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# 1988 ANNUAL REPORT OF THE BOARD OF TRUSTEES OF THE FEDERAL OLD-AGE AND SURVIVORS INSURANCE AND DISABILITY INSURANCE TRUST FUNDS

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## COMMUNICATION

FROM

## THE BOARD OF TRUSTEES, FEDERAL OLD-AGE AND SURVIVORS INSURANCE AND DISABILITY INSURANCE TRUST FUNDS

TRANSMITTING

THE 1988 ANNUAL REPORT OF THE BOARD, PURSUANT TO SECTION 201(c)(2) OF THE SOCIAL SECURITY ACT, AS AMENDED

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# LETTER OF TRANSMITTAL

BOARD OF TRUSTEES OF THE
FEDERAL OLD-AGE AND SURVIVORS INSURANCE
AND DISABILITY INSURANCE TRUST FUNDS,
Washington, D.C., MAY 5, 1988

HONORABLE JAMES C. WRIGHT, JR.
Speaker of the House of Representatives
Washington, D.C.

HONORABLE GEORGE BUSH
President of the Senate
Washington, D.C.

GENTLEMEN: We have the honor of transmitting to you the 1988 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance Trust Fund and the Federal Disability Insurance Trust Fund (the 48th such report), in compliance with section 201(c)(2) of the Social Security Act.

Respectfully,

JAMES A. BAKER, III, *Secretary of the Treasury, and Managing Trustee of the Trust Funds.*

ANN MCLAUGHLIN, *Secretary of Labor, and Trustee.*

OTIS R. BOWEN, M.D., *Secretary of Health and Human Services, and Trustee.*

MARY FALVEY FULLER, *Trustee.*

SUZANNE DENBO JAFFE, *Trustee.*

DORCAS R. HARDY, *Commissioner of Social Security, and Secretary, Board of Trustees.*

Click on a Topic Below

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# 1988 ANNUAL REPORT OF THE BOARD OF TRUSTEES OF THE FEDERAL OLD-AGE AND SURVIVORS INSURANCE AND DISABILITY INSURANCE TRUST FUNDS

## SUMMARY

*Highlights*

As shown in the 1988 Annual Report, the assets of the Old-Age and Survivors Insurance (OASI) Trust Fund increased by $23.1 billion in calendar year 1987, reflecting the continuing growth in the economy. Although the Disability Insurance (DI) Trust Fund declined by $1.1 billion, the growth in the combined trust funds, at $21.9 billion, was larger than the growth estimated in the 1987 Annual Report on the basis of intermediate assumptions.

The trust funds are expected to continue growing for many years into the future. However, if experience is very adverse, the assets of the DI Trust Fund could decline to such a low level that financial problems could occur within the next 10 years.

The long-range 75-year estimates indicate that, under the intermediate 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 75-year 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 combined trust funds are expected to accumulate to a maximum fund ratio of 531 percent of annual outgo in the year 2015, based on the alternative II-B assumptions. Thereafter, the fund ratio is estimated to decline until the funds are exhausted in 2048. Therefore, according to the alternative II-B projections, the OASDI program will have enough funds to cover expenditures for about 60 years into the future.

For OASI and DI, separately, the long-range actuarial deficits, based on the alternative II-B assumptions, are 0.45 percent and 0.13 percent of taxable payroll, respectively. The deficit for DI represents about 8.3 percent of the cost rate over the 75-year period, and the DI program is therefore not in close actuarial balance. However, the DI program could be brought into close actuarial balance by a small reallocation of the contribution rate from OASI to DI in such a way that the OASI program would still remain in close actuarial balance. Such reallocation is not being recommended by the Board of Trustees, but the DI program needs careful monitoring in both the short-range and the long-range periods.

*1. Program Description*

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 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 the Congress on the financial condition of the funds and on estimated future results. 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 which began on September 28, 1984.

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 below (as percentages):

| Year | OASI | DI | Total |
|---|---|---|---|
| 1988-89 | 5.53 | .53 | 6.06 |
| 1990-99 | 5.60 | .60 | 6.20 |
| 2000 & later | 5.49 | .71 | 6.20 |

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.

*2. 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 benefits under the OASDI program. 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: | |
| Contributions | 218.9 |
| Revenue from taxation of benefits | 3.3 |
| Payments from general fund | .1 |
| Net interest | 4.6 |
| Total income | 226.9 |
| Outgo during year: | |
| Benefit payments | 202.4 |
| Administrative expenses | 2.3 |
| Transfer to Railroad Retirement program | 2.6 |
| Total outgo | 207.3 |
| 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.

*3. 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.

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 people 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 to 9 percent is required to pay benefits at the beginning of each month.

In analyzing the actuarial status of OASDI 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.

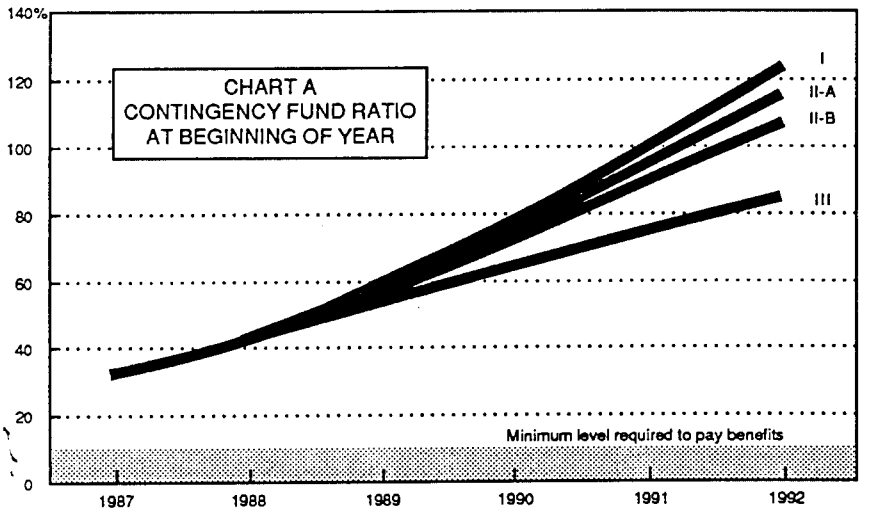
For the 75-year long-range projection period, the *actuarial balance* is the difference between the summarized estimated income rate and the summarized estimated cost rate. If this actuarial balance is negative, the program is said to have an actuarial deficit. Such a deficit is a warning that future 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.

*4. 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 A 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.




*5. 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 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 1960s and are assumed to remain relatively low in the future, would hold down the numbers of young people.

Chart B shows the long-range trend in the number of covered workers per OASDI beneficiary. ("Beneficiaries" includes not only retired workers, but also disabled workers, spouses, children, and survivor beneficiar-

ies.) 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.

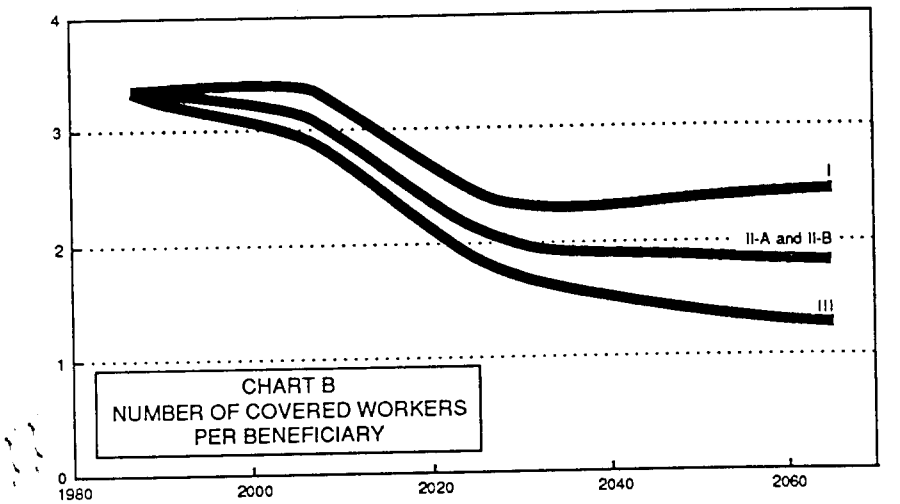
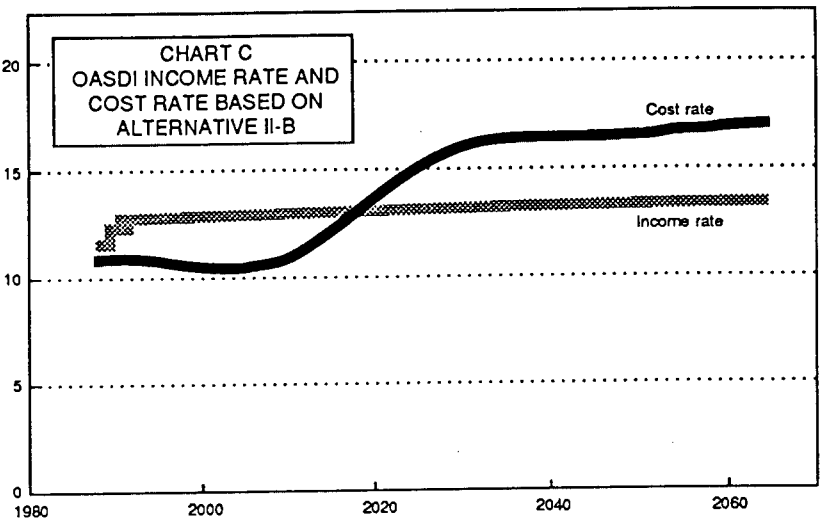
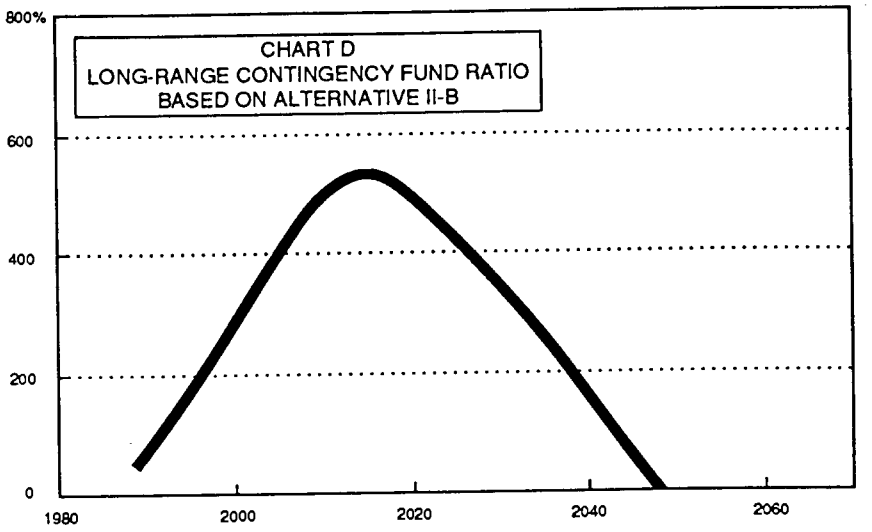



Chart C shows the estimated OASDI income and cost rates for the long-range projection period, based on the intermediate II-B assumptions. During the first three decades of this period, the estimates indicate that the income rate will generally exceed the cost rate, resulting in substantial positive balances 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 to 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.




For this report, long-range actuarial balances are calculated using "level-financing" methodology, a methodology that was used prior to 1973. The methodology discounts future surpluses and deficits using the real rate of interest. It is the most appropriate for summarizing the financial status of the OASDI system over the 75-year period, a period in which the trust funds build up during the early years when income exceeds outgo and are subsequently depleted during the final years when expenditures are expected to exceed income.

Chart D 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 by Chart D. As the chart shows, the build-up 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-1940s to the mid-1960s.




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

| Assumptions | Income rate | Cost rate | Actuarial balance |
|---|---|---|---|
| Optimistic | 12.83 | 10.97 | 1.86 |
| Intermediate II-A | 12.91 | 12.83 | .08 |
| Intermediate II-B | 12.94 | 13.52 | -.58 |
| Pessimistic | 13.07 | 16.49 | -3.42 |

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

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 in future annual reports, 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.

## I. THE BOARD OF TRUSTEES

The Federal Old-Age and Survivors Insurance Trust Fund and the Federal Disability Insurance Trust Fund are held by the Board of Trustees under the authority of section 201(c)(1) of the Social Security Act. The Board has five members, three of whom serve in an ex officio capacity: the Secretary of the Treasury, the Secretary of Labor, and the Secretary of Health and Human Services. The other two members, Mary Falvey Fuller and Suzanne Denbo Jaffe, are members of the public serving 4-year terms which began on September 28, 1984.

By law, the Secretary of the Treasury is designated as the Managing Trustee, and the Commissioner of Social Security is designated as the Secretary of the Board. The Board of Trustees reports to the Congress each year on the operations and status of the trust funds, in compliance with section 201(c)(2) of the Social Security Act. This annual report, for 1988, is the 48th such report.

## II. SOCIAL SECURITY AMENDMENTS SINCE THE 1987 REPORT

Since the 1987 Annual Report was transmitted to the Congress on March 30, 1987, only one law affecting the OASDI program in a significant way has been enacted. The Omnibus Budget Reconciliation Act of 1987 (Public Law 100-203, enacted into law on December 22, 1987) included a number of provisions affecting the OASDI program. The more important legislative changes, from an actuarial standpoint, are described below.

1. The legislation made the following changes in coverage effective January 1, 1988:
   a. Extends coverage to uniformed members of the Armed Forces reserve components while on inactive duty training (such as weekend drills), but without making them eligible for deemed military-service wage credits with respect to these services.
   b. Covers all cash remuneration paid to an employee for agricultural services in a year by an employer if the employer's expenditures for agricultural labor in such year are $2,500 or more. Eliminates the provision which covers agricultural employees who work at least 20 days for an employer for cash pay determined on an hourly or other time basis. The provision which covers agricultural employees who are paid $150 or more in a year by an employer continues to apply in the case of employers who spend less than $2,500 in a year for agricultural services.
   c. Covers employer-paid premiums for an employee's group-term life insurance to the extent that the premiums exceed the employer cost for $50,000 of such insurance.
   d. Covers services performed by (1) an individual in the trade or business of his or her spouse and (2) a child between the ages of 18 and 21 in the trade or business of his or her parent. (Children aged 21 and older were already covered.)
   e. Requires employers to pay Social Security taxes on the full amount of covered tips. Under prior law, employers were required to pay taxes on only that part of tip income deemed to be wages under the Federal minimum-wage law.
   f. Provides, for Social Security purposes, that income attributable to services as a director of a corporation during a taxable year is deemed to be received in the year in which it is earned (unless actually received in an earlier year).
2. Other changes made by the Omnibus Budget Reconciliation Act of 1987 were:
   a. Requires Federal employees who transfer from the Civil Service Retirement System (CSRS) into the Federal Employees' Retirement System (FERS) after December 31, 1987, to have 5 years of Federal employment covered by the OASDI program in order to be exempt from the government pension offset provision. (Under the govern-

ment pension offset provision, spouse's and surviving spouse's benefits under OASDI are generally reduced if the person entitled to such benefits also receives a pension based on his or her own work in noncovered employment—such as Federal employment under CSRS.) Although the "open season," that began July 1, 1987, for transferring to FERS ended on December 31, 1987, persons could transfer to FERS after that date because, for example, they are rehired after leaving Federal employment or because, as another example, legislation authorizing another "open season" for transferring to FERS may be enacted at some point in the future. Federal employees who transferred into FERS by December 31, 1987, continue to be exempt from the government pension offset provision.

b. Nullifies prospectively the Social Security Administration's March 31, 1987, limit of $1,500 on the amount of attorney fee requests that may be approved by administrative law judges in hearings offices, and restores the previous $3,000 limit; prohibits issuance of new attorney fee regulations by the Social Security Administration prior to July 1, 1989; and requires the Department of Health and Human Services and the General Accounting Office to each conduct a study of attorney fee issues and report to Congress on their findings and recommendations.

c. Extends for 1 year a provision that enables disability beneficiaries, whose benefits would otherwise be terminated due to a determination of medical cessation of disability, to have their benefits temporarily continued while they are appealing that cessation decision. Under the provision, benefits may be continued until an administrative law judge makes a decision on the appeal. The provision was extended to include determinations made prior to January 1, 1989. However, benefits may not be continued under this provision beyond June 1989.

d. Extends a disabled beneficiary's automatic reentitlement period (previously 15 months) to 36 months. During this extended period of eligibility, benefits that are stopped because of work may be reinstated without the filing of a new application if the work ceases or falls below a specified level.

Detailed information regarding these changes can be found in documents prepared by and for the Congress. The actuarial estimates shown in this report reflect the anticipated effects of these changes.

## III. BASIS FOR TRUST FUND RECEIPTS AND EXPENDITURES

The Federal Old-Age and Survivors Insurance Trust Fund was established on January 1, 1940, as a separate account in the United States Treasury. All the financial operations of the OASI program are handled through this fund. The Federal Disability Insurance Trust Fund is another separate account in the United States Treasury; it was established on August 1, 1956. All the financial operations of the DI program are handled through this fund.

The primary receipts of these two funds are amounts appropriated to each of them under permanent authority on the basis of contributions paid by workers, their employers, and individuals with self-employment income, in work covered by the OASDI program. Beginning January 1, 1987, these appropriated amounts include contributions paid by, or on behalf of, workers employed by State and local governments and by such employers, with respect to wages covered under the program through State agreements. (Prior to 1987, such contributions were collected by the State and deposited directly into the trust funds.) All employees, and their employers, in covered employment are required to pay contributions with respect to their wages. Employees, and their employers, are also required to pay contributions with respect to cash tips if their monthly cash tips amount to at least $20. (Prior to 1988, employers were required to pay contributions on only that part of tip income deemed to be wages under the Federal minimum-wage law.) All self-employed persons are required to pay contributions with respect to their covered net earnings from self-employment. In addition to making the required employer contributions on the wages of covered Federal employees, the Federal Government also pays amounts equivalent to the employer and employee contributions that would be paid on deemed wage credits attributable to military service performed after 1956 if such wage credits were covered wages.

In general, an individual's contributions, or taxes, are computed on annual wages or net earnings from self-employment, or both wages and net self-employment earnings combined, up to a specified maximum annual amount. The contributions are determined first on the wages and then on any net self-employment earnings, such that the total does not exceed the annual maximum amount. An employee who pays contributions on wages in excess of the annual maximum amount (because of employment with two or more employers) is eligible for a refund of the excess employee contributions. The monthly benefit amount to which an individual (or his or her spouse and children) may become entitled under the OASDI program is based on the individual's taxable earnings during his or her lifetime. In computing benefits for almost all persons who first become eligible to receive benefits in 1979 or later, the earnings in each year are indexed to take account of increases in average wage levels. The maximum amount of earnings on which contributions are payable in a year, and which is also the maximum amount of earnings creditable in that year for benefit-computation purposes, is called the contribution and benefit base.

The contribution rates, or tax rates, applicable in each calendar year, and the allocation of the rates between the two trust funds, are shown in

table 1. For 1989 and later, the rates shown are those scheduled in present law. The contribution and benefit bases are also shown in table 1. The bases for 1975-78 were determined under the automatic-adjustment provisions in section 230 of the Social Security Act. The bases for 1979-81 were specified in the law, as amended in 1977. The bases for 1982-88 were again determined under the automatic-adjustment provisions, as will be the bases in 1989 and later.

TABLE 1.—CONTRIBUTION AND BENEFIT BASE AND CONTRIBUTION RATES

| Calendar years | Contribution and benefit base | Contribution rates (percent) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Employees and employers, each | | | Self-employed | | |
| | | OASDI | OASI | DI | OASDI | OASI | DI |
| 1937-49 | $3,000 | 1.000 | 1.000 | — | — | — | — |
| 1950 | 3,000 | 1.500 | 1.500 | — | — | — | — |
| 1951-53 | 3,600 | 1.500 | 1.500 | — | 2.2500 | 2.2500 | — |
| 1954 | 3,600 | 2.000 | 2.000 | — | 3.0000 | 3.0000 | — |
| 1955-56 | 4,200 | 2.000 | 2.000 | — | 3.0000 | 3.0000 | — |
| 1957-58 | 4,200 | 2.250 | 2.000 | 0.250 | 3.3750 | 3.0000 | 0.3750 |
| 1959 | 4,800 | 2.500 | 2.250 | .250 | 3.7500 | 3.3750 | .3750 |
| 1960-61 | 4,800 | 3.000 | 2.750 | .250 | 4.5000 | 4.1250 | .3750 |
| 1962 | 4,800 | 3.125 | 2.875 | .250 | 4.7000 | 4.3250 | .3750 |
| 1963-65 | 4,800 | 3.625 | 3.375 | .250 | 5.4000 | 5.0250 | .3750 |
| 1966 | 6,600 | 3.850 | 3.500 | .350 | 5.8000 | 5.2750 | .5250 |
| 1967 | 6,600 | 3.900 | 3.550 | .350 | 5.9000 | 5.3750 | .5250 |
| 1968 | 7,800 | 3.800 | 3.325 | .475 | 5.8000 | 5.0875 | .7125 |
| 1969 | 7,800 | 4.200 | 3.725 | .475 | 6.3000 | 5.5875 | .7125 |
| 1970 | 7,800 | 4.200 | 3.650 | .550 | 6.3000 | 5.4750 | .8250 |
| 1971 | 7,800 | 4.600 | 4.050 | .550 | 6.9000 | 6.0750 | .8250 |
| 1972 | 9,000 | 4.600 | 4.050 | .550 | 6.9000 | 6.0750 | .8250 |
| 1973 | 10,800 | 4.850 | 4.300 | .550 | 7.0000 | 6.2050 | .7950 |
| 1974 | 13,200 | 4.950 | 4.375 | .575 | 7.0000 | 6.1850 | .8150 |
| 1975 | 14,100 | 4.950 | 4.375 | .575 | 7.0000 | 6.1850 | .8150 |
| 1976 | 15,300 | 4.950 | 4.375 | .575 | 7.0000 | 6.1850 | .8150 |
| 1977 | 16,500 | 4.950 | 4.375 | .575 | 7.0000 | 6.1850 | .8150 |
| 1978 | 17,700 | 5.050 | 4.275 | .775 | 7.1000 | 6.0100 | 1.0900 |
| 1979 | 22,900 | 5.080 | 4.330 | .750 | 7.0500 | 6.0100 | 1.0400 |
| 1980 | 25,900 | 5.080 | 4.520 | .560 | 7.0500 | 6.2725 | .7775 |
| 1981 | 29,700 | 5.350 | 4.700 | .650 | 8.0000 | 7.0250 | .9750 |
| 1982 | 32,400 | 5.400 | 4.575 | .825 | 8.0500 | 6.8125 | 1.2375 |
| 1983 | 35,700 | 5.400 | 4.775 | .625 | 8.0500 | 7.1125 | .9375 |
| 1984[1] | 37,800 | 5.700 | 5.200 | .500 | 11.4000 | 10.4000 | 1.0000 |
| 1985[1] | 39,600 | 5.700 | 5.200 | .500 | 11.4000 | 10.4000 | 1.0000 |
| 1986[1] | 42,000 | 5.700 | 5.200 | .500 | 11.4000 | 10.4000 | 1.0000 |
| 1987[1] | 43,800 | 5.700 | 5.200 | .500 | 11.4000 | 10.4000 | 1.0000 |
| 1988[1] | 45,000 | 6.060 | 5.530 | .530 | 12.1200 | 11.0600 | 1.0600 |
| Rates scheduled in present law: | | | | | | | |
| 1989[1] | (*) | 6.060 | 5.530 | .530 | 12.1200 | 11.0600 | 1.0600 |
| 1990-99 | (*) | 6.200 | 5.600 | .600 | 12.4000 | 11.2000 | 1.2000 |
| 2000 and later | (*) | 6.200 | 5.490 | .710 | 12.4000 | 10.9800 | 1.4200 |

[1]See text for description of tax credits.

[*]Subject to automatic adjustment.

In 1984 only, an immediate credit of 0.3 percent of taxable wages was allowed against the OASDI contributions paid by employees. In accordance with the law, this credit was implemented by a deliberate underwithholding of the employee contributions for 1984, resulting in an effective contribution rate of 5.4 percent (as compared to the employer rate of 5.7 percent). The appropriations of contributions to the trust funds, however, were based on the combined employee-employer rate of 11.4 percent, as if the credit for employees did not apply. Similar credits

of 2.7 percent, 2.3 percent, and 2.0 percent are allowed against the combined OASDI and Hospital Insurance (HI) contributions on net earnings from self-employment in 1984, 1985, and 1986-89, respectively. The appropriations of contributions to the trust funds, however, are based on the contribution rates, before adjustment for the credit, that apply in each year. After 1989, self-employed persons will be allowed a deduction, for purposes of computing their net earnings, equal to half of the combined OASDI and HI contributions that would be payable without regard to the contribution and benefit base. The contribution rate is then applied to net earnings after this deduction, but subject to the base. This provision will reduce contributions for those self-employed persons with earnings less than, or not greatly above, the contribution and benefit base.

All contributions, except for amounts received under State agreements for covered wages paid prior to January 1, 1987, are collected by the Internal Revenue Service and deposited in the general fund of the Treasury. The exact amount of contributions received is not known initially because amounts paid under the OASDI and HI programs and individual income taxes are not separately identified in collection reports received by the Internal Revenue Service.

Amounts representing the estimated total collections of OASDI contributions by the IRS for each month are credited to the OASI and DI Trust Funds on the first day of the month. Because these estimated collections are credited to the trust funds on the first of the month, instead of throughout the month as contributions are actually received, the trust funds pay interest to the general fund to reimburse it for the interest costs attributable to these advance transfers. Periodic adjustments (principal only) are subsequently made to the extent that the estimates are found to differ from the amounts of contributions actually payable as determined from reported earnings. Adjustments are also made to account for any refunds to employees (with more than one employer) who paid contributions on wages in excess of the contribution and benefit base.

Beginning in 1984, a portion (not more than one-half) of OASDI benefits is subject to Federal income taxation under certain circumstances. The proceeds from this taxation of benefits are credited to the trust funds, in advance, on an estimated basis, at the beginning of each calendar quarter, with no reimbursement to the general fund for interest costs attributable to the advance transfers. Subsequent adjustments are made based on the actual amounts as shown on annual income tax records. The amounts appropriated from the general fund of the Treasury are allocated to the OASI and DI Trust Funds on the basis of the income taxes paid on the benefits from each fund. (A special provision applies to benefits paid to non-resident aliens. A flat-rate tax, usually 15 percent, is withheld from the benefits before they are paid and, therefore, remains in the trust funds.)

Another source of income to the trust funds is interest received on investments held by the trust funds. That portion of each trust fund which, in the judgment of the Managing Trustee, is not required to meet current expenditures for benefits and administration is invested, on a

daily basis, in interest-bearing obligations of the U.S. Government (including special public-debt obligations described below), in obligations guaranteed as to both principal and interest by the United States, or in certain federally sponsored agency obligations that are designated in the laws authorizing their issuance as lawful investments for fiduciary and trust funds under the control and authority of the United States or any officer of the United States. These obligations may be acquired on original issue at the issue price or by purchase of outstanding obligations at their market price.

The Social Security Act authorizes the issuance of special public-debt obligations for purchase exclusively by the trust funds. The Act provides that these obligations shall bear interest at a rate equal to the average market yield (computed on the basis of market quotations as of the end of the calendar month next preceding the date of such issue) on all marketable interest-bearing obligations of the United States then forming a part of the public debt which are not due or callable until after the expiration of 4 years from the end of such calendar month. These special issues are always redeemable at par value and thus bear no risk with respect to the interest rate (i.e., risk due to price fluctuations).

Income is also affected by provisions of the Social Security Act for (1) transfers between the general fund of the Treasury and the OASI and DI Trust Funds for any adjustments to prior payments for the cost arising from the granting of noncontributory wage credits for military service prior to 1957, according to periodic determinations made by the Secretary of Health and Human Services; (2) annual reimbursements from the general fund of the Treasury to the OASI Trust Fund for any costs arising from the special monthly cash payments to certain uninsured persons—i.e., those who attained age 72 before 1968 and who generally are not eligible for cash benefits under other provisions of the OASDI program; and (3) the receipt of unconditional money gifts or bequests made for the benefit of the trust funds or any activity financed through the funds.

The major expenditures of the OASI and DI Trust Funds are for (1) OASDI benefit payments, net of any reimbursements from the general fund of the Treasury for unnegotiated benefit checks, and (2) expenses incurred by the Department of Health and Human Services and by the Department of the Treasury in administering the OASDI program and the provisions of the Internal Revenue Code relating to the collection of contributions. Such administrative expenses include expenditures for construction, rental and lease, or purchase of office buildings and related facilities for the Social Security Administration. The Social Security Act does not permit expenditures from the OASI and DI Trust Funds for any purpose not related to the payment of benefits or administrative costs for the OASDI program.

The expenditures of the trust funds are also affected by (1) costs of vocational rehabilitation services furnished as an additional benefit to disabled persons receiving cash benefits because of their disabilities where such services contributed to their successful rehabilitation, and (2) the provisions of the Railroad Retirement Act which provide for a system of coordination and financial interchange between the Railroad

Retirement program and the Social Security program. Under these provisions, transfers between the Railroad Retirement program's Social Security Equivalent Benefit Account and the trust funds are made on an annual basis in order to place each trust fund in the same position in which it would have been if railroad employment had always been covered under Social Security.

The net worth of facilities and other fixed capital assets is not carried in the statements of the operations of the trust funds presented in this report. This is because the value of fixed capital assets does not represent funds available for the payment of benefits or administrative expenditures, and therefore is not considered in assessing the actuarial status of the trust funds.

From December 29, 1981, until January 1, 1988, the Social Security Act authorized borrowing among the OASI, DI, and HI Trust Funds when necessary "to best meet the need for financing the benefit payments" from the three funds. (Although the initial borrowing authority expired at the end of 1982, the Social Security Amendments of 1983 reinstated the borrowing authority and extended it through 1987.) Interfund loans under the borrowing authority were made to the OASI Trust Fund from the DI and HI Trust Funds in November and December 1982. The loans were fully repaid by May 1, 1986. No additional interfund loans were made after 1982. In this report, the assets of the OASI Trust Fund, as of the end of each year 1982-85, include any amounts then owed to the DI and HI Trust Funds. The assets of the trust funds to which amounts were owed do not include such amounts. This procedure is followed because the borrowed amounts were available for the payment of benefits or other obligations of the OASI fund, while such amounts were not readily available to the lending funds.

# IV. SUMMARY OF THE OPERATIONS OF THE OLD-AGE AND SURVIVORS INSURANCE AND DISABILITY INSURANCE TRUST FUNDS, FISCAL YEAR 1987

## *A. OLD-AGE AND SURVIVORS INSURANCE TRUST FUND*

A statement of the income and disbursements of the Federal Old-Age and Survivors Insurance Trust Fund in fiscal year 1987, and of the assets of the fund at the beginning and end of the fiscal year, is presented in table 2.

