

During each of the last 2 years, notice has been given of the intention to terminate coverage on the part of a somewhat larger number of State and local government employees than the number of employees becoming covered under new agreements each year. The filing of such a notice by a State does not necessarily mean that coverage will be terminated because, as noted above, the State may withdraw the notice during the 2-year period before the termination becomes effective. The termination of coverage for any large number of State or local government employees would have an adverse effect on the status of the trust funds, especially in the short range. In fiscal year 1977, tax contributions received by the old-age and survivors insurance and disability insurance trust funds from workers employed by State and local governments and from such employers, under all of the coverage agreements in effect, amounted to \$8.5 billion, or about 11 percent of total contributions in the year. The estimates presented in this section, and in the following sections of this report, do not reflect the effects of (1) future terminations of coverage which may become effective as a result of such notices that have been filed and that are still pending, or that may be filed in the future, or (2) future agreements that would bring additional groups of public employees under covered employment.

Under the Social Security Amendments of 1977, the Congress has directed the Secretary of Health, Education, and Welfare to undertake a study of the feasibility and desirability of covering Federal employees, State and local government employees, and employees of nonprofit organizations under the old-age and survivors insurance, disability insurance, and hospital insurance programs, on a mandatory basis. The study is to be conducted in consultation with the Department of the Treasury, the Office of Management and Budget, and the Civil Service Commission.

ACTUARIAL ANALYSIS OF BENEFIT DISBURSEMENTS FROM THE FEDERAL OLD-AGE AND SURVIVORS INSURANCE TRUST FUND WITH RESPECT TO DISABLED BENEFICIARIES

(Specifically required by sec. 201(c) of the Social Security Act)

Effective January 1957, monthly benefits have been payable from the old-age and survivors insurance trust fund to disabled sons and daughters aged 18 and over of retired and deceased workers in those cases in which the disability of the son or daughter has continued since childhood. Effective February 1968, reduced monthly benefits have been payable from this trust fund to disabled widows and widowers beginning at age 50.

On December 31, 1977, about 480,000 persons were receiving monthly benefits with respect to disability from the old-age and survivors insurance trust fund. In addition to disabled beneficiaries, this total includes 41,000 mothers and fathers. These mothers and fathers—wives under age 65 of retired-worker beneficiaries and widows or widowers of deceased insured workers—met all other qualifying requirements and were receiving full-rate (i.e., not reduced for age) benefits solely because they had at least one disabled-child beneficiary in their care. Benefits paid from this trust fund to persons

receiving benefits with respect to disability totaled \$844 million in calendar year 1977. Similar figures are presented in table 23 to show the experience in selected calendar years 1960-77. Figures relating to past experience for years not shown in table 23 are contained in the 1976 annual report.

TABLE 23.—BENEFITS PAYABLE FROM THE OLD-AGE AND SURVIVORS INSURANCE TRUST FUND WITH RESPECT TO DISABLED BENEFICIARIES, SELECTED CALENDAR YEARS 1960-82

[Beneficiaries in thousands; benefit payments in millions]

Calendar year	Disabled beneficiaries, end of year			Amount of benefit payments ¹		
	Total	Children ²	Widows and widowers	Total	Children ²	Widows and widowers ³
Past experience:						
1960.....	117	117	-----	\$59	\$59	-----
1965.....	214	214	-----	134	134	-----
1970.....	316	281	36	301	260	\$41
1971.....	338	298	40	363	307	56
1972.....	360	314	46	409	343	66
1973.....	381	331	51	492	417	75
1974.....	409	355	53	567	479	88
1975.....	435	376	59	664	560	104
1976.....	457	395	62	748	637	111
1977.....	480	415	65	844	724	120
Estimated future experience:⁴						
1978.....	503	434	69	945	814	131
1979.....	525	453	72	1,059	915	144
1980.....	546	472	74	1,181	1,027	154
1981.....	565	489	76	1,312	1,145	167
1982.....	585	507	78	1,443	1,262	181

¹ Beginning in 1966, includes payments for vocational rehabilitation services.

² Reflects effect of including certain mothers and fathers. (See text.)

³ Reflects the offsetting effect of lower benefits payable to disabled widows and widowers who continue to receive benefits past age 60 (62, for disabled widowers, prior to 1973) as compared to the higher nondisabled widow's (and widower's) benefits that would otherwise be payable.

⁴ The estimates are based on the intermediate set of assumptions and reflect the resulting assumed changes under the automatic increase provisions, as described in an earlier section.

Table 23 also shows the expected future experience in calendar years 1978-82, under the intermediate set of economic assumptions described in an earlier section. Total benefit payments from the old-age and survivors insurance trust fund with respect to disabled beneficiaries are estimated to increase from \$945 million in calendar year 1978 to \$1,443 million in calendar year 1982, under the intermediate assumptions.

