
Actuarial Status of the OASI and DI Trust Funds

by Harry C. Ballantyne*

This article summarizes the current financial and actuarial status of the old-age, survivors, and disability insurance (OASDI) program, as shown in the 1985 Annual Report of the Board of Trustees. The Trustees note that the combined assets of the OASI and DI programs will be sufficient to pay OASDI benefits on time well into the next century based on all four sets of economic and demographic assumptions. Based on the pessimistic assumptions, the DI program could become unable to pay benefits on time by the end of 1987, but this problem could be prevented by a reallocation of contribution rates between the OASI and DI programs. For the long range—the next 75 years—the Trustees estimate that the OASDI program is in close actuarial balance based on intermediate assumptions—that is, the average annual income rate is estimated to be between 95 percent and 105 percent of the average annual cost rate during that period. The long-range actuarial deficit based on the intermediate (Alternative II-B) assumptions represents about 3 percent of the average annual cost rate for the program.

This article gives an overview of the 1985 Annual Report of the Board of Trustees of the Old-Age and Survivors Insurance and Disability Insurance Trust Funds.¹

The OASDI program consists of two separate parts, which pay monthly benefits to workers and their families:

- (1) **Old-age and survivors insurance (OASI)** pays benefits after a worker retires or dies.
- (2) **Disability insurance (DI)** pays benefits after a worker becomes disabled.

The Board of Trustees of the trust funds has five members, three of whom serve in an ex officio capacity—the Secretaries of the Treasury, Labor, and Health and Human Services. The Board also includes two pub-

lic members, Mary Falvey Fuller and Suzanne Denbo Jaffe, who were nominated by the President, and confirmed by the Senate on September 28, 1984, to serve terms of 4 years. The Board reports annually to the Congress on the financial condition of the funds and on estimated future results.

The figures given in this article are on a calendar-year basis, and are for the OASDI program as it is now structured.

OASDI Income and Trust Funds

Most OASDI revenue comes from contributions paid by employees, their employers, and the self-employed. (Additional contributions are paid into a separate trust fund for the hospital insurance (HI) part of Medicare. This summary focuses on OASDI and does not discuss Medicare except in the context of interfund borrowing.)

Table 1 shows the OASDI contribution rates for employers and employees, each, as established by law. Contributions at these rates are paid on each worker's earnings not exceeding the earnings base—\$39,600 in 1985. In future years, the earnings base will rise as average wages increase. For the self-employed, the OASDI

*Chief Actuary, Social Security Administration.

¹ 1985 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds, Social Security Administration, March 28, 1985. Single copies of the complete Report may be obtained from the Office of Public Inquiries, Room 4100 Annex, Social Security Administration, 6401 Security Boulevard, Baltimore, Maryland 21235.

Table 1.—Schedule of OASDI tax rates: Contribution rates payable by employer and employee (each)

[Percent of taxable earnings]

Calendar year	OASDI	OASI	DI
1985-87	5.70	5.20	0.50
1988-89	6.06	5.53	.53
1990-99	6.20	5.60	.60
2000 and later	6.20	5.49	.71

rate has been the same, since 1984, as the combined employee-employer rate.

The trust funds serve as a contingency reserve. During periods when outgo temporarily exceeds income, trust fund assets are used to meet the shortfall. In the event of recurring shortfalls, the trust funds can allow time for legislation to be enacted to restore balance to the program. The assets of the trust funds are invested in U.S. Government securities bearing rates of interest similar to those for long-term securities issued to the general public.

Since 1984, a portion (not more than one-half) of OASDI benefits may be subject to Federal income taxation under certain circumstances. The revenue collected as a result of this provision is transferred in advance, every calendar quarter, from the general fund of the Treasury to the trust funds.

The law also permits limited interfund borrowing among the OASI, DI, and HI funds through 1987; such loans were made in 1982 from DI and HI to OASI. They must be repaid with interest before 1990.