TABLE 2.—STATEMENT OF OPERATIONS OF THE OASI TRUST FUND DURING FISCAL YEAR 1987
[In thousands]

| | | |
|---|---|---|
| Total assets, September 30, 1986 | | $37,519,378 |
| Receipts: | | |
| Contributions: | | |
| Appropriations: | | |
| Employment taxes | $192,601,710 | |
| Tax credits | 1,652,655 | |
| Total appropriations | 194,254,366 | |
| Deposits arising from State agreements | 5,324,577 | |
| Payment from general fund of the Treasury representing employee-employer contributions on deemed wage credits for military service in 1987 | 348,391 | |
| Gross contributions | 199,927,333 | |
| Less payment to the general fund of the Treasury for contributions subject to refund | 373,170 | |
| Net contributions | | 199,554,163 |
| Income from taxation of benefit payments: | | |
| Withheld from benefit payments to non-resident aliens | 66,717 | |
| All other, not subject to withholding[1] | 3,256,000 | |
| Total income from taxation of benefits | | 3,322,717 |
| Reimbursement from general fund of the Treasury for costs of payments to uninsured persons who attained age 72 before 1968 | | 69,394 |
| Investment income and interest adjustments: | | |
| Interest on investments | 4,496,366 | |
| Interest on transfers from the general fund account for the Supplemental Security Income program due to adjustment in allocation of administrative expenses | 1,098 | |
| Gross investment income and interest adjustments | 4,497,463 | |
| Less interest on interfund transfers due to adjustment in allocation of administrative expenses | 2,510 | |
| Less interest on general fund advance tax transfers | 625,017 | |
| Net investment income and interest adjustments | | 3,669,936 |
| Income from merger of the Northern Mariana Islands Social Security Retirement Fund with the United States Social Security program | | 29,434 |
| Gifts | | 454 |
| Total receipts | | 206,846,097 |

TABLE 2.—STATEMENT OF OPERATIONS OF THE OASI TRUST FUND DURING FISCAL YEAR 1987 (Cont.)
[In thousands]

| | | |
|---|---|---|
| Disbursements: | | |
| Benefit payments: | | |
| Gross benefit payments | $182,776,333 | |
| Less collected overpayments | 721,286 | |
| Less reimbursement for unnegotiated checks | 52,229 | |
| Net benefit payments | | $182,002,819 |
| Transfer to the Railroad Retirement "Social Security Equivalent Benefit Account" | | 2,557,282 |
| Administrative expenses: | | |
| Department of Health and Human Services | 1,401,906 | |
| Department of the Treasury | 140,442 | |
| Gross administrative expenses | 1,542,348 | |
| Less reimbursements from general fund of the Treasury for costs of furnishing information on deferred vested pension benefits | 691 | |
| Less receipts from sales of supplies, materials, etc. | 1,023 | |
| Net administrative expenses | | 1,540,633 |
| Total disbursements | | 186,100,734 |
| Net increase in assets | | 20,745,364 |
| Total assets, September 30, 1987 | | 58,264,742 |

[1]Includes $102 million in transfers to the OASI Trust Fund from the general fund of the Treasury to correct estimated amounts transferred for calendar years 1984 and 1985.

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

The total assets of the OASI Trust Fund amounted to $37,519 million on September 30, 1986. During fiscal year 1987, total receipts amounted to $206,846 million, and total disbursements were $186,101 million. The assets of the OASI Trust Fund thus increased by $20,745 million during the year, to a total of $58,265 million on September 30, 1987.

Included in total receipts during fiscal year 1987 were $194,254 million representing contributions appropriated to the fund (including transfers of $1,653 million from the general fund of the Treasury to offset the tax credits allowed against contributions due on earnings of self-employed persons). Also included in total receipts were $5,325 million representing amounts received by the Secretary of the Treasury in accordance with State agreements for coverage of State and local government employees and deposited directly into the trust fund. This amount is much less than the amount deposited into the trust fund under such agreements in the preceding fiscal year because virtually all of it was based on wages paid to State and local government employees before January 1, 1987. The collection of contributions on wages paid after that date became the responsibility of the Internal Revenue Service as a result of Public Law 99-509, and such contributions are now included in employment taxes appropriated to the trust funds. Another $348 million was received from the general fund of the Treasury representing payment for the contributions that would have been paid on estimated deemed wage credits for military service in 1987 if such credits had been considered to be covered wages. As an offset, $373 million was transferred from the trust fund to the general fund of the Treasury for the estimated amount of refunds to employees who worked for more than one employer during a year and paid contributions on wages in excess of the contribution and benefit base.

Net contributions (including the general fund payments for offsetting tax credits and deemed military-service wage credits) amounted to $199,554 million, an increase of 6.7 percent over the amount in the preceding fiscal year. This level of growth in contribution income resulted primarily from the effects of (1) increased covered employment and earnings, and (2) the increases in the contribution and benefit base that became effective on January 1 of each year 1986 and 1987. (Table 1 in the preceding section shows the contribution and benefit bases that became effective for 1986 and 1987.)

Income from the taxation of benefits amounted to $3,323 million, of which 98 percent represented amounts credited to the trust fund in advance, on an estimated basis, together with adjustments to prior years' transfers to account for actual experience. The remaining 2 percent of the total income from taxation of benefits represented amounts withheld from the benefits paid to non-resident aliens.

Special payments are made to uninsured persons who either attained age 72 before 1968, or who attained age 72 after 1967 and had 3 quarters of coverage for each year after 1966 and before the year of attainment of age 72. The costs associated with providing such payments to persons having fewer than 3 quarters of coverage are reimbursable from the general fund of the Treasury. Accordingly, a reimbursement of $69 million was transferred to the OASI Trust Fund in fiscal year 1987, as required by section 228 of the Social Security Act. The reimbursement reflected the costs of payments made in fiscal year 1985.

Receipts totaling $3,870 million consisted of (1) interest earned on the investments of the trust fund; (2) interest on transfers from the general fund account for the Supplemental Security Income program due to adjustment in allocation of administrative expenses; less (3) interest arising from the revised allocation of administrative expenses among the trust funds; less (4) reimbursement to the general fund for interest costs resulting from the advance transfer of contributions.

Pursuant to section 606(c)(1) of the Covenant to Establish a Commonwealth of the Northern Mariana Islands in Political Union with the United States of America, assets of the NMI Social Security Retirement Fund were transferred to the Federal Social Security trust funds in fiscal year 1987. The amount of these assets transferred to the OASI Trust Fund was $29 million.

The remaining $454,002 of receipts consisted of gifts received under the provisions authorizing the deposit of money gifts or bequests in the trust funds.

Of the $186,101 million in total disbursements, $182,003 million was for net benefit payments, excluding collected overpayments of $721 million and the reimbursement of $52 million for unnegotiated benefit checks. The amount of net benefit payments in fiscal year 1987 represents an increase of 4.4 percent over the corresponding amount in fiscal year 1986. This increase was due primarily to (1) the automatic cost-of-living benefit increases of 3.1 percent and 1.3 percent which became effective for December 1985 and December 1986, respectively, under the automatic-adjustment provisions in section 215(i) of the Social Security Act, (2) an increase in the total number of beneficiaries, and (3)

an increase in the average benefit amount resulting from the rising level of earnings.

As described in the preceding section, certain provisions of the Railroad Retirement Act coordinate the Railroad Retirement and OASDI programs and govern the financial interchanges arising from the allocation of costs between the two programs. In accordance with those provisions, the Railroad Retirement Board and the Secretary of Health and Human Services determined that a transfer of $2,400 million to the Social Security Equivalent Benefit Account (SSEBA) from the OASI Trust Fund would place this trust fund in the same position as of September 30, 1986, in which it would have been if railroad employment had always been covered under Social Security. A total amount of $2,557 million was transferred to the SSEBA in June 1987, including interest to the date of transfer amounting to $157 million.

The remaining $1,541 million of disbursements from the OASI Trust Fund represented net administrative expenses. The expenses of administering the programs financed through the four trust funds (the OASI, DI, HI, and Supplementary Medical Insurance Trust Funds) are allocated and charged directly to each trust fund on the basis of provisional estimates. Similarly, the expenses of administering the Supplemental Security Income program are also allocated and charged directly to the general fund of the Treasury on a provisional basis. Periodically, as actual experience develops and is analyzed, adjustments to the allocations of administrative expenses for prior periods are effected by interfund transfers and transfers between the OASI Trust Fund and the general fund account for the Supplemental Security Income program, with appropriate interest adjustments.

Section 1131 of the Social Security Act authorizes annual reimbursements from the general fund of the Treasury to the OASI Trust Fund for additional administrative expenses incurred as a result of furnishing information on deferred vested benefits to pension plan participants, as required by the Employee Retirement Income Security Act of 1974 (Public Law 93-406). The reimbursement in fiscal year 1987 amounted to $690,778.

Net administrative expenses charged to the OASI and DI Trust Funds in fiscal year 1987 totaled $2,278 million. (The operations of the DI Trust Fund are presented in detail in the next subsection.) This amount represented 1.0 percent of contribution income and 1.1 percent of expenditures for benefit payments. Corresponding percentages for each trust fund separately and for the OASDI program as a whole are shown in table 3 for each of the last 5 years.

TABLE 3.—NET ADMINISTRATIVE EXPENSES AS A PERCENTAGE OF CONTRIBUTION INCOME AND OF BENEFIT PAYMENTS, BY TRUST FUND, FISCAL YEARS 1983-87

| Fiscal year | OASI Trust Fund | | DI Trust Fund | | Total | |
|---|---|---|---|---|---|---|
| | Contribution income | Benefit payments | Contribution income | Benefit payments | Contribution income | Benefit payments |
| 1983 | 1.1 | 1.0 | 3.5 | 3.8 | 1.4 | 1.3 |
| 1984 | 1.0 | 1.0 | 3.6 | 3.3 | 1.3 | 1.3 |
| 1985 | .9 | 1.0 | 3.6 | 3.2 | 1.1 | 1.2 |
| 1986 | .9 | .9 | 3.3 | 3.1 | 1.1 | 1.1 |
| 1987 | .8 | .8 | 3.8 | 3.6 | 1.0 | 1.1 |

In table 4, the actual amounts of contributions and benefit payments in fiscal year 1987 are compared to the corresponding estimated amounts which appeared in the 1986 and 1987 Annual Reports. The estimates shown are the ones based on the alternative II-B set of assumptions from each report. Actual OASI and DI contributions and benefit payments were reasonably close, relatively, to the estimates shown in both the 1986 and 1987 Annual Reports.

Reference was made in an earlier section to the appropriation of contributions to the trust funds on an estimated basis, with subsequent periodic adjustments to account for differences from the amounts of contributions actually payable on the basis of reported earnings. In interpreting the figures in table 4, it should be noted that the "actual" amount of contributions in fiscal year 1987 reflects the aforementioned adjustments to contributions for prior fiscal years. The "estimated" contributions in fiscal year 1987 also include the adjustments for prior years, but on an estimated basis.

TABLE 4.—COMPARISON OF ACTUAL AND ESTIMATED OPERATIONS OF THE OASI AND DI TRUST FUNDS, FISCAL YEAR 1987
[Amounts in millions]

| | OASI Trust Fund | | DI Trust Fund | |
|---|---|---|---|---|
| | Net contributions | Benefit payments[1] | Net contributions | Benefit payments[1] |
| Actual amount | $199,554 | $182,003 | $19,324 | $20,427 |
| Estimated amount published in 1986 report | $198,197 | $185,784 | $19,049 | $20,121 |
| Actual as percentage of estimate | 100.7 | 98.0 | 101.4 | 101.5 |
| Estimated amount published in 1987 report | $199,299 | $182,260 | $19,097 | $20,325 |
| Actual as percentage of estimate | 100.1 | 99.9 | 101.2 | 100.5 |

[1]Includes payments for vocational rehabilitation services furnished to disabled persons receiving benefits because of their disabilities.

At the end of fiscal year 1987, about 38.1 million persons were receiving monthly benefits under the OASDI program. Of these persons, about 34.1 million and 4.0 million were receiving monthly benefits from the OASI Trust Fund and the DI Trust Fund, respectively. The estimated distribution of benefit payments (before reflecting the reimbursement for unnegotiated checks) in fiscal years 1986 and 1987, by type of beneficiary, is shown in table 5 for each trust fund separately.

TABLE 5.—ESTIMATED DISTRIBUTION OF BENEFIT PAYMENTS FROM THE OASI AND DI TRUST FUNDS, BY TYPE OF BENEFICIARY OR PAYMENT, FISCAL YEARS 1986 AND 1987
[Amounts in millions]

| | Fiscal year 1986 | | Fiscal year 1987 | |
|---|---|---|---|---|
| | Amount | Percentage of total | Amount | Percentage of total |
| Total OASDI benefit payments | $193,890 | 100.0 | $202,477 | 100.0 |
| OASI benefit payments | 174,364 | 89.9 | 182,055 | 89.9 |
| DI benefit payments | 19,526 | 10.1 | 20,422 | 10.1 |
| OASI benefit payments, total | 174,364 | 100.0 | 182,055 | 100.0 |
| Monthly benefits: | | | | |
| Retired workers and auxiliaries | 133,943 | 76.8 | 140,050 | 76.9 |
| Retired workers | 121,798 | 69.9 | 127,374 | 70.0 |
| Wives and husbands | 10,988 | 6.3 | 11,495 | 6.3 |
| Children | 1,157 | .7 | 1,181 | .6 |
| Survivors of deceased workers | 40,168 | 23.0 | 41,763 | 22.9 |
| Aged widows and widowers | 30,410 | 17.4 | 32,030 | 17.6 |
| Disabled widows and widowers | 430 | .2 | 434 | .2 |
| Parents | 49 | (1) | 45 | (1) |
| Children | 7,815 | 4.5 | 7,852 | 4.3 |
| Widowed mothers and fathers caring for child beneficiaries | 1,465 | .8 | 1,402 | .8 |
| Uninsured persons generally aged 72 before 1968 | 49 | (1) | 38 | (1) |
| Lump-sum death payments | 204 | .1 | 204 | .1 |
| DI benefit payments, total | 19,526 | 100.0 | 20,422 | 100.0 |
| Disabled workers | 17,110 | 87.6 | 17,957 | 87.9 |
| Wives and husbands | 547 | 2.8 | 538 | 2.6 |
| Children | 1,869 | 9.6 | 1,927 | 9.4 |

[1]Less than 0.05 percent.

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

The assets of the OASI Trust Fund at the end of fiscal year 1987 totaled $58,265 million, consisting of $58,356 million in U.S. Government obligations and, as an offset, an extension of credit amounting to $91 million against securities to be redeemed within the following few days. Table 6 shows the total assets of the fund and their distribution at the end of each fiscal year 1986 and 1987.

TABLE 6.—ASSETS OF THE OASI TRUST FUND, BY TYPE, AT END OF FISCAL YEAR, 1986 AND 1987

| | September 30, 1986 | September 30, 1987 |
|---|---|---|
| Obligations sold only to the trust funds (special issues): | | |
| Certificates of indebtedness: | | |
| 7.250 percent, 1987 | $1,424,689,000.00 | — |
| 7.750 percent, 1987 | 174,724,000.00 | — |
| 9.000 percent, 1988 | — | $4,888,728,000.00 |
| Bonds: | | |
| 8.375 percent, 1987 | 2,144,094,000.00 | — |
| 8.375 percent, 1988 | 313,296,000.00 | — |
| 8.375 percent, 1989 | 313,296,000.00 | 313,296,000.00 |
| 8.375 percent, 1990 | 313,296,000.00 | 313,296,000.00 |
| 8.375 percent, 1991 | 313,295,000.00 | 313,295,000.00 |
| 8.375 percent, 1992 | 313,295,000.00 | 313,295,000.00 |

TABLE 6.—ASSETS OF THE OASI TRUST FUND, BY TYPE, AT END OF FISCAL YEAR, 1986 AND 1987 (Cont.)

| | September 30, 1986 | September 30, 1987 |
|---|---|---|
| Obligations sold only to the trust funds (special issues): (Cont.) | | |
| Bonds: (Cont.) | | |
| 8.375 percent, 1993 | $313,295,000.00 | $313,295,000.00 |
| 8.375 percent, 1994 | 313,295,000.00 | 313,295,000.00 |
| 8.375 percent, 1995 | 313,295,000.00 | 313,295,000.00 |
| 8.375 percent, 1996 | 313,295,000.00 | 313,295,000.00 |
| 8.375 percent, 1997 | 313,295,000.00 | 313,295,000.00 |
| 8.375 percent, 1998 | 313,295,000.00 | 313,295,000.00 |
| 8.375 percent, 1999 | 313,295,000.00 | 313,295,000.00 |
| 8.375 percent, 2000 | 2,370,396,000.00 | 2,370,396,000.00 |
| 8.375 percent, 2001 | — | 1,301,731,000.00 |
| 8.625 percent, 1989 | — | 1,301,731,000.00 |
| 8.625 percent, 1990 | — | 1,301,731,000.00 |
| 8.625 percent, 1991 | — | 1,301,731,000.00 |
| 8.625 percent, 1992 | — | 1,301,731,000.00 |
| 8.625 percent, 1993 | — | 1,301,731,000.00 |
| 8.625 percent, 1994 | — | 1,301,731,000.00 |
| 8.625 percent, 1995 | — | 1,301,731,000.00 |
| 8.625 percent, 1996 | — | 1,301,731,000.00 |
| 8.625 percent, 1997 | — | 1,301,731,000.00 |
| 8.625 percent, 1998 | — | 1,301,731,000.00 |
| 8.625 percent, 1999 | — | 1,301,731,000.00 |
| 8.625 percent, 2000 | — | 1,301,731,000.00 |
| 8.625 percent, 2001 | — | 3,672,127,000.00 |
| 8.625 percent, 2002 | 18,922,000.00 | — |
| 10.375 percent, 1987 | 2,057,101,000.00 | 2,057,101,000.00 |
| 10.375 percent, 1988 | 2,057,101,000.00 | 2,057,101,000.00 |
| 10.375 percent, 1989 | 2,057,101,000.00 | 2,057,101,000.00 |
| 10.375 percent, 1990 | 1,865,345,000.00 | 1,865,345,000.00 |
| 10.375 percent, 1991 | 565,186,000.00 | 565,186,000.00 |
| 10.375 percent, 1992 | 565,186,000.00 | 565,186,000.00 |
| 10.375 percent, 1993 | 565,186,000.00 | 565,186,000.00 |
| 10.375 percent, 1994 | 565,186,000.00 | 565,186,000.00 |
| 10.375 percent, 1995 | 565,186,000.00 | 565,186,000.00 |
| 10.375 percent, 1996 | 565,186,000.00 | 565,186,000.00 |
| 10.375 percent, 1997 | 565,186,000.00 | 565,186,000.00 |
| 10.375 percent, 1998 | 565,186,000.00 | 565,186,000.00 |
| 10.375 percent, 1999 | 2,057,101,000.00 | 2,057,101,000.00 |
| 10.375 percent, 2000 | 1,022,231,000.00 | 1,022,231,000.00 |
| 10.75 percent, 1992 | 1,022,231,000.00 | 1,022,231,000.00 |
| 10.75 percent, 1993 | 1,022,231,000.00 | 1,022,231,000.00 |
| 10.75 percent, 1994 | 1,022,231,000.00 | 1,022,231,000.00 |
| 10.75 percent, 1995 | 1,022,231,000.00 | 1,022,231,000.00 |
| 10.75 percent, 1996 | 1,022,230,000.00 | 1,022,230,000.00 |
| 10.75 percent, 1997 | 1,022,230,000.00 | 1,022,230,000.00 |
| 10.75 percent, 1998 | 191,756,000.00 | 191,756,000.00 |
| 13.75 percent, 1991 | 469,684,000.00 | 469,684,000.00 |
| 13.75 percent, 1992 | 469,684,000.00 | 469,684,000.00 |
| 13.75 percent, 1993 | 469,684,000.00 | 469,684,000.00 |
| 13.75 percent, 1994 | 469,684,000.00 | 469,684,000.00 |
| 13.75 percent, 1995 | 469,684,000.00 | 469,684,000.00 |
| 13.75 percent, 1996 | 469,685,000.00 | 469,685,000.00 |
| 13.75 percent, 1997 | 469,685,000.00 | 469,685,000.00 |
| 13.75 percent, 1998 | 1,491,915,000.00 | 1,491,915,000.00 |
| 13.75 percent, 1999 | 36,947,976,000.00 | 58,355,609,000.00 |
| Total investments | 571,402,083.59 | -90,867,407.08 |
| Undisbursed balances[1] | 37,519,378,083.59 | 58,264,741,592.92 |
| Total assets | | |

[1] Negative figure represented an extension of credit against securities to be redeemed within the following few days.

Note: Special issues are always purchased at par value. Therefore, book value and par value are the same for each special issue, and the common value is shown above.

All securities held by the OASI Trust Fund are special issues (i.e., securities sold only to the trust funds). These are of two types: short-term certificates of indebtedness and long-term bonds. The certificates of indebtedness are issued through the investment of receipts not required to meet current expenditures, and they mature on the next June 30 following the date of issue. Special-issue bonds, on the other hand, are normally acquired only when the certificates of indebtedness (and bonds, issued previously) mature on June 30. The amount of bonds acquired on June 30 is equal to the amount of special issues maturing, less amounts required to meet expenditures on that day.

Table 7 shows the investment transactions of the OASI and DI Trust Funds, separate and combined, in fiscal year 1987. All amounts shown in the table are at par value.

TABLE 7.—INVESTMENT TRANSACTIONS OF THE OASI AND DI TRUST FUNDS IN FISCAL YEAR 1987
[In thousands]

| | OASI Trust Fund | DI Trust Fund | Total |
|---|---|---|---|
| Invested assets, September 30, 1986 | $36,947,976 | $8,335,473 | $45,283,449 |
| Acquisitions: | | | |
| Certificates of indebtedness | 196,192,362 | 18,715,991 | 214,908,353 |
| Bonds | 21,896,361 | 441,383 | 22,337,744 |
| Total acquisitions | 218,088,723 | 19,157,374 | 237,246,097 |
| Dispositions: | | | |
| Certificates of indebtedness | 192,903,047 | 18,715,991 | 211,619,038 |
| Bonds | 3,778,043 | 1,584,017 | 5,362,060 |
| Total dispositions | 196,681,090 | 20,300,008 | 216,981,098 |
| Net increase in invested assets | 21,407,633 | -1,142,634 | 20,264,999 |
| Invested assets, September 30, 1987 | 58,355,609 | 7,192,839 | 65,548,448 |

Note: All investments are shown at par value. No transactions in the marketable securities held by the DI Trust Fund occurred during fiscal year 1987.

The effective annual rate of interest earned by the assets of the OASI Trust Fund during the 12 months ending on June 30, 1987, was 10.8 percent, as compared to 11.2 percent earned during the 12 months ending on June 30, 1986. (This period is used, rather than the fiscal year, because interest on special issues is paid semiannually on June 30 and December 31.) The interest rate on special issues purchased by the trust fund in June 1987 was 8.625 percent, payable semiannually. Special-issue bonds with a total par value of $21,896 million were purchased in June 1987.

Section 201(d) of the Social Security Act provides that the public-debt obligations issued for purchase by the OASI and DI Trust Funds shall have maturities fixed with due regard for the needs of the funds. The usual practice in the past has been to spread the holdings of special issues, as of each June 30, so that the amounts maturing in each of the next 15 years are approximately equal. Accordingly, the amounts and maturity dates of the special-issue bonds purchased on June 30, 1987, were selected in such a way that the maturity dates of the total portfolio of special issues were spread evenly over the 15-year period 1988-2002.

### *B. DISABILITY INSURANCE TRUST FUND*

A statement of the income and disbursements of the Federal Disability Insurance Trust Fund during fiscal year 1987, and of the assets of the fund at the beginning and end of the fiscal year, is presented in table 8.

TABLE 8.—STATEMENT OF OPERATIONS OF THE DI TRUST FUND DURING FISCAL YEAR 1987
[In thousands]

| | | |
|---|---|---|
| Total assets, September 30, 1986 | | $8,348,059 |
| Receipts: | | |
| Contributions: | | |
| Appropriations: | | |
| Employment taxes | $18,529,533 | |
| Tax credits | 153,627 | |
| Total appropriations | 18,683,161 | |
| Deposits arising from State agreements | 648,515 | |
| Payments from general fund of the Treasury representing employee-employer contributions on deemed wage credits for military service in 1987 | 20,526 | |
| Gross contributions | 19,352,202 | |
| Less payment to the general fund of the Treasury for contributions subject to refund | 28,570 | |
| Net contributions | | 19,323,632 |
| Income from taxation of benefit payments: | | |
| Withheld from benefit payments to non-resident aliens | 3,431 | |
| All other, not subject to withholding[1] | -19,000 | |
| Total income from taxation of benefits | | -15,569 |
| Investment income and interest adjustments: | | |
| Interest on investments | 793,661 | |
| Interest on interfund transfers due to adjustment in allocation of administrative expenses | 1,657 | |
| Gross investment income and interest adjustments | 795,318 | |
| Less interest on general fund advance tax transfers | 59,816 | |
| Net investment income and interest adjustments | | 735,502 |
| Income from the merger of the Northern Mariana Islands Social Security Retirement Fund with the United States Social Security program | | 2,834 |
| Gifts | | 137 |
| Total receipts | | 20,046,536 |
| Disbursements: | | |
| Benefit payments: | | |
| Gross benefit payments | 20,515,603 | |
| Less collected overpayments | 93,546 | |
| Less reimbursement for unnegotiated checks | 8,463 | |
| Net benefit payments | | 20,413,594 |
| Transfer to the Railroad Retirement "Social Security Equivalent Benefit Account" | | 56,895 |
| Payment for costs of vocational rehabilitation services for disabled beneficiaries | | 13,512 |
| Administrative expenses: | | |
| Department of Health and Human Services | 719,401 | |
| Department of the Treasury | 18,599 | |
| Gross administrative expenses | 738,000 | |
| Less receipts from sales of supplies, materials, etc. | 138 | |
| Net administrative expenses | | 737,862 |
| Total disbursements | | 21,221,862 |
| Net increase in assets | | -1,175,327 |
| Total assets, September 30, 1987 | | 7,172,732 |

[1]Reflects $195 million in transfers from the DI Trust Fund to the general fund of the Treasury to correct estimated amounts transferred for calendar years 1984 and 1985.

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

The total assets of the DI Trust Fund amounted to $8,348 million on September 30, 1986. During fiscal year 1987, total receipts amounted to

$20,047 million, and total disbursements were $21,222 million. The assets of the trust fund thus decreased by $1,175 million during the year, to a total of $7,173 million on September 30, 1987.

Included in total receipts were $18,683 million representing contributions appropriated to the fund (including transfers of $154 million from the general fund of the Treasury to offset the tax credits allowed against contributions due on earnings of self-employed persons), $649 million representing amounts received by the Secretary of the Treasury in accordance with State coverage agreements and deposited directly into the fund, and $21 million in payments from the general fund of the Treasury representing the contributions that would have been paid on estimated deemed wage credits for military service in 1987 if such credits had been considered to be covered wages. The $649 million deposited into the fund under State coverage agreements is much less than the amount deposited in the preceding fiscal year for the same reasons that apply to such deposits in the OASI Trust Fund (as described in the preceding subsection). As an offset, $29 million was transferred from the trust fund to the general fund of the Treasury for the estimated amount of refunds to employees who worked for more than one employer during a year and paid contributions on wages in excess of the contribution and benefit base.

Net contributions amounted to $19,324 million, an increase of 6.5 percent from the amount in the preceding fiscal year. This increase is primarily attributable to the same factors, insofar as they apply to the DI program, that accounted for the change in contributions to the OASI Trust Fund (described in the preceding subsection). Income from the taxation of benefit payments amounted to -$16 million in fiscal year 1987, representing the net of $179 million of such income offset by $195 million transferred to the general fund of the Treasury to correct estimated amounts transferred for calendar years 1984 and 1985.

Interest totaling $736 million consisted of interest on the investments of the fund, plus net interest on amounts of interfund and general-fund transfers (see preceding subsection).

Income from the merger of the Northern Mariana Islands Social Security Retirement Fund and the DI Trust Fund amounted to $3 million. The remaining $137,217 in receipts consisted of gifts to the fund.

Of the $21,222 million in total disbursements, $20,414 million was for net benefit payments, excluding collected overpayments of $94 million and the reimbursement of $8 million for unnegotiated benefit checks. This represents an increase of 4.6 percent over the corresponding amount of benefit payments in fiscal year 1986. This increase reflects somewhat the same factors that resulted in the net increase in benefit payments from the OASI Trust Fund (as described in the preceding subsection).

Provisions governing the financial interchanges between the Railroad Retirement and OASDI programs are described in a preceding section. The determination made as of September 30, 1986, required that a transfer of $53,400,000 be made from the DI Trust Fund to the Social Security Equivalent Benefit Account. A total amount of $56,895,000 was transferred to the SSEBA in June 1987, including interest to the date of transfer amounting to $3,495,000.

The remaining disbursements amounted to $738 million for net administrative expenses and $14 million for the costs of vocational rehabilitation services furnished to disabled-worker beneficiaries and to those children of disabled workers who were receiving benefits on the basis of disabilities that began before age 22. Reimbursement from the trust funds for the costs of such services is made only in those cases where the services contributed to the successful rehabilitation of the beneficiaries.

The assets of the DI Trust Fund at the end of fiscal year 1987 totaled $7,173 million, consisting of $7,192 million in U.S. Government obligations and, as an offset, an extension of credit amounting to $19 million against securities to be redeemed within the following few days. Table 9 shows the total assets of the fund and their distribution at the end of each fiscal year 1986 and 1987.

