# Actuarial Status of the OASI and DI Trust Funds

by Harry C. Ballantyne*

This article presents the summary of the 1988 Annual Report of the Board of Trustees of the Old-Age, Survivors, and Disability Insurance (OASDI) Trust Funds. It summarizes the financial condition and actuarial status of the OASDI program based on the alternative projections. The long-range 75-year estimates indicate that, under the intermediate (II-A and II-B) assumptions, the OASDI program will experience about three decades of positive annual balances, with continuing annual deficits thereafter. The positive balances in the first part of the 75-year projection period nearly offset the later deficits, so that the program, as a whole is in close actuarial balance. Over the long-range projection period, the OASDI program has an actuarial deficit of 0.58 percent of taxable payroll, based on the intermediate alternative II-B assumptions and calculated on a level-financing basis. The DI program by itself, however, is not in close actuarial balance for the next 75 years. The actuarial deficit for the DI program could be remedied by a small reallocation of the contribution rate from OASI to DI, in such a way that the OASI program would remain in close actuarial balance. Although the Trustees are not recommending such a reallocation, they note that the financial condition of the DI program will need to be carefully monitored.

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

(1) Old-Age and Survivors Insurance (OASI) pays benefits after a worker retires and to survivors after a worker dies.
(2) Disability Insurance (DI) pays benefits after a worker becomes disabled.

The Board of Trustees of the trust funds is required by law to report annually to Congress on the financial condition of the funds and on estimated future results.[1] The Board 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 members of the public, Mary Falvey Fuller and Suzanne Denbo Jaffe, who are serving 4-year terms that began on September 28, 1984.

## OASDI Income, Outgo, and Trust Funds

Most OASDI revenue consists of contributions paid by employees, their employers, and the self-employed. (Additional contributions are paid into a separate trust fund for the Hospital Insurance part of Medicare. This summary focuses on OASDI and does not discuss Medicare.) The contribution rates are established by law. Contributions are paid on earnings not exceeding the earnings base—$45,000 in 1988. The earnings base will rise in the future as average wages increase. The current and future OASDI contribution rates for employees and employers, each, are shown in table 1.

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[1] The information in this article is adapted from the **1988 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds,** Social Security Administration, May 5, 1988. Single copies of the report may be obtained from the Office of Public Inquiries, Room 4100 Annex, Social Security Administration, 6401 Security Boulevard, Baltimore, Maryland 21235.

Since 1984, a portion (not more than one-half) of OASDI benefits received by higher-income beneficiaries is subject to Federal income taxation. The revenues collected as a result of this provision are transferred from the general fund of the Treasury to the trust funds.

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

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.

## Recent Results

During 1987, about 128 million workers made contributions to the OASDI program. At the end of September 1987, 38.1 million persons were receiving monthly OASDI benefit payments. Administrative expenses represented about 1.1 percent of benefit payments in fiscal year 1987.

Income to the OASI and DI Trust Funds in fiscal year 1987 was $226.9 billion, while outgo was $207.3 billion. Thus, the assets of the combined funds increased by $19.6 billion during the fiscal year. A summary of the OASDI financial operations in fiscal year 1987 is shown below (in billions):

| | |
|---|---|
| Trust fund assets at end of fiscal year 1986 | $45.9 |
| Income during year: | |
| Total income | 226.9 |
| Contributions | 218.9 |
| Revenue from taxation of benefits | 3.3 |
| Payments from general fund | .1 |
| Net interest | 4.6 |
| Outgo during year: | |
| Total outgo | 207.3 |
| Benefit payments | 202.4 |
| Administrative expenses | 2.3 |
| Transfer to Railroad Retirement program | 2.6 |
| Net increase in assets during year | 19.6 |
| Trust fund assets at end of fiscal year 1987 | 65.4 |

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

## Actuarial Estimates

The annual report contains 75-year estimates of each fund's financial operations and status. Because 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.

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

[Percent of taxable payroll]

| Year | Total | OASI | DI |
|---|---|---|---|
| 1988-89 | 6.06 | 5.53 | 0.53 |
| 1990-99 | 6.20 | 5.60 | .60 |
| 2000 and later | 6.20 | 5.49 | .71 |

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 employment and 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." Both intermediate 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."

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 on the balance between income and outgo during the projection period as well as the adequacy of the reserves.