The outgo of the OASDI Trust Funds consists of benefit payments and administrative expenses. Trust fund assets may not be used for any other purposes.

During 1984, an estimated 119 million workers made contributions to the OASDI program. At the end of September 1984, 36.3 million persons were receiving monthly OASDI benefit payments. Administrative expenses represented about 1.3 percent of benefit payments for 1984.

In 1984, income to the OASDI trust funds was \$186.6 billion, while outgo was \$180.4 billion. As a result, the trust fund assets increased by \$6.2 billion. Table 2 presents a summary of 1984 financial results for OASDI.

The first repayments of the amounts lent to the OASI Trust Fund in 1982, under the interfund borrowing provisions, were made on January 31, 1985. Of the \$5,081 million owed to the DI Trust Fund before the repayment occurred, \$2,540 million was repaid; of the \$12,437 million owed to the HI Trust Fund, \$1,824 million was repaid.

Actuarial Estimates

The Annual Report contains 75-year estimates of each program's financial operations and status. Because

Table 2.—Financial operations of the OASI and DI Trust Funds, calendar year 1984

[In billions]

Item	1984 OASDI results
Trust fund assets on January 1	\$24.9
Income during year, total	186.6
Contributions	180.1
Revenue from taxation of benefits	3.0
Net interest	3.4
Payments from general fund	.1
Outgo during year, total	180.4
Benefit payments	175.8
Administrative expenses	2.2
Transfer to Railroad Retirement Account	2.4
Net increase in assets during year	6.2
Trust fund assets on December 31	31.1

Note: Totals may not equal sums of components due to rounding.

precise prediction of the future is impossible, alternative sets of assumptions, representing a reasonable range of possible future experience, are used to make short- and long-range estimates. Future experience could, however, fall outside the range indicated by these assumptions.

Assumptions Used

Future OASDI income and outgo will depend on a variety of economic and demographic factors, including economic growth, inflation, unemployment, fertility, and mortality. Economic factors affect the levels of workers' earnings and OASDI benefits, while demographic factors affect the numbers of persons making contributions and receiving benefits.

This year's estimates were prepared using four alternative sets of assumptions. Two sets—Alternatives II-A and II-B—are designated "intermediate." These sets share the same demographic assumptions, but differ with respect to economic assumptions; somewhat more robust economic growth is assumed for Alternative II-A than for Alternative II-B. One set—Alternative I—is designated "optimistic," and another—Alternative III—is "pessimistic."

Table 3 shows selected values of several assumptions used for the four alternative sets and describes these assumptions more fully.

No single measure is used to assess the actuarial status of the OASDI funds. Short-range measures usually focus on the adequacy of reserves available to pay benefits. Long-range measures usually focus instead on the balance between income and outgo during the projection period.

Measures of Short-Range Actuarial Status

The **trust fund ratio** is the usual measure of the OASDI program's ability to pay benefits on time in the

Table 3.—Economic and demographic assumptions used for the four alternatives

Calendar year	Percentage increase over previous year in average annual—			Average unemployment rate (percent)	Total fertility rate ²
	Real GNP ¹	Earnings in covered employment	Consumer Price Index		
Alternative I (optimistic)					
1984.....	6.8	5.8	3.4	7.5	1.8
1985.....	4.1	3.7	3.2	6.8	1.8
1990.....	3.2	4.3	2.7	5.0	1.9
2000.....	3.8	4.6	2.0	5.0	2.2
2010 and later ...	3.1	4.5	2.0	5.0	2.3
Alternative II-A (intermediate)					
1984.....	6.8	5.6	3.4	7.5	1.8
1985.....	3.9	3.9	3.6	6.8	1.8
1990.....	2.8	4.5	3.2	5.5	1.8
2000.....	3.1	5.1	3.0	5.5	1.9
2010 and later ...	2.5	5.0	3.0	5.5	2.0
Alternative II-B (intermediate)					
1984.....	6.8	5.3	3.4	7.5	1.8
1985.....	3.2	3.8	3.9	6.9	1.8
1990.....	2.5	5.2	4.2	6.0	1.8
2000.....	2.6	5.6	4.0	6.0	1.9
2010 and later ...	2.0	5.5	4.0	6.0	2.0
Alternative III (pessimistic)					
1984.....	6.8	4.8	3.4	7.5	1.8
1985.....	.7	3.1	4.8	7.4	1.8
1990.....	4.0	7.1	4.6	7.9	1.7
2000.....	1.9	6.1	5.0	7.0	1.6
2010 and later ...	1.4	6.0	5.0	7.0	1.6