TABLE 9.—ASSETS OF THE DI TRUST FUND, BY TYPE, AT END OF FISCAL YEAR, 1986 AND 1987

| | September 30, 1986 | September 30, 1987 |
|---|---|---|
| Investments in public-debt obligations: | | |
| Public issues: | | |
| Treasury bonds: | | |
| 3.5 percent, 1990 | $10,500,000.00 | $10,500,000.00 |
| 3.5 percent, 1998 | 5,000,000.00 | 5,000,000.00 |
| 4.125 percent, 1989-94 | 68,400,000.00 | 68,400,000.00 |
| 4.25 percent, 1987-92 | 80,800,000.00 | 80,800,000.00 |
| 7.5 percent, 1988-93 | 26,500,000.00 | 26,500,000.00 |
| 7.625 percent, 2002-07 | 10,000,000.00 | 10,000,000.00 |
| 8 percent, 1996-2001 | 26,000,000.00 | 26,000,000.00 |
| 8.25 percent, 2000-05 | 3,750,000.00 | 3,750,000.00 |
| 11.75 percent, 2010 | 30,250,000.00 | 30,250,000.00 |
| Total investments in public issues at par value, as shown above | 261,200,000.00 | 261,200,000.00 |
| Unamortized premium or discount, net | -934,910.24 | -824,770.04 |
| Total investments in public issues at book value | 260,265,089.76 | 260,375,229.96 |
| Obligations sold only to the trust funds (special issues): | | |
| Bonds: | | |
| 8.375 percent, 1988 | 315,070,000.00 | — |
| 8.375 percent, 1989 | 223,049,000.00 | — |
| 8.375 percent, 1990 | 201,768,000.00 | 38,694,000.00 |
| 8.375 percent, 1991 | 201,767,000.00 | 201,767,000.00 |
| 8.375 percent, 1992 | 201,767,000.00 | 201,767,000.00 |
| 8.375 percent, 1993 | 201,767,000.00 | 201,767,000.00 |
| 8.375 percent, 1994 | 109,613,000.00 | 109,613,000.00 |
| 8.375 percent, 1995 | 109,613,000.00 | 109,613,000.00 |
| 8.375 percent, 1996 | 201,767,000.00 | 201,767,000.00 |
| 8.375 percent, 1997 | 201,767,000.00 | 201,767,000.00 |
| 8.375 percent, 1998 | 201,767,000.00 | 201,767,000.00 |
| 8.375 percent, 1999 | 201,767,000.00 | 201,767,000.00 |
| 8.375 percent, 2000 | 591,226,000.00 | 591,226,000.00 |
| 8.375 percent, 2001 | 47,479,000.00 | 47,479,000.00 |
| 8.75 percent, 1993 | 339,277,000.00 | 339,277,000.00 |
| 8.75 percent, 1994 | 142,337,000.00 | 142,337,000.00 |
| 9.75 percent, 1993 | 142,336,000.00 | 142,336,000.00 |
| 9.75 percent, 1994 | 481,613,000.00 | 481,613,000.00 |
| 9.75 percent, 1995 | | |

TABLE 9.—ASSETS OF THE DI TRUST FUND, BY TYPE, AT END OF FISCAL YEAR, 1986 AND 1987 (Cont.)

| | September 30, 1986 | September 30, 1987 |
|---|---|---|
| Investments in public-debt obligations: (Cont.) | | |
| Obligations sold only to the trust funds (special issues): (Cont.) | | |
| Bonds: (Cont.) | | |
| 10.375 percent, 1988 | $73,263,000.00 | — |
| 10.375 percent, 1989 | 368,178,000.00 | — |
| 10.375 percent, 1990 | 177,111,000.00 | $177,111,000.00 |
| 10.375 percent, 1991 | 101,503,000.00 | 101,503,000.00 |
| 10.375 percent, 1992 | 101,503,000.00 | 101,503,000.00 |
| 10.375 percent, 1993 | 101,503,000.00 | 101,503,000.00 |
| 10.375 percent, 1996 | 101,504,000.00 | 101,504,000.00 |
| 10.375 percent, 1997 | 101,504,000.00 | 101,504,000.00 |
| 10.375 percent, 1998 | 101,504,000.00 | 101,504,000.00 |
| 10.375 percent, 1999 | 152,904,000.00 | 152,904,000.00 |
| 10.375 percent, 2000 | 389,459,000.00 | 389,459,000.00 |
| 10.75 percent, 1990 | 212,348,000.00 | 212,348,000.00 |
| 10.75 percent, 1991 | 287,956,000.00 | 287,956,000.00 |
| 10.75 percent, 1992 | 287,956,000.00 | 287,956,000.00 |
| 10.75 percent, 1993 | 98,140,000.00 | 98,140,000.00 |
| 10.75 percent, 1996 | 287,955,000.00 | 287,955,000.00 |
| 10.75 percent, 1997 | 287,955,000.00 | 287,955,000.00 |
| 10.75 percent, 1998 | 287,955,000.00 | 287,955,000.00 |
| 13.75 percent, 1999 | 236,555,000.00 | 236,555,000.00 |
| Total obligations sold only to the trust funds (special issues) | 8,074,273,000.00 | 6,931,639,000.00 |
| Total investments in public-debt obligations (book value[1]) | 8,334,538,089.76 | 7,192,014,229.96 |
| Undisbursed balances[2] | 13,520,558.71 | -19,282,218.00 |
| Total assets (book value[1]) | 8,348,058,648.47 | 7,172,732,011.96 |

[1]Par value, plus unamortized premium or less discount outstanding.

[2]Negative figure represented an extension of credit against securities to be redeemed within the following few days.

Note: Special issues are always purchased at par value. Therefore, book value and par value are the same for each special issue, and the common value is shown above.

The effective annual rate of interest earned by the assets of the DI Trust Fund during the 12 months ending on June 30, 1987, was 9.9 percent, as compared to 10.2 percent earned during the 12 months ending on June 30, 1986. The interest rate on public-debt obligations issued for purchase by the trust fund in June 1987 was 8.625 percent, payable semiannually. Special-issue bonds with a total par value of $441 million were purchased in June 1987.

The investment policies and practices described in the preceding subsection concerning the OASI Trust Fund apply as well to the investment of the assets of the DI Trust Fund.

## V. ACTUARIAL ESTIMATES

Section 201(c)(2) of the Social Security Act requires the Board of Trustees to report annually to the Congress on the operations and status of the OASI and DI Trust Funds during the preceding fiscal year and on the expected operations and status of those trust funds during the ensuing 5 fiscal years. Such information for the fiscal year that ended September 30, 1987, is presented in the preceding section of this report. Estimates of the operations and status of the trust funds during fiscal years 1988-92 are presented in this section. Similar estimates for calendar years 1988-92 are also presented.

In the short range, the adequacy of the trust fund level is often measured by the "contingency fund ratio," which is defined to be the assets at the beginning of the year, including advance tax transfers for January, expressed as a percentage of the outgo during the year. (For the years 1983-86, the assets at the beginning of the year also included amounts owed or excluded amounts lent, to another trust fund.) Thus, this ratio represents the proportion of the year's outgo which is available at the beginning of the year. During periods when outgo temporarily exceeds income, as might happen during an economic recession, trust fund assets are used to meet the shortfall. In the event of recurring shortfalls for an extended period, the trust funds can allow sufficient time for the development and enactment of legislation to restore financial balance to the program.

Section 201(c) of the Act also requires that the annual report include "a statement of the actuarial status of the Trust Funds." Such statements have customarily been made for the medium-range valuation period (25 years) and the long-range valuation period (75 years), each period commencing with the calendar year of issuance of the report. The statement of the long-range actuarial status has customarily included the actuarial status during the second and third 25-year subperiods of the long-range projection period. Statements of the current actuarial status are presented in this section. The methods used to estimate the short-range operations of the trust funds and the actuarial status are described in Appendix A.

Basic to the discussion of the actuarial status are the concepts of "income rate" and "cost rate," each of which is expressed as a percentage of taxable payroll. The OASDI taxable payroll consists of the total earnings which are subject to OASDI taxes, adjusted to include, after 1982, deemed wages based on military service, and to reflect the lower effective tax rates (as compared to the combined employee-employer rate) which apply to multiple-employer "excess wages," and which did apply, before 1984, to net earnings from self-employment and, before 1988, to tips. Because the taxable payroll reflects these adjustments, the income rate can be defined to be the sum of the OASDI combined employee-employer contribution rate (or the payroll-tax rate) scheduled in the law and the rate of income from taxation of benefits (which is in turn expressed as a percentage of taxable payroll). As such, it excludes reimbursements from the general fund of the Treasury for the costs associated with special monthly payments to certain uninsured persons who attained age 72 before 1968 and who have fewer than 3

quarters of coverage, transfers under the interfund borrowing provisions, and net investment income. The cost rate is the ratio of the cost (or outgo or disbursements) of the program to the taxable payroll. In this context, the outgo is defined to include benefit payments, special monthly payments to certain uninsured persons who have 3 or more quarters of coverage (and whose payments are therefore not reimbursable from the general fund of the Treasury), administrative expenses, net transfers from the trust funds to the Railroad Retirement program under the financial-interchange provisions, and payments for vocational rehabilitation services for disabled beneficiaries; it excludes special monthly payments to certain uninsured persons whose payments are reimbursable from the general fund of the Treasury (as described above), and transfers under the interfund borrowing provisions. For any year, the income rate minus the cost rate is referred to as the "balance" for the year.

The long-range financial status of the trust funds has often been summarized by the calculation of the actuarial balance. This is defined as the difference between the income rate and the cost rate over the long-range period—i.e., the next 75 years. If the actuarial balance is estimated to be negative, the program is said to have an actuarial deficit. Such deficit, when estimated, serves as a warning that, unless the projections turn out to be too pessimistic, changes in the program's financing or benefit provisions will be needed in the future.

A more accurate basis for calculating the actuarial balance is being introduced in this report. This new basis (known as "level-financing"), although different from the one that has been used since 1973 (known as "average-cost"), is similar to the basis used in reports prior to 1973. So as to fully document in this report the effect of the change in the calculation basis, the summarization of the projections into the actuarial balances are presented under the new ("level-financing") calculations and also the previous ("average-cost") calculations.

In the early 1970s the estimated actuarial balances were similar under either of the two calculations, but the balances began to diverge gradually as the assumptions underlying the projections were modified and as sizable fund balances were projected to accumulate. The Board has opted to shift its attention to the new "level-financing" calculations in order to fully recognize the interest earnings on the funds that are projected to accumulate and also to provide a higher level of consistency among the measures of financial soundness applied to the program.

The "average-cost" calculations consist of both the simple arithmetic averages of the annual cost rates and income rates and the difference between these two averages to obtain the actuarial balance. The "level-financing" calculations on the other hand, are based on the present value of future income, outgo, and taxable payroll. The present value is calculated by discounting the future annual amounts at the assumed rate of interest. The income and cost rates over the projection period are then obtained by dividing the present value of the taxable payroll into the present values of income and outgo, respectively. The difference between the income rate and cost rate over the long-range projection period, after an adjustment to take into account the fund balance at the valuation date, is computed to obtain the long-range actuarial balance.

The "average-cost" methodology, used in last year's report, gives the same weight to projected values for a distant year in the future as to values projected for the coming year.

Proper weighting should reflect two items which in many past projections approximately offset each other: the growth of taxable payroll and the real interest rate. Because people value a dollar receivable fifty years in the future less than a dollar available today, future receipts are discounted by an interest rate that would make them equivalent to a dollar received today. However, because the actuarial balance is calculated in terms of a percentage of payroll, the expectation that future payrolls will be substantially larger than current ones is not explicitly taken into account in the average-cost measure. Thus, implicitly the average-cost methodology discounts future receipts and payments by the growth rate of payroll. In more recent reports, the projected rate of growth in taxable payroll has fallen relative to the assumed real interest rate; for example, under alternative II-B, the projected growth rate in taxable payroll is 1.5 percent per year, as compared with an assumed real interest rate of 2.0 percent per year. As a result, it has become important to revert to the "level-financing" methodology.

Because the trust fund's positive balances occur substantially sooner than the deficits, the "level-financing" methodology gives them a larger weight, and hence its use implies an improvement in the actuarial balance over the 75-year period of this report.

Related to the concept of actuarial balance is that of "close actuarial balance." The program is said to be in close actuarial balance for the long-range period if the income rate over the 75-year projection period is between 95 percent and 105 percent of the cost rate over that period. This definition can be applied under either the "average-cost" or the "level-financing" calculations. However, it should be noted that a single measure over a long period, such as the actuarial balance, may not reveal problems which could occur during that period. Thus, other measures should also be considered.

Unlike the "average-cost" calculations, the new "level-financing" calculations result in estimated actuarial balances that are sensitive to changes in the assumed rate of interest whenever the projected annual balances vary significantly through time, as is the case with the projections presented in this report. As shown in Appendix B, a change of one percentage point in the assumed rate of interest would change the estimated long-range actuarial balance by about 0.5 percent of taxable payroll based on alternative II-B assumptions.

The Board is also of the opinion that decisions about the future of the OASDI program should not be based solely on the estimated long-range actuarial balance. This particular concept, although useful in the decision-making process, does not fully capture all of the information that may be necessary for arriving at appropriate decisions. Attention should also be given to: (1) the pattern and ultimate levels of projected annual cost rates and income rates (particularly to the differences between these two, which have been previously defined as annual balances), (2) the size of future fund accumulations (particularly to the year and amount of maximum projected fund ratio and the year and

amount of maximum funds in dollars), and (3) the year of projected fund exhaustion. Estimates of these indicators are presented later in this section or in Appendix G.

Under some measures, the system may be out of close actuarial balance because of projected deficits in the very long run, while benefits are payable for many years into the future, and immediate action is not required.

Because the program is entering a period of large fund accumulation, the Board believes that the subject of the proper level of fund accumulation should be made a specific part of the agenda for the next Social Security Advisory Council. The Board particularly requests that a Panel of Financing Experts (consisting of actuaries, economists, and demographers) be appointed by the Advisory Council, and that the panel be instructed to provide advice regarding the measures that should be used to judge the program's short-range and long-range financial soundness.

### *A. ECONOMIC AND DEMOGRAPHIC ASSUMPTIONS*

The future income and outgo of the OASDI program depend on many economic and demographic factors, including gross national product, labor force, unemployment, average earnings, productivity, inflation, fertility, mortality, net immigration, marriage, divorce, retirement patterns, and disability incidence and termination. The income will depend on how these factors affect the size and composition of the working population and the general level of earnings. Similarly, the outgo will depend on how these factors affect the size and composition of the beneficiary population and the general level of benefits.

Because precise forecasting of these various factors is impossible, estimates are shown in this report on the basis of four sets of assumptions, designated as alternatives I, II-A, II-B, and III. The two intermediate sets—alternatives II-A and II-B—share the same demographic assumptions but differ in their economic assumptions. More robust economic growth is assumed for alternative II-A than for alternative II-B. This presentation illustrates the effect on the financial status of the program of higher real earnings growth, higher employment, and lower inflation, for a given set of demographic assumptions. In terms of the net effect on the status of the program, alternative II-A is more optimistic than is alternative II-B. Of all four sets, alternative I is the most optimistic, and alternative III is the most pessimistic.

Although these sets of economic and demographic assumptions have been developed using the best available information, the resulting estimates should be interpreted with care. In particular, they are not intended to be exact predictions of the future status of the OASDI program, but rather, they are intended to be indicators of the trend and range of future income and outgo, under a variety of plausible economic and demographic conditions.

*Economic assumptions*

The principal economic assumptions for the four alternatives are summarized in table 10.

TABLE 10.—SELECTED ECONOMIC ASSUMPTIONS BY ALTERNATIVE, CALENDAR YEARS 1960-2065

| Calendar year | Average annual percentage increase in— | | | Real-wage differential[3] (percent) | Average annual interest rate[4] (percent) | Average annual unemployment rate[5] (percent) |
|---|---|---|---|---|---|---|
| | Real GNP[1] | Average wages in covered employment | Consumer Price Index[2] | | | |
| Past experience: | | | | | | |
| 1960-64 | 3.9 | 3.4 | 1.3 | 2.1 | 3.7 | 5.7 |
| 1965-69 | 4.4 | 5.4 | 3.4 | 2.0 | 5.2 | 3.8 |
| 1970-74 | 2.4 | 6.3 | 6.1 | .2 | 6.7 | 5.4 |
| 1975 | -1.3 | 6.7 | 9.1 | -2.5 | 7.4 | 8.5 |
| 1976 | 4.9 | 8.5 | 5.7 | 2.8 | 7.1 | 7.7 |
| 1977 | 4.7 | 7.2 | 6.5 | .7 | 7.1 | 7.1 |
| 1978 | 5.3 | 9.7 | 7.6 | 2.1 | 8.2 | 6.1 |
| 1979 | 2.5 | 9.2 | 11.4 | -2.2 | 9.1 | 5.8 |
| 1980 | -.2 | 9.1 | 13.5 | -4.4 | 11.0 | 7.1 |
| 1981 | 1.9 | 9.3 | 10.3 | -1.0 | 13.3 | 7.6 |
| 1982 | -2.5 | 6.5 | 6.0 | .6 | 12.8 | 9.7 |
| 1983 | 3.6 | *4.9 | 3.0 | *1.8 | 11.0 | 9.6 |
| 1984 | 6.8 | *5.7 | 3.4 | *2.3 | 12.4 | 7.5 |
| 1985 | 3.0 | *4.3 | 3.5 | *.7 | 10.8 | 7.2 |
| 1986 | 2.9 | *4.4 | 1.6 | *2.8 | 8.0 | 7.0 |

TABLE 10.—SELECTED ECONOMIC ASSUMPTIONS BY ALTERNATIVE, CALENDAR YEARS 1960-2065 (Cont.)

| Calendar year | Average annual percentage increase in— Real GNP[1] | Average wages in covered employment | Consumer Price Index[2] | Real-wage differential[3] (percent) | Average annual interest rate[4] (percent) | Average annual unemployment rate[5] (percent) |
|---|---|---|---|---|---|---|
| Alternative I: | | | | | | |
| 1987 | 2.9 | 3.0 | 3.6 | -0.6 | 8.4 | 6.2 |
| 1988 | 3.5 | 5.4 | 3.3 | 2.1 | 8.3 | 5.8 |
| 1989 | 3.6 | 5.7 | 3.2 | 2.4 | 8.4 | 5.8 |
| 1990 | 3.9 | 5.6 | 3.0 | 2.5 | 7.8 | 5.5 |
| 1991 | 3.7 | 5.1 | 2.7 | 2.5 | 7.1 | 5.3 |
| 1992 | 3.5 | 4.6 | 2.2 | 2.4 | 6.4 | 5.1 |
| 1993 | 3.5 | 4.4 | 2.0 | 2.4 | 5.6 | 4.9 |
| 1994 | 3.3 | 4.4 | 2.0 | 2.4 | 4.9 | 4.8 |
| 1995 | 3.0 | 4.3 | 2.0 | 2.3 | 4.8 | 4.8 |
| 1996 | 3.0 | 4.3 | 2.0 | 2.3 | 4.9 | 4.8 |
| 1997 | 3.0 | 4.3 | 2.0 | 2.3 | 5.0 | 4.8 |
| 2000 | 3.2 | 4.5 | 2.0 | 2.4 | 5.0 | 5.0 |
| 2010 & later.. | [7]2.8 | 4.4 | 2.0 | 2.4 | 5.0 | 5.0 |
| Alternative II-A: | | | | | | |
| 1987 | 2.9 | 3.0 | 3.6 | -.6 | 8.4 | 6.2 |
| 1988 | 2.9 | 5.1 | 3.6 | 1.5 | 8.4 | 5.9 |
| 1989 | 3.1 | 5.7 | 3.9 | 1.8 | 8.8 | 6.0 |
| 1990 | 3.5 | 5.6 | 3.6 | 2.0 | 8.4 | 5.7 |
| 1991 | 3.4 | 5.2 | 3.2 | 2.0 | 7.8 | 5.5 |
| 1992 | 3.1 | 5.0 | 3.0 | 2.0 | 7.0 | 5.4 |
| 1993 | 2.8 | 4.9 | 3.0 | 1.9 | 6.4 | 5.3 |
| 1994 | 2.8 | 4.9 | 3.0 | 1.9 | 5.9 | 5.3 |
| 1995 | 2.7 | 4.9 | 3.0 | 1.9 | 5.7 | 5.3 |
| 1996 | 2.7 | 4.9 | 3.0 | 1.9 | 5.6 | 5.3 |
| 1997 | 2.7 | 4.9 | 3.0 | 1.9 | 5.6 | 5.3 |
| 2000 | 2.6 | 5.0 | 3.0 | 1.9 | 5.5 | 5.5 |
| 2010 & later.. | [7]2.3 | 4.9 | 3.0 | 1.9 | 5.5 | 5.5 |
| Alternative II-B: | | | | | | |
| 1987 | 2.9 | 3.0 | 3.6 | -.6 | 8.4 | 6.2 |
| 1988 | 2.5 | 4.8 | 3.9 | .9 | 8.4 | 6.0 |
| 1989 | 2.8 | 5.6 | 4.5 | 1.1 | 9.1 | 6.2 |
| 1990 | 2.9 | 5.4 | 4.3 | 1.1 | 8.9 | 6.1 |
| 1991 | 2.8 | 5.4 | 4.2 | 1.3 | 8.6 | 6.0 |
| 1992 | 2.7 | 5.7 | 4.0 | 1.7 | 7.8 | 5.9 |
| 1993 | 2.6 | 5.6 | 4.0 | 1.6 | 7.4 | 5.8 |
| 1994 | 2.4 | 5.6 | 4.0 | 1.6 | 6.9 | 5.8 |
| 1995 | 2.3 | 5.5 | 4.0 | 1.5 | 6.6 | 5.8 |
| 1996 | 2.3 | 5.5 | 4.0 | 1.5 | 6.4 | 5.8 |
| 1997 | 2.3 | 5.5 | 4.0 | 1.5 | 6.2 | 5.7 |
| 2000 | 2.2 | 5.5 | 4.0 | 1.4 | 6.0 | 6.0 |
| 2010 & later.. | [7]1.9 | 5.4 | 4.0 | 1.4 | 6.0 | 6.0 |
| Alternative III: | | | | | | |
| 1987 | 2.8 | 3.0 | 3.6 | -.6 | 8.4 | 6.2 |
| 1988 | -.1 | 3.4 | 4.4 | -1.0 | 8.6 | 8.5 |
| 1989 | .9 | 5.8 | 5.9 | -.1 | 9.7 | 7.5 |
| 1990 | 2.4 | 6.6 | 6.4 | .1 | 10.3 | 7.2 |
| 1991 | 1.2 | 5.9 | 6.3 | -.4 | 10.5 | 7.1 |
| 1992 | -.6 | 4.8 | 5.0 | -.3 | 9.7 | 8.2 |
| 1993 | 3.2 | 6.9 | 5.3 | 1.6 | 8.9 | 7.6 |
| 1994 | 2.4 | 6.0 | 5.0 | 1.0 | 8.0 | 7.2 |
| 1995 | 2.1 | 6.0 | 5.0 | 1.0 | 7.6 | 7.0 |
| 1996 | 1.9 | 6.0 | 5.0 | 1.0 | 7.2 | 6.8 |
| 1997 | 1.9 | 6.0 | 5.0 | 1.0 | 6.8 | 6.7 |
| 2000 | 1.8 | 6.0 | 5.0 | .9 | 6.5 | 7.0 |
| 2010 & later.. | [7]1.3 | 5.9 | 5.0 | .9 | 6.5 | 7.0 |

[1]The real GNP (gross national product) is the total output of goods and services, expressed in 1982 dollars.

[2]The Consumer Price Index is the average of the 12 monthly values of the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

[3]The real-wage differential is the difference between the percentage increases, before rounding, in (1) average annual wages in covered employment, and (2) the average annual Consumer Price Index.

[4]The average annual interest rate is the average of the nominal interest rates, which, in practice, are compounded semiannually, for special public-debt obligations issuable to the trust funds in each of the 12 months of the year.

[5]Through 1997, the rates shown are crude civilian unemployment rates. After 1997, the rates are total rates (including military personnel), adjusted by age and sex based on the estimated total labor force on July 1, 1987.

[6]Preliminary.

[7]This value is for 2010. The annual percentage increase in real GNP is assumed to continue to change after 2010 for each alternative to reflect the dependence of labor force growth on the size and age-sex distribution of the population. The increases for 2065 are 2.9, 2.0, 1.6, and 0.6 percent for alternatives I, II-A, II-B, and III, respectively.

Alternatives I, II-A, II-B, and III present a range of generally consistent sets of economic assumptions which have been designed to encompass most of the possibilities that might be encountered. Alternative I presents the most optimistic outlook, with robust economic growth and low inflation. The intermediate sets of assumptions—alternatives II-A and II-B—bracket the current consensus view of moderate growth and inflation for the first few years; thereafter, alternative II-A continues to reflect more robust economic growth than does alternative II-B. Alternative III is a pessimistic forecast in which the economy experiences two recessions during the next 10 years. The total declines in real GNP for the projected recessions in alternative III are slightly less than those of recent recessions; however, the intervening recoveries are assumed to be substantially weaker than those experienced in the recent past. This scenario presents an assessment of the combined effects on the OASDI program of business cycles and generally weak economic growth.

The period of economic growth, which began in the first quarter of 1983, is assumed to continue through the end of the decade under alternatives I, II-A, and II-B. Real GNP is assumed to be stronger for alternative I than for alternative II-A. Similarly, growth for alternative II-A is stronger than that for alternative II-B.

For alternative III, the recovery is assumed to have faded during the first quarter of 1988; a recession is assumed to occur during the balance of 1988. After 9 quarters of recovery, a second recession is assumed to begin in the second quarter of 1991, lasting through the first quarter of 1992.

For each of the alternatives I, II-A, and II-B, the unemployment rate is assumed to decline gradually toward its ultimate level. For alternative III, the unemployment rate is assumed to reach its ultimate level after the recovery that is assumed to follow the second recession. After the early 1990s, the projected rates of growth in real GNP, for all four alternatives, are determined by the assumed rates of growth in employment, average hours worked, and productivity.

Assumed values for the other economic variables are consistent with the assumed rates of real GNP growth. For alternative II-A, the average annual unemployment rate declines from 6.2 percent in 1987 to its ultimate level of 5.5 percent (age-sex adjusted to the 1987 labor force) by the year 2000. The annual rate of increase in average wages in covered employment is assumed to rise from the assumed 3.0-percent increase in 1987 to a 5.7-percent increase in 1989, and thereafter to decline gradually to its ultimate rate of 4.9 percent by 2010. The annual rate of increase in the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) is assumed to rise from 3.6 percent in 1987 to 3.9 percent in 1989, and then to decline to an ultimate rate of 3.0 percent in 1992. The CPI-W (hereinafter denoted as "CPI") is used to determine automatic cost-of-living benefit increases under the OASDI program. The real-wage differential (i.e., the difference between the annual rates of increase in average wages in covered employment and in the CPI) is assumed to remain between 1.5 and 2.0 percentage points after 1987, reaching its ultimate value of 1.9 percentage points by 2010. The annual interest rate is assumed to reach its ultimate value of 5.5 percent by 1998.

For alternative II-B, the average annual unemployment rate declines generally to its ultimate level of 6.0 percent by 2000. The annual rate of increase in average wages in covered employment is assumed to rise from the assumed 3.0-percent increase in 1987 to 5.7 percent in 1992, and then to decline generally to its ultimate rate of 5.4 percent by 2010. The annual rate of increase in the CPI is assumed to rise from 3.6 percent in 1987 to 4.5 percent in 1989, and then to decline to an ultimate rate of 4.0 percent in 1992. The real-wage differential is assumed to remain between 0.9 and 1.7 percentage points after 1987, reaching its ultimate value of 1.4 percentage points by 2010. The annual interest rate is assumed to decline to its ultimate value of 6.0 percent by 1998.

*Demographic assumptions*

The principal demographic assumptions for the four alternatives are shown in table 11.

The demographic assumptions for alternatives II-A and II-B are identical. The assumed ultimate total fertility rate of 1.9 children per woman is attained in 2012, after a gradual increase from the 1987 level of 1.87 children per woman. The age-sex-adjusted death rate is assumed to decrease gradually during the entire projection period, with a reduction of 36 percent from the 1986 level by 2060. The resulting life expectancies at birth in 2060 are 77.3 years for men and 83.9 years for women, compared to 71.3 and 78.4 years, respectively, in 1986. Life expectancies at age 65 in 2060 are projected to be 17.8 years for men and 22.4 years for women, compared to 14.8 and 18.7 years, respectively, in 1986. The projected death rates reflect the effects of Acquired Immunodeficiency Syndrome (AIDS), based on projections through 1991 prepared by the Centers for Disease Control. Pending further analysis and study of the developing nature of this syndrome, no new infections of the Human Immunodeficiency Virus (HIV—the precursor to AIDS) are assumed to occur after 1991. Total net immigration is assumed to be 600,000 persons per year. The assumed level of net annual immigration is the combination of 400,000 net legal immigrants per year and 200,000 net other-than-legal immigrants per year.

For alternative I, the total fertility rate is assumed to reach an ultimate level of 2.2 children per woman in 2012. The age-sex-adjusted death rate is assumed to decrease more slowly than for alternatives II-A and II-B, with the reduction from the 1986 level being 20 percent by 2060. The resulting life expectancies at birth in 2060 are 74.7 years for men and 81.0 years for women, while at age 65 they are 16.1 and 20.3 years, respectively. Total net immigration is assumed to be 750,000 persons per year. The assumed level of net annual immigration is the combination of 450,000 net legal immigrants per year and 300,000 net other-than-legal immigrants per year.

For alternative III, the total fertility rate is assumed to decrease from the estimated 1985 level to an ultimate level of 1.6 in 2012. The age-sex-adjusted death rate is assumed to decrease more rapidly than for alternatives II-A and II-B, with the reduction from the 1986 level being 56 percent by 2060. The resulting life expectancies at birth in 2060 are 81.7 years for men and 88.1 years for women, while at age 65 they are 20.8 and 25.5 years, respectively. Total net immigration is assumed to be

450,000 persons per year. The assumed level of net annual immigration is the combination of 350,000 net legal immigrants per year and 100,000 net other-than-legal immigrants per year.