The **contingency fund ratio** is the usual measure of the OASDI program's ability to pay benefits on time in the near future. This ratio is the amount in the trust funds at the beginning of the year, including advance tax transfers for January, divided by that year's expenditures. Thus, if the trust fund ratio is 50 percent, the amount in the fund represents about 6 months' outgo. At the beginning of 1988, the fund ratio for OASDI was about 41 percent. A ratio of 8-9 percent is required to pay benefits at the beginning of each month.

In analyzing the actuarial status of the OASDI Trust Funds for the next 75 years, several different measures are commonly used. The **income rate** is the combined OASDI employee-employer contribution rate scheduled in the law, plus the income from taxation of benefits, expressed as a percentage of taxable

payroll. The **cost rate** is the annual outgo expressed as a percentage of taxable payroll. Summarized income and cost rates over the 75-year projection period 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 summarized estimated income rate and the summarized estimated cost rate. If this actuarial balance is negative, the program is said to have 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.

## Short-Range Financing (1988–92)

Estimates for the next 5 years are used to assess the adequacy of OASDI financing in the short range. In this 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 income and outgo.

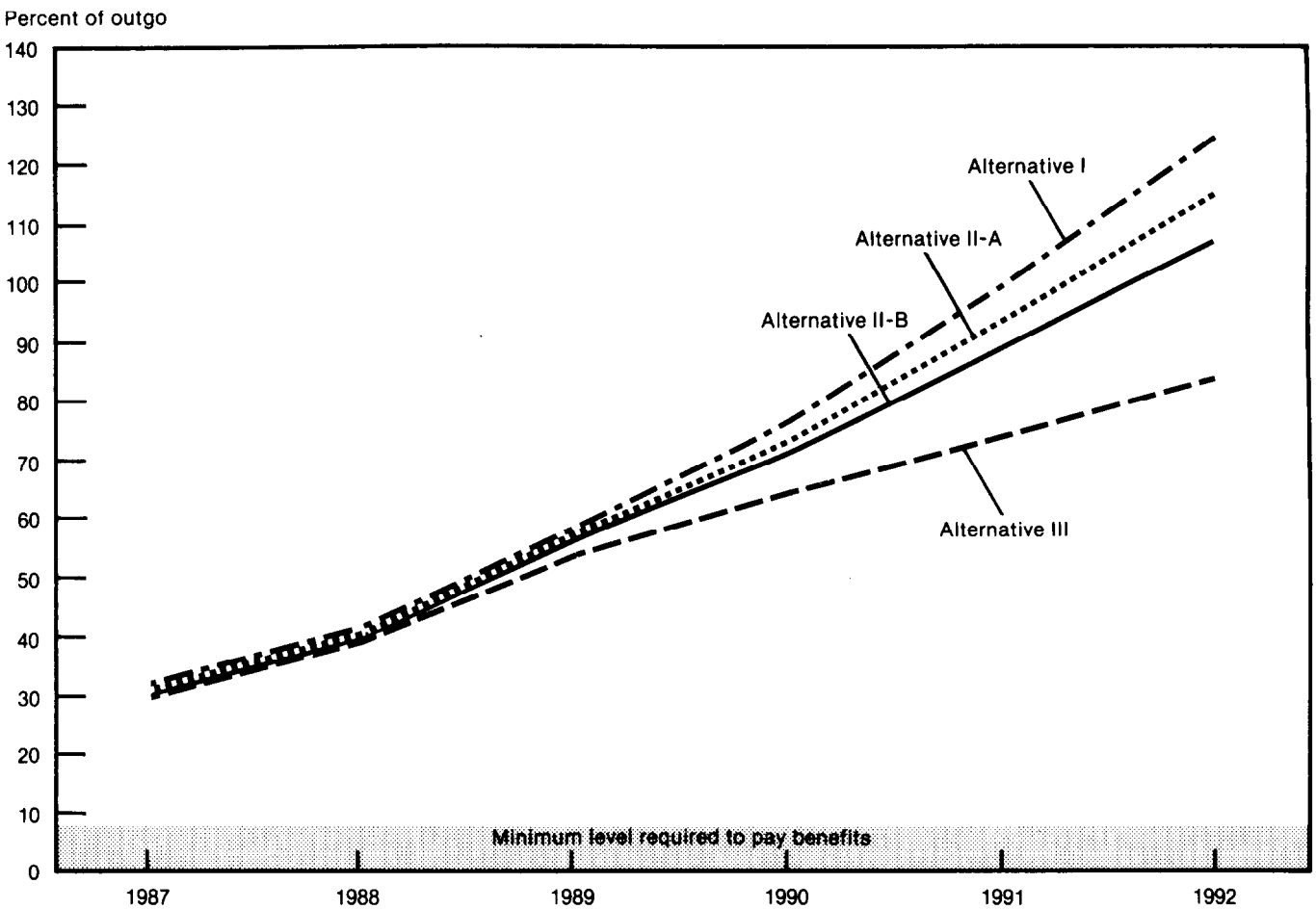
The actuarial estimates shown in the 1988 report indicate that the combined assets of the OASI and DI Trust Funds will be sufficient to pay OASDI benefits on time throughout the 5-year period and for many years thereafter, based on all four sets of assumptions. In addition, the estimates based on alternatives I, II-A, and II-B indicate that the OASI and DI programs, separately, can operate satisfactorily for many years. During the next 10 years, however, if experience is very adverse, the assets of the DI Trust Fund could decline to such a low level that financial problems would occur.