¹ Gross National Product (GNP—the total output of goods and services) expressed in constant dollars. The percentage increase in real GNP is assumed to change after 2010. The values for 2060 are 3.2 percent, 2.3 percent, 1.9 percent, and 0.6 percent for the Alternative I, II-A, II-B, and III assumptions, respectively.

² The number of children who would be born to a woman in her lifetime based on the birth rates at each age in the year shown (if she were to survive the entire child-bearing period).

near future. This ratio is the amount in the trust funds at the beginning of the year, including advance tax transfers for January and amounts owed to other trust funds, divided by that year's expenditures. Thus, if the trust fund ratio is 25 percent, the amount in the fund represents about 3 months' outgo. At the beginning of 1985, the fund ratio for OASDI was about 24 percent.

Measures of Long-Range Actuarial Status

In analyzing the actuarial status of OASDI for the next 75 years, several different measures are commonly used.

The **cost rate** is the annual outgo expressed as a percentage of taxable payroll. Also, the **income rate** is the combined OASDI employee-employer contribution rate scheduled in the law, plus the rate of income from taxation of benefits, expressed as a percentage of taxable

payroll. The average cost and income rates can be compared directly to measure the adequacy of the program's financing.

For the 75-year long-range projection period, the **actuarial balance** is the difference between the estimated average income rate and the estimated average cost rate. If this actuarial balance is positive, the program is said to have an actuarial surplus, and, if negative, an actuarial deficit. Such a deficit is a warning that future changes may be needed in the program's financing or benefit provisions, although it does not present a complete picture without the other measures of financing discussed here.

The program is in "**close actuarial balance**" for the long-range period if the average income rate is between 95 percent and 105 percent of the average cost rate.

Short-Range Financing (1985–89)

Estimates for the next 5 years are used to monitor OASDI financing. In this short-range period, the numbers of persons receiving OASDI benefits can be estimated fairly accurately. Changes in the national economy, however, which are difficult to predict, can have major effects on outgo and income.

The actuarial estimates shown in this year's report indicate that the combined assets of the OASI and DI Trust Funds will be sufficient to pay OASDI benefits on time throughout the 5-year period, on the basis of all four sets of assumptions.

The estimates for the trust funds, separately, indicate that OASI benefits will be paid on time throughout the 5-year period. These estimates are very similar to the corresponding estimates in the 1984 Report.

The estimates for the DI Trust Fund are substantially less favorable than the corresponding estimates in the 1984 Report. This is primarily due to two factors: (1) the effects of certain court orders and moratoria in 1984 affecting the processing of continuing disability reviews, and (2) the anticipated effects of the Social Security Disability Benefits Reform Act of 1984.²

On the basis of all but the most pessimistic of the four sets of assumptions, the estimates indicate that DI benefits can be paid on time throughout this 5-year period. Based on the pessimistic assumptions, however, the DI program would become unable to pay benefits on time beginning late in 1987. If problems like those illustrated by the pessimistic assumptions were to become imminent, however, they could be avoided by a reallocation of contribution rates between OASI and DI. Such a change would not involve any increases in total OASDI taxes, nor any reductions in OASDI benefits.