TABLE 11.—SELECTED DEMOGRAPHIC ASSUMPTIONS BY ALTERNATIVE, CALENDAR YEARS 1940-2065

| Calendar year | Total fertility rate[1] | Age-sex-adjusted death rate[2] (per 100,000) | Life expectancy[3] | | | |
|---|---|---|---|---|---|---|
| | | | At birth | | At age 65 | |
| | | | Male | Female | Male | Female |
| Past experience: | | | | | | |
| 1940 | 2.23 | 1,532.8 | 61.4 | 65.7 | 11.9 | 13.4 |
| 1945 | 2.42 | 1,366.4 | 62.9 | 68.4 | 12.6 | 14.4 |
| 1950 | 3.03 | 1,225.3 | 65.6 | 71.1 | 12.8 | 15.1 |
| 1955 | 3.50 | 1,134.2 | 66.7 | 72.8 | 13.1 | 15.6 |
| 1960 | 3.61 | 1,128.6 | 66.7 | 73.2 | 12.9 | 15.9 |
| 1965 | 2.88 | 1,103.6 | 66.8 | 73.8 | 12.9 | 16.3 |
| 1970 | 2.43 | 1,041.8 | 67.1 | 74.9 | 13.1 | 17.1 |
| 1975 | 1.77 | 934.0 | 68.7 | 76.6 | 13.7 | 18.0 |
| 1976 | 1.74 | 923.2 | 69.1 | 76.8 | 13.7 | 18.1 |
| 1977 | 1.80 | 898.0 | 69.4 | 77.2 | 13.9 | 18.3 |
| 1978 | 1.76 | 892.4 | 69.6 | 77.3 | 13.9 | 18.3 |
| 1979 | 1.82 | 864.2 | 70.0 | 77.7 | 14.2 | 18.6 |
| 1980 | 1.85 | 878.0 | 69.9 | 77.5 | 14.0 | 18.4 |
| 1981 | 1.83 | 853.4 | 70.4 | 77.9 | 14.2 | 18.8 |
| 1982 | 1.83 | 827.8 | 70.8 | 78.2 | 14.5 | 18.8 |
| 1983 | 1.81 | 835.0 | 70.9 | 78.1 | 14.3 | 18.6 |
| 1984 | 1.80 | 828.2 | 71.1 | 78.2 | 14.4 | 18.7 |
| 1985 | 1.84 | 829.6 | 71.1 | 78.3 | 14.4 | 18.8 |
| 1986 | 1.83 | 814.1 | 71.3 | 78.4 | 14.8 | 18.7 |
| 1987[4] | 1.87 | 804.6 | 71.5 | 78.5 | 14.9 | 18.8 |
| Alternative I: | | | | | | |
| 1988 | 1.88 | 803.1 | 71.5 | 78.6 | 14.9 | 18.8 |
| 1990 | 1.91 | 799.5 | 71.5 | 78.7 | 14.9 | 18.8 |
| 1995 | 1.98 | 802.0 | 70.9 | 78.8 | 15.0 | 18.9 |
| 2000 | 2.04 | 795.2 | 70.9 | 78.9 | 15.0 | 18.9 |
| 2005 | 2.11 | 756.6 | 72.4 | 79.3 | 15.1 | 19.0 |
| 2010 | 2.17 | 735.0 | 73.1 | 79.6 | 15.2 | 19.1 |
| 2015 | 2.20 | 723.7 | 73.4 | 79.7 | 15.3 | 19.3 |
| 2020 | 2.20 | 714.4 | 73.5 | 79.9 | 15.4 | 19.4 |
| 2025 | 2.20 | 705.5 | 73.7 | 80.0 | 15.5 | 19.5 |
| 2030 | 2.20 | 696.8 | 73.8 | 80.2 | 15.6 | 19.6 |
| 2035 | 2.20 | 688.4 | 74.0 | 80.3 | 15.7 | 19.7 |
| 2040 | 2.20 | 680.2 | 74.1 | 80.4 | 15.8 | 19.8 |
| 2045 | 2.20 | 672.2 | 74.3 | 80.6 | 15.9 | 19.9 |
| 2050 | 2.20 | 664.5 | 74.4 | 80.7 | 16.0 | 20.0 |
| 2055 | 2.20 | 656.9 | 74.5 | 80.8 | 16.0 | 20.1 |
| 2060 | 2.20 | 649.5 | 74.7 | 81.0 | 16.1 | 20.3 |
| 2065 | 2.20 | 642.3 | 74.8 | 81.1 | 16.2 | 20.4 |
| Alternative II-A and II-B: | | | | | | |
| 1988 | 1.87 | 802.9 | 71.6 | 78.7 | 14.9 | 18.9 |
| 1990 | 1.87 | 790.2 | 71.8 | 79.0 | 15.1 | 19.1 |
| 1995 | 1.88 | 783.6 | 71.8 | 79.6 | 15.4 | 19.5 |
| 2000 | 1.89 | 783.9 | 72.2 | 80.2 | 15.7 | 19.8 |
| 2005 | 1.89 | 689.8 | 73.9 | 80.7 | 15.9 | 20.0 |
| 2010 | 1.90 | 850.9 | 74.7 | 81.1 | 16.1 | 20.2 |
| 2015 | 1.90 | 632.7 | 75.1 | 81.4 | 16.2 | 20.4 |
| 2020 | 1.90 | 618.2 | 75.3 | 81.7 | 16.4 | 20.6 |
| 2025 | 1.90 | 604.5 | 75.6 | 82.0 | 16.6 | 20.9 |
| 2030 | 1.90 | 591.3 | 75.8 | 82.3 | 16.7 | 21.1 |
| 2035 | 1.90 | 578.5 | 76.1 | 82.5 | 16.9 | 21.3 |
| 2040 | 1.90 | 566.0 | 76.3 | 82.8 | 17.1 | 21.5 |
| 2045 | 1.90 | 554.0 | 76.6 | 83.1 | 17.2 | 21.7 |
| 2050 | 1.90 | 542.3 | 76.8 | 83.3 | 17.4 | 21.9 |
| 2055 | 1.90 | 531.0 | 77.0 | 83.6 | 17.6 | 22.2 |
| 2060 | 1.90 | 519.9 | 77.3 | 83.9 | 17.8 | 22.4 |
| 2065 | 1.90 | 509.3 | 77.5 | 84.1 | 17.9 | 22.6 |

TABLE 11.—SELECTED DEMOGRAPHIC ASSUMPTIONS BY ALTERNATIVE, CALENDAR YEARS 1940-2065 (Cont.)

| Calendar year | Total fertility rate[1] | Age-sex-adjusted death rate[2] (per 100,000) | Life expectancy[3] | | | |
|---|---|---|---|---|---|---|
| | | | At birth | | At age 65 | |
| | | | Male | Female | Male | Female |
| Alternative III: | | | | | | |
| 1988 | 1.86 | 802.7 | 71.7 | 78.8 | 15.0 | 19.0 |
| 1990 | 1.83 | 781.7 | 72.2 | 79.4 | 15.3 | 19.3 |
| 1995 | 1.77 | 770.7 | 72.7 | 80.5 | 15.9 | 20.0 |
| 2000 | 1.72 | 743.3 | 73.3 | 81.3 | 16.3 | 20.6 |
| 2005 | 1.67 | 631.2 | 75.3 | 82.1 | 16.7 | 21.0 |
| 2010 | 1.62 | 569.6 | 76.4 | 82.8 | 17.1 | 21.4 |
| 2015 | 1.60 | 538.5 | 77.1 | 83.4 | 17.5 | 21.8 |
| 2020 | 1.60 | 513.6 | 77.6 | 83.9 | 17.8 | 22.2 |
| 2025 | 1.60 | 490.6 | 78.1 | 84.5 | 18.2 | 22.7 |
| 2030 | 1.60 | 468.8 | 78.6 | 85.0 | 18.6 | 23.1 |
| 2035 | 1.60 | 448.1 | 79.1 | 85.5 | 19.0 | 23.5 |
| 2040 | 1.60 | 428.5 | 79.6 | 86.0 | 19.3 | 23.9 |
| 2045 | 1.60 | 409.8 | 80.1 | 86.6 | 19.7 | 24.3 |
| 2050 | 1.60 | 392.1 | 80.7 | 87.1 | 20.1 | 24.7 |
| 2055 | 1.60 | 375.2 | 81.2 | 87.6 | 20.5 | 25.1 |
| 2060 | 1.60 | 359.2 | 81.7 | 88.1 | 20.8 | 25.5 |
| 2065 | 1.60 | 344.0 | 82.1 | 88.6 | 21.2 | 26.0 |

[1]The total fertility rate for any year is the average number of children who would be born to a woman in her lifetime if she were to experience the birth rates by age observed in, or assumed for, the selected year, and if she were to survive the entire child-bearing period. The ultimate total fertility rate is assumed to be reached in 2012.

[2]The age-sex-adjusted death rate is the crude rate that would occur in the enumerated total population as of April 1, 1980, if that population were to experience the death rates by age and sex observed in, or assumed for, the selected year.

[3]The life expectancy for any year is the average number of years of life remaining for a person if that person were to experience the death rates by age observed in, or assumed for, the selected year.

[4]Estimated.

The values assumed after the early years for both the economic and the demographic factors are intended to represent the average experience and are not intended to be exact predictions of year-by-year values. Actual future values will likely exhibit fluctuations or cyclical patterns, as in the past.

In addition to the assumptions discussed above, many other factors are necessary to prepare the estimates presented in this report. Appendix A includes a discussion of some of those factors.

The economic and demographic assumptions described in this section differ in some significant respects from the assumptions used in the 1987 Annual Report. In particular, the ultimate total fertility rate assumed for the intermediate assumptions—alternatives II-A and II-B—was reduced from 2.0 children per woman in the 1987 report to 1.9 children per woman in this report. The ultimate annual level of net immigration assumed for the intermediate assumptions was increased from 400,000 to 600,000. The ultimate annual real-wage differential for alternative II-B was reduced from 1.5 percent in the 1987 report to 1.4 percent in this report. In each of these cases, conforming changes were also made in the other alternative sets of assumptions. Finally, as already mentioned in this section, the projections in this report reflect the effects of AIDS, based on estimates through 1991, prepared by the Centers for Disease Control.

Each year, the staffs of the Board of Trustees examine the economic and demographic assumptions used in the previous annual report to determine what changes, if any, should be made in the assumptions. In keeping with this long-established practice, it is the Board's intention to review all of the economic and demographic assumptions for possible changes to be made in the 1989 Annual Report. In particular, the

assumption relating to the ultimate rate of growth in real wages will be reviewed. In addition, the assumptions relating to the long-range ultimate fertility rates and net immigration levels will be reviewed in the light of the next set of long-range population projections to be released by the Bureau of the Census. Also, more information about the future effects of AIDS, resulting from further analysis and study, will be incorporated in the Board's next annual report.

### *B. AUTOMATIC ADJUSTMENTS*

Under the automatic-adjustment provisions of the law, benefits generally are increased once a year to reflect increases in the cost of living. These automatic increases may be modified under certain circumstances, as explained below. For persons becoming eligible for benefits in 1979 and later, the increases generally begin with the year in which the worker reaches age 62, or becomes disabled or dies, if earlier. An automatic cost-of-living benefit increase of 4.2 percent, effective for December 1987, was announced in October 1987, as described in Appendix C.

The automatic cost-of-living benefit increase for any year is based on the change in the CPI from the third quarter of the previous year through the third quarter of the current year. If the combined assets of the OASI and DI Trust Funds, as a percentage of annual expenditures, are below a specified level, the automatic benefit increase is limited to the lesser of the increases in wages or prices. This specified level is 15.0 percent with respect to benefit increases for December of each year 1984-88, and 20.0 percent thereafter. This "stabilizer" provision has not affected any benefit increases since its enactment in 1983, and it would not affect any specific future increases shown in this report under any of the four sets of assumptions. Based on alternatives II-B and III, however, the combined trust funds eventually fall below the 20.0 percent threshold shortly before exhaustion in the next century. Thus, at that time, the stabilizer provision could affect a benefit increase if average wages are then increasing more than prices.

The law provides for an automatic increase in the contribution and benefit base, based on the increase in average wages, for the year following a year in which an automatic benefit increase becomes effective. For 1988, the contribution and benefit base was automatically increased to $45,000.

The exempt amounts under the retirement earnings test are also increased automatically by the increase in average wages, following an automatic benefit increase. An automatic increase in the exempt amount for beneficiaries at ages 65 through 69—from $8,160 in 1987 to $8,400 in 1988—was announced in October 1987. Similarly, an automatic increase was announced in the exempt amount for beneficiaries under age 65—from $6,000 in 1987 to $6,120 in 1988. Appendix C describes the aforementioned automatic adjustments, as well as the determinations of the following amounts:

1. The amount of earnings a worker must have in 1988 to be credited with a quarter of coverage;
2. The dollar amounts (or "bend points") in the formulas used to compute benefits payable on the earnings of workers who first become eligible for retirement or disability benefits, or who die before becoming eligible for such benefits, in 1988; and

The average of total wages reported for calendar year 1986, to be used for indexing earnings of workers who first become eligible for benefits, or who die before such eligibility, in 1988 or later.

An historical summary of the Social Security program amounts determined under the automatic-adjustment provisions, and the average-wage series used for indexing earnings, are shown in Appendix D. Estimates of the corresponding amounts through 1993 are also shown in Appendix D.

The four alternative sets of economic assumptions described previously result in the cost-of-living benefit increases and contribution and benefit bases shown in table 12 for each year through 1993. (The actual benefit increase for 1987 and the actual contribution and benefit bases for 1987 and 1988 are also shown as a basis for comparison.)

TABLE 12.—COST-OF-LIVING BENEFIT INCREASES AND CONTRIBUTION AND BENEFIT BASES, BY ALTERNATIVE, CALENDAR YEARS 1987-93

| Calendar year | Cost-of-living benefit increase[1] (percent) based on alternative— | | | | Contribution and benefit base[2] based on alternative— | | | |
|---|---|---|---|---|---|---|---|---|
| | I | II-A | II-B | III | I | II-A | II-B | III |
| 1987 | 4.2 | 4.2 | 4.2 | 4.2 | $43,800 | $43,800 | $43,800 | $43,800 |
| 1988 | 3.1 | 3.4 | 3.8 | 4.6 | 45,000 | 45,000 | 45,000 | 45,000 |
| 1989 | 3.2 | 4.0 | 4.5 | 5.9 | 46,800 | 46,500 | 46,500 | 46,200 |
| 1990 | 3.0 | 3.6 | 4.3 | 6.5 | 48,900 | 48,600 | 48,600 | 47,700 |
| 1991 | 2.6 | 3.1 | 4.2 | 6.2 | 51,600 | 51,300 | 51,300 | 50,400 |
| 1992 | 2.1 | 3.0 | 4.0 | 5.0 | 54,300 | 54,000 | 54,000 | 53,700 |
| 1993 | 2.0 | 3.0 | 4.0 | 5.1 | 57,000 | 56,700 | 57,000 | 56,700 |

[1]Effective with benefits for December of the year shown.

[2]Effective on January 1 of the year shown.

### *C. ESTIMATED OPERATIONS AND STATUS OF THE TRUST FUNDS DURING THE PERIOD OCTOBER 1, 1987, TO DECEMBER 31, 1992*

This subsection presents estimates of the operations and status of the OASI and DI Trust Funds during the period October 1, 1987, to December 31, 1992, based on the assumptions described in the preceding subsections. As previously stated, no changes are assumed to occur in the present statutory provisions and regulations under which the OASDI program operates.

These estimates indicate that the assets of the OASI and DI Trust Funds would be sufficient to permit the timely payment of benefits throughout the short-range period under each of the four sets of assumptions shown. While the assets of the OASI Trust Fund are estimated to increase substantially during 1988-92 under each alternative, DI assets are expected to remain roughly constant (as a percentage of annual expenditures) through 1989 before beginning to increase. Under adverse conditions, however, DI assets would decline substantially from their current level (relative to annual expenditures) and would be depleted within 10 years.

The estimated operations of the OASI Trust Fund shown in this report are somewhat more favorable, generally, than the corresponding estimates in the 1987 Annual Report. This improvement is attributable to the net effect of a number of factors. Income is greater than projected in the 1987 Annual Report as a result of (1) actual economic experience in 1987 that was better than had been assumed, (2) an increase in the assumed level of net immigration, and (3) higher interest earnings (in part due to the greater level of trust fund assets and in part to higher assumed interest rates). Projected OASI benefit payments are somewhat lower than in the 1987 Annual Report, reflecting the net effect of (1) actual experience through 1987 that was better than previously estimated, (2) the actual 4.2-percent benefit increase for December 1987 that was higher than assumed, and (3) miscellaneous refinements in estimating methodologies.

For the DI Trust Fund during 1988-92, the estimated operations in this report under alternatives I, II-A, and II-B are somewhat worse than the corresponding estimates from the 1987 report. For DI, the favorable effects attributable to the 1987 economic performance and other factors cited above are more than offset by (1) the effects of a more rapid increase in the number of DI beneficiaries in 1987 than was anticipated, and (2) higher assumed rates of disability incidence in the future. The alternative III projections for DI are somewhat more favorable than the corresponding projections in the 1987 report.

As in past reports, the estimates shown in this subsection reflect 12 months of benefit payments in each year of the short-range projection period. In practice, 13 benefit payments can be made in certain years, with the next year having only 11 payments. This situation can result from the statutory requirement that benefit checks be delivered early when the normal check delivery date is a Saturday, Sunday, or legal public holiday. For example, the benefit checks for December 1987 would normally have been delivered on January 3, 1988; however, because that day was a Sunday, and the two preceding days were a

Saturday and a holiday, the checks were actually delivered on December 31, 1987. The annual benefit figures are shown as if those benefit checks had been delivered on the usual date.

*OASI Trust Fund operations*

Estimates of the operations and status of the OASI Trust Fund during calendar years 1988-92 are shown in table 13 based on each of the four alternative sets of assumptions, which are described in a preceding subsection. Actual operations for calendar year 1987 are also shown in the table.

The increases in estimated income shown in table 13 on the basis of each set of assumptions reflect increases in estimated taxable earnings as well as the increase in the OASI tax rate that became effective for 1988 (and the increase scheduled for 1990). For each alternative, employment and earnings are assumed to increase in every year through 1992 (except that employment declines temporarily during each of the economic recessions assumed under alternative III). The number of persons with taxable earnings under the OASDI program is expected to increase on the basis of alternatives I, II-A, II-B, and III, from 128 million during calendar year 1987 to about 137 million, 136 million, 135 million, and 131 million, respectively, by 1992. The total annual amount of taxable earnings is expected to increase from about $1,960 billion in 1987 to $2,681 billion, $2,675 billion, $2,659 billion, and $2,561 billion, in 1992, on the basis of alternatives I, II-A, II-B, and III, respectively. (In 1987 dollars—taking account of assumed increases in the CPI from 1987 to 1992 based on each alternative—the estimated amounts of taxable earnings in 1992 are $2,327 billion, $2,255 billion, $2,166 billion, and $1,950 billion, on the basis of alternatives I, II-A, II-B, and III, respectively.) These increases are due in part to the increases in the contribution and benefit base assumed to occur in 1988-92 under the automatic-adjustment provisions. The increases in taxable earnings are also due to (1) projected increases in employment levels and average earnings in covered employment, and (2) various provisions enacted into law in 1983-87, including the mandatory coverage of all newly hired Federal civilian employees and the voluntary coverage of certain Federal employees who were not previously covered.

TABLE 13.—ESTIMATED OPERATIONS OF THE OASI TRUST FUND BY ALTERNATIVE, CALENDAR YEARS 1987-92
[Amounts in billions]

| Calendar year | Income | Disbursements | Net increase in fund | Fund at end of year | Contingency fund | |
|---|---|---|---|---|---|---|
| | | | | | Amount[1] | Ratio[2] |
| 1987[3] | $210.7 | $187.7 | $23.1 | $62.1 | $55.8 | 30 |
| Alternative I: | | | | | | |
| 1988 | 241.2 | 199.8 | 41.3 | 103.5 | 81.9 | 41 |
| 1989 | 260.1 | 210.5 | 49.5 | 153.0 | 125.2 | 59 |
| 1990 | 283.8 | 222.6 | 61.2 | 214.2 | 176.5 | 79 |
| 1991 | 306.6 | 234.1 | 72.5 | 286.7 | 239.2 | 102 |
| 1992 | 328.5 | 244.8 | 83.7 | 370.4 | 313.1 | 128 |
| Alternative II-A: | | | | | | |
| 1988 | 240.6 | 200.0 | 40.6 | 102.8 | 81.9 | 41 |
| 1989 | 258.9 | 211.4 | 47.5 | 150.3 | 124.5 | 59 |
| 1990 | 282.8 | 225.4 | 57.4 | 207.7 | 173.7 | 77 |
| 1991 | 305.5 | 238.6 | 66.8 | 274.5 | 232.6 | 97 |
| 1992 | 328.3 | 250.8 | 77.4 | 352.0 | 300.9 | 120 |

TABLE 13.—ESTIMATED OPERATIONS OF THE OASI TRUST FUND BY ALTERNATIVE, CALENDAR YEARS 1987-92 (Cont.)
[Amounts in billions]

| Calendar year | Income | Disbursements | Net increase in fund | Fund at end of year | Contingency fund | |
|---|---|---|---|---|---|---|
| | | | | | Amount[1] | Ratio[2] |
| Alternative II-B: | | | | | | |
| 1988 | $240.0 | $200.0 | $40.0 | $102.1 | $81.9 | 41 |
| 1989 | 257.3 | 212.2 | 45.1 | 147.2 | 123.7 | 58 |
| 1990 | 280.6 | 227.2 | 53.4 | 200.6 | 170.4 | 75 |
| 1991 | 302.6 | 242.1 | 60.5 | 261.1 | 225.2 | 93 |
| 1992 | 326.6 | 257.0 | 69.6 | 330.6 | 287.2 | 112 |
| Alternative III: | | | | | | |
| 1988 | 237.1 | 200.1 | 37.0 | 99.1 | 81.9 | 41 |
| 1989 | 249.9 | 214.1 | 35.8 | 134.9 | 120.0 | 56 |
| 1990 | 274.1 | 232.4 | 41.7 | 176.6 | 157.5 | 68 |
| 1991 | 297.3 | 252.8 | 44.4 | 221.0 | 201.0 | 80 |
| 1992 | 314.3 | 273.5 | 40.8 | 261.8 | 246.2 | 90 |

[1]Represents assets at beginning of year, plus advance tax transfers for January.

[2]Represents assets at beginning of year, plus advance tax transfers, as a percentage of disbursements during the year. See text concerning interpretation of these ratios.

[3]Figures for 1987 represent actual experience.

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

Rising disbursements during calendar years 1988-92 reflect the effects of the assumed automatic benefit increases previously shown, as well as the long-range upward trend in the numbers of beneficiaries and in the amounts of average monthly earnings underlying benefits payable by the program. The growth in the number of beneficiaries in the past and the expected growth in the future result both from the increase in the aged population and from the increase in the proportion of the population which is eligible for benefits. The latter increase is primarily due to the amendments enacted after 1950, which modified the eligibility provisions and extended coverage to additional categories of employment.

Growth has also occurred, and will continue to occur, in the proportion of eligible persons who, in fact, receive benefits. This growth is due to several factors, among which are (1) the amendments enacted since 1950 which affect the conditions governing the receipt of benefits, and (2) the increasing percentage of eligible persons who are aged 70 and over and who therefore may receive benefits regardless of earnings.

The estimates shown in table 13 indicate that income would exceed disbursements in every year of the short-range projection period, based on each of the four alternative sets of assumptions used in this report. The assets of the OASI Trust Fund at the beginning of 1987, including advance tax transfers for January, were equal to 30 percent of the fund's disbursements in 1987. As described in the introduction to this section, this ratio is known as the "contingency fund ratio"; it provides a useful measure of the relative level of trust fund assets. During 1987, income exceeded disbursements by $23.1 billion. As a result, the contingency fund ratio increased to 41 percent at the beginning of 1988.

Assets are estimated to increase substantially in each year of the short-range projection period, based on each of the four alternative sets of assumptions. The increase in the contingency fund ratio from the relatively low level of 41 percent at the beginning of 1988 to more adequate levels during the projection period is due, in part, to the increase in the OASI tax rate that became effective for 1988, and also to

the increase scheduled for 1990 under present law. Asset growth is also assisted by recent increases in taxable earnings that have generally exceeded the rate of growth in benefit payments and the expected continuation of this experience (except under alternative III).

In interpreting the contingency fund ratios in table 13, it should be noted that, at the beginning of any month, assets of at least 8-9 percent of annual expenditures are required to make the benefit payments that are due at the beginning of the month. Therefore, the difference between the estimated contingency fund ratios shown above, and the minimum level of 8-9 percent, represents the reserve available to handle adverse contingencies.

*DI Trust Fund operations*

The estimated operations and status of the DI Trust Fund during calendar years 1988-92 on the basis of the four sets of assumptions are shown in table 14, together with figures on actual experience in 1987. On the basis of each alternative, income is estimated to increase gradually during 1988-92. This increase reflects the same factors, insofar as they apply to income to the DI Trust Fund, that are reflected in the estimated increase in income to the OASI Trust Fund during the same period.

TABLE 14.—ESTIMATED OPERATIONS OF THE DI TRUST FUND BY ALTERNATIVE, CALENDAR YEARS 1987-92
[Amounts in billions]

| Calendar year | Income | Disbursements | Net increase in fund | Fund at end of year | Contingency fund | |
|---|---|---|---|---|---|---|
| | | | | | Amount[1] | Ratio[2] |
| 1987[3] | $20.3 | $21.4 | -$1.1 | $8.7 | $9.4 | 44 |
| Alternative I: | | | | | | |
| 1988 | 22.9 | 22.1 | .8 | 7.5 | 8.6 | 39 |
| 1989 | 24.4 | 23.1 | 1.3 | 8.8 | 9.6 | 41 |
| 1990 | 29.5 | 24.0 | 5.5 | 14.3 | 11.3 | 47 |
| 1991 | 31.9 | 25.0 | 6.9 | 21.2 | 17.0 | 68 |
| 1992 | 34.2 | 26.1 | 8.0 | 29.2 | 24.0 | 92 |
| Alternative II-A: | | | | | | |
| 1988 | 22.8 | 22.4 | .4 | 7.1 | 8.6 | 38 |
| 1989 | 24.3 | 23.6 | .6 | 7.7 | 9.1 | 39 |
| 1990 | 29.2 | 24.8 | 4.4 | 12.1 | 10.2 | 41 |
| 1991 | 31.6 | 26.2 | 5.4 | 17.5 | 14.8 | 56 |
| 1992 | 33.9 | 27.6 | 6.3 | 23.8 | 20.4 | 74 |
| Alternative II-B: | | | | | | |
| 1988 | 22.8 | 22.4 | .3 | 7.0 | 8.6 | 38 |
| 1989 | 24.1 | 23.7 | .4 | 7.4 | 9.1 | 38 |
| 1990 | 28.9 | 25.0 | 4.0 | 11.3 | 9.8 | 39 |
| 1991 | 31.2 | 26.5 | 4.7 | 16.0 | 14.0 | 53 |
| 1992 | 33.6 | 28.2 | 5.5 | 21.5 | 18.9 | 67 |
| Alternative III: | | | | | | |
| 1988 | 22.5 | 23.0 | -.5 | 6.1 | 8.6 | 37 |
| 1989 | 23.3 | 24.7 | -1.4 | 4.7 | 8.1 | 33 |
| 1990 | 28.0 | 26.7 | 1.3 | 6.0 | 7.1 | 27 |
| 1991 | 30.2 | 29.1 | 1.0 | 7.0 | 8.6 | 30 |
| 1992 | 31.6 | 31.8 | -.3 | 6.8 | 9.7 | 31 |

[1]See footnote 1 of table 13.

[2]See footnote 2 of table 13.

[3]See footnote 3 of table 13.

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

Disbursements are estimated to increase because of automatic benefit increases and because of projected increases in the amounts of average monthly earnings on which benefits are based. In addition, on the basis of all four sets of assumptions, the number of DI beneficiaries is projected to continue increasing throughout the short-range projection period.

The growth in the number of DI beneficiaries in recent years primarily reflects the effects of (1) gradual increases in the number of persons insured for disability benefits, and (2) increases in the proportion of those insured who become disabled. The recent increases in the proportion who become disabled represent a reversal of the downward trend that occurred during 1978-82. The downward trend followed earlier concerns that the higher numbers of newly disabled beneficiaries during the mid-1970s were causing the costs of the DI program to increase rapidly. These concerns led to legislation in 1980 which required periodic reviews of the continuing eligibility of beneficiaries on the disability rolls. The implementation of this requirement resulted in relatively large numbers of benefits being terminated during 1981-83. The continuing disability reviews were subsequently suspended for a temporary period, however, and legislation in 1984 placed limitations on terminations due to recovery from disability. Consequently, such terminations fell sharply in 1984-86. Concurrently, the proportion of insured persons becoming disabled each year began to rise again. Part of these increases may be attributable to other provisions in the 1984 legislation which modified the procedures followed in awarding disability benefits to new claimants.

The continuing spread of the Acquired Immunodeficiency Syndrome (AIDS) epidemic has recently contributed to an increase in both DI awards and terminations. Due to the extremely high mortality rates of affected individuals, the total number of disabled workers currently receiving benefits has not increased greatly as a result of AIDS. In this report, benefit awards to AIDS patients are projected to continue to increase rapidly, based on the projections of new AIDS cases prepared by the Centers for Disease Control through 1991. Although many aspects of AIDS are well understood, there remains considerable uncertainty regarding future medical advances and future incidence of the disease. Over the next 1-2 years, the Public Health Service Executive Task Force on AIDS will be developing an updated assessment of the prevalence and likely future incidence of AIDS. The Trustees will consider this assessment and other evidence in order to estimate the longer-term impact of AIDS for future reports. In the interim, an assumption was adopted for this report that no new infections with the Human Immunodeficiency Virus (HIV—the precursor to AIDS) will occur after 1991.

Increases in the proportion of insured workers who become disabled have been projected in past annual reports. Actual increases, however, have generally been larger than expected. The proportion of workers becoming disabled is assumed to continue increasing beyond the short-range period but is not assumed to return to the high levels experienced during the 1970s.

At the beginning of 1987, the assets of the DI Trust Fund (including advance tax transfers for January) represented 44 percent of annual expenditures. During 1987, DI expenditures exceeded DI income by about $1.1 billion. Thus, DI assets decreased during the year, and the contingency fund ratio at the beginning of 1988 was about 38 percent. Income is estimated to exceed expenditures in 1988 under the alternative

I, II-A, and II-B sets of assumptions, as a result of the increase in the DI tax rate. Under these three sets of assumptions, the DI contingency fund ratio is projected to remain at roughly 38-40 percent in 1988-89, and to increase steadily in 1990 and later due to the further increase in the tax rate scheduled for 1990.

Under the conditions assumed for alternative III, DI assets would continue to decline in 1988-89. Small increases would occur in 1990-91, as a result of the tax rate increase in 1990, but the trust fund would again decrease in 1992 and later. The level of assets during this period, under the alternative III assumptions, would represent only a narrow margin above the 8-9 percent that is required just to meet benefit payments at the beginning of each month. In the event of somewhat more adverse experience than assumed under alternative III, either for the economy or for disability incidence and termination rates, DI assets could become insufficient to allow the timely payment of DI benefits within the short-range projection period. As will be discussed in the next section, under the alternative III assumptions, the DI Trust Fund would continue to decline and would be depleted in 1996.

*Combined OASI and DI Trust Fund operations*

The estimated operations and status of the OASI and DI Trust Funds, combined, during calendar years 1988-92 on the basis of the four alternatives, are shown in table 15, together with figures on actual experience in 1987. These figures are the sums of the corresponding figures shown in tables 13 and 14.

TABLE 15.—ESTIMATED OPERATIONS OF THE OASI AND DI TRUST FUNDS, COMBINED, BY ALTERNATIVE, CALENDAR YEARS 1987-92
[Amounts in billions]

| Calendar year | Income | Disbursements | Net increase in funds | Funds at end of year | Contingency fund | |
|---|---|---|---|---|---|---|
| | | | | | Amount[1] | Ratio[2] |
| 1987[3] | $231.0 | $209.1 | $21.9 | $68.8 | $65.2 | 31 |
| Alternative I: | | | | | | |
| 1988 | 264.1 | 221.9 | 42.1 | 110.9 | 90.5 | 41 |
| 1989 | 284.5 | 233.8 | 50.9 | 161.8 | 134.8 | 58 |
| 1990 | 313.2 | 246.5 | 66.7 | 228.5 | 187.8 | 76 |
| 1991 | 338.5 | 259.2 | 79.3 | 307.9 | 256.2 | 99 |
| 1992 | 362.7 | 270.9 | 91.8 | 399.6 | 337.2 | 124 |
| Alternative II-A: | | | | | | |
| 1988 | 263.4 | 222.4 | 41.0 | 109.8 | 90.5 | 41 |
| 1989 | 283.1 | 235.0 | 48.1 | 157.9 | 133.8 | 57 |
| 1990 | 312.0 | 250.1 | 61.9 | 219.8 | 183.8 | 73 |
| 1991 | 337.0 | 264.8 | 72.3 | 292.0 | 247.4 | 93 |
| 1992 | 362.2 | 278.4 | 83.7 | 375.8 | 321.3 | 115 |
| Alternative II-B: | | | | | | |
| 1988 | 262.7 | 222.4 | 40.3 | 109.1 | 90.5 | 41 |
| 1989 | 281.4 | 235.9 | 45.5 | 154.8 | 132.8 | 56 |
| 1990 | 309.5 | 252.2 | 57.3 | 211.9 | 180.2 | 71 |
| 1991 | 333.8 | 268.8 | 65.2 | 277.1 | 239.2 | 89 |
| 1992 | 360.3 | 285.2 | 75.1 | 352.1 | 306.1 | 107 |
| Alternative III: | | | | | | |
| 1988 | 259.5 | 223.1 | 36.4 | 105.2 | 90.5 | 41 |
| 1989 | 273.1 | 238.8 | 34.3 | 139.8 | 128.2 | 54 |
| 1990 | 302.1 | 259.1 | 43.0 | 182.6 | 164.6 | 64 |
| 1991 | 327.5 | 282.0 | 45.5 | 228.0 | 209.7 | 74 |
| 1992 | 345.8 | 305.3 | 40.5 | 268.6 | 256.0 | 84 |

[1]See footnote 1 of table 13.

