 1986, and the remaining \$10.3 billion being repaid in 24 monthly installments in 1988-89. The \$2.5 billion currently owed from the OASI Trust Fund to the DI Trust Fund is assumed to be repaid in 1986, based on all four sets of assumptions.

For the long-range 75-year projection period, the estimates based on the intermediate alternative II-B assumptions indicate that the OASDI program has an average annual deficit of 0.41 percent of taxable payroll. Although this deficit is larger than the corresponding 0.06-percent deficit shown in the 1984 report, the program is still estimated to be in "close actuarial balance"—that is, the average annual income rate is between 95 and 105 percent of the average annual cost rate. The long-range actuarial deficit represents about 3 percent of the average annual cost rate for the program.

The estimates based on alternative II-B show a pattern of recurring annual surpluses in the first half, and recurring annual deficits in the latter half, of the 75-year projection period. The long-range actuarial deficit of 0.41 percent of taxable payroll consists of an average annual surplus of 2.00 percent of taxable payroll for the first 25-year subperiod, and average annual deficits of 0.78 and 2.46 percent for the second and third 25-year subperiods, respectively. Thus, in the absence of other changes, the long-range actuarial balance will tend to decline slowly over time as the valuation period moves forward and near-term years of surplus are replaced by distant years of deficit.