Chart 1 shows the OASDI contingency fund ratio for 1988, 41 percent, and the projected OASDI ratios for 1989–93, on the basis of all four sets of assumptions. The fund ratios are generally estimated to increase each year.

## Long-Range Financing (1988–2062)

Long-range 75-year estimates for OASDI, although sensitive to variations in the assumptions, indicate the trend and general range of the program's future financial status. During this long-range period, income and outgo are greatly affected by demographic, as

**Chart 1.**—Contingency fund ratio at beginning of year, 1987-92



well as economic, 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 during the next 75 years. First, because of the large number of persons born in the two decades after World War II, rapid growth is expected in the aged population after the turn of the century. Second, assumed declines in death rates also would increase the numbers of aged persons. At the same time, birth rates, which began to decline in the 1960's and are assumed to remain relatively low in the future, 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. ("Beneficiaries" includes not only retired workers, but also disabled workers, spouses, children, and survivors of deceased workers.) This ratio declined from 5.1 in 1960 to 3.4 in 1987. It is estimated to reach about 2 by about 2030, based on the intermediate assumptions, as the number of beneficiaries increases more rapidly than the number of covered workers.

Chart 3 shows the estimated OASDI income and cost rates for the long-range projection period, based on the intermediate II-B assumptions. During the first three decades of this period, the estimates indicate that the income rate will generally exceed the cost rate, resulting in substantial positive balances each year. Beginning about 2020, the reverse is true, with the cost rate exceeding the income rate, thus resulting in substantial deficits. These positive balances and deficits do not reflect interest earnings, which result in trust fund growth continuing for about 10–15 years after the first actuarial deficits occur. The cost rate is estimated to 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 the number of covered workers.

In this article, long-range actuarial balances are calculated using the "level-financing" methodology that was used before 1973. The methodology discounts future surpluses and deficits using the real