[2]See footnote 2 of table 13.

[3]See footnote 3 of table 13.

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

At the beginning of 1987, the contingency fund ratio for the OASI and DI Trust Funds combined was 31 percent, as shown in table 15. During 1987, total income to the two trust funds was $21.9 billion higher than total expenditures, resulting in combined OASDI assets at the beginning of 1988 which represented about 41 percent of estimated combined expenditures for the year. Based on alternatives I, II-A, and II-B, the contingency fund ratio for the combined funds is projected to increase substantially, and to exceed 100 percent at the beginning of 1992. Under the alternative III assumptions, assets would grow more slowly, but would still reach 84 percent at the beginning of 1992. Under alternative I, the level of projected assets is somewhat less than the corresponding estimates from the 1987 Annual Report. The alternative II-A estimates are very similar to those shown in the 1987 report, while under alternatives II-B and III, projected OASDI assets exceed the corresponding figures from the 1987 report.

The estimates in table 15 indicate that, if necessary, a reallocation of tax rates between OASI and DI would prevent the assets of the DI Trust Fund from declining on the basis of the alternative III assumptions.

Section 215(i) of the Social Security Act defines an "OASDI fund ratio" for the purpose of determining automatic benefit increases in 1984 and later. If this ratio is below a specified threshold, the benefit increase would be based on the lesser of certain wage and price increases. Following the final repayment in January 1986 of amounts borrowed from the HI Trust Fund, the "OASDI fund ratio" specified for the purpose of determining benefit increases is equal to the contingency fund ratio shown in table 15. Under all four alternatives, this ratio would not be lower than the 15.0-percent threshold applicable in 1988 or the 20.0-percent threshold applicable in 1989 and later. Thus, the benefit-increase "stabilizer" provision would not be triggered at any time during the short-range projection period under any of the sets of assumptions used in this report.

Figure 1 illustrates the pattern of the estimated future contingency fund ratios under the four alternatives for OASI and DI, combined. Contingency fund ratios for selected years prior to 1988, and estimates for 1988-92 under the four alternatives, are shown in table 16 for OASI, DI, and both funds combined. In evaluating the ratios shown in figure 1 and table 16, it should be recalled that a minimum of 8-9 percent is needed to meet monthly cash-flow requirements. The shaded area in figure 1 depicts this requirement.

FIGURE 1.—ESTIMATED CONTINGENCY FUND RATIOS, FOR OASI AND DI TRUST FUNDS COMBINED, CALENDAR YEARS 1987-92

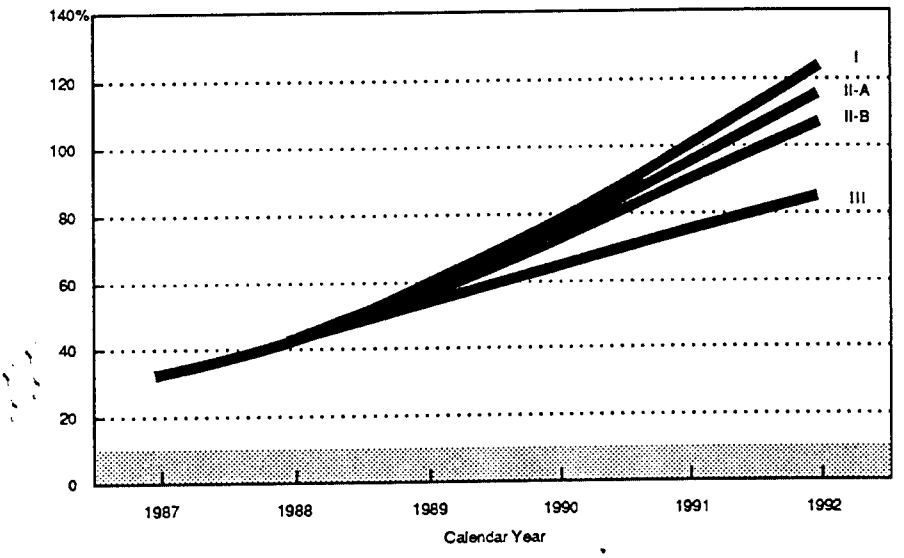


TABLE 16.—CONTINGENCY FUND RATIOS[1] BY TRUST FUND, SELECTED CALENDAR YEARS 1950-87, AND ESTIMATED FUTURE RATIOS BY ALTERNATIVE, CALENDAR YEARS 1988-92

[In percent]

| Calendar year | OASI Trust Fund | DI Trust Fund | OASI and DI Trust Funds, combined |
|---|---|---|---|
| Past experience: | | | |
| 1950 | 1,156 | — | 1,156 |
| 1955 | 405 | — | 405 |
| 1960 | 180 | 304 | 186 |
| 1965 | 109 | 121 | 110 |
| 1970 | 101 | 126 | 103 |
| 1975 | 63 | 92 | 66 |
| 1980 | 23 | 35 | 25 |
| 1981 | 18 | 21 | 18 |
| 1982 | 15 | 17 | 15 |
| 1983 | 15 | 14 | 14 |
| 1984 | 20 | 35 | 21 |
| 1985 | 24 | 27 | 24 |
| 1986 | 28 | 38 | 29 |
| 1987 | 30 | 44 | 31 |
| Alternative I: | | | |
| 1988 | 41 | 39 | 41 |
| 1989 | 59 | 41 | 56 |
| 1990 | 79 | 47 | 76 |
| 1991 | 102 | 68 | 99 |
| 1992 | 128 | 92 | 124 |
| Alternative II-A: | | | |
| 1988 | 41 | 38 | 41 |
| 1989 | 59 | 39 | 57 |
| 1990 | 77 | 41 | 73 |
| 1991 | 97 | 56 | 93 |
| 1992 | 120 | 74 | 115 |
| Alternative II-B: | | | |
| 1988 | 41 | 38 | 41 |
| 1989 | 58 | 38 | 56 |
| 1990 | 75 | 39 | 71 |
| 1991 | 93 | 53 | 89 |
| 1992 | 112 | 67 | 107 |
| Alternative III: | | | |
| 1988 | 41 | 37 | 41 |
| 1989 | 56 | 33 | 54 |
| 1990 | 68 | 27 | 64 |
| 1991 | 80 | 30 | 74 |
| 1992 | 90 | 31 | 84 |

[1] See footnote 2 of table 13 for definition of contingency fund ratio.

Table 17 shows that expenditures in calendar year 1987 from both trust funds, combined, were about 10.7 percent of taxable payroll for the year—0.9 percentage point less than the income rate of 11.6 percent. Since 1982, the cost rate has fallen steadily—from 11.9 percent in 1982 to 10.7 percent in 1987. Based on alternatives I and II-A, the cost rate is estimated to decline slowly during the short-range projection period, reaching 10.12 and 10.43 percent, respectively, in 1992. Based on alternative II-B, the cost rate would remain in the neighborhood of 10.7–10.8 percent through 1992. Under alternative III, it would increase significantly, to 11.94 percent in 1992. These percentages are shown in table 17 for both trust funds, separately and combined. Table 17 also shows a comparison of the cost rates with the corresponding income rates. As explained previously, the income rate represents the sum of the combined employee-employer contribution rate and the income derived from the Federal income taxation of OASDI benefits, expressed as a percentage of effective taxable payroll. The difference between the income rate and the cost rate for a given year is referred to as the "balance" for that year.

TABLE 17.—COMPARISON OF INCOME RATES AND COST RATES, BY TRUST FUND, SELECTED CALENDAR YEARS 1950-87, AND ESTIMATED RATES BY ALTERNATIVE, CALENDAR YEARS 1988-92

[As a percentage of taxable payroll]

| Calendar year | OASI Trust Fund | | | DI Trust Fund | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Income rate | Cost rate | Balance | Income rate | Cost rate | Balance | Income rate | Cost rate | Balance |
| Past experience: | | | | | | | | | |
| 1950 | 3.00 | 1.17 | 1.83 | — | — | — | 3.00 | 1.17 | 1.83 |
| 1955 | 4.00 | 3.34 | .66 | — | — | — | 4.00 | 3.34 | .66 |
| 1960 | 5.50 | 5.59 | -.09 | 0.50 | 0.30 | 0.20 | 6.00 | 5.89 | .11 |
| 1965 | 6.75 | 7.23 | -.48 | .50 | .70 | -.20 | 7.25 | 7.93 | -.68 |
| 1970 | 7.30 | 7.32 | -.02 | 1.10 | .81 | .29 | 8.40 | 8.12 | .28 |
| 1975 | 8.75 | 9.29 | -.54 | 1.15 | 1.36 | -.21 | 9.90 | 10.65 | -.75 |
| 1980 | 9.04 | 9.36 | -.32 | 1.12 | 1.38 | -.26 | 10.16 | 10.74 | -.58 |
| 1981 | 9.40 | 9.97 | -.57 | 1.30 | 1.39 | -.09 | 10.70 | 11.36 | -.66 |
| 1982 | 9.15 | 10.59 | -1.44 | 1.65 | 1.34 | .31 | 10.80 | 11.94 | -1.14 |
| 1983[1] | [2]9.91 | 10.27 | -.36 | [2]1.33 | 1.22 | .10 | [2]11.24 | 11.50 | -.26 |
| 1984[1] | 10.58 | 10.08 | .50 | 1.01 | 1.16 | -.14 | 11.59 | 11.24 | .35 |
| 1985[1] | [2]10.72 | 9.99 | .73 | [2]1.07 | 1.14 | -.06 | [2]11.79 | 11.13 | .66 |
| 1986[1] | 10.59 | 9.86 | .72 | 1.01 | 1.12 | -.11 | 11.60 | 10.98 | .62 |
| 1987[1] | 10.57 | 9.59 | .97 | 1.00 | 1.10 | -.10 | 11.56 | 10.69 | .88 |
| Alternative I: | | | | | | | | | |
| 1988 | 11.22 | 9.58 | 1.64 | 1.07 | 1.06 | .01 | 12.29 | 10.64 | 1.65 |
| 1989 | 11.23 | 9.46 | 1.77 | 1.07 | 1.04 | .03 | 12.30 | 10.50 | 1.80 |
| 1990 | [2]11.35 | 9.39 | 1.96 | [2]1.21 | 1.01 | .20 | [2]12.56 | 10.41 | 2.16 |
| 1991 | 11.39 | 9.27 | 2.12 | 1.21 | .99 | .22 | 12.60 | 10.26 | 2.34 |
| 1992 | 11.39 | 9.15 | 2.24 | 1.21 | .98 | .23 | 12.60 | 10.12 | 2.48 |
| Alternative II-A: | | | | | | | | | |
| 1988 | 11.22 | 9.61 | 1.61 | 1.07 | 1.08 | -.01 | 12.29 | 10.69 | 1.60 |
| 1989 | 11.23 | 9.55 | 1.68 | 1.07 | 1.07 | [3] | 12.30 | 10.62 | 1.69 |
| 1990 | [2]11.37 | 9.57 | 1.80 | [2]1.21 | 1.05 | .16 | [2]12.58 | 10.62 | 1.96 |
| 1991 | 11.39 | 9.49 | 1.90 | 1.21 | 1.04 | .17 | 12.60 | 10.54 | 2.07 |
| 1992 | 11.40 | 9.40 | 2.00 | 1.21 | 1.03 | .18 | 12.61 | 10.43 | 2.18 |
| Alternative II-B: | | | | | | | | | |
| 1988 | 11.22 | 9.65 | 1.57 | 1.07 | 1.08 | -.01 | 12.29 | 10.73 | 1.56 |
| 1989 | 11.23 | 9.65 | 1.59 | 1.07 | 1.08 | -.01 | 12.30 | 10.72 | 1.58 |
| 1990 | [2]11.39 | 9.74 | 1.65 | [2]1.21 | 1.07 | .14 | [2]12.60 | 10.81 | 1.79 |
| 1991 | 11.40 | 9.73 | 1.67 | 1.21 | 1.07 | .15 | 12.61 | 10.80 | 1.81 |
| 1992 | 11.40 | 9.68 | 1.72 | 1.21 | 1.06 | .15 | 12.62 | 10.75 | 1.87 |
| Alternative III: | | | | | | | | | |
| 1988 | 11.22 | 9.80 | 1.43 | 1.07 | 1.13 | -.06 | 12.29 | 10.92 | 1.37 |
| 1989 | 11.24 | 10.02 | 1.22 | 1.07 | 1.16 | -.09 | 12.31 | 11.18 | 1.13 |
| 1990 | [2]11.41 | 10.19 | 1.23 | [2]1.22 | 1.17 | .05 | [2]12.63 | 11.35 | 1.27 |
| 1991 | 11.41 | 10.33 | 1.08 | 1.21 | 1.19 | .02 | 12.62 | 11.52 | 1.10 |
| 1992 | 11.42 | 10.69 | .73 | 1.21 | 1.24 | -.03 | 12.64 | 11.94 | .70 |

[1]Figures shown are preliminary.

[2]Income rates for 1983, 1985, and 1990 are adjusted to include the lump-sum payments from the general fund of the Treasury (or adjustments to such payments) for the cost of noncontributory wage credits for military service in 1940-56.

[3]Income rate differs from cost rate by less than 0.005 percent of taxable payroll.

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

As stated previously, estimates of the operations of the trust funds during calendar years 1988-92 have been presented in the preceding tables of this section on the basis of four different sets of economic assumptions, because of the uncertainty of future economic and demographic developments. Under the provisions of the Social Security Act, however, estimates of the expected operations and status of the trust funds during the next 5 *fiscal* years are required to be shown in this report. Accordingly, detailed estimates of the expected operations and status of the trust funds during each fiscal year 1988-92 are shown in the remaining tables of this section for the two intermediate sets of assumptions (alternatives II-A and II-B) only. Similar detailed estimates are also shown on a calendar-year basis for 1988-92.

Data on the actual operations of the OASI Trust Fund for selected years during 1940-87, and estimates of the expected operations of the trust fund during 1988-92 on the basis of the intermediate sets of assumptions, are shown in tables 18 and 19 on a fiscal- and calendar-year basis, respectively. Corresponding figures on the operations of the DI Trust Fund are shown in tables 20 and 21. Operations of both trust funds combined are shown in tables 22 and 23. (Data relating to the operations of the two trust funds for years not shown in tables 18-23 are contained in past annual reports.) The figures shown in tables 19, 21, and 23 for 1981, 1982, and 1987 are adjusted to reflect 12 months of benefit payments in each year. As stated previously, the estimated figures for 1988 are also so adjusted.

TABLE 18.—OPERATIONS OF THE OASI TRUST FUND DURING SELECTED FISCAL YEARS 1940-87 AND ESTIMATED FUTURE OPERATIONS DURING FISCAL YEARS 1988-92 ON THE BASIS OF THE INTERMEDIATE SETS OF ASSUMPTIONS

[In millions]

| Fiscal year[1] | Income | | | | | Disbursements | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Net contributions[2] | Income from taxation of benefits | Payments from the general fund of the Treasury[3] | Net interest[4] | Total | Benefit payments[4] | Administrative expenses | Transfers to Railroad Retirement program | Interfund borrowing transfers[5] | Net increase in fund | Fund at end of period |
| Past experience: | | | | | | | | | | | | |
| 1940 | $592 | $550 | — | — | $42 | $28 | $16 | $12 | — | — | $564 | $1,745 |
| 1945 | 1,434 | 1,310 | — | — | 124 | 267 | 240 | 27 | — | — | 1,167 | 8,613 |
| 1950 | 2,367 | 2,106 | — | $4 | 257 | 784 | 727 | 57 | — | — | 1,583 | 12,893 |
| 1955 | 5,525 | 5,087 | — | — | 438 | 4,427 | 4,333 | 103 | -$10 | — | 1,098 | 21,141 |
| 1960 | 10,360 | 9,843 | — | — | 517 | 11,073 | 10,270 | 202 | 600 | — | -713 | 20,829 |
| 1965 | 16,443 | 15,857 | — | — | 586 | 15,962 | 15,226 | 300 | 436 | — | 482 | 20,180 |
| 1970 | 31,746 | 29,955 | — | 442 | 1,350 | 27,321 | 26,268 | 474 | 579 | — | 4,425 | 32,616 |
| 1975 | 58,757 | 56,017 | — | 447 | 2,292 | 56,676 | 54,847 | 848 | 982 | — | 2,081 | 39,948 |
| 1980 | 100,051 | 97,608 | — | 557 | 1,888 | 103,228 | 100,626 | 1,160 | 1,442 | — | -3,177 | 24,566 |
| 1981 | 121,572 | 119,016 | — | 540 | 2,016 | 122,304 | 119,421 | 1,298 | 1,585 | — | -732 | 23,834 |
| 1982 | 126,629 | 124,248 | — | 675 | 1,708 | 137,928 | 134,661 | 1,474 | 1,793 | — | -11,299 | 12,535 |
| 1983 | 148,434 | 136,127 | — | 6,096 | 6,210 | 151,827 | 148,025 | 1,551 | 2,251 | $17,519 | 14,125 | 26,661 |
| 1984 | 160,729 | 156,553 | $2,132 | 125 | 1,919 | 159,820 | 155,831 | 1,585 | 2,404 | — | 909 | 27,570 |
| 1985 | 179,881 | 175,305 | 3,151 | 105 | 1,321 | 169,210 | 165,310 | 1,589 | 2,310 | -4,364 | 8,308 | 33,877 |
| 1986 | 195,331 | 187,007 | 3,329 | 2,293 | 2,701 | 178,534 | 174,340 | 1,609 | 2,585 | -13,155 | 3,642 | 37,519 |
| 1987 | 206,846 | 199,554 | 3,323 | 69 | 3,900 | 186,101 | 182,003 | 1,541 | 2,557 | — | 20,745 | 58,285 |
| Alternative II-A: | | | | | | | | | | | | |
| 1988 | 234,333 | 225,154 | 3,294 | 55 | 5,830 | 196,842 | 192,360 | 1,640 | 2,842 | — | 37,491 | 95,756 |
| 1989 | 253,732 | 240,874 | 3,672 | 43 | 9,143 | 208,557 | 203,646 | 1,750 | 2,960 | — | 45,175 | 140,931 |
| 1990 | 276,435 | 258,922 | 4,231 | 34 | 13,249 | 221,804 | 216,919 | 1,835 | 3,050 | — | 54,631 | 195,562 |
| 1991 | 298,610 | 276,412 | 4,739 | -377 | 17,836 | 235,447 | 230,344 | 1,915 | 3,188 | — | 63,182 | 258,724 |
| 1992 | 320,475 | 292,562 | 5,163 | 22 | 22,728 | 247,806 | 242,480 | 1,993 | 3,333 | — | 72,669 | 331,393 |
| Alternative II-B: | | | | | | | | | | | | |
| 1988 | 233,886 | 224,708 | 3,294[6] | 55 | 5,828 | 196,842 | 192,360 | 1,640 | 2,842 | — | 37,043 | 95,308 |
| 1989 | 252,388 | 239,520 | 3,683 | 43 | 9,143 | 209,149 | 204,437 | 1,750 | 2,962 | — | 43,239 | 138,548 |
| 1990 | 274,048 | 256,569 | 4,262 | 34 | 13,183 | 223,409 | 218,512 | 1,832 | 3,066 | — | 50,639 | 189,186 |
| 1991 | 296,028 | 273,451 | 4,802 | 37 | 17,738 | 238,551 | 233,409 | 1,916 | 3,226 | — | 57,477 | 246,664 |
| 1992 | 318,464 | 290,463 | 5,280 | 22 | 22,699 | 253,343 | 247,938 | 2,006 | 3,401 | — | 65,120 | 311,784 |

See following page for footnotes.

[1]Under the Congressional Budget Act of 1974 (Public Law 93-344), fiscal years 1977 and later consist of the 12 months ending on September 30 of each year. The act further provides that the calendar quarter July-September 1976 is a period of transition from fiscal year 1976, which ended on June 30, 1976, to fiscal year 1977, which began on October 1, 1976.

[2]Beginning in 1983, includes government contributions on deemed wage credits for military service in 1957 and later. The amount shown for 1983 includes, in addition to the annual contributions on 1983 wage credits, a net amount of $5,388 million representing (1) retroactive contributions on deemed wage credits for military service in 1957-82, less (2) all reimbursements received prior to 1983 for the costs of such credits. An adjustment to these amounts totaling $466 million was transferred to the trust fund from the general fund of the Treasury in 1984.

[3]Includes payments (1) in 1947-52 and in 1967 and later, for costs of noncontributory wage credits for military service performed before 1957; (2) in 1972-83, for costs of deemed wage credits for military service performed after 1956; and (3) in 1969 and later, for costs of benefits to certain uninsured persons who attained age 72 before 1968.

[4]Net interest includes net profits or losses on marketable investments. Beginning in 1967, administrative expenses are charged currently to the trust fund on an estimated basis, with a final adjustment, including interest, made in the following fiscal year. The amounts of these interest adjustments are included in net interest. For years prior to 1967, a description of the method of accounting for administrative expenses is contained in the 1970 Annual Report. Beginning in 1983, these figures reflect payments from a borrowing trust fund to a lending trust fund for interest on amounts owed under the interfund borrowing provisions. Also, beginning in 1983, interest paid from the trust fund to the general fund on advance tax transfers is reflected. The amount shown for 1983 includes $6,677 million in interest on (1) retroactive government contributions on deemed wage credits for military service in 1957-82, and (2) unnegotiated benefit checks issued before 1983. The amount shown for 1984 includes an interest adjustment of $1,732 million on government contributions on deemed wage credits for military service in 1957-83. The amounts shown for 1985 and 1986 include interest adjustments of $76.5 million and $11.5 million, respectively, on unnegotiated checks issued before April 1985.

[5]Beginning in 1967, includes payments for vocational rehabilitation services furnished to disabled persons receiving benefits because of their disabilities. Beginning in 1983, amounts are reduced by amount of reimbursement for unnegotiated benefit checks. The amount shown for 1983 is reduced by $288 million for all unnegotiated checks issued before 1983; reductions in subsequent years are relatively small.

[6]Positive figure represents amounts lent to the OASI Trust Fund from the DI and HI Trust Funds. Negative figures represent amounts repaid from the OASI Trust Fund to the DI and HI Trust Funds.

TABLE 19.—OPERATIONS OF THE OASI TRUST FUND DURING SELECTED CALENDAR YEARS 1940-87 AND ESTIMATED FUTURE OPERATIONS DURING CALENDAR YEARS 1988-92 ON THE BASIS OF THE INTERMEDIATE SETS OF ASSUMPTIONS

[In millions]

| Calendar year | Income | | | | | Disbursements | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | Net contributions[1] | Income from taxation of benefits | Payments from the general fund of the Treasury[2] | Net interest[3] | Total | Benefit payments[4] | Administrative expenses | Transfers to Railroad Retirement program | Interfund borrowing transfers[5] | Net increase in fund | Fund at end of period |
| Past experience: | | | | | | | | | | | | |
| 1940 | $368 | $325 | — | — | $43 | $62 | $35 | $26 | — | — | $306 | $2,031 |
| 1945 | 1,420 | 1,285 | — | — | 134 | 304 | 274 | 30 | — | — | 1,116 | 7,121 |
| 1950 | 2,928 | 2,667 | — | $4 | 257 | 1,022 | 961 | 61 | — | — | 1,905 | 13,721 |
| 1955 | 6,167 | 5,713 | — | — | 454 | 5,079 | 4,968 | 119 | -$7 | — | 1,087 | 21,663 |
| 1960 | 11,382 | 10,866 | — | — | 516 | 11,198 | 10,677 | 203 | 318 | — | 184 | 20,324 |
| 1965 | 16,610 | 16,017 | — | — | 593 | 17,501 | 16,737 | 328 | 436 | — | -890 | 18,235 |
| 1970 | 32,220 | 30,256 | — | 449 | 1,515 | 29,848 | 28,798 | 471 | 579 | — | 2,371 | 32,454 |
| 1975 | 59,605 | 56,816 | — | 425 | 2,364 | 60,395 | 58,517 | 896 | 982 | — | -790 | 36,987 |
| 1980 | 105,841 | 103,456 | — | 540 | 1,845 | 107,678 | 105,083 | 1,154 | 1,442 | — | -1,837 | 22,823 |
| 1981 | 125,361 | 122,627 | — | 675 | 2,060 | 126,695 | 123,803 | 1,307 | 1,585 | — | -1,334 | 21,490 |
| 1982 | 125,198 | 123,673 | — | 660 | 845 | 142,119 | 138,806 | 1,519 | 1,793 | $17,519 | 598 | 22,088 |
| 1983 | 150,584 | 138,337 | — | 5,541 | 6,706 | 152,999 | 149,221 | 1,528 | 2,251 | — | -2,416 | 19,672 |
| 1984 | 169,328 | 164,122 | $2,835 | 105 | 2,266 | 161,883 | 157,841 | 1,638 | 2,404 | — | 7,445 | 27,117 |
| 1985 | 184,239 | 176,958 | 3,208 | 2,203 | 1,871 | 171,150 | 167,248 | 1,592 | 2,310 | -4,364 | 8,725 | 35,842 |
| 1986 | 197,393 | 190,741 | 3,424 | 160 | 3,069 | 181,000 | 176,813 | 1,601 | 2,585 | -13,155 | 3,239 | 39,081 |
| 1987 | 210,736 | 202,735 | 3,257 | 55 | 4,690 | 187,668 | 183,587 | 1,524 | 2,557 | — | 23,068 | 62,149 |
| Alternative II-A: | | | | | | | | | | | | |
| 1988 | 240,597 | 229,805 | 3,347 | 43 | 7,403 | 199,965 | 195,419 | 1,704 | 2,842 | — | 40,632 | 102,781 |
| 1989 | 258,873 | 243,939 | 3,782 | 34 | 11,118 | 211,399 | 206,667 | 1,771 | 2,960 | — | 47,474 | 150,256 |
| 1990 | 282,769 | 263,274 | 4,383 | -377 | 15,509 | 225,358 | 220,452 | 1,855 | 3,050 | — | 57,431 | 207,687 |
| 1991 | 305,457 | 280,337 | 4,855 | 22 | 20,243 | 238,622 | 233,499 | 1,934 | 3,186 | — | 66,835 | 274,522 |
| 1992 | 328,280 | 297,872 | 5,267 | 17 | 25,125 | 250,847 | 245,502 | 2,012 | 3,333 | — | 77,433 | 351,954 |
| Alternative II-B: | | | | | | | | | | | | |
| 1988 | 239,960 | 229,165 | 3,347 | 43 | 7,406 | 199,965 | 195,419 | 1,704 | 2,842 | — | 39,995 | 102,144 |
| 1989 | 257,284 | 242,363 | 3,796 | 34 | 11,091 | 212,187 | 207,455 | 1,770 | 2,962 | — | 45,097 | 147,241 |
| 1990 | 280,590 | 260,713 | 4,420 | 37 | 15,420 | 227,231 | 222,312 | 1,853 | 3,066 | — | 53,359 | 200,600 |
| 1991 | 302,578 | 277,454 | 4,927 | 22 | 20,174 | 242,126 | 236,961 | 1,938 | 3,226 | — | 60,452 | 261,052 |
| 1992 | 326,640 | 296,011 | 5,398 | 17 | 25,214 | 257,047 | 251,616 | 2,029 | 3,401 | — | 69,594 | 330,646 |

See following page for footnotes.

[1]Beginning in 1983, includes government contributions on deemed wage credits for military service in 1957 and later. The amount shown for 1983 includes, in addition to the annual contributions on 1983 wage credits, a net amount of $5,388 million representing (1) retroactive contributions on deemed wage credits for military service in 1957-82, less (2) all reimbursements received prior to 1983 for the costs of such credits. An adjustment to these amounts totaling $466 million was transferred to the trust fund from the general fund of the Treasury in 1984.

[2]Includes payments (1) in 1947-51 and in 1966 and later, for costs of noncontributory wage credits for military service performed before 1957; (2) in 1971-82, for costs of deemed wage credits for military service performed after 1956; and (3) in 1968 and later, for costs of benefits to certain uninsured persons who attained age 72 before 1968.

[3]Net interest includes net profits or losses on marketable investments. Beginning in 1967, administrative expenses are charged currently to the trust fund on an estimated basis, with a final adjustment, including interest, made in the following fiscal year. The amounts of these interest adjustments are included in net interest. For years prior to 1967, a description of the method of accounting for administrative expenses is contained in the 1970 Annual Report. Beginning in 1983, these figures reflect payments from a borrowing trust fund to a lending trust fund for interest on amounts owed under the interfund borrowing provisions. Also, beginning in 1983, interest paid from the trust fund to the general fund on advance tax transfers is reflected. The amount shown for 1983 includes $6,677 million in interest on (1) retroactive government contributions on deemed wage credits for military service in 1957-82, and (2) unnegotiated benefit checks issued before 1983. The amount shown for 1984 includes an interest adjustment of $1,732 million on government contributions on deemed wage credits for military service in 1957-83. The amount shown for 1985 includes an interest adjustment of $88 million on unnegotiated checks issued before April 1985.

[4]Beginning in 1966, includes payments for vocational rehabilitation services furnished to disabled persons receiving benefits because of their disabilities. Beginning in 1983, amounts are reduced by amount of reimbursement for unnegotiated benefit checks. The amount shown for 1983 is reduced by $288 million for all unnegotiated checks issued before 1983; reductions in subsequent years are relatively small.

[5]Positive figure represents amounts lent to the OASI Trust Fund from the DI and HI Trust Funds. Negative figures represent amounts repaid from the OASI Trust Fund to the DI and HI Trust Funds.