In calendar year 1977, benefit payments (including expenditures for vocational rehabilitation services) with respect to disabled persons from the old-age and survivors insurance trust fund and from the disability insurance trust fund (including payments from the latter fund to all dependents of disabled-worker beneficiaries) totaled \$12,391 million, of which \$844 million, or 6.8 percent, represented payments from the old-age and survivors insurance trust fund. Similar figures for selected calendar years 1960-77 and estimates for calendar years 1978-82, under the intermediate set of assumptions, are presented in table 24. Figures relating to past experience for years not shown in table 24 are contained in the 1976 annual report.

TABLE 24.—BENEFIT PAYMENTS UNDER THE OLD-AGE, SURVIVORS, AND DISABILITY INSURANCE PROGRAM WITH RESPECT TO DISABLED BENEFICIARIES, BY TRUST FUND, SELECTED CALENDAR YEARS 1960-82

[Dollar amounts in millions]

Calendar year	Benefit payments ¹ from—			
	Total ¹	Disability insurance trust fund ²	Old-age and survivors insurance trust fund	
			Amount ³	As a percentage of total benefit payments with respect to disabled beneficiaries
Past experience:				
1960.....	\$627	\$568	\$59	9.4
1965.....	1,707	1,573	134	7.9
1970.....	3,386	3,085	301	8.9
1971.....	4,146	3,783	363	8.8
1972.....	4,911	4,502	409	8.3
1973.....	6,256	5,764	492	7.9
1974.....	7,524	6,957	567	7.5
1975.....	9,169	8,505	664	7.2
1976.....	10,803	10,055	748	6.9
1977.....	12,391	11,547	844	6.8
Estimated future experience: ⁴				
1978.....	13,868	12,923	945	6.8
1979.....	15,838	14,779	1,059	6.7
1980.....	17,813	16,632	1,181	6.6
1981.....	19,864	18,552	1,312	6.6
1982.....	21,992	20,549	1,443	6.6

¹ Beginning in 1966, includes payments for vocational rehabilitation services.² Benefit payments to disabled workers and their dependents.³ Benefit payments to disabled children aged 18 and over, to certain mothers and fathers (see text), and to disabled widows and widowers. (See footnote 3, table 23.)⁴ The estimates are based on the intermediate set of assumptions and reflect the resulting assumed changes under the automatic increase provisions, as described in an earlier section.

ACTUARIAL STATUS OF THE TRUST FUNDS

As mentioned in an earlier section, the medium-range and long-range actuarial statuses in recent reports have been customarily measured by the corresponding actuarial balances, which have been computed over the 25-year and 75-year periods beginning with the calendar year of issuance of the report. In accordance with this practice, the statement of the medium-range and long-range actuarial statuses contained in this report pertains to the periods 1978-2002 and 1978-2052. 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 time series of estimated annual expenditures themselves (expressed as percentages of taxable payroll), and the other is the time series of trust fund ratios described in an earlier section.

The indicators mentioned above are analyzed in a later section.

Significance of the Medium-Range and Long-Range Cost Estimates

Throughout the history of the program, long-range cost estimates have been used to develop the financing schedules for the system. The major indicator used for determining the adequacy of the long-range financing has been the long-range actuarial balance, which since 1965 has been computed over a 75-year period. Throughout most of its existence the system has been maintained in close actuarial balance over

the long-range. Recently, increased attention has been paid to the 25-year actuarial balance as an indicator of the medium-range actuarial status of the system.

The year-by-year cost estimates (that is, the annual expenditures as a percentage of taxable payroll) are useful in establishing tax rate schedules. These schedules can be designed to closely approximate the year-by-year estimated cost, thereby financing the system in accordance with the current-cost method described earlier.

Another indicator of the adequacy of the financing is the trust fund ratio (which has been described in an earlier section). In recent years there has been significant additional interest in projections showing how this ratio varies through time, what maximum level it is projected to reach, when it is projected to reach that level, and—if the financing is inadequate—when the trust funds are projected to be exhausted.

The cost estimates do not reflect any adjustment to the level of the trust fund ratio. Therefore, at the time of developing any financing provisions, it is advisable to determine the desired level of the trust fund ratio and the point in time at which such level is to be attained, so that the tax schedule can be designed not only to meet the expenditures but also to provide for the desired change in the level of the trust fund ratio. For example, if it were considered appropriate to provide for increasing the combined OASDI trust fund ratio to 100 percent of the projected annual expenditures by the end of the 75-year period, it is estimated that the trust funds would require, under alternative II, an additional amount of income, in excess of what is needed to meet expenditures, equivalent to 0.14 percent of taxable payroll per year over the 75-year period. Similarly, if it were considered appropriate to increase that ratio to 50 percent, the corresponding estimate would be 0.04 percent.

Medium-range cost estimates: 1978–2002

In this section of the report medium-range cost estimates are presented in order to highlight the status of the trust funds during the period 1978–2002. For convenience of reference, the tables shown in this section summarize not only the medium-range projections but also the long-range (1978–2052) projections discussed in a later section.