² Editor's note: For the provisions of this legislation, see Katherine P. Collins and Anne Erfle, "Social Security Disability Benefits Reform Act of 1984: Legislative History and Summary of Provisions," *Social Security Bulletin*, April 1985, pages 5–32.

Chart 1 shows the OASDI fund ratio for 1984, 21 percent, and the projected OASDI ratios for 1985-89, on the basis of all four sets of assumptions. (The ratios for 1987 and later based on the pessimistic assumptions are theoretical because, as described above, corrective legislation would be required to enable the timely payment of DI benefits late in 1987.)

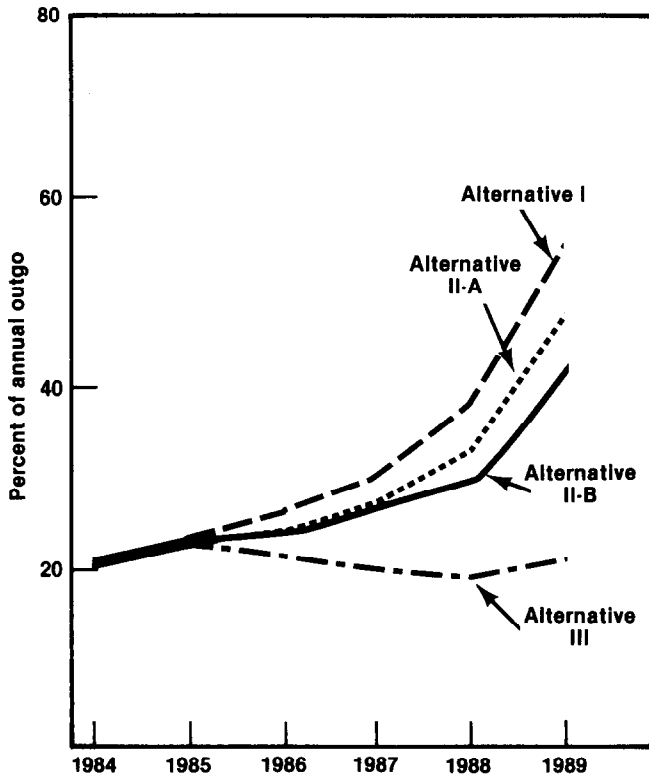
The fund ratios, while relatively low through 1987, are estimated to increase each year based on all but the pessimistic set of assumptions. Based on the pessimistic assumptions, the combined assets are estimated to decline somewhat, as a percentage of outgo, through the early part of 1988, before beginning to increase. Thus, during the next few years, the margins of safety are thin; thereafter, the program's ability to withstand temporary economic downturns is projected to improve steadily.

On the basis of the optimistic and both intermediate sets of assumptions, the \$10.6 billion currently owed to the HI Trust Fund from the OASI Trust Fund would be repaid by early 1987. Based on the pessimistic assumptions, a small repayment would occur in 1986, with the remainder being repaid in 24 monthly installments during 1988-89. The remaining \$2.5 billion owed to the DI fund from the OASI fund is assumed to be repaid in 1986, based on all four sets of assumptions.

Long-Range Financing (1985-2059)

Long-range 75-year estimates for OASDI, although sensitive to variations in the assumptions, indicate the

Chart 1.— OASDI fund ratio at January 1, 1984-89



trend and general range of the program's future financial status. During this long-range period, income and outgo should tend to respond largely to demographic conditions. Most of the beneficiaries during the next 75 years have already been born, so that their numbers are projected mainly from the present population. The numbers of workers involved in these projections, however, depend on future birth rates, which are subject to more variability. Several important demographic trends are anticipated to raise the proportion of the aged in the population in the next 75 years:

- (1) Because of the large number of persons born in the 2 decades after World War II, rapid growth is expected in the aged population after the turn of the century.
- (2) Assumed declines in mortality rates also would increase the numbers of aged persons.
- (3) At the same time, low birth rates would hold down the numbers of young persons.