TABLE 20.—OPERATIONS OF THE DI TRUST FUND DURING SELECTED FISCAL YEARS 1960-87 AND ESTIMATED FUTURE OPERATIONS DURING FISCAL YEARS 1988-92 ON THE BASIS OF THE INTERMEDIATE SETS OF ASSUMPTIONS

[In millions]

| | Income | | | | | Disbursements | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fiscal year[1] | Total | Net contributions[2] | Income from taxation of benefits | Payments from the general fund of the Treasury[3] | Net interest[4] | Total | Benefit payments[5] | Administrative expenses | Transfers to Railroad Retirement program | Interfund borrowing transfers[6] | Net increase in fund | Fund at end of period |
| Past experience: | | | | | | | | | | | | |
| 1960 | $1,034 | $987 | — | — | $47 | $533 | $528 | $32 | -$27 | — | $501 | $2,167 |
| 1965 | 1,237 | 1,175 | — | — | 62 | 1,495 | 1,392 | 79 | 24 | — | -257 | 2,007 |
| 1970 | 4,380 | 4,141 | — | $16 | 223 | 2,954 | 2,795 | 149 | 10 | — | 1,426 | 5,104 |
| 1975 | 7,920 | 7,356 | — | 52 | 512 | 7,982 | 7,701 | 253 | 29 | — | -62 | 8,191 |
| 1980 | 17,376 | 16,805 | — | 118 | 453 | 15,320 | 14,998 | 334 | -12 | — | 2,058 | 7,680 |
| 1981 | 12,993 | 12,589 | — | 130 | 273 | 17,280 | 16,846 | 405 | 29 | — | -4,288 | 3,392 |
| 1982 | 21,398 | 20,866 | — | 168 | 363 | 18,035 | 17,437 | 572 | 26 | — | 3,363 | 6,755 |
| 1983 | 21,846 | 19,036 | — | 1,295 | 1,515 | 18,231 | 17,544 | 659 | 28 | -$5,081 | -1,466 | 5,290 |
| 1984 | 17,732 | 16,394 | $143 | — | 1,195 | 18,379 | 17,772 | 585 | 22 | — | -647 | 4,643 |
| 1985 | 17,984 | 16,876 | 217 | — | 891 | 19,294 | 18,648 | 603 | 43 | 2,540 | 1,230 | 5,873 |
| 1986 | 20,130 | 18,139 | 229 | 1,017 | 746 | 20,196 | 19,529 | 600 | 68 | 2,541 | 2,475 | 8,348 |
| 1987 | 20,047 | 19,324 | [7]-16 | — | 738 | 21,222 | 20,427 | 738 | 57 | — | -1,175 | 7,173 |
| Alternative II-A: | | | | | | | | | | | | |
| 1988 | 22,373 | 21,608 | 176 | — | 589 | 22,148 | 21,338 | 761 | 49 | — | 225 | 7,398 |
| 1989 | 23,933 | 23,083 | 209 | — | 640 | 23,371 | 22,508 | 814 | 49 | — | 562 | 7,959 |
| 1990 | 27,927 | 26,960 | 239 | — | 728 | 24,487 | 23,580 | 859 | 48 | — | 3,441 | 11,400 |
| 1991 | 31,000 | 29,620 | 261 | 58 | 1,063 | 25,797 | 24,853 | 902 | 42 | — | 5,202 | 16,603 |
| 1992 | 33,100 | 31,337 | 294 | — | 1,469 | 27,206 | 26,216 | 947 | 44 | — | 5,893 | 22,496 |
| Alternative II-B: | | | | | | | | | | | | |
| 1988 | 22,331 | 21,566 | 176 | — | 589 | 22,148 | 21,338 | 761 | 49 | — | 183 | 7,355 |
| 1989 | 23,802 | 22,958 | 210 | — | 635 | 23,434 | 22,571 | 814 | 49 | — | 368 | 7,724 |
| 1990 | 27,660 | 26,718 | 241 | — | 703 | 24,650 | 23,744 | 857 | 49 | — | 3,010 | 10,733 |
| 1991 | 30,665 | 29,303 | 264 | 79 | 1,018 | 26,103 | 25,156 | 903 | 44 | — | 4,562 | 15,295 |
| 1992 | 32,623 | 31,113 | 299 | — | 1,411 | 27,738 | 26,738 | 953 | 47 | — | 5,085 | 20,381 |

See following page for footnotes.

[1]Under the Congressional Budget Act of 1974 (Public Law 93-344), fiscal years 1977 and later consist of the 12 months ending on September 30 of each year. The act further provides that the calendar quarter July-September 1976 is a period of transition from fiscal year 1976, which ended on June 30, 1976, to fiscal year 1977, which began on October 1, 1976.

[2]Beginning in 1983, includes government contributions on deemed wage credits for military service in 1957 and later. The amount shown for 1983 includes, in addition to the annual contributions on 1983 wage credits, a net amount of $402 million representing (1) retroactive contributions on deemed wage credits for military service in 1957-82, less (2) all reimbursements received prior to 1983 for the costs of such credits. An adjustment to these amounts totaling $62 million was transferred to the trust fund from the general fund of the Treasury in 1984.

[3]Includes payments (1) in 1967 and later, for costs of noncontributory wage credits for military service performed before 1957; and (2) in 1972-83, for costs of deemed wage credits for military service performed after 1956.

[4]Net interest includes net profits or losses on marketable investments. Beginning in 1967, administrative expenses are charged currently to the trust fund on an estimated basis, with a final adjustment, including interest, made in the following fiscal year. The amounts of these interest adjustments are included in net interest. For years prior to 1967, a description of the method of accounting for administrative expenses is contained in the 1970 Annual Report. Beginning in 1983, these figures reflect payments from a borrowing trust fund to a lending trust fund for interest on amounts owed under the interfund borrowing provisions. Also, beginning in 1983, interest paid from the trust fund to the general fund on advance tax transfers is reflected. The amount shown for 1983 includes $660 million in interest on (1) retroactive government contributions on deemed wage credits for military service in 1957-82, and (2) unnegotiated benefit checks issued before 1983. The amount shown for 1984 includes an interest adjustment of $169 million on government contributions on deemed wage credits for military service in 1957-83. The amount shown for 1985 includes an interest adjustment of $14.8 million on unnegotiated checks issued before April 1985.

[5]Beginning in 1967, includes payments for vocational rehabilitation services furnished to disabled persons receiving benefits because of their disabilities. Beginning in 1983, amounts are reduced by amount of reimbursement for unnegotiated benefit checks. The amount shown for 1983 is reduced by $48 million for all unnegotiated checks issued before 1983; reductions in subsequent years are relatively small.

[6]Negative figure represents amounts lent by the DI Trust Fund to the OASI Trust Fund. Positive figures represent repayment of these amounts.

[7]Reflects $195 million in transfers from the DI Trust Fund to the general fund of the Treasury to correct estimated amounts transferred for calendar years 1984 and 1985.

TABLE 21.—OPERATIONS OF THE DI TRUST FUND DURING SELECTED CALENDAR YEARS 1960-87 AND ESTIMATED FUTURE OPERATIONS DURING CALENDAR YEARS 1988-92 ON THE BASIS OF THE INTERMEDIATE SETS OF ASSUMPTIONS

[In millions]

| | Income | | | | | Disbursements | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Calendar year | Total | Net contributions[1] | Income from taxation of benefits | Payments from the general fund of the Treasury[2] | Net interest[3] | Total | Benefit payments[4] | Administrative expenses | Transfers to Railroad Retirement program | Interfund borrowing transfers[5] | Net increase in fund | Fund at end of period |
| Past experience: | | | | | | | | | | | | |
| 1960 | $1,063 | $1,010 | — | — | $53 | $600 | $568 | $36 | -$5 | — | $464 | $2,289 |
| 1965 | 1,247 | 1,188 | — | — | 59 | 1,687 | 1,573 | 90 | 24 | — | -440 | 1,606 |
| 1970 | 4,774 | 4,481 | — | $18 | 277 | 3,259 | 3,085 | 164 | 10 | — | 1,514 | 5,614 |
| 1975 | 8,035 | 7,444 | — | 90 | 502 | 8,790 | 8,505 | 256 | 29 | — | -754 | 7,354 |
| 1980 | 13,871 | 13,255 | — | 130 | 485 | 15,872 | 15,515 | 368 | -12 | — | -2,001 | 3,629 |
| 1981 | 17,078 | 16,738 | — | 168 | 172 | 17,658 | 17,192 | 436 | 29 | — | -580 | 3,049 |
| 1982 | 22,715 | 21,995 | — | 174 | 546 | 17,992 | 17,376 | 590 | 26 | -$5,081 | -358 | 2,691 |
| 1983 | 20,682 | 17,991 | — | 1,121 | 1,569 | 18,177 | 17,524 | 625 | 28 | — | 2,505 | 5,195 |
| 1984 | 17,309 | 15,945 | $190 | — | 1,174 | 18,546 | 17,898 | 626 | 22 | — | -1,237 | 3,959 |
| 1985 | 19,301 | 17,191 | 222 | 1,017 | 870 | 19,478 | 18,827 | 608 | 43 | 2,540 | 2,363 | 6,321 |
| 1986 | 19,439 | 18,399 | 238 | — | 803 | 20,522 | 19,853 | 600 | 68 | 2,541 | 1,459 | 7,780 |
| 1987 | 20,303 | 19,691 | [6]-36 | — | 648 | 21,425 | 20,519 | 849 | 57 | — | -1,122 | 6,858 |
| Alternative II-A: | | | | | | | | | | | | |
| 1988 | 22,836 | 22,032 | 182 | — | 622 | 22,440 | 21,703 | 688 | 49 | — | 396 | 7,054 |
| 1989 | 24,258 | 23,377 | 217 | — | 663 | 23,635 | 22,761 | 825 | 49 | — | 623 | 7,677 |
| 1990 | 29,220 | 28,045 | 247 | 56 | 872 | 24,790 | 23,872 | 869 | 48 | — | 4,430 | 12,107 |
| 1991 | 31,569 | 30,040 | 266 | — | 1,264 | 26,153 | 25,198 | 913 | 42 | — | 5,416 | 17,523 |
| 1992 | 33,879 | 31,908 | 303 | — | 1,668 | 27,581 | 26,579 | 958 | 44 | — | 6,298 | 23,821 |
| Alternative II-B: | | | | | | | | | | | | |
| 1988 | 22,776 | 21,974 | 182 | — | 620 | 22,440 | 21,703 | 688 | 49 | — | 336 | 6,994 |
| 1989 | 24,097 | 23,230 | 218 | — | 649 | 23,718 | 22,845 | 825 | 49 | — | 379 | 7,373 |
| 1990 | 28,938 | 27,773 | 249 | 79 | 837 | 24,979 | 24,062 | 868 | 49 | — | 3,959 | 11,332 |
| 1991 | 31,210 | 29,729 | 270 | — | 1,211 | 26,495 | 25,536 | 915 | 44 | — | 4,715 | 16,046 |
| 1992 | 33,630 | 31,710 | 310 | — | 1,610 | 28,173 | 27,160 | 966 | 47 | — | 5,457 | 21,504 |

See following page for footnotes.

[1]Beginning in 1983, includes government contributions on deemed wage credits for military service in 1957 and later. The amount shown for 1983 includes, in addition to the annual contributions on 1983 wage credits, a net amount of $402 million representing (1) retroactive contributions on deemed wage credits for military service in 1957-82, less (2) all reimbursements received prior to 1983 for the costs of such credits. An adjustment to these amounts totaling $62 million was transferred to the trust fund from the general fund of the Treasury in 1984.

[2]Includes payments (1) in 1966 and later, for costs of noncontributory wage credits for military service performed before 1957; and (2) in 1971-82, for costs of deemed wage credits for military service performed after 1956.

[3]Net interest includes net profits or losses on marketable investments. Beginning in 1967, administrative expenses are charged currently to the trust fund on an estimated basis, with a final adjustment, including interest, made in the following fiscal year. The amounts of these interest adjustments are included in net interest. For years prior to 1967, a description of the method of accounting for administrative expenses is contained in the 1970 Annual Report. Beginning in 1983, these figures reflect payments from a borrowing trust fund to a lending trust fund for interest on amounts owed under the interfund borrowing provisions. Also, beginning in 1983, interest paid from the trust fund to the general fund on advance tax transfers is reflected. The amount shown for 1983 includes $660 million in interest on (1) retroactive government contributions on deemed wage credits for military service in 1957-82, and (2) unnegotiated benefit checks issued before 1983. The amount shown for 1984 includes an interest adjustment of $169 million on government contributions on deemed wage credits for military service in 1957-83. The amount shown for 1985 includes an interest adjustment of $14.8 million on unnegotiated checks issued before April 1985.

[4]Beginning in 1966, includes payments for vocational rehabilitation services furnished to disabled persons receiving benefits because of their disabilities. Beginning in 1983, amounts are reduced by amount of reimbursement for unnegotiated benefit checks. The amount shown for 1983 is reduced by $48 million for all unnegotiated checks issued before 1983; reductions in subsequent years are relatively small.

[5]Negative figure represents amounts lent by the DI Trust Fund to the OASI Trust Fund. Positive figures represent repayment of these amounts.

[6]Reflects $195 million in transfers from the DI Trust Fund to the general fund of the Treasury to correct estimated amounts transferred for calendar years 1984 and 1985.

TABLE 22.—OPERATIONS OF THE OASI AND DI TRUST FUNDS, COMBINED, DURING SELECTED FISCAL YEARS 1960-87 AND ESTIMATED FUTURE OPERATIONS DURING FISCAL YEARS 1988-92 ON THE BASIS OF THE INTERMEDIATE SETS OF ASSUMPTIONS

[In millions]

| | Income | | | | | Disbursements | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fiscal year[1] | Total | Net contributions[2] | Income from taxation of benefits | Payments from the general fund of the Treasury[3] | Net interest[4] | Total | Benefit payments[5] | Administrative expenses | Transfers to Railroad Retirement program | Interfund borrowing transfers[6] | Net increase in funds | Funds at end of period |
| Past experience: | | | | | | | | | | | | |
| 1960 | $11,394 | $10,830 | — | — | $564 | $11,606 | $10,798 | $234 | $574 | — | -$212 | $22,996 |
| 1965 | 17,681 | 17,032 | — | — | 648 | 17,456 | 16,618 | 379 | 459 | — | 224 | 22,187 |
| 1970 | 36,127 | 34,096 | — | $458 | 1,572 | 30,275 | 29,063 | 623 | 589 | — | 5,851 | 37,720 |
| 1975 | 66,677 | 63,374 | — | 499 | 2,804 | 64,658 | 62,547 | 1,101 | 1,010 | — | 2,018 | 48,138 |
| 1980 | 117,427 | 114,413 | — | 675 | 2,339 | 118,548 | 115,624 | 1,494 | 1,430 | — | -1,121 | 32,248 |
| 1981 | 134,565 | 131,606 | — | 670 | 2,289 | 139,584 | 138,267 | 1,703 | 1,814 | — | -5,019 | 27,226 |
| 1982 | 148,027 | 145,113 | — | 843 | 2,072 | 155,963 | 152,097 | 2,046 | 1,820 | — | -7,938 | 19,290 |
| 1983 | 170,280 | 155,163 | — | 7,391 | 7,725 | 170,058 | 165,569 | 2,210 | 2,279 | $12,437 | 12,660 | 31,950 |
| 1984 | 178,461 | 172,946 | $2,275 | 125 | 3,114 | 178,199 | 173,603 | 2,170 | 2,426 | — | 282 | 32,212 |
| 1985 | 197,865 | 192,181 | 3,368 | 105 | 2,211 | 188,504 | 183,959 | 2,192 | 2,353 | -1,824 | 7,538 | 39,750 |
| 1986 | 215,461 | 205,146 | 3,558 | 3,310 | 3,447 | 198,730 | 193,869 | 2,209 | 2,653 | -10,613 | 8,117 | 45,867 |
| 1987 | 226,893 | 218,878 | 3,307 | 69 | 4,638 | 207,323 | 202,430 | 2,279 | 2,614 | — | 19,570 | 65,437 |
| Alternative II-A: | | | | | | | | | | | | |
| 1988 | 256,706 | 246,762 | 3,470 | 55 | 6,419 | 218,990 | 213,698 | 2,401 | 2,891 | — | 37,716 | 103,154 |
| 1989 | 277,664 | 263,957 | 3,881 | 43 | 9,783 | 231,928 | 226,354 | 2,564 | 3,009 | — | 45,737 | 148,890 |
| 1990 | 304,363 | 285,882 | 4,470 | 34 | 13,977 | 246,291 | 240,498 | 2,694 | 3,098 | — | 58,072 | 206,962 |
| 1991 | 329,610 | 306,032 | 5,000 | -321 | 18,899 | 261,245 | 255,197 | 2,817 | 3,230 | — | 68,365 | 275,327 |
| 1992 | 353,575 | 323,899 | 5,457 | 22 | 24,198 | 275,013 | 268,696 | 2,940 | 3,377 | — | 78,563 | 353,889 |
| Alternative II-B: | | | | | | | | | | | | |
| 1988 | 256,216 | 246,274 | 3,470 | 55 | 6,417 | 218,990 | 213,698 | 2,401 | 2,891 | — | 37,228 | 102,664 |
| 1989 | 276,191 | 262,478 | 3,892 | 43 | 9,778 | 232,583 | 227,008 | 2,564 | 3,011 | — | 43,608 | 146,271 |
| 1990 | 301,708 | 283,285 | 4,503 | 34 | 13,686 | 248,059 | 242,256 | 2,689 | 3,114 | — | 53,648 | 199,919 |
| 1991 | 326,893 | 302,754 | 5,067 | 116 | 18,757 | 264,654 | 258,565 | 2,818 | 3,270 | — | 82,039 | 261,959 |
| 1992 | 351,287 | 321,576 | 5,579 | 22 | 24,110 | 281,081 | 274,674 | 2,959 | 3,448 | — | 70,206 | 332,164 |

See following page for footnotes.

[1]Under the Congressional Budget Act of 1974 (Public Law 93-344), fiscal years 1977 and later consist of the 12 months ending on September 30 of each year. The act further provides that the calendar quarter July-September 1976 is a period of transition from fiscal year 1976, which ended on June 30, 1976, to fiscal year 1977, which began on October 1, 1976.

[2]Beginning in 1983, includes government contributions on deemed wage credits for military service in 1957 and later. The amount shown for 1983 includes, in addition to the annual contributions on 1983 wage credits, a net amount of $5,790 million representing (1) retroactive contributions on deemed wage credits for military service in 1957-82, less (2) all reimbursements received prior to 1983 for the costs of such credits. An adjustment to these amounts totaling $528 million was transferred to the trust funds from the general fund of the Treasury in 1984.

[3]Includes payments (1) in 1947-52 and in 1967 and later, for costs of noncontributory wage credits for military service performed before 1957; (2) in 1972-83, for costs of deemed wage credits for military service performed after 1956; and (3) in 1969 and later, for costs of benefits to certain uninsured persons who attained age 72 before 1968.

[4]Net interest includes net profits or losses on marketable investments. Beginning in 1967, administrative expenses are charged currently to the trust funds on an estimated basis, with a final adjustment, including interest, made in the following fiscal year. The amounts of these interest adjustments are included in net interest. For years prior to 1967, a description of the method of accounting for administrative expenses is contained in the 1970 Annual Report. Beginning in 1983, these figures reflect payments from a borrowing trust fund to a lending trust fund for interest on amounts owed under the interfund borrowing provisions. Also, beginning in 1983, interest paid from the trust funds to the general fund of the Treasury on advance tax transfers is reflected. The amount shown for 1983 includes $7,337 million in interest on (1) retroactive government contributions on deemed wage credits for military service in 1957-82, and (2) unnegotiated benefit checks issued before 1983. The amount shown for 1984 includes an interest adjustment of $1,901 million on government contributions on deemed wage credits for military service in 1957-83. The amounts shown for 1985 and 1986 include interest adjustments of $91.3 million and $11.5 million, respectively, on unnegotiated checks issued before April 1985.

[5]Beginning in 1967, includes payments for vocational rehabilitation services furnished to disabled persons receiving benefits because of their disabilities. Beginning in 1983, amounts are reduced by amount of reimbursement for unnegotiated benefit checks. The amount shown for 1983 is reduced by $336 million for all unnegotiated checks issued before 1983; reductions in subsequent years are relatively small.

[6]Positive figure represents amounts lent to the OASI Trust Fund from the HI Trust Fund. Negative figures represent amounts repaid from the OASI Trust Fund to the HI Trust Fund.

TABLE 23.—OPERATIONS OF THE OASI AND DI TRUST FUNDS, COMBINED, DURING SELECTED CALENDAR YEARS 1960-87 AND ESTIMATED FUTURE OPERATIONS DURING CALENDAR YEARS 1988-92 ON THE BASIS OF THE INTERMEDIATE SETS OF ASSUMPTIONS

[In millions]

| | Income | | | | | Disbursements | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Calendar year | Total | Net contributions[1] | Income from taxation of benefits | Payments from the general fund of the Treasury[2] | Net interest[3] | Total | Benefit payments[4] | Administrative expenses | Transfers to Railroad Retirement program | Interfund borrowing transfers[5] | Net increase in funds | Funds at end of period |
| Past experience: | | | | | | | | | | | | |
| 1960 | $12,445 | $11,878 | — | — | $569 | $11,798 | $11,245 | $240 | $314 | — | $647 | $22,613 |
| 1965 | 17,857 | 17,205 | — | — | 651 | 19,187 | 18,311 | 418 | 459 | — | -1,331 | 19,841 |
| 1970 | 36,993 | 34,737 | — | $465 | 1,791 | 33,108 | 31,884 | 635 | 589 | — | 3,886 | 38,068 |
| 1975 | 67,640 | 64,259 | — | 515 | 2,866 | 69,184 | 67,022 | 1,152 | 1,010 | — | -1,544 | 44,342 |
| 1980 | 119,712 | 116,711 | — | 670 | 2,330 | 123,550 | 120,598 | 1,522 | 1,430 | — | -3,838 | 26,453 |
| 1981 | 142,438 | 139,364 | — | 843 | 2,231 | 144,352 | 140,995 | 1,743 | 1,614 | — | -1,914 | 24,539 |
| 1982 | 147,913 | 145,667 | — | 854 | 1,391 | 160,111 | 156,182 | 2,109 | 1,820 | $12,437 | 239 | 24,778 |
| 1983 | 171,266 | 156,328 | — | 6,662 | 8,276 | 171,177 | 166,744 | 2,153 | 2,279 | — | 89 | 24,867 |
| 1984 | 186,637 | 180,066 | $3,025 | 105 | 3,440 | 180,429 | 175,739 | 2,264 | 2,426 | — | 6,208 | 31,075 |
| 1985 | 203,540 | 194,149 | 3,430 | 3,220 | 2,741 | 190,628 | 186,075 | 2,200 | 2,353 | -1,824 | 11,088 | 42,163 |
| 1986 | 216,833 | 209,140 | 3,662 | 160 | 3,871 | 201,522 | 196,667 | 2,202 | 2,653 | -10,613 | 4,698 | 46,861 |
| 1987 | 231,039 | 222,425 | 3,221 | 55 | 5,338 | 209,093 | 204,106 | 2,373 | 2,614 | — | 21,946 | 68,807 |
| Alternative II-A: | | | | | | | | | | | | |
| 1988 | 263,434 | 251,837 | 3,529 | 43 | 8,025 | 222,405 | 217,123 | 2,392 | 2,891 | — | 41,028 | 109,835 |
| 1989 | 283,131 | 267,316 | 3,999 | 34 | 11,782 | 235,034 | 229,428 | 2,596 | 3,009 | — | 48,097 | 157,933 |
| 1990 | 312,008 | 291,319 | 4,630 | -321 | 16,381 | 250,148 | 244,325 | 2,724 | 3,098 | — | 61,861 | 219,793 |
| 1991 | 337,026 | 310,377 | 5,121 | 22 | 21,506 | 264,775 | 258,697 | 2,848 | 3,230 | — | 72,251 | 292,045 |
| 1992 | 362,159 | 329,780 | 5,570 | 17 | 26,793 | 278,428 | 272,081 | 2,970 | 3,377 | — | 83,731 | 375,775 |
| Alternative II-B: | | | | | | | | | | | | |
| 1988 | 262,737 | 251,139 | 3,529 | 43 | 8,026 | 222,405 | 217,122 | 2,392 | 2,891 | — | 40,332 | 109,139 |
| 1989 | 281,381 | 265,593 | 4,014 | 34 | 11,740 | 235,905 | 230,300 | 2,595 | 3,011 | — | 45,475 | 154,614 |
| 1990 | 309,527 | 288,486 | 4,669 | 116 | 16,257 | 252,209 | 246,374 | 2,721 | 3,114 | — | 57,318 | 211,932 |
| 1991 | 333,787 | 307,183 | 5,197 | 22 | 21,386 | 268,621 | 262,498 | 2,853 | 3,270 | — | 65,167 | 277,098 |
| 1992 | 360,270 | 327,721 | 5,708 | 17 | 26,824 | 285,219 | 278,778 | 2,995 | 3,448 | — | 75,051 | 352,149 |

See following page for footnotes.

[1]Beginning in 1983, includes government contributions on deemed wage credits for military service in 1957 and later. The amount shown for 1983 includes, in addition to the annual contributions on 1983 wage credits, a net amount of $5,790 million representing (1) retroactive contributions on deemed wage credits for military service in 1957-82, less (2) all reimbursements received prior to 1983 for the costs of such credits. An adjustment to these amounts totaling $528 million was transferred to the trust funds from the general fund of the Treasury in 1984.

[2]Includes payments (1) in 1947-51 and in 1966 and later, for costs of noncontributory wage credits for military service performed before 1957; (2) in 1971-82, for costs of deemed wage credits for military service performed after 1956; and (3) in 1968 and later, for costs of benefits to certain uninsured persons who attained age 72 before 1968.

[3]Net interest includes net profits or losses on marketable investments. Beginning in 1967, administrative expenses are charged currently to the trust funds on an estimated basis, with a final adjustment, including interest, made in the following fiscal year. The amounts of these interest adjustments are included in net interest. For years prior to 1967, a description of the method of accounting for administrative expenses is contained in the 1970 Annual Report. Beginning in 1983, these figures reflect payments from a borrowing trust fund to a lending trust fund for interest on amounts owed under the interfund borrowing provisions. Also, beginning in 1983, interest paid from the trust funds to the general fund of the Treasury on advance tax transfers is reflected. The amount shown for 1983 includes $7,337 million in interest on (1) retroactive government contributions on deemed wage credits for military service in 1957-82, and (2) unnegotiated benefit checks issued before 1983. The amount shown for 1984 includes an interest adjustment of $1,901 million on government contributions on deemed wage credits for military service in 1957-83. The amount shown for 1985 includes an interest adjustment of $102.8 million on unnegotiated checks issued before April 1985.

[4]Beginning in 1966, includes payments for vocational rehabilitation services furnished to disabled persons receiving benefits because of their disabilities. Beginning in 1983, amounts are reduced by amount of reimbursement for unnegotiated benefit checks. The amount shown for 1983 is reduced by $336 million for all unnegotiated checks issued before 1983; reductions in subsequent years are relatively small.

[5]Positive figure represents amounts lent to the OASI Trust Fund from the HI Trust Fund. Negative figures represent amounts repaid from the OASI Trust Fund to the HI Trust Fund.

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

### *(Required by section 201(c) of the Social Security Act)*

Effective January 1957, monthly benefits have been payable from the OASI Trust Fund to disabled children aged 18 and over of retired and deceased workers in those cases for which the disability began before age 18. The age before which disability is required to have begun was subsequently changed to age 22. Effective February 1968, reduced monthly benefits have been payable from this trust fund to disabled widows and widowers at ages 50 and above.

On December 31, 1987, about 629,000 persons were receiving monthly benefits from the OASI Trust Fund because of their disabilities or the disabilities of children. This total includes 54,000 mothers and fathers (wives or husbands under age 65 of retired-worker beneficiaries and widows or widowers of deceased insured workers) who met all other qualifying requirements and were receiving unreduced benefits solely because they had disabled-child beneficiaries (or disabled children aged 16 or 17) in their care. Benefits paid from this trust fund to the persons described above totaled $2,314 million in calendar year 1987. Table 24 shows these and similar figures for selected calendar years during 1960-87, and estimated experience for 1988-92.

TABLE 24.—BENEFITS PAYABLE FROM THE OASI TRUST FUND WITH RESPECT TO DISABLED BENEFICIARIES, SELECTED CALENDAR YEARS 1960-92

[Beneficiaries in thousands; benefit payments in millions]

| Calendar year | Disabled beneficiaries, end of year | | | Amount of benefit payments[1] | | |
|---|---|---|---|---|---|---|
| | Total | Children[2] | Widows-widowers | Total | Children[2] | Widows-widowers[3] |
| Past experience: | | | | | | |
| 1960 | 117 | 117 | — | $59 | $59 | — |
| 1965 | 214 | 214 | — | 134 | 134 | — |
| 1970 | 316 | 281 | 36 | 301 | 260 | $41 |
| 1975 | 435 | 376 | 59 | 664 | 560 | 104 |
| 1980 | 519 | 460 | 59 | 1,223 | 1,097 | 126 |
| 1981 | 527 | 473 | 54 | 1,421 | 1,296 | 125 |
| 1982 | 533 | 484 | 49 | 1,566 | 1,451 | 115 |
| 1983 | 550 | 504 | 46 | 1,691 | 1,581 | 110 |
| 1984 | 574 | 528 | 47 | 1,682 | 1,707 | 175 |
| 1985 | 594 | 547 | 47 | 2,043 | 1,860 | 183 |
| 1986 | 614 | 565 | 49 | 2,198 | 2,001 | 197 |
| 1987 | 629 | 580 | 49 | 2,314 | 2,111 | 203 |
| Alternative II-A: | | | | | | |
| 1988 | 643 | 595 | 48 | 2,496 | 2,281 | 214 |
| 1989 | 658 | 610 | 48 | 2,662 | 2,439 | 222 |
| 1990 | 672 | 625 | 47 | 2,854 | 2,623 | 232 |
| 1991 | 687 | 640 | 47 | 3,047 | 2,805 | 242 |
| 1992 | 702 | 655 | 48 | 3,236 | 2,982 | 254 |
| Alternative II-B: | | | | | | |
| 1988 | 643 | 595 | 48 | 2,496 | 2,281 | 214 |
| 1989 | 658 | 610 | 48 | 2,671 | 2,448 | 223 |
| 1990 | 672 | 625 | 47 | 2,878 | 2,645 | 234 |
| 1991 | 687 | 640 | 47 | 3,092 | 2,846 | 245 |
| 1992 | 702 | 655 | 48 | 3,316 | 3,056 | 260 |

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

[2]Also includes certain mothers and fathers (see text).

[3]In 1983 and prior years, reflects the offsetting effect of lower benefits payable to disabled widows and widowers who continue to receive benefits after attaining 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.

Total benefit payments from the OASI Trust Fund with respect to disabled beneficiaries are estimated to increase from $2,496 million in

calendar year 1988 to $3,236 million in calendar year 1992, based on alternative II-A, and to $3,316 million in calendar year 1992, based on alternative II-B.

In calendar year 1987, benefit payments (including expenditures for vocational rehabilitation services) with respect to disabled persons from the OASI Trust Fund and from the DI Trust Fund (including payments from the latter fund to all children and spouses of disabled-worker beneficiaries) totaled $22,841 million, of which $2,314 million, or 10.1 percent, represented payments from the OASI Trust Fund. These and similar figures for selected calendar years during 1960-87 and estimates for calendar years 1988-92 are presented in table 25.