In general, the medium-range cost estimates are less sensitive than the long-range estimates to changes in demographic and economic assumptions. In particular, variations in projected fertility rates have little effect on the medium-range cost estimates since almost all covered workers and beneficiaries projected for this period were born prior to the start of the projection period. Furthermore, the degree of confidence that can be placed in demographic and economic assumptions is greater for the first 25 years than for the entire 75-year period. Nonetheless, economic factors such as wage and price increases are subject to such a wide range of possible variation that the projections of expenditures over the medium-range period are only an indication of the trend and general range of the actual expenditures.

Table 25 shows a comparison of the expenditures estimated under alternative II with the scheduled OASDI tax rates.

The comparison in table 25 shows that, after the first three years, the OASDI system is projected to have a surplus in each year of the

TABLE 25.—COMPARISON OF ESTIMATED EXPENDITURES UNDER ALTERNATIVE II WITH SCHEDULED TAX RATES FOR OASDI SYSTEM, CALENDAR YEARS 1978-2055

[In percent of taxable payroll]

Calendar year	Estimated expenditures			Scheduled tax rate	Difference
	OASI	DI	Total		
1978	9.44	1.50	10.94	10.10	-.84
1979	8.98	1.48	10.45	10.16	-.29
1980	8.86	1.48	10.34	10.16	-.18
1981	8.69	1.48	10.17	10.70	.53
1982	8.69	1.49	10.18	10.80	.62
1983	8.66	1.51	10.17	10.80	.63
1984	8.73	1.54	10.27	10.80	.53
1985	8.75	1.57	10.31	11.40	1.09
1986	8.77	1.59	10.36	11.40	1.04
1987	8.79	1.61	10.41	11.40	.99
1988	8.82	1.64	10.46	11.40	.94
1989	8.86	1.66	10.51	11.40	.89
1990	8.90	1.67	10.58	12.40	1.82
1991	8.95	1.71	10.66	12.40	1.74
1992	8.99	1.74	10.73	12.40	1.67
1993	9.02	1.77	10.79	12.40	1.61
1994	9.03	1.81	10.84	12.40	1.56
1995	9.05	1.85	10.90	12.40	1.50
1996	9.02	1.90	10.91	12.40	1.49
1997	8.99	1.94	10.94	12.40	1.46
1998	8.97	1.99	10.96	12.40	1.44
1999	8.96	2.04	10.99	12.40	1.41
2000	8.94	2.08	11.02	12.40	1.38
2001	8.94	2.14	11.08	12.40	1.32
2002	8.95	2.19	11.14	12.40	1.26
2005	8.99	2.33	11.32	12.40	1.08
2010	9.55	2.54	12.08	12.40	-.32
2015	10.64	2.66	13.30	12.40	-.90
2020	12.06	2.69	14.74	12.40	-2.34
2025	13.46	2.61	16.06	12.40	-3.66
2030	14.24	2.49	16.73	12.40	-4.33
2035	14.36	2.45	16.80	12.40	-4.40
2040	14.01	2.48	16.49	12.40	-4.09
2045	13.74	2.53	16.28	12.40	-3.88
2050	13.72	2.54	16.26	12.40	-3.86
2055	13.78	2.51	16.29	12.40	-3.89
25-yr averages:					
1978-2002	8.91	1.74	10.64	11.67	1.02
2003-27	10.96	2.56	13.51	12.40	-1.11
2028-52	14.00	2.50	16.50	12.40	-4.10
75-yr average: 1978-2052	11.29	2.26	13.55	12.16	-1.40

Note: Taxable payroll is adjusted to take into account the lower contribution rates on self-employment income, on tips, and on multiple-employer "excess wages" as compared with the combined employer-employee rate. Alternative II is defined in the text.

medium-range period. These annual surpluses result in a medium-range actuarial surplus of 1.02 percent of taxable payroll.

Whereas table 25 shows cost estimates only for alternative II, table 26 shows a comparison of those estimates with the estimates based on alternative I and III, which are described earlier in this report.

Table 26 shows that the estimated average medium-range expenditures varies from 10.32 percent under alternative I to 11.08 percent under alternative III. Under each alternative, the expenditures attain their highest level at the end of the medium-range period, at which point they are beginning an accelerated growth which continues into the long-range period. The peak values of the annual expenditures range from 10.70 percent to 11.62 percent. In comparison with the 1978 estimated expenditures of 10.94 percent, the highest level attained during the medium-range period varies from a slightly lower value under alternative I (10.70 percent) to a somewhat higher value under alternative III (11.62 percent).

Table 27 shows a comparison of the average scheduled tax rates with the average expenditures projected under alternatives I, II, and III.