**Chart 2.**—Number of covered workers per OASDI beneficiary

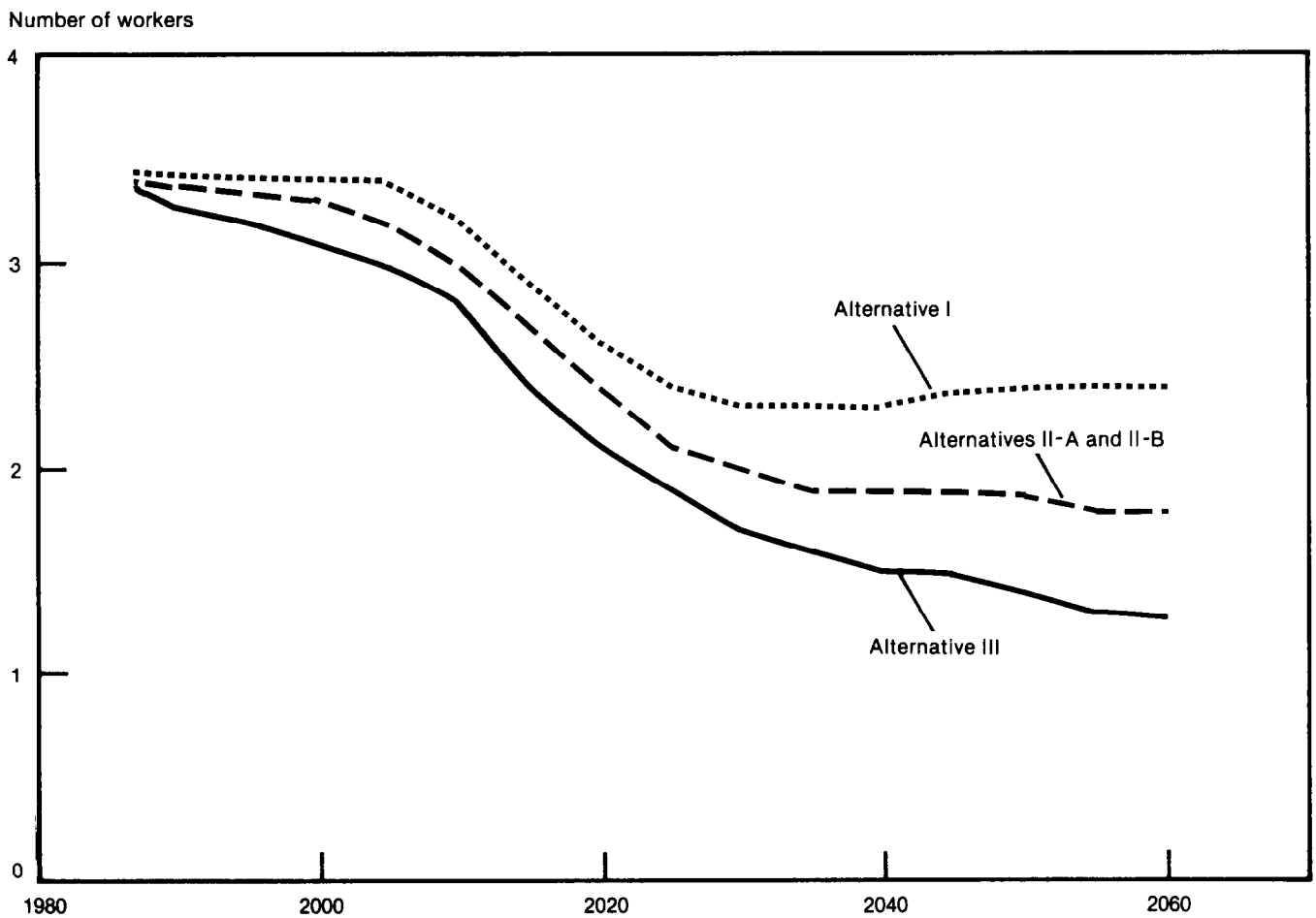
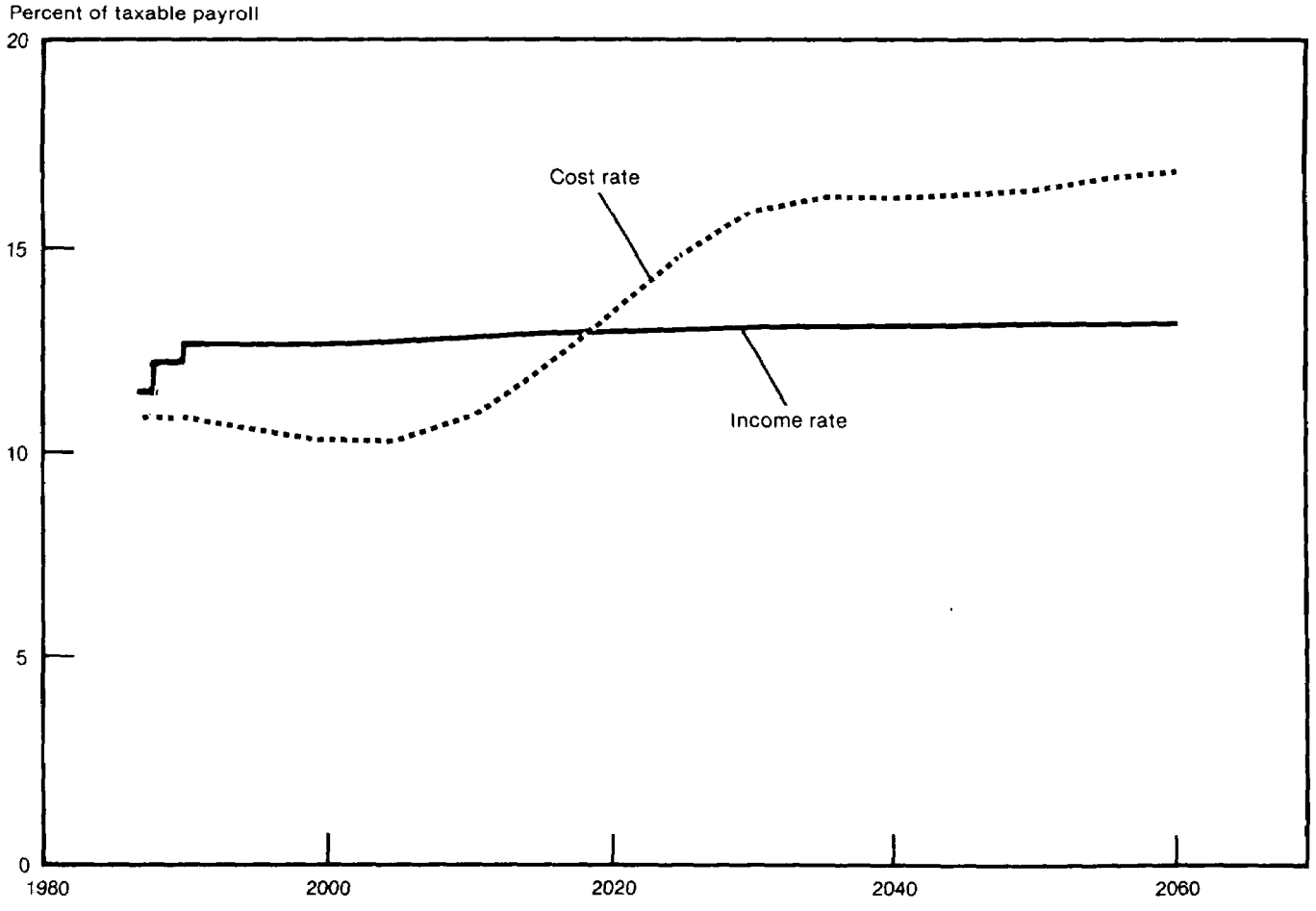