TABLE 25.—BENEFIT PAYMENTS UNDER THE OASDI PROGRAM WITH RESPECT TO DISABLED BENEFICIARIES, BY TRUST FUND, SELECTED CALENDAR YEARS 1960-92
[Amounts in millions]

| Calendar year | Total[1] | DI Trust Fund[2] | OASI Trust Fund | |
|---|---|---|---|---|
| | | | Amount[3] | Percentage of total |
| Past experience: | | | | |
| 1960 | $627 | $568 | $59 | 9.4 |
| 1965 | 1,707 | 1,573 | 134 | 7.9 |
| 1970 | 3,386 | 3,085 | 301 | 8.9 |
| 1975 | 9,169 | 8,505 | 664 | 7.2 |
| 1980 | 16,738 | 15,515 | 1,223 | 7.3 |
| 1981 | 18,613 | 17,192 | 1,421 | 7.6 |
| 1982 | 18,942 | 17,376 | 1,566 | 8.3 |
| 1983 | 19,215 | 17,524 | 1,691 | 8.8 |
| 1984 | 19,782 | 17,900 | 1,882 | 9.5 |
| 1985 | 20,879 | 18,836 | 2,043 | 9.8 |
| 1986 | 22,054 | 19,856 | 2,198 | 10.0 |
| 1987 | 22,841 | 20,527 | 2,314 | 10.1 |
| Alternative II-A: | | | | |
| 1988 | 24,207 | 21,711 | 2,496 | 10.3 |
| 1989 | 25,426 | 22,764 | 2,662 | 10.5 |
| 1990 | 26,729 | 23,875 | 2,854 | 10.7 |
| 1991 | 28,248 | 25,201 | 3,047 | 10.8 |
| 1992 | 29,818 | 26,582 | 3,236 | 10.9 |
| Alternative II-B: | | | | |
| 1988 | 24,202 | 21,706 | 2,496 | 10.3 |
| 1989 | 25,519 | 22,848 | 2,671 | 10.5 |
| 1990 | 26,943 | 24,065 | 2,878 | 10.7 |
| 1991 | 26,631 | 25,539 | 3,092 | 10.8 |
| 1992 | 30,479 | 27,163 | 3,316 | 10.9 |

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

[2]Benefit payments to disabled workers and their children and spouses.

[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 24).

### *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 average actuarial balances, which have been computed, respectively, for the 25-year and 75-year valuation periods beginning with the calendar year of issuance of the report. Thus, the medium-range and long-range actuarial balances shown in this report, calculated on a level-financing basis, pertain to the periods 1988-2012 and 1988-2062, respectively. Also presented is the level-financing actuarial balance for the first 50 years 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, other indicators of the financial conditions of the program are shown in this report. One is the series of projected annual balances (that is, the year-by-year differences between the projected income rates and cost rates). Another is the series of projected contingency fund ratios, with particular attention being paid to the amount and year of maximum fund ratio accumulation and to the year of exhaustion of the funds. Still another indicator is the projected ultimate level of annual balances. These additional indicators are defined in the introduction to this section.

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 estimates for the early years, because almost all of the projected covered workers and beneficiaries were born prior to the start of the projection period. However, lower fertility rates have negative impacts on the actuarial balance in the later years. Variations in economic factors, such as interest rates and increases in wages and prices, have significant effects on the estimates in the short term, as well as the long term. In general, the degree of confidence that can be placed in the assumptions and estimates is greater for the earlier years than for the later years. Nonetheless, even for the earlier years, the estimates are only an indication of the trend and general range of expected future program experience. Appendix B contains a more detailed discussion of the effects on the estimates of varying certain economic and demographic assumptions.

Table 26 presents a comparison of the estimated income and cost rates by trust fund and alternative. As previously mentioned, the annual income rate excludes net interest income, as well as certain other transfers from the general fund of the Treasury. Thus, the difference between the annual income rates and cost rates reflect the long-range effects of the trust-fund operations on a unified budget basis. Detailed long-range projections of trust-fund operations, in nominal dollar amounts, are shown in Appendix G.

The projections for OASDI show income rates that increase slowly and steadily due to the flat tax rate after 1989 and to the slowly increasing effect of the taxation of benefits. The pattern followed by the

cost rates is much different. Costs as a percent of taxable payroll are projected to be relatively stable for about 25 years, to increase rather rapidly for the next 25 years, and to remain relatively high thereafter. The relatively high cost plateau during the third 25-year subperiod is at a level of about 15.5 percent of taxable payroll under the II-A assumptions and about 16.5 percent of taxable payroll under the II-B assumptions. The income rate during the third 25-year subperiod covers about 85 percent of the cost under alternative II-A and about 80 percent of the cost under alternative II-B.

Attention is called to the projected pattern of the OASDI annual balances (that is, the difference between the income rates and the cost rates). Under alternative II-A assumptions the annual balances are positive for about 30 years and change to negative balances thereafter. Ultimately this annual deficit reaches 2.70 percent of taxable payroll by 2065. The pattern is similar under the alternative II-B assumptions, but early year positive balances are smaller and later deficits are larger. The ultimate deficit is 3.68 percent of taxable payroll by 2065 under alternative II-B.

TABLE 26.—COMPARISON OF ESTIMATED INCOME RATES AND COST RATES BY TRUST FUND AND ALTERNATIVE, CALENDAR YEARS 1988-2065
[As a percentage of taxable payroll]

| Calendar year | OASI | | | DI | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Income rate | Cost rate | Balance | Income rate | Cost rate | Balance | Income rate | Cost rate | Balance |
| Alternative I: | | | | | | | | | |
| 1988 | 11.22 | 9.58 | 1.64 | 1.07 | 1.06 | 0.01 | 12.29 | 10.64 | 1.65 |
| 1989 | 11.23 | 9.46 | 1.77 | 1.07 | 1.04 | .03 | 12.30 | 10.50 | 1.80 |
| 1990 | 11.35 | 9.39 | 1.96 | 1.21 | 1.01 | .20 | 12.56 | 10.41 | 2.16 |
| 1991 | 11.39 | 9.27 | 2.12 | 1.21 | .99 | .22 | 12.60 | 10.26 | 2.34 |
| 1992 | 11.39 | 9.15 | 2.24 | 1.21 | .98 | .23 | 12.60 | 10.12 | 2.48 |
| 1993 | 11.39 | 9.01 | 2.39 | 1.21 | .97 | .24 | 12.60 | 9.97 | 2.63 |
| 1994 | 11.39 | 8.87 | 2.52 | 1.21 | .96 | .25 | 12.60 | 9.83 | 2.77 |
| 1995 | 11.39 | 8.75 | 2.64 | 1.21 | .97 | .24 | 12.60 | 9.72 | 2.88 |
| 1996 | 11.39 | 8.63 | 2.75 | 1.21 | .97 | .24 | 12.60 | 9.81 | 2.99 |
| 1997 | 11.39 | 8.53 | 2.86 | 1.21 | .98 | .23 | 12.60 | 9.51 | 3.09 |
| 2000 | 11.20 | 8.17 | 3.04 | 1.43 | 1.01 | .43 | 12.64 | 9.17 | 3.47 |
| 2005 | 11.25 | 7.76 | 3.48 | 1.44 | 1.09 | .35 | 12.69 | 8.86 | 3.83 |
| 2010 | 11.29 | 7.90 | 3.39 | 1.44 | 1.22 | .22 | 12.73 | 9.12 | 3.61 |
| 2015 | 11.34 | 8.75 | 2.59 | 1.45 | 1.29 | .15 | 12.79 | 10.04 | 2.74 |
| 2020 | 11.41 | 9.93 | 1.48 | 1.45 | 1.33 | .12 | 12.86 | 11.26 | 1.60 |
| 2025 | 11.46 | 10.82 | .64 | 1.45 | 1.38 | .07 | 12.91 | 12.20 | .71 |
| 2030 | 11.49 | 11.27 | .22 | 1.45 | 1.35 | .10 | 12.94 | 12.82 | .32 |
| 2035 | 11.50 | 11.23 | .27 | 1.45 | 1.31 | .14 | 12.95 | 12.54 | .41 |
| 2040 | 11.49 | 10.87 | .62 | 1.45 | 1.30 | .15 | 12.94 | 12.17 | .77 |
| 2045 | 11.48 | 10.55 | .93 | 1.45 | 1.32 | .13 | 12.93 | 11.88 | 1.05 |
| 2050 | 11.48 | 10.42 | 1.06 | 1.45 | 1.33 | .12 | 12.93 | 11.75 | 1.18 |
| 2055 | 11.48 | 10.37 | 1.11 | 1.45 | 1.32 | .13 | 12.93 | 11.69 | 1.24 |
| 2060 | 11.48 | 10.29 | 1.19 | 1.45 | 1.31 | .14 | 12.93 | 11.60 | 1.33 |
| 2065 | 11.48 | 10.20 | 1.28 | 1.45 | 1.31 | .14 | 12.93 | 11.51 | 1.42 |
| Alternative II-A: | | | | | | | | | |
| 1988 | 11.22 | 9.61 | 1.61 | 1.07 | 1.08 | -.01 | 12.29 | 10.69 | 1.60 |
| 1989 | 11.23 | 9.55 | 1.68 | 1.07 | 1.07 | .00 | 12.30 | 10.62 | 1.69 |
| 1990 | 11.37 | 9.57 | 1.80 | 1.21 | 1.05 | .16 | 12.58 | 10.62 | 1.96 |
| 1991 | 11.39 | 9.49 | 1.90 | 1.21 | 1.04 | .17 | 12.60 | 10.54 | 2.07 |
| 1992 | 11.40 | 9.40 | 2.00 | 1.21 | 1.03 | .18 | 12.61 | 10.43 | 2.18 |
| 1993 | 11.40 | 9.31 | 2.09 | 1.21 | 1.03 | .18 | 12.61 | 10.35 | 2.26 |
| 1994 | 11.40 | 9.23 | 2.17 | 1.21 | 1.04 | .17 | 12.61 | 10.27 | 2.34 |
| 1995 | 11.40 | 9.15 | 2.25 | 1.21 | 1.05 | .16 | 12.61 | 10.19 | 2.41 |
| 1996 | 11.40 | 9.06 | 2.33 | 1.21 | 1.06 | .15 | 12.61 | 10.12 | 2.48 |
| 1997 | 11.40 | 8.99 | 2.41 | 1.21 | 1.08 | .14 | 12.61 | 10.06 | 2.54 |
| 2000 | 11.22 | 8.73 | 2.49 | 1.44 | 1.12 | .31 | 12.66 | 9.85 | 2.80 |
| 2005 | 11.28 | 8.44 | 2.84 | 1.44 | 1.26 | .18 | 12.72 | 9.71 | 3.02 |
| 2010 | 11.33 | 8.68 | 2.64 | 1.45 | 1.44 | .01 | 12.78 | 10.13 | 2.65 |
| 2015 | 11.39 | 9.72 | 1.67 | 1.45 | 1.55 | -.09 | 12.84 | 11.26 | 1.58 |
| 2020 | 11.47 | 11.18 | .29 | 1.45 | 1.60 | -.15 | 12.93 | 12.79 | .14 |
| 2025 | 11.54 | 12.45 | -.91 | 1.46 | 1.69 | -.24 | 13.00 | 14.14 | -1.14 |
| 2030 | 11.60 | 13.32 | -1.72 | 1.46 | 1.68 | -.22 | 13.05 | 15.00 | -1.94 |

TABLE 26.—COMPARISON OF ESTIMATED INCOME RATES AND COST RATES BY TRUST FUND AND ALTERNATIVE, CALENDAR YEARS 1988-2065 (Cont.)
[As a percentage of taxable payroll]

| Calendar year | OASI | | | DI | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Income rate | Cost rate | Balance | Income rate | Cost rate | Balance | Income rate | Cost rate | Balance |
| Alternative II-A: (Cont.) | | | | | | | | | |
| 2035 | 11.62 | 13.65 | -2.03 | 1.46 | 1.65 | -0.19 | 13.08 | 15.30 | -2.22 |
| 2040 | 11.63 | 13.60 | -1.97 | 1.46 | 1.65 | -.19 | 13.08 | 15.25 | -2.16 |
| 2045 | 11.63 | 13.54 | -1.91 | 1.46 | 1.71 | -.25 | 13.09 | 15.26 | -2.17 |
| 2050 | 11.64 | 13.70 | -2.06 | 1.46 | 1.74 | -.28 | 13.10 | 15.44 | -2.34 |
| 2055 | 11.66 | 13.93 | -2.27 | 1.46 | 1.73 | -.27 | 13.12 | 15.66 | -2.55 |
| 2060 | 11.66 | 14.07 | -2.41 | 1.46 | 1.72 | -.25 | 13.12 | 15.79 | -2.66 |
| 2065 | 11.67 | 14.11 | -2.44 | 1.46 | 1.72 | -.26 | 13.13 | 15.83 | -2.70 |
| Alternative II-B: | | | | | | | | | |
| 1988 | 11.22 | 9.65 | 1.57 | 1.07 | 1.08 | -.01 | 12.29 | 10.73 | 1.56 |
| 1989 | 11.23 | 9.65 | 1.59 | 1.07 | 1.08 | -.01 | 12.30 | 10.72 | 1.58 |
| 1990 | 11.39 | 9.74 | 1.65 | 1.21 | 1.07 | .14 | 12.60 | 10.81 | 1.79 |
| 1991 | 11.40 | 9.73 | 1.67 | 1.21 | 1.07 | .15 | 12.61 | 10.80 | 1.81 |
| 1992 | 11.40 | 9.68 | 1.72 | 1.21 | 1.06 | .15 | 12.62 | 10.75 | 1.87 |
| 1993 | 11.41 | 9.62 | 1.79 | 1.21 | 1.06 | .15 | 12.62 | 10.68 | 1.94 |
| 1994 | 11.40 | 9.54 | 1.86 | 1.21 | 1.07 | .15 | 12.62 | 10.61 | 2.01 |
| 1995 | 11.40 | 9.47 | 1.93 | 1.21 | 1.07 | .14 | 12.62 | 10.55 | 2.07 |
| 1996 | 11.40 | 9.40 | 2.01 | 1.21 | 1.09 | .13 | 12.62 | 10.48 | 2.13 |
| 1997 | 11.40 | 9.33 | 2.07 | 1.21 | 1.10 | .11 | 12.62 | 10.43 | 2.19 |
| 2000 | 11.24 | 9.14 | 2.09 | 1.44 | 1.16 | .28 | 12.67 | 10.30 | 2.37 |
| 2005 | 11.30 | 8.91 | 2.39 | 1.44 | 1.31 | .14 | 12.75 | 10.22 | 2.53 |
| 2010 | 11.36 | 9.18 | 2.17 | 1.45 | 1.49 | -.04 | 12.81 | 10.67 | 2.13 |
| 2015 | 11.42 | 10.26 | 1.16 | 1.45 | 1.60 | -.15 | 12.88 | 11.86 | 1.02 |
| 2020 | 11.51 | 11.81 | -.30 | 1.46 | 1.66 | -.21 | 12.97 | 13.47 | -.51 |
| 2025 | 11.59 | 13.18 | -1.59 | 1.46 | 1.76 | -.30 | 13.04 | 14.93 | -1.89 |
| 2030 | 11.64 | 14.14 | -2.50 | 1.46 | 1.74 | -.28 | 13.10 | 15.88 | -2.78 |
| 2035 | 11.67 | 14.54 | -2.87 | 1.46 | 1.71 | -.25 | 13.13 | 16.25 | -3.12 |
| 2040 | 11.67 | 14.52 | -2.84 | 1.46 | 1.71 | -.25 | 13.13 | 16.23 | -3.10 |
| 2045 | 11.68 | 14.47 | -2.79 | 1.46 | 1.78 | -.31 | 13.14 | 16.25 | -3.11 |
| 2050 | 11.69 | 14.63 | -2.94 | 1.46 | 1.80 | -.34 | 13.15 | 16.43 | -3.28 |
| 2055 | 11.70 | 14.86 | -3.16 | 1.46 | 1.80 | -.34 | 13.16 | 16.66 | -3.50 |
| 2060 | 11.71 | 15.02 | -3.31 | 1.46 | 1.78 | -.32 | 13.17 | 16.80 | -3.62 |
| 2065 | 11.72 | 15.07 | -3.36 | 1.46 | 1.76 | -.32 | 13.16 | 16.65 | -3.68 |
| Alternative III: | | | | | | | | | |
| 1988 | 11.22 | 9.80 | 1.43 | 1.07 | 1.13 | -.06 | 12.29 | 10.92 | 1.37 |
| 1989 | 11.24 | 10.02 | 1.22 | 1.07 | 1.16 | -.09 | 12.31 | 11.16 | 1.13 |
| 1990 | 11.41 | 10.19 | 1.23 | 1.22 | 1.17 | .05 | 12.63 | 11.35 | 1.27 |
| 1991 | 11.41 | 10.33 | 1.08 | 1.21 | 1.19 | .02 | 12.62 | 11.52 | 1.10 |
| 1992 | 11.42 | 10.69 | .73 | 1.21 | 1.24 | -.03 | 12.64 | 11.94 | .70 |
| 1993 | 11.43 | 10.60 | .83 | 1.21 | 1.25 | -.04 | 12.64 | 11.85 | .79 |
| 1994 | 11.42 | 10.52 | .90 | 1.21 | 1.27 | -.05 | 12.64 | 11.79 | .85 |
| 1995 | 11.42 | 10.43 | .99 | 1.21 | 1.28 | -.07 | 12.64 | 11.72 | .92 |
| 1996 | 11.42 | 10.37 | 1.05 | 1.22 | 1.31 | -.09 | 12.64 | 11.68 | .96 |
| 1997 | 11.42 | 10.32 | 1.10 | 1.22 | 1.34 | -.12 | 12.64 | 11.66 | .98 |
| 2000 | 11.27 | 10.18 | 1.09 | 1.44 | 1.40 | .04 | 12.71 | 11.58 | 1.13 |
| 2005 | 11.35 | 10.00 | 1.35 | 1.45 | 1.59 | -.14 | 12.80 | 11.59 | 1.21 |
| 2010 | 11.41 | 10.35 | 1.06 | 1.46 | 1.84 | -.38 | 12.87 | 12.19 | .68 |
| 2015 | 11.49 | 11.66 | -.17 | 1.46 | 2.00 | -.54 | 12.95 | 13.66 | -.71 |
| 2020 | 11.60 | 13.83 | -2.03 | 1.47 | 2.10 | -.63 | 13.07 | 15.73 | -2.67 |
| 2025 | 11.70 | 15.59 | -3.88 | 1.47 | 2.25 | -.78 | 13.17 | 17.83 | -4.66 |
| 2030 | 11.80 | 17.30 | -5.50 | 1.47 | 2.26 | -.79 | 13.27 | 19.56 | -6.29 |
| 2035 | 11.86 | 18.46 | -6.60 | 1.47 | 2.25 | -.78 | 13.33 | 20.71 | -7.38 |
| 2040 | 11.90 | 19.15 | -7.25 | 1.47 | 2.30 | -.83 | 13.37 | 21.46 | -8.08 |
| 2045 | 11.94 | 19.80 | -7.86 | 1.46 | 2.43 | -.96 | 13.41 | 22.23 | -8.82 |
| 2050 | 11.99 | 20.72 | -8.74 | 1.48 | 2.51 | -1.03 | 13.46 | 23.23 | -9.76 |
| 2055 | 12.04 | 21.74 | -9.70 | 1.48 | 2.51 | -1.03 | 13.52 | 24.25 | -10.73 |
| 2060 | 12.08 | 22.57 | -10.49 | 1.48 | 2.48 | -1.00 | 13.56 | 25.05 | -11.49 |
| 2065 | 12.11 | 23.18 | -11.07 | 1.46 | 2.48 | -1.00 | 13.59 | 25.66 | -12.07 |

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

Table 27 summarizes the projected annual figures presented in the previous table. Because any form of summarization involves choices between what to include and exclude in the summarized values, it is important to recognize that these summarized values should not be used as if they uniquely determined the status of the program or the financial effect of proposed modifications to it. These values are principally indicators that point towards possible significant situations projected for

the future. As such, they are useful tools in an assessment of the long-range financial conditions of the program. Based on the "average-cost" calculations the OASDI program would be estimated to be in "close actuarial balance" (income rate is between 95 and 105 percent of the cost rate over the 75-year valuation period) under the alternative II-A assumptions, but not to be in "close actuarial balance" under the alternative II-B assumptions. The estimated deficit of 0.18 percent of taxable payroll under the alternative II-A assumptions is less than 5 percent of the projected program's cost rate, while the estimated deficit of 0.87 percent of taxable payroll under the alternative II-B assumptions exceeds 5 percent of the projected cost rate. The average deficit of 0.18 percent for the 75-year period under alternative II-A is composed of a positive balance of 2.54 percent over the first 25-year subperiod and deficits of 0.71 percent and 2.38 percent over the second and third 25-year subperiods, respectively. Under alternative II-B, the average deficit of 0.87 percent over the 75-year period consists of a positive balance of 2.15 percent over the first 25-year subperiod and deficits of 1.45 percent and 3.32 percent over the 2nd and 3rd 25-year subperiods, respectively.

As discussed in the introduction to this section, the Board believes that the approximation embodied in the "average-cost" calculations is no longer useful in the summarization of OASDI financial projections. It is essential that, as larger funds are accumulated or projected to accumulate, the amounts of these funds and the full amount of interest that they will earn be explicitly included in the summarizing values. Table 27, therefore, also presents summarizing values on the basis of the "level-financing" calculations, which more accurately take into account the funds and the interest they earn. The table first shows the level-financing rates for each of the 25-year subperiods and for the entire 75-year period, excluding the funds on hand at the beginning of the period. The pattern by subperiod is similar to the pattern shown by the average-cost rates.

Table 27 next shows the level-financing rates including the funds on hand for the 75-year period, as well as for the first 25 years and the first 50 years. These more accurate summarizing values show that the OASDI program is in long-range "close actuarial balance" under either the alternative II-A assumptions or the alternative II-B assumptions. Under the more optimistic of the two intermediate assumptions the program would have a positive actuarial balance of 0.08 percent of taxable payroll, while under the more pessimistic there would be a deficit of 0.58 percent of taxable payroll. Both the positive balance under II-A and the deficit under II-B are less than 5 percent of the cost rate over the 75-year valuation period.

The "level-financing" values in table 27 also show that the program would operate with positive balances over shorter valuation periods. For the first 25-year period the summarizing values indicate that there would be positive balances of 3.24 percent of taxable payroll under alternative I, 2.63 percent under II-A, 2.24 percent under II-B, and 1.11 percent under III. Thus, the program is more than adequately financed over the next 25-year period under all four projections. Over a 50-year evaluation period, 1988-2037, the program would be estimated to have positive balances of 2.23 percent under alternative I, 1.08 percent under II-A, and

Also of interest are the long-range financial conditions of the separate OASI and DI programs. As may be concluded from tables 26 and 27, the OASI program is in much better financial condition than the DI program. The OASI program could operate for many decades into the future under all but the most pessimistic assumptions in alternative III, but the DI program would be able to do so only under the most optimistic assumptions in alternative I. The OASI program is projected to have a long-range positive balance of 0.16 percent and a deficit of 0.45 percent of taxable payroll under the II-A and II-B assumptions, respectively. These two actuarial balances are less than 5 percent of the cost rates and, therefore, the OASI program is in "close actuarial balance" under either of the two intermediate assumptions. The DI program is projected to have long-range actuarial deficits of 0.08 percent and 0.13 percent of taxable payroll under alternatives II-A and II-B, respectively. These two deficits are higher than 5 percent of the cost rates and, therefore, the DI program is not in "close actuarial balance" under either of the two intermediate assumptions.

Tables 26 and 27 also illustrate the spread of possible long-range costs and actuarial balances. For OASI, the cost rate projected for 2065 ranges from a low of 10.20 percent of taxable payroll under alternative I to a high of 23.18 percent of taxable payroll under alternative III. The actuarial balances for that year are projected to range from a positive balance of 1.28 percent under alternative I to a deficit of 11.07 percent under alternative III. The cost rate over the 75-year period is projected to range from a low of 9.73 percent under alternative I to a high of 14.55 percent under alternative III. The long-range actuarial balances over the entire 75-year period ranges from a positive balance of 1.69 percent under alternative I to a deficit of 2.89 percent of taxable payroll under alternative III.

The spread in the DI cost for 2065 is from a low of 1.31 percent of taxable payroll under alternative I to a high of 2.48 percent of taxable payroll under alternative III. The DI cost rate over the 75-year period ranges from a low of 1.23 percent of taxable payroll under alternative I to a high of 1.94 percent of taxable payroll under alternative III. The long-range actuarial balance ranges from a positive balance of 0.17 percent of taxable payroll under alternative I to a deficit of 0.53 percent of taxable payroll under alternative III.

The spread between the lowest and highest projected annual cost rates and balances grows wider as the projections move further into the future. For OASDI the projected spread of cost rates in 2000 is 2.41 percent of taxable payroll (from 9.17 percent to 11.58 percent for alternatives I and III, respectively). By 2025 the spread is projected to increase to 5.63 percent of taxable payroll (from 12.20 percent to 17.83 percent) and by 2050 it is 11.48 percent of taxable payroll (from 11.75 percent to 23.23 percent). Because of the even greater uncertainty in projecting costs and revenues in the more distant future, the Board recommends caution in using the specific values projected.

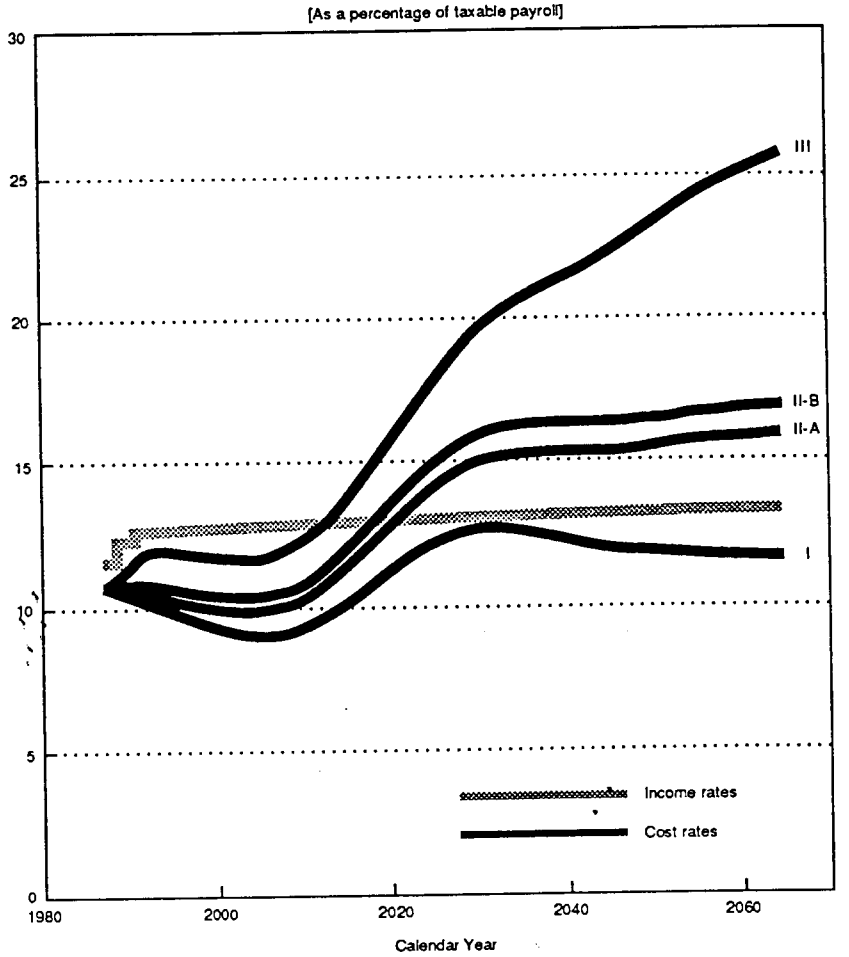
Figure 2 shows in graphical form the patterns of the OASDI annual income and cost rates. In figure 2, the income rates for alternative II-B are shown in order to simplify the graphical presentation and because, as shown in table 26, the variation in the income rates by alternative is very small. The OASDI long-range income rates for alternatives I and III, over the next 75 years, on a level-financing basis, differ by only 0.24 percent of taxable payroll. By 2065, the income rates for each year, under alternatives I and III, differ by only 0.66 percent of taxable payroll. The income rates in figure 2 and table 26 show a distinct increase in 1990, when the payroll-tax rate is scheduled to rise under present law. Thereafter, only small fluctuations are projected, as the rate of income from taxation of benefits varies only slightly, by alternative, with changes in the cost rate.

The patterns of the annual balances are indicated in figure 2. For each alternative, the magnitude of each of the positive balances in the early years, as a percent of taxable payroll, is represented by the distance between the appropriate cost-rate curve and the income-rate curve above it. (Multiplied by the taxable payroll, these reflect the unified budget effect of the program. See Appendix G.) The magnitude of each of the deficits in subsequent years is represented by the distance between the appropriate cost-rate curve and the income-rate curve below it.

The future OASDI cost rate will not necessarily be within the range encompassed by 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.

FIGURE 2.—ESTIMATED OASDI INCOME RATES AND COST RATES BY ALTERNATIVE, CALENDAR YEARS 1987-2065

[As a percentage of taxable payroll]



The components of the annual income rates are shown in table 28, for each alternative set of assumptions. The income rates reflect the effects of the tax-rate increase scheduled for 1990 and the gradual increase in the rate of income from the taxation of benefits, as a greater percentage of benefits becomes taxable due to the flat (non-indexed) threshold amounts. Summaries of the estimated annual rates shown in table 28 are presented in table 29.