TABLE 26.—ESTIMATED EXPENDITURES OF OASDI SYSTEM UNDER ALTERNATIVES I, II, AND III, CALENDAR YEARS 1978-2055

[In percent of taxable payroll]

Calendar year	Estimated expenditures by alternative		
	I	II	III
1978	10.94	10.94	10.94
1979	10.41	10.45	10.46
1980	10.26	10.34	10.69
1981	10.06	10.17	10.70
1982	9.99	10.18	10.81
1983	9.91	10.17	10.83
1984	9.95	10.27	10.83
1985	9.98	10.31	10.82
1986	9.99	10.36	10.87
1987	10.01	10.41	10.93
1988	10.03	10.46	11.00
1989	10.10	10.51	11.01
1990	10.17	10.58	11.03
1991	10.25	10.66	11.10
1992	10.33	10.73	11.17
1993	10.40	10.79	11.23
1994	10.45	10.84	11.27
1995	10.51	10.90	11.31
1996	10.52	10.91	11.33
1997	10.54	10.94	11.36
1998	10.56	10.96	11.39
1999	10.58	10.99	11.43
2000	10.61	11.02	11.46
2001	10.65	11.08	11.54
2002	10.70	11.14	11.62
2005	10.85	11.32	11.88
2010	11.50	12.08	12.88
2015	12.54	13.30	14.43
2020	13.79	14.74	16.34
2025	14.85	16.06	18.22
2030	15.29	16.73	19.54
2035	15.16	16.80	20.22
2040	14.71	16.49	20.42
2045	14.39	16.28	20.61
2050	14.33	16.26	20.84
2055	14.35	16.29	20.98
25-yr averages:			
1978-2002	10.32	10.64	11.08
2003-27	12.72	13.51	14.77
2028-52	14.76	16.50	20.30
75-yr average: 1978-2052	12.60	13.55	15.38

Note: Taxable payroll is adjusted to take into account the lower contribution rates on self-employment income, on tips, and on multiple-employer "excess wages" as compared with the combined employer-employee rate. Alternatives I, II, and III are defined in the text.

TABLE 27.—COMPARISON OF ESTIMATED AVERAGE EXPENDITURES UNDER ALTERNATIVES I, II, AND III WITH AVERAGE SCHEDULED TAX RATE FOR OASDI SYSTEM

[In percent of taxable payroll]

Calendar year	Average scheduled tax rate	Estimated average expenditures by alternative			Difference by alternative		
		I	II	III	I	II	III
OASI:							
1978-2002	9.70	8.63	8.91	9.29	1.07	-.79	.40
2003-27	10.20	10.26	10.96	12.05	-.06	-.76	-1.85
2028-52	10.29	12.40	14.00	17.53	-2.20	-3.80	-7.33
1978-2052	10.03	10.43	11.29	12.96	-.40	-1.26	-2.93
DI:							
1978-2002	1.97	1.69	1.74	1.79	.28	.23	.18
2003-27	2.20	2.45	2.56	2.72	-.25	-.36	-.52
2028-52	2.20	2.36	2.50	2.76	-.16	-.30	-.56
1978-2052	2.12	2.17	2.26	2.42	-.05	-.14	-.30
Total OASDI:							
1978-2002	11.67	10.32	10.64	11.08	1.35	1.02	.58
2003-27	12.40	12.72	13.51	14.77	-.32	-1.11	-2.37
2028-52	12.40	14.76	16.50	20.30	-2.36	-4.10	-7.90
1978-2052	12.16	12.60	13.55	15.38	-.44	-1.40	-3.23

Note: Taxable payroll is adjusted to take into account the lower contribution rates on self-employment income, on tips, and on multiple-employer "excess wages" as compared with the combined employer-employee rate. Alternatives I, II, and III are defined in the text.

The comparison in table 27 shows that, under alternative II, the OASI and DI programs are estimated to have medium-range actuarial surpluses of 0.79 percent and 0.23 percent, respectively. In addition, under each of the other two alternatives both programs are also estimated to have medium-range actuarial surpluses. Thus, over the medium-range period, as a whole for both the OASI and DI programs, the financing is more than adequate, even if economic conditions as pessimistic as those in alternative III were to materialize.

Table 28 shows the trust fund ratios (as described in an earlier section) projected under alternatives I, II, and III.

The annual surpluses estimated to occur during the medium-range period are reflected in the high levels attained by the trust fund ratios by the end of that period. Under alternative II, the OASI and DI ratios are estimated to increase to 228 percent and 269 percent, respectively. Under alternative I, the ratios are estimated to increase to levels in excess of 300 percent. Even under the pessimistic assumptions (alternative III), the ratios are estimated to increase to levels well above 100 percent, almost to 200 percent for the DI program. These levels indicate that the OASI and DI programs are more than adequately financed over the medium-range period.