**Chart 3.**—OASDI income rate and cost rate based on alternative II-B assumptions




rate of interest. It is the most appropriate for summarizing the financial status of the OASDI system over the 75-year period. During that period, the trust funds buildup in the early years (when income exceeds outgo) and are subsequently depleted in the final years (expenditures are expected to exceed income).

Chart 4 shows the projected OASDI contingency fund ratios for the 75-year period, based on the intermediate alternative II-B assumptions. The ratio rises steadily and peaks at 531 percent in 2015. After 2015, the ratio declines until the combined funds are exhausted in 2048. The importance of the trust fund accumulating reserves is emphasized in chart 4. As the chart shows, the buildup in the reserves will be needed to pay benefits later on to the increasing numbers of retired persons who were born in the high birth-rate years from the mid-1940's to the mid-1960's.

**Chart 4.**—Long-range contingency fund ratio based on alternative II-B assumptions

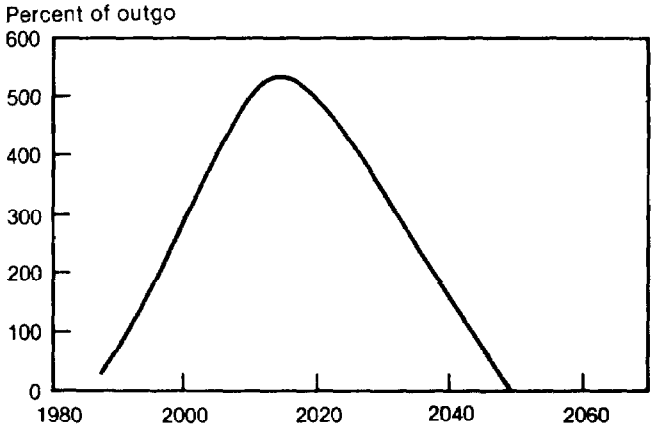



Table 2 presents a comparison of the level-financing income and cost rates for the 75-year long-range projection period, based on the four sets of

**Table 2.**—Estimated OASDI income rates, cost rates, and actuarial balance for long-range projection period

[As a percentage of taxable payroll]

| Assumptions | Income rate | Cost rate | Actuarial balance |
|---|---|---|---|
| Alternative I | 12.83 | 10.97 | 1.86 |
| Alternative II-A | 12.91 | 12.83 | .08 |
| Alternative II-B | 12.94 | 13.52 | −.58 |
| Alternative III | 13.07 | 16.49 | −3.42 |

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

assumptions. The figures are expressed as percentages of taxable payroll.

The long-range OASDI actuarial deficit of 0.58 percent of taxable payroll, based on the intermediate II-B assumptions, results from a level-financing income rate of 12.94 percent of taxable payroll over the 75-year period and a level-financing cost rate of 13.52 percent over the period. The level-financing rates reflect the full effects of the assumed interest earnings of the trust funds. In the absence of other changes, the long-range actuarial balance will tend to decline slowly, as the valuation period moves forward and additional distant years of deficit are included in the valuation. The actuarial deficits in the later years of the 75-year projection period are caused primarily by the demographic trends described above.