Chart 2 shows the long-range trend in the number of covered workers for each OASDI beneficiary, based on the three sets of demographic assumptions. ("Beneficiaries" includes not only retired workers, but also disabled workers, spouses, children, and survivor beneficiaries.) This ratio declined from 5.1 in 1960 to 3.3 in 1984. It is estimated to reach about 2 by the middle of the next century, as the number of beneficiaries increases more rapidly than the number of covered workers.

Chart 2.— Number of workers per OASDI beneficiary, 1960-2060

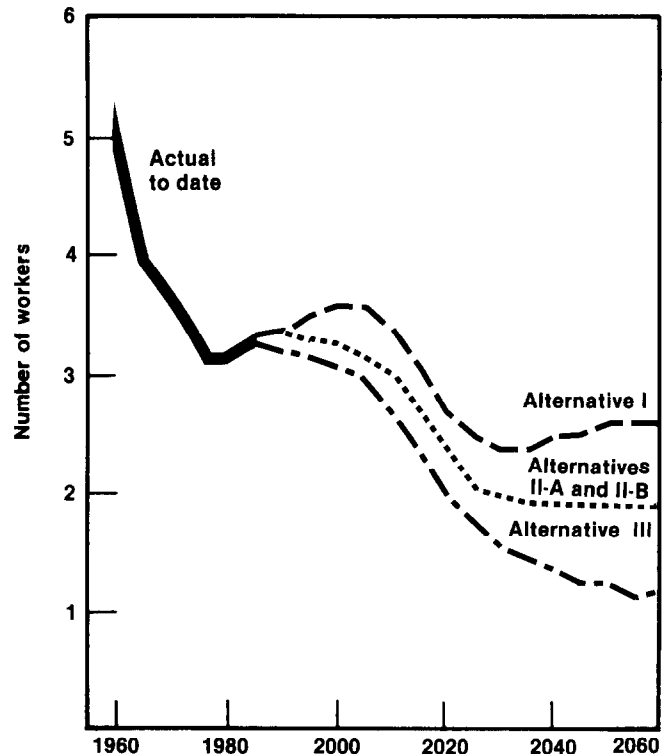


Chart 3 shows the estimated OASDI cost rates and income rates for the 75-year long-range projection period, based on the Alternative II-B assumptions. During the first half of this period, the estimates indicate that income will generally exceed outgo, resulting in substantial surpluses each year. After about 2020, the reverse is true, with outgo exceeding income, thus resulting in substantial deficits. The estimated cost rates increase rapidly after the first half of the 75-year projection period, primarily because the number of beneficiaries is

projected to increase more rapidly than is the number of covered workers (chart 2).

The long-range actuarial deficit of 0.41 percent of taxable payroll, based on the Alternative II-B assumptions, 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 percent 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.

After 1990, when the scheduled employee-employer contribution rate reaches its ultimate level of 12.4 percent, the income rate will continue to rise slightly as a result of the income from partial income taxation of benefits—from 12.7 percent in 1990 to 13.2 percent in 2060, based on the Alternative II-B assumptions.

Table 4 presents a comparison of the average annual cost rates and income rates for the next 75 years. Based on the Alternative II-B assumptions, the OASDI program is in “close actuarial balance” because the estimated average income rate is between 95 percent and 105 percent of the average cost rate. The 0.41-percent deficit represents about 3 percent of the average cost rate.

Table 4.—Estimated 75-year average OASDI income rates, cost rates, and actuarial balance as a percentage of taxable payroll

Alternative assumptions	Income rate	Cost rate	Actuarial balance
Alternative I	12.79	10.24	2.55
Alternative II-A	12.90	12.52	.38
Alternative II-B	12.94	13.35	-.41
Alternative III	13.15	17.84	-4.69

Note: Income rate, cost rate, and actuarial balance are defined in the text.

Chart 3. — Estimated income rates and cost rates based on Alternative II-B assumptions, 1985-2060