TABLE 28.—ESTIMATED TRUST FUND RATIOS FOR OASDI SYSTEM UNDER ALTERNATIVES I, II, AND III, CALENDAR YEARS 1978-2040

Calendar year	Estimated trust fund ratio under alternative 1—								
	I			II			III		
	OASI	DI	Total	OASI	DI	Total	OASI	DI	Total
1978	.39	.25	.37	.39	.25	.37	.39	.25	.37
1979	.29	.25	.28	.29	.25	.28	.29	.25	.28
1980	.24	.25	.24	.24	.25	.24	.23	.25	.24
1981	.22	.26	.22	.21	.25	.21	.17	.21	.18
1982	.25	.36	.27	.23	.34	.25	.15	.24	.16
1983	.31	.48	.34	.27	.43	.30	.13	.27	.15
1984	.39	.58	.42	.32	.51	.35	.12	.29	.14
1985	.47	.68	.50	.37	.57	.40	.11	.30	.14
1986	.59	.90	.63	.44	.75	.49	.13	.45	.18
1987	.71	1.11	.77	.52	.93	.58	.16	.59	.22
1988	.82	1.29	.90	.59	1.08	.67	.17	.71	.26
1989	.94	1.47	1.02	.66	1.22	.75	.19	.83	.29
1990	1.05	1.64	1.14	.73	1.35	.82	.21	.92	.32
1991	1.23	1.96	1.35	.86	1.62	.98	.30	1.15	.43
1992	1.41	2.24	1.55	.99	1.87	1.13	.38	1.36	.54
1993	1.59	2.50	1.74	1.11	2.08	1.27	.46	1.54	.63
1994	1.76	2.72	1.92	1.24	2.27	1.41	.53	1.70	.73
1995	1.94	2.91	2.11	1.36	2.42	1.54	.61	1.83	.81
1996	2.12	3.06	2.28	1.48	2.54	1.67	.68	1.93	.90
1997	2.30	3.18	2.46	1.61	2.63	1.79	.76	1.99	.98
1998	2.49	3.27	2.64	1.74	2.69	1.91	.84	2.03	1.06
1999	2.69	3.34	2.81	1.88	2.73	2.03	.93	2.05	1.13
2000	2.88	3.38	2.98	2.01	2.74	2.15	1.01	2.04	1.20
2001	3.08	3.39	3.14	2.15	2.72	2.26	1.10	2.01	1.27
2002	3.27	3.38	3.29	2.28	2.69	2.36	1.18	1.95	1.33
2005	3.85	3.24	3.72	2.66	2.47	2.62	1.39	1.67	1.45
2010	4.53	2.80	4.16	3.03	1.88	2.79	1.49	.94	1.38
2015	4.65	2.23	4.16	2.89	1.12	2.53	1.09	(2)	3.88
2202	4.22	1.63	3.73	2.21	.27	1.86	.17	(2)	(2)
2035	3.41	1.09	3.02	1.16	(2)	.87	(2)	(2)	(2)
2000	2.46	.70	2.19	(2)	(2)	(2)	(2)	(2)	(2)
2035	1.51	.43	1.35	(2)	(2)	(2)	(2)	(2)	(2)
2040	.63	.17	.55	(2)	(2)	(2)	(2)	(2)	(2)

Trust fund is projected to be exhausted in calendar year..... 2043 2042 2043 2029 2021 2028 2020 2014 2019

1 The trust fund ratio is defined to be the trust fund assets at the beginning of the year expressed as a percentage of expenditures during that year.
 2 Fund is projected to be exhausted.
 3 This figure is theoretical, since the DI trust fund is projected to be exhausted.

The cost estimates and actuarial balances shown in this report are different from those published in the actuarial report on Public Law 95-216.¹ Table 29 traces the difference between the two estimates.

TABLE 29.—CHANGES IN ESTIMATED AVERAGE EXPENDITURES AND ACTUARIAL BALANCE OF OASDI SYSTEM, UNDER ALTERNATIVE II BY REASON FOR CHANGE
[In percent of taxable payroll]

Item	Medium range			Long range		
	OASI	DI	Total	OASI	DI	Total
Shown in actuarial report on Public Law 95-216:¹						
Actuarial balance.....	+0.89	+0.08	+0.97	-1.08	-0.38	-1.46
Average scheduled tax rate.....	9.64	1.93	11.57	10.01	2.11	12.12
Estimated average expenditures.....	8.75	1.85	10.60	11.69	2.49	13.58
Changes in estimated average expenditures due to changes in:						
Mandatory retirement age.....	-.04	-.00	-.05	-.08	-.00	-.08
Valuation date.....	-.03	+.04	+.01	+.05	+.02	+.07
Economic assumptions.....	-.10	-.02	-.13	-.12	-.02	-.14
Mortality assumptions.....	+.07	+.00	+.07	+.12	+.00	+.12
Disability assumptions.....	-.19	-.08	-.08	-.10	-.10	-.10
Methodology.....	+.19	-.01	+.18	+.10	-.11	-.01
All other factors.....	+.07	-.04	+.03	+.12	-.01	+.11
Total change in estimated average expenditures.....	+.16	-.12	+.04	+.20	-.23	-.03
Current averages:²						
Estimated average expenditures.....	8.91	1.74	10.64	11.29	2.26	13.55
Average scheduled tax rate.....	9.70	1.97	11.67	10.03	2.12	12.16
Actuarial balance.....	+7.9	+2.3	+1.02	-1.26	-1.4	-1.40

¹ Expenditures and taxable payroll are calculated under the intermediate set of assumptions (alternative II) described in last year's report which incorporates ultimate annual increases of 5½ percent in average wages in covered employment and 4 percent in the CPI, an ultimate annual unemployment rate of 5 percent, and an ultimate total fertility rate of 2.1 children per woman. The averages are computed over projection periods commencing with 1977.

² Expenditures and taxable payroll are calculated under the intermediate set of assumptions (alternative II) described in the text of this report. The ultimate values for the annual increases in average wages in covered employment and in the CPI, for the annual unemployment rate and for the total fertility rate are the same as those included in the intermediate set of assumptions described in last year's report. The averages are computed over projection periods commencing with 1978.

Note: Taxable payroll is adjusted to take into account the lower contribution rates on self-employment income, on tips, and on multiple-employer "excess wages" as compared with the combined employer-employee rate.

As mentioned in the section entitled "Social Security Amendments since the 1977 Report" the minimum allowable mandatory retirement age was increased to 70 by an act of Congress early in 1978. As a result of more delayed retirements, costs are expected to decrease.

In changing from the valuation periods of the report on Public Law 95-216, 1977-2001 and 1977-2051 for the medium-range and long-range periods, respectively, to the valuation periods of this report, 1978-2002 and 1978-2052, the year 1977 is replaced by 2002 in the medium-range and 2052 in the long-range. Except for the OASI medium-range, the replacement year is a year of relatively high cost compared to the year being replaced, thereby increasing the estimated average expenditures even in the absence of any other changes.

The ultimate economic assumptions as to wage-CPI increases are the same as in the report on Public Law 95-216. The decrease in cost due to economic assumptions is primarily because of higher productivity assumed for the remainder of this century due to the changing age structure of the working-age population.

¹ "Actuarial Cost Estimates for the Old-Age, Survivors, Disability, Hospital, and Supplementary Medical Insurance Systems, as Modified by Public Law 95-216." WMCP: 95-88, March 1978.

In the demographic area, the ultimate fertility assumption has not been changed, but the ultimate mortality level assumed in this report is about 6 percent lower than in the previous report. The difference in mortality levels assumed for the two reports results from incorporating in this projection an additional year of experience both in determining the trends and also in determining the level at the beginning of the projection period. Both factors reflect more improvement in mortality than was previously assumed.

Large decreases in the estimated cost of the disability insurance program in both the medium-range and long-range were due to changes in assumptions regarding disability incidences and terminations. Both incidence and termination rates have been changed to reflect more recent experience. In addition, lower incidence rates are projected due to the decreased attractiveness of disability benefits, because of the generally lower benefits available under the new decoupled benefit calculation procedure.

Numerous changes were made in the methodology used to project the costs of the OASDI system, the net result of which was to increase the OASI estimated cost and decrease the DI estimated cost. A discussion of these changes is included in appendix A.

Long-range cost estimates: 1978-2052

In this section of the report, in accordance with the customary presentation of previous reports, long-range cost estimates are shown for the 75-year period beginning with the year of the report (1978-2052). The tables referred to in this section are shown in the section on the medium-range cost estimates.

As shown in table 25 under alternative II the cost of the OASI program is projected to be a relatively constant percentage of taxable payroll during the remainder of this century. After the turn of the century, it is projected to increase rapidly to a peak around 2035. The reason for the increase is that the number of beneficiaries will be increasing faster than the number of covered workers, since the large number of persons born during the period from the post-World War II years through the late 1950's and into the 1960's (when fertility rates were high) will reach retirement age and begin to receive benefits while the relatively small number of persons born during the period of current and projected low fertility rates will comprise the labor force. During the last years of the projection period, the OASI expenditures are projected to decrease slightly, because of the effect on the number of beneficiaries of the low birth rates experienced during the 1970's and projected through the 1980's.

Table 25 also shows that, as a percentage of taxable payroll, the cost of the DI program is projected to increase steadily until about 2020 after which it decreases slightly. The pattern of the estimated DI expenditures is affected by the same demographic factors affecting the pattern of the estimated OASI expenditures, and in addition, by the assumptions about future disability incidence experience. The increasing DI costs that are projected result in part from the projection of disability incidence rates that are higher than current levels (see appendix A for further information).

Table 25 shows that under alternative II for the OASDI system, estimated annual surpluses continue beyond the medium-range period to about 2010, after which the system experiences annual deficits. These deficits grow rapidly in the second 25-year portion of the long-range projection period before essentially stabilizing in the third 25-year portion around 4 percent of taxable payroll. These large deficits in the third 25 years result in a long-range actuarial deficit for the total 75-year period of 1.40 percent of taxable payroll, even though the surpluses of the medium-range period largely offset the deficits of the second 25 years. This long-range deficit is about 10 percent of the estimated 75-year average expenditures which is estimated to be 13.55 percent of taxable payroll. Since the deficit exceeds 5 percent of the estimated average expenditures (that is, exceeds 0.68 percent of taxable payroll), the system is not regarded as being in close actuarial balance over the long-range period. Nonetheless, because the projected deficits described above do not occur until after the turn of the century, there is ample time to study the system and to make well-considered decisions regarding how to improve its long-range financial status. This fact is the basis of recent executive and legislative decisions, reflected in the passage of the 1977 social security amendments which delayed the consideration of possible solutions to the long-range financial problem until more thorough studies are conducted. This fact is also reflected in the charge to the Social Security Advisory Council to examine the financial status of the trust funds in relation to the long-term commitments of the programs.

Table 26 shows that the patterns of the expenditures estimated under alternatives I, II, and III are similar, although the magnitudes are different. Under each alternative the estimated expenditures increase slowly to the turn of the century (after decreasing slightly at the beginning of the projection period) and then increase rapidly to about 2030. Under alternatives I and II, the expenditures peak around 2030 or 2035, while under alternative III they are still increasing somewhat at the end of the projection period. The rapid increase that occurs shortly after the turn of the century results from the post-World War II births mentioned above, a factor which is reflected in the estimates based on each set of assumptions.

Table 27 shows that a long-range actuarial deficit is projected for both the OASI and DI programs under each set of assumptions. In every case, a deficit is projected for each of the two 25-year periods following the medium-range period. The OASDI long-range actuarial deficit ranges from 0.44 percent to 3.23 percent.

The effect on the level of the trust funds of the surpluses projected to occur in the medium-range period and the deficits that occur thereafter is shown in table 28. Under alternative II, the OASI trust fund ratio is projected to rise steadily after 1981 to a peak of about 303 percent around 2010 before decreasing rapidly until 2029, the year in which the OASI trust fund is projected to be exhausted. Similarly, the DI trust fund ratio is projected to rise steadily after 1981 to a peak of about 274 percent around 2000 before decreasing rapidly until 2021, the year in which the DI trust fund is projected to be exhausted. Similar patterns occur under alternatives I and III. Under each alternative, the OASI and DI trust funds are projected to be exhausted well before the end of the long-range projection period.

Replacement ratios

The estimates presented in this report are based on a system designed to pay benefits which replace, in part, the earnings loss occurring upon the retirement, disability, or death of a worker. No general agreement exists regarding the way in which this replacement of earnings should be measured. In this section, which is limited to retiring workers, the amount of lost earnings replaced by benefits is measured by the "replacement ratio", which is defined as the ratio of the benefit amount payable to a worker for his first year of retirement to his gross earnings in the year prior to retirement.

Table 30 shows illustrative replacement ratios for male retired workers (with and without wives) with three assumed earnings histories, namely, (1) a worker with "low" earnings, defined as \$4,600 in 1977 and with the values for earlier years deflated according to the trend in the average wage in covered employment, (2) a worker with "average" earnings defined as four times the average first-quarter wage in covered employment throughout his working life, and (3) a worker with maximum taxable earnings under social security throughout his working life. The selection of the \$4,600 figure for the low earnings is based on the assumption that the 1977 Federal minimum wage of \$2.30 per hour is paid for 50 work-weeks of 40 hours each.

Table 30 shows that, for a selected earnings level, the replacement ratios after the turn of the century remain nearly constant through time. In addition, the sharp declines that occur in the early 1980's in the replacement ratios for workers with maximum earnings and the subsequent rise to their ultimate values result, in part, from the

TABLE 30.—ILLUSTRATIVE REPLACEMENT RATIOS FOR MALE RETIRED WORKERS AT SELECTED EARNINGS LEVELS UNDER ALTERNATIVES I, II, AND III

Earnings level and year of retirement	Replacement ratio					
	Worker without spouse			Worker with spouse age 65		
	Alternative I	Alternative II	Alternative III	Alternative I	Alternative II	Alternative III
Low:						
1978.....	0.63	0.63	0.63	0.94	0.94	0.94
1980.....	.63	.63	.63	.94	.94	.95
1985.....	.53	.54	.55	.79	.81	.83
1990.....	.54	.55	.56	.81	.82	.83
1995.....	.54	.55	.56	.81	.82	.83
2000.....	.54	.55	.56	.81	.82	.84
2025.....	.54	.55	.56	.81	.83	.84
2050.....	.54	.55	.56	.81	.83	.84
Average:						
1978.....	.47	.47	.47	.70	.70	.70
1980.....	.48	.48	.48	.72	.72	.73
1985.....	.40	.41	.42	.60	.62	.63
1990.....	.41	.41	.42	.61	.62	.63
1995.....	.41	.42	.42	.61	.62	.63
2000.....	.41	.42	.42	.62	.63	.64
2025.....	.41	.42	.42	.62	.63	.64
2050.....	.41	.42	.42	.62	.63	.64
Maximum:						
1978.....	.35	.35	.35	.52	.52	.52
1980.....	.30	.30	.30	.45	.45	.45
1985.....	.23	.23	.24	.34	.35	.36
1990.....	.23	.24	.25	.35	.36	.37
1995.....	.24	.25	.25	.36	.37	.38
2000.....	.25	.26	.26	.37	.39	.39
2025.....	.27	.28	.29	.41	.42	.43
2050.....	.27	.28	.29	.41	.42	.43

Note: Alternatives I, II, and III and the replacement ratio are defined in the text. It is assumed the worker retires at age 65 at the beginning of the year.

ad hoc earnings base increases in 1979, 1980, and 1981. The relatively larger earnings bases in those years are taken into account immediately in the denominators of the replacement ratios, but their full effect in the numerators (the annual benefit amounts) is not felt for 35 years (the ultimate length of the benefit computation period). Thus, in one sense, the replacement ratios for the workers with maximum earnings in the early years are not truly comparable with those for workers with maximum earnings in succeeding years. The declines in the replacement ratios that occur before the turn of the century reflect the intended effect of the 1977 social security amendments to a portion of the inadvertent rise in replacement ratios which resulted from the 1972 amendments.

Table 30 also shows that the replacement ratios remain nearly constant under different economic conditions. These two characteristics—that is, constant replacement ratios both through time and under different economic conditions—are desirable so that similar treatment can be provided to workers retiring at different times.

CONCLUSION

As indicated in this report, the recently enacted Social Security Amendments of 1977 made substantial improvements in the financial status of the cash benefit program. As a result of the amendments, the combined assets of the old-age and survivors insurance and disability insurance trust funds, which have been declining since 1975, are expected to begin increasing by 1981 under the intermediate and under the pessimistic assumptions. Under the optimistic assumptions, the combined assets of the funds begin to increase in 1980. In addition, the 1977 amendments significantly reduce the excess of outgo over income projected for earlier years.

The short-range actuarial cost estimates indicate that the old-age and survivors insurance trust fund will begin to increase in 1981 under both the intermediate and optimistic assumptions, while under the pessimistic assumptions, the fund continues to decline through 1982. The disability insurance trust fund is expected to begin increasing in 1978 under all three sets of assumptions and to decline only in 1 year, 1980, under the pessimistic assumptions.

The medium-range actuarial cost estimates indicate that for both trust funds combined, the average annual income from taxes under present law will exceed the estimated average annual expenditures by about 1.0 percent of taxable payroll over the 25-year period 1978–2002, based on the intermediate assumptions. Under the optimistic assumptions the excess of income over expenditures is projected to average about 1.4 percent of taxable payroll, and under the pessimistic assumptions about 0.6 percent. Therefore, all the medium-range cost estimates presented in this report indicate that through the turn of the century the old-age, survivors, and disability insurance system is more than adequately financed under present law.

The long-range actuarial cost estimates indicate that for both trust funds combined, the estimated average annual expenditures exceeds the average annual income from taxes under present law by about 1.4 percent of taxable payroll over the 75-year period 1978–2052, based on the intermediate assumptions. Under the optimistic assumptions

the excess of expenditures over income is projected to average about 0.4 percent of taxable payroll, and under the pessimistic assumptions about 3.2 percent. Under all three sets of assumptions the average annual expenditures are estimated to exceed average annual income from taxes during each of the last two 25-year periods in the long-range projection, as well as over the entire 75 years.

When interpreting all of the above statements regarding the cost of the program, it should be recognized that although the demographic and economic assumptions on which the estimates are based appear reasonable according to today's understanding, actual future experience may differ considerably from the assumptions. In particular, it is important to recognize that the degree of uncertainty of the estimates increases with the length of the projection period.

The Social Security Amendments of 1977 have restored the financial soundness of the cash benefit program over the short-range and medium-range periods, beginning in 1981, and greatly improved the long-range actuarial status. The additional financing provided by the 1977 amendments in calendar years 1978-80 prevents the assets of the combined trust funds from falling below 21 percent of expenditures (or the equivalent of about two and one-half months of expenditures) at the beginning of 1981 under the intermediate assumptions. The recently appointed Advisory Council on Social Security is studying the long-range financial status of the social security program and will report their findings and recommendations in 1979. In view of these considerations, and the short time that has elapsed since the enactment of the 1977 amendments, the Board recommends that no action be taken to change the financing arrangements of the social security system at this time. The Board believes that there is ample time to await the Advisory Council's report before making any proposals to change the financing provisions in present law. Nonetheless, the Board also recommends that the likelihood of significant long-range deficits be recognized in all current planning and in all proposals that would modify the system.