TABLE 28.—ESTIMATED INCOME RATES BY TRUST FUND AND ALTERNATIVE, CALENDAR YEARS 1988-2065

[As a percentage of taxable payroll]

| Calendar year | OASI | | | DI | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Payroll tax | Taxation of benefits | Total | Payroll tax | Taxation of benefits | Total | Payroll tax | Taxation of benefits | Total |
| Alternative I: | | | | | | | | | |
| 1988 | 11.06 | 0.16 | 11.22 | 1.06 | 0.01 | 1.07 | 12.12 | 0.17 | 12.29 |
| 1989 | 11.06 | .17 | 11.23 | 1.06 | .01 | 1.07 | 12.12 | .18 | 12.30 |
| 1990 | 11.20 | .15 | 11.35 | 1.20 | .01 | 1.21 | 12.40 | .16 | 12.56 |
| 1991 | 11.20 | .19 | 11.39 | 1.20 | .01 | 1.21 | 12.40 | .20 | 12.60 |
| 1992 | 11.20 | .19 | 11.39 | 1.20 | .01 | 1.21 | 12.40 | .20 | 12.60 |
| 1993 | 11.20 | .19 | 11.39 | 1.20 | .01 | 1.21 | 12.40 | .20 | 12.60 |
| 1994 | 11.20 | .19 | 11.39 | 1.20 | .01 | 1.21 | 12.40 | .20 | 12.60 |
| 1995 | 11.20 | .19 | 11.39 | 1.20 | .01 | 1.21 | 12.40 | .20 | 12.60 |
| 1996 | 11.20 | .19 | 11.39 | 1.20 | .01 | 1.21 | 12.40 | .20 | 12.60 |
| 1997 | 11.20 | .19 | 11.39 | 1.20 | .01 | 1.21 | 12.40 | .20 | 12.60 |
| 2000 | 10.98 | .22 | 11.20 | 1.42 | .01 | 1.43 | 12.40 | .24 | 12.64 |
| 2005 | 10.98 | .27 | 11.25 | 1.42 | .02 | 1.44 | 12.40 | .29 | 12.69 |
| 2010 | 10.98 | .31 | 11.29 | 1.42 | .02 | 1.44 | 12.40 | .33 | 12.73 |
| 2015 | 10.98 | .36 | 11.34 | 1.42 | .03 | 1.45 | 12.40 | .39 | 12.79 |
| 2020 | 10.98 | .43 | 11.41 | 1.42 | .03 | 1.45 | 12.40 | .46 | 12.86 |
| 2025 | 10.98 | .46 | 11.46 | 1.42 | .03 | 1.45 | 12.40 | .51 | 12.91 |
| 2030 | 10.98 | .51 | 11.49 | 1.42 | .03 | 1.45 | 12.40 | .54 | 12.94 |
| 2035 | 10.98 | .52 | 11.50 | 1.42 | .03 | 1.45 | 12.40 | .55 | 12.95 |
| 2040 | 10.98 | .51 | 11.49 | 1.42 | .03 | 1.45 | 12.40 | .54 | 12.94 |
| 2045 | 10.98 | .50 | 11.48 | 1.42 | .03 | 1.45 | 12.40 | .53 | 12.93 |
| 2050 | 10.98 | .50 | 11.48 | 1.42 | .03 | 1.45 | 12.40 | .53 | 12.93 |
| 2055 | 10.98 | .50 | 11.48 | 1.42 | .03 | 1.45 | 12.40 | .53 | 12.93 |
| 2060 | 10.98 | .50 | 11.48 | 1.42 | .03 | 1.45 | 12.40 | .53 | 12.93 |
| 2065 | 10.98 | .50 | 11.48 | 1.42 | .03 | 1.45 | 12.40 | .53 | 12.93 |
| Alternative II-A: | | | | | | | | | |
| 1988 | 11.06 | .16 | 11.22 | 1.06 | .01 | 1.07 | 12.12 | .17 | 12.29 |
| 1989 | 11.06 | .17 | 11.23 | 1.06 | .01 | 1.07 | 12.12 | .18 | 12.30 |
| 1990 | 11.20 | .17 | 11.37 | 1.20 | .01 | 1.21 | 12.40 | .18 | 12.58 |
| 1991 | 11.20 | .19 | 11.39 | 1.20 | .01 | 1.21 | 12.40 | .20 | 12.60 |
| 1992 | 11.20 | .20 | 11.40 | 1.20 | .01 | 1.21 | 12.40 | .21 | 12.61 |
| 1993 | 11.20 | .20 | 11.40 | 1.20 | .01 | 1.21 | 12.40 | .21 | 12.61 |
| 1994 | 11.20 | .20 | 11.40 | 1.20 | .01 | 1.21 | 12.40 | .21 | 12.61 |
| 1995 | 11.20 | .20 | 11.40 | 1.20 | .01 | 1.21 | 12.40 | .21 | 12.61 |
| 1996 | 11.20 | .20 | 11.40 | 1.20 | .01 | 1.21 | 12.40 | .21 | 12.61 |
| 1997 | 11.20 | .20 | 11.40 | 1.20 | .01 | 1.21 | 12.40 | .21 | 12.61 |
| 2000 | 10.98 | .24 | 11.22 | 1.42 | .02 | 1.44 | 12.40 | .26 | 12.66 |
| 2005 | 10.98 | .30 | 11.28 | 1.42 | .02 | 1.44 | 12.40 | .32 | 12.72 |
| 2010 | 10.98 | .35 | 11.33 | 1.42 | .03 | 1.45 | 12.40 | .38 | 12.78 |
| 2015 | 10.98 | .41 | 11.39 | 1.42 | .03 | 1.45 | 12.40 | .44 | 12.84 |
| 2020 | 10.98 | .49 | 11.47 | 1.42 | .03 | 1.45 | 12.40 | .53 | 12.93 |
| 2025 | 10.98 | .56 | 11.54 | 1.42 | .04 | 1.46 | 12.40 | .60 | 13.00 |
| 2030 | 10.98 | .62 | 11.60 | 1.42 | .04 | 1.46 | 12.40 | .65 | 13.05 |
| 2035 | 10.98 | .64 | 11.62 | 1.42 | .04 | 1.46 | 12.40 | .68 | 13.08 |
| 2040 | 10.98 | .65 | 11.63 | 1.42 | .04 | 1.46 | 12.40 | .68 | 13.08 |
| 2045 | 10.98 | .65 | 11.63 | 1.42 | .04 | 1.46 | 12.40 | .69 | 13.09 |
| 2050 | 10.98 | .66 | 11.64 | 1.42 | .04 | 1.46 | 12.40 | .70 | 13.10 |
| 2055 | 10.98 | .68 | 11.66 | 1.42 | .04 | 1.46 | 12.40 | .72 | 13.12 |
| 2060 | 10.98 | .68 | 11.66 | 1.42 | .04 | 1.46 | 12.40 | .72 | 13.12 |
| 2065 | 10.98 | .69 | 11.67 | 1.42 | .04 | 1.46 | 12.40 | .73 | 13.13 |
| Alternative II-B: | | | | | | | | | |
| 1988 | 11.06 | .16 | 11.22 | 1.06 | .01 | 1.07 | 12.12 | .17 | 12.29 |
| 1989 | 11.06 | .17 | 11.23 | 1.06 | .01 | 1.07 | 12.12 | .18 | 12.30 |
| 1990 | 11.20 | .19 | 11.39 | 1.20 | .01 | 1.21 | 12.40 | .20 | 12.60 |
| 1991 | 11.20 | .20 | 11.40 | 1.20 | .01 | 1.21 | 12.40 | .21 | 12.61 |
| 1992 | 11.20 | .20 | 11.40 | 1.20 | .01 | 1.21 | 12.40 | .22 | 12.62 |
| 1993 | 11.20 | .21 | 11.41 | 1.20 | .01 | 1.21 | 12.40 | .22 | 12.62 |
| 1994 | 11.20 | .20 | 11.40 | 1.20 | .01 | 1.21 | 12.40 | .22 | 12.62 |
| 1995 | 11.20 | .20 | 11.40 | 1.20 | .01 | 1.21 | 12.40 | .22 | 12.62 |
| 1996 | 11.20 | .20 | 11.40 | 1.20 | .01 | 1.21 | 12.40 | .22 | 12.62 |
| 1997 | 11.20 | .20 | 11.40 | 1.20 | .01 | 1.21 | 12.40 | .22 | 12.62 |

TABLE 28.—ESTIMATED INCOME RATES BY TRUST FUND AND ALTERNATIVE, CALENDAR YEARS 1988-2065 (Cont.)
[As a percentage of taxable payroll]

| Calendar year | OASI | | | DI | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Payroll tax | Taxation of benefits | Total | Payroll tax | Taxation of benefits | Total | Payroll tax | Taxation of benefits | Total |
| Alternative II-B: (Cont.) | | | | | | | | | |
| 2000 | 10.98 | 0.26 | 11.24 | 1.42 | 0.02 | 1.44 | 12.40 | 0.27 | 12.67 |
| 2005 | 10.98 | .32 | 11.30 | 1.42 | .02 | 1.44 | 12.40 | .35 | 12.75 |
| 2010 | 10.98 | .38 | 11.36 | 1.42 | .03 | 1.45 | 12.40 | .41 | 12.81 |
| 2015 | 10.98 | .44 | 11.42 | 1.42 | .03 | 1.45 | 12.40 | .48 | 12.88 |
| 2020 | 10.98 | .53 | 11.51 | 1.42 | .04 | 1.48 | 12.40 | .57 | 12.97 |
| 2025 | 10.98 | .61 | 11.59 | 1.42 | .04 | 1.46 | 12.40 | .64 | 13.04 |
| 2030 | 10.98 | .66 | 11.64 | 1.42 | .04 | 1.46 | 12.40 | .70 | 13.10 |
| 2035 | 10.98 | .69 | 11.67 | 1.42 | .04 | 1.46 | 12.40 | .73 | 13.13 |
| 2040 | 10.98 | .69 | 11.67 | 1.42 | .04 | 1.46 | 12.40 | .73 | 13.13 |
| 2045 | 10.98 | .70 | 11.68 | 1.42 | .04 | 1.46 | 12.40 | .74 | 13.14 |
| 2050 | 10.98 | .71 | 11.69 | 1.42 | .04 | 1.46 | 12.40 | .75 | 13.15 |
| 2055 | 10.98 | .72 | 11.70 | 1.42 | .04 | 1.46 | 12.40 | .76 | 13.18 |
| 2060 | 10.98 | .73 | 11.71 | 1.42 | .04 | 1.46 | 12.40 | .77 | 13.17 |
| 2065 | 10.98 | .74 | 11.72 | 1.42 | .04 | 1.46 | 12.40 | .78 | 13.18 |
| Alternative III: | | | | | | | | | |
| 1988 | 11.06 | .16 | 11.22 | 1.06 | .01 | 1.07 | 12.12 | .17 | 12.29 |
| 1989 | 11.06 | .18 | 11.24 | 1.06 | .01 | 1.07 | 12.12 | .19 | 12.31 |
| 1990 | 11.20 | .21 | 11.41 | 1.20 | .02 | 1.22 | 12.40 | .23 | 12.63 |
| 1991 | 11.20 | .21 | 11.41 | 1.20 | .01 | 1.21 | 12.40 | .22 | 12.62 |
| 1992 | 11.20 | .22 | 11.42 | 1.20 | .01 | 1.21 | 12.40 | .24 | 12.64 |
| 1993 | 11.20 | .23 | 11.43 | 1.20 | .01 | 1.21 | 12.40 | .24 | 12.64 |
| 1994 | 11.20 | .22 | 11.42 | 1.20 | .01 | 1.21 | 12.40 | .24 | 12.64 |
| 1995 | 11.20 | .22 | 11.42 | 1.20 | .01 | 1.21 | 12.40 | .24 | 12.64 |
| 1996 | 11.20 | .22 | 11.42 | 1.20 | .02 | 1.22 | 12.40 | .24 | 12.64 |
| 1997 | 11.20 | .22 | 11.42 | 1.20 | .02 | 1.22 | 12.40 | .24 | 12.64 |
| 2000 | 10.98 | .29 | 11.27 | 1.42 | .02 | 1.44 | 12.40 | .31 | 12.71 |
| 2005 | 10.98 | .37 | 11.35 | 1.42 | .03 | 1.45 | 12.40 | .40 | 12.80 |
| 2010 | 10.98 | .43 | 11.41 | 1.42 | .04 | 1.46 | 12.40 | .47 | 12.87 |
| 2015 | 10.98 | .51 | 11.49 | 1.42 | .04 | 1.46 | 12.40 | .55 | 12.95 |
| 2020 | 10.98 | .62 | 11.60 | 1.42 | .05 | 1.47 | 12.40 | .67 | 13.07 |
| 2025 | 10.98 | .72 | 11.70 | 1.42 | .05 | 1.47 | 12.40 | .77 | 13.17 |
| 2030 | 10.98 | .82 | 11.80 | 1.42 | .05 | 1.47 | 12.40 | .87 | 13.27 |
| 2035 | 10.98 | .88 | 11.86 | 1.42 | .05 | 1.47 | 12.40 | .93 | 13.33 |
| 2040 | 10.98 | .92 | 11.90 | 1.42 | .05 | 1.47 | 12.40 | .97 | 13.37 |
| 2045 | 10.98 | .96 | 11.94 | 1.42 | .06 | 1.48 | 12.40 | 1.01 | 13.41 |
| 2050 | 10.98 | 1.01 | 11.99 | 1.42 | .06 | 1.46 | 12.40 | 1.06 | 13.46 |
| 2055 | 10.98 | 1.06 | 12.04 | 1.42 | .06 | 1.48 | 12.40 | 1.12 | 13.52 |
| 2060 | 10.98 | 1.10 | 12.08 | 1.42 | .06 | 1.48 | 12.40 | 1.16 | 13.56 |
| 2065 | 10.98 | 1.13 | 12.11 | 1.42 | .06 | 1.48 | 12.40 | 1.19 | 13.59 |

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

TABLE 29.—SUMMARIZED INCOME RATES BY TRUST FUND AND ALTERNATIVE, CALENDAR YEARS 1988-2065
[As a percentage of taxable payroll]

| Calendar year | OASI | | | DI | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Payroll tax | Taxation of bene-fits | Total | Payroll tax | Taxation of bene-fits | Total | Payroll tax | Taxation of bene-fits | Total |
| "Average-cost" basis: | | | | | | | | | |
| Alternative I: | | | | | | | | | |
| 25-year averages: | | | | | | | | | |
| 1988-2012 | 11.07 | 0.23 | 11.31 | 1.30 | 0.02 | 1.32 | 12.38 | 0.25 | 12.62 |
| 2013-2037 | 10.98 | .46 | 11.44 | 1.42 | .03 | 1.45 | 12.40 | .49 | 12.89 |
| 2038-2062 | 10.98 | .50 | 11.48 | 1.42 | .03 | 1.45 | 12.40 | .53 | 12.93 |
| 75-year average: | | | | | | | | | |
| 1988-2062 | 11.01 | .40 | 11.41 | 1.38 | .02 | 1.41 | 12.39 | .42 | 12.82 |
| Alternative II-A: | | | | | | | | | |
| 25-year averages: | | | | | | | | | |
| 1988-2012 | 11.07 | .25 | 11.33 | 1.30 | .02 | 1.32 | 12.38 | .27 | 12.65 |
| 2013-2037 | 10.98 | .54 | 11.52 | 1.42 | .04 | 1.46 | 12.40 | .58 | 12.98 |
| 2038-2062 | 10.98 | .66 | 11.64 | 1.42 | .04 | 1.46 | 12.40 | .70 | 13.10 |
| 75-year average: | | | | | | | | | |
| 1988-2062 | 11.01 | .49 | 11.50 | 1.38 | .03 | 1.41 | 12.39 | .52 | 12.91 |
| Alternative II-B: | | | | | | | | | |
| 25-year averages: | | | | | | | | | |
| 1988-2012 | 11.07 | .27 | 11.34 | 1.30 | .02 | 1.32 | 12.38 | .29 | 12.67 |
| 2013-2037 | 10.98 | .59 | 11.57 | 1.42 | .04 | 1.46 | 12.40 | .62 | 13.02 |
| 2038-2062 | 10.98 | .71 | 11.69 | 1.42 | .04 | 1.46 | 12.40 | .75 | 13.15 |

TABLE 29.—SUMMARIZED INCOME RATES BY TRUST FUND AND ALTERNATIVE, CALENDAR YEARS 1988-2065 (Cont.)
[As a percentage of taxable payroll]

| Calendar year | OASI | | | DI | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Payroll tax | Taxation of benefits | Total | Payroll tax | Taxation of benefits | Total | Payroll tax | Taxation of benefits | Total |
| "Average-cost" basis: (Cont.) | | | | | | | | | |
| Alternative II-B: (Cont.) | | | | | | | | | |
| 75-year average: | | | | | | | | | |
| 1988-2062 | 11.01 | 0.52 | 11.53 | 1.38 | 0.03 | 1.41 | 12.39 | 0.55 | 12.95 |
| Alternative III: | | | | | | | | | |
| 25-year averages: | | | | | | | | | |
| 1988-2012 | 11.07 | .30 | 11.38 | 1.30 | .02 | 1.33 | 12.38 | .33 | 12.70 |
| 2013-2037 | 10.98 | .71 | 11.69 | 1.42 | .05 | 1.47 | 12.40 | .76 | 13.18 |
| 2038-2062 | 10.98 | 1.01 | 11.99 | 1.42 | .06 | 1.48 | 12.40 | 1.07 | 13.47 |
| 75-year average: | | | | | | | | | |
| 1988-2062 | 11.01 | .67 | 11.69 | 1.38 | .04 | 1.42 | 12.39 | .72 | 13.11 |
| "Level-financing" basis: | | | | | | | | | |
| Alternative I: | | | | | | | | | |
| 25 years:1988-2012 | 11.04 | .23 | 11.28 | 1.29 | .02 | 1.31 | 12.34 | .25 | 12.59 |
| 50 years:1988-2037 | 11.00 | .34 | 11.34 | 1.35 | .02 | 1.37 | 12.35 | .36 | 12.71 |
| 75 years:1988-2062 | 10.98 | .39 | 11.38 | 1.37 | .02 | 1.40 | 12.36 | .42 | 12.77 |
| Alternative II-A: | | | | | | | | | |
| 25 years:1988-2012 | 11.04 | .25 | 11.29 | 1.29 | .02 | 1.31 | 12.34 | .27 | 12.60 |
| 50 years:1988-2037 | 11.00 | .39 | 11.38 | 1.35 | .03 | 1.38 | 12.35 | .41 | 12.76 |
| 75 years:1988-2062 | 10.98 | .46 | 11.45 | 1.37 | .03 | 1.40 | 12.35 | .49 | 12.85 |
| Alternative II-B: | | | | | | | | | |
| 25 years:1988-2012 | 11.04 | .27 | 11.31 | 1.29 | .02 | 1.31 | 12.33 | .28 | 12.62 |
| 50 years:1988-2037 | 11.00 | .41 | 11.41 | 1.35 | .03 | 1.38 | 12.34 | .44 | 12.78 |
| 75 years:1988-2062 | 10.98 | .50 | 11.48 | 1.37 | .03 | 1.40 | 12.35 | .53 | 12.88 |
| Alternative III: | | | | | | | | | |
| 25 years:1988-2012 | 11.04 | .30 | 11.34 | 1.29 | .02 | 1.31 | 12.33 | .32 | 12.64 |
| 50 years:1988-2037 | 11.00 | .48 | 11.47 | 1.34 | .03 | 1.38 | 12.34 | .51 | 12.85 |
| 75 years:1988-2062 | 10.98 | .61 | 11.59 | 1.36 | .04 | 1.40 | 12.34 | .65 | 12.99 |

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

The primary reason that the estimated OASDI cost rate increases rapidly after 2005 is that the number of beneficiaries is projected to increase more rapidly than 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 mid-1960s will reach retirement age, and begin to receive benefits, while the relatively small number of persons born during the subsequent period of low fertility rates will comprise the labor force. A comparison of the numbers of covered workers and beneficiaries is shown in table 30.

TABLE 30.—COMPARISON OF OASDI COVERED WORKERS AND BENEFICIARIES BY ALTERNATIVE, CALENDAR YEARS 1945-2065

| Calendar year | Covered workers[1] (in thousands) | Beneficiaries[2] (in thousands) | | | Covered workers per OASDI beneficiary | Beneficiaries per 100 covered workers |
|---|---|---|---|---|---|---|
| | | OASI | DI | Total | | |
| Past experience: | | | | | | |
| 1945 | 46,930 | 1,106 | — | 1,106 | 42.4 | 2 |
| 1950 | 48,280 | 2,930 | — | 2,930 | 16.5 | 6 |
| 1955 | 65,200 | 7,563 | — | 7,563 | 8.8 | 12 |
| 1960 | 72,530 | 13,740 | 522 | 14,262 | 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 | 112,980 | 30,365 | 4,734 | 35,119 | 3.2 | 31 |
| 1985 | [3]121,300 | 32,776 | 3,674 | 36,650 | [3]3.3 | [3]30 |
| 1986 | [3]124,500 | 33,349 | 3,972 | 37,321 | [3]3.3 | [3]30 |
| 1987 | [3]127,917 | 33,917 | 4,034 | 37,952 | [3]3.4 | [3]30 |
| Alternative I: | | | | | | |
| 1988 | 129,969 | 34,378 | 4,090 | 38,469 | 3.4 | 30 |
| 1990 | 133,467 | 35,550 | 4,133 | 39,683 | 3.4 | 30 |
| 1995 | 141,234 | 37,564 | 4,377 | 41,941 | 3.4 | 30 |
| 2000 | 147,240 | 38,659 | 4,820 | 43,479 | 3.4 | 30 |
| 2005 | 152,656 | 39,853 | 5,429 | 45,282 | 3.4 | 30 |
| 2010 | 156,688 | 42,678 | 6,131 | 48,809 | 3.2 | 31 |

TABLE 30.—COMPARISON OF OASDI COVERED WORKERS AND BENEFICIARIES BY ALTERNATIVE, CALENDAR YEARS 1945-2065 (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 I: (Cont.) | | | | | | |
| 2015 | 159,318 | 48,027 | 6,527 | 54,555 | 2.9 | 34 |
| 2020 | 160,946 | 54,713 | 6,746 | 61,459 | 2.6 | 38 |
| 2025 | 162,762 | 60,805 | 7,117 | 67,923 | 2.4 | 42 |
| 2030 | 165,667 | 65,273 | 7,122 | 72,395 | 2.3 | 44 |
| 2035 | 169,418 | 67,521 | 7,079 | 74,600 | 2.3 | 44 |
| 2040 | 173,321 | 67,731 | 7,180 | 74,911 | 2.3 | 43 |
| 2045 | 177,237 | 67,817 | 7,495 | 75,312 | 2.4 | 42 |
| 2050 | 181,370 | 68,543 | 7,733 | 76,277 | 2.4 | 42 |
| 2055 | 185,940 | 69,762 | 7,907 | 77,669 | 2.4 | 42 |
| 2060 | 190,859 | 71,065 | 8,062 | 79,127 | 2.4 | 41 |
| 2065 | 195,847 | 72,372 | 8,290 | 80,662 | 2.4 | 41 |
| Alternative II-A: | | | | | | |
| 1988 | 129,834 | 34,381 | 4,100 | 38,481 | 3.4 | 30 |
| 1990 | 133,016 | 35,581 | 4,203 | 39,784 | 3.3 | 30 |
| 1995 | 140,193 | 37,815 | 4,608 | 42,423 | 3.3 | 30 |
| 2000 | 145,508 | 39,253 | 5,289 | 44,542 | 3.3 | 31 |
| 2005 | 149,900 | 40,805 | 6,039 | 46,844 | 3.2 | 31 |
| 2010 | 152,882 | 43,952 | 6,891 | 50,843 | 3.0 | 33 |
| 2015 | 154,048 | 49,666 | 7,366 | 57,033 | 2.7 | 37 |
| 2020 | 153,719 | 56,782 | 7,607 | 64,390 | 2.4 | 42 |
| 2025 | 153,072 | 63,344 | 7,991 | 71,335 | 2.1 | 47 |
| 2030 | 152,931 | 68,355 | 7,937 | 76,291 | 2.0 | 50 |
| 2035 | 153,275 | 71,118 | 7,823 | 78,942 | 1.9 | 52 |
| 2040 | 153,473 | 71,737 | 7,858 | 79,595 | 1.9 | 52 |
| 2045 | 153,348 | 72,090 | 8,117 | 80,207 | 1.9 | 52 |
| 2050 | 153,047 | 72,960 | 8,244 | 81,204 | 1.9 | 53 |
| 2055 | 152,928 | 74,054 | 8,237 | 82,291 | 1.9 | 54 |
| 2060 | 153,010 | 74,850 | 8,178 | 83,027 | 1.8 | 54 |
| 2065 | 153,112 | 75,311 | 8,203 | 83,514 | 1.8 | 55 |
| Alternative II-B: | | | | | | |
| 1988 | 129,690 | 34,381 | 4,100 | 38,481 | 3.4 | 30 |
| 1990 | 132,396 | 35,581 | 4,203 | 39,784 | 3.3 | 30 |
| 1995 | 139,177 | 37,815 | 4,608 | 42,422 | 3.3 | 30 |
| 2000 | 144,261 | 39,251 | 5,285 | 44,536 | 3.2 | 31 |
| 2005 | 148,453 | 40,801 | 6,032 | 46,832 | 3.2 | 32 |
| 2010 | 151,428 | 43,943 | 6,880 | 50,824 | 3.0 | 34 |
| 2015 | 152,614 | 49,654 | 7,351 | 57,005 | 2.7 | 37 |
| 2020 | 152,286 | 56,765 | 7,589 | 64,354 | 2.4 | 42 |
| 2025 | 151,648 | 63,320 | 7,970 | 71,290 | 2.1 | 47 |
| 2030 | 151,494 | 68,323 | 7,914 | 76,236 | 2.0 | 50 |
| 2035 | 151,830 | 71,078 | 7,799 | 78,877 | 1.9 | 52 |
| 2040 | 152,017 | 71,688 | 7,833 | 79,521 | 1.9 | 52 |
| 2045 | 151,895 | 72,033 | 8,091 | 80,124 | 1.9 | 53 |
| 2050 | 151,614 | 72,895 | 8,218 | 81,113 | 1.9 | 53 |
| 2055 | 151,478 | 73,982 | 8,211 | 82,193 | 1.8 | 54 |
| 2060 | 151,566 | 74,773 | 8,152 | 82,925 | 1.8 | 55 |
| 2065 | 151,668 | 75,232 | 8,177 | 83,409 | 1.8 | 55 |
| Alternative III: | | | | | | |
| 1988 | 129,263 | 34,384 | 4,128 | 38,512 | 3.4 | 30 |
| 1990 | 130,013 | 35,612 | 4,354 | 39,966 | 3.3 | 31 |
| 1995 | 136,479 | 38,054 | 5,117 | 43,170 | 3.2 | 32 |
| 2000 | 141,280 | 39,797 | 5,955 | 45,752 | 3.1 | 32 |
| 2005 | 144,466 | 41,695 | 6,889 | 48,584 | 3.0 | 34 |
| 2010 | 146,380 | 45,214 | 7,936 | 53,150 | 2.8 | 36 |
| 2015 | 146,113 | 51,437 | 8,507 | 59,943 | 2.4 | 41 |
| 2020 | 143,985 | 59,218 | 8,770 | 67,988 | 2.1 | 47 |
| 2025 | 141,049 | 66,567 | 9,170 | 75,737 | 1.9 | 54 |
| 2030 | 138,088 | 72,550 | 9,041 | 81,591 | 1.7 | 59 |
| 2035 | 135,355 | 76,335 | 8,838 | 85,173 | 1.6 | 63 |
| 2040 | 132,337 | 77,900 | 8,794 | 86,695 | 1.5 | 66 |
| 2045 | 128,786 | 79,045 | 8,993 | 88,038 | 1.5 | 68 |
| 2050 | 124,911 | 80,558 | 8,986 | 89,544 | 1.4 | 72 |
| 2055 | 121,099 | 81,973 | 8,750 | 90,723 | 1.3 | 75 |
| 2060 | 117,565 | 82,624 | 8,416 | 91,041 | 1.3 | 77 |
| 2065 | 114,200 | 82,500 | 8,196 | 90,696 | 1.3 | 79 |

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

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

[3]Preliminary.

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 21,402 as of June 30, 1987, and is estimated to be fewer than 500 by the turn of the century. Totals do not necessarily equal the sums of rounded components.

Table 30 shows that the number of covered workers per beneficiary, which was about 3.4 in 1987, 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 2.4. Based on alternative III, for which low fertility rates and substantial reductions in death rates are assumed, the decline is much greater, reaching 1.3 workers per beneficiary. Based on alternatives II-A and II-B, the ratio declines to 1.8 workers per beneficiary.

The impact of the demographic shifts under the four alternatives on the OASDI cost rates is better understood by considering the projected number of beneficiaries per 100 workers. As compared to the current level of 30 beneficiaries per 100 covered workers, this ratio rises by the end of the long-range valuation period to a significantly higher level, which ranges from 41 under alternative I to 79 under alternative III. The salience of these numbers can be seen by comparing figure 2 to figure 3, which is a graphical representation of the beneficiaries per 100 covered workers shown in table 30. For each alternative, the shape of the curve in figure 3 is strikingly similar to that of the corresponding cost-rate curve in figure 2, thereby emphasizing the extent to which the cost of the OASDI program is determined by the age patterns of the population. Because, conceptually, the cost rate consists of the product of the number of beneficiaries and their average benefit, divided by the product of the number of covered workers and their average earnings, it is reasonable that the pattern of the annual cost rates is similar to that of the annual ratios of beneficiaries to workers. A graphical presentation of covered workers per beneficiary is shown in the "Summary."

FIGURE 3.—RATIOS OF ESTIMATED OASDI BENEFICIARIES PER 100 COVERED WORKERS BY ALTERNATIVE, CALENDAR YEARS 1987-2065

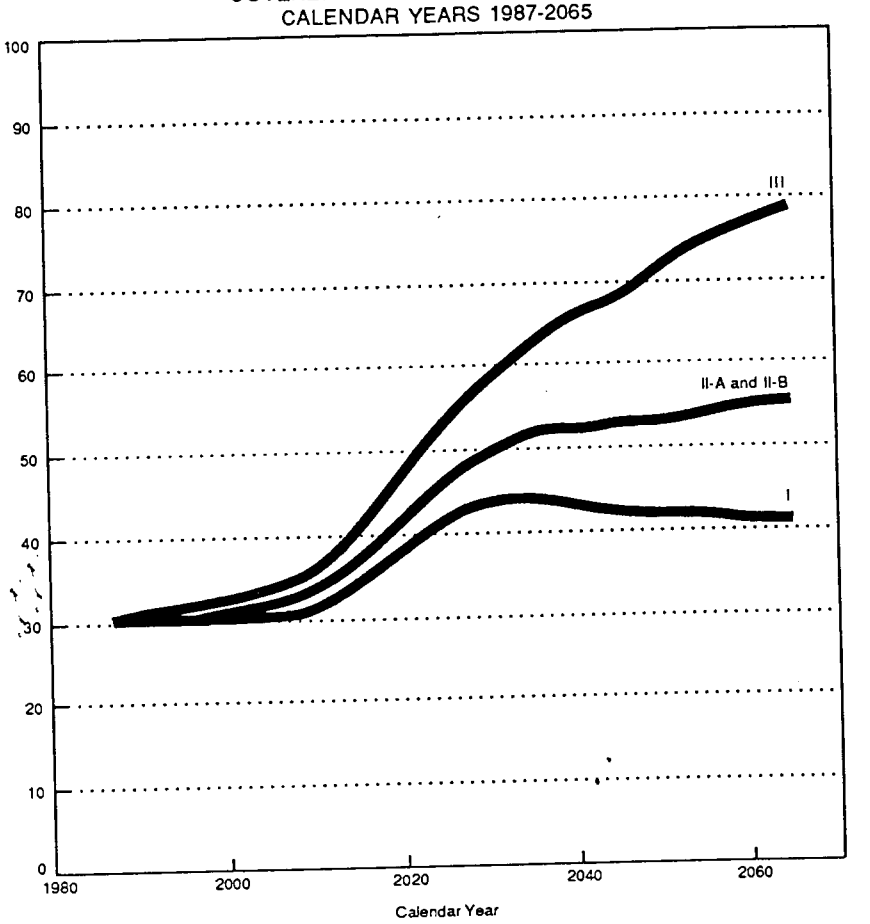


Table 31 shows, by alternative, the estimated contingency fund ratios for the separate and combined OASI and DI Trust Funds. The patterns of the combined fund ratios, over the 75-year period, are also shown in figure 4, for all four sets of assumptions. The OASI and DI ratios are estimated to be relatively low for the next several years, before generally increasing to very high levels thereafter. Based on alternatives II-A and II-B, the OASI ratio peaks about 2015, when it is 722 percent and 587 percent, respectively, and the DI ratio peaks about 2010 and 2005, when it is 267 percent and 221 percent, respectively. Thereafter, the OASI and DI ratios decline steadily. Under alternative II-A, the DI Trust Fund becomes exhausted in 2035; under alternative II-B, the OASI and DI funds become exhausted in 2050 and 2027, respectively. Based on alternative I, the ratios increase throughout the long-range projection period to extremely high levels, around 1,000-1,300 percent for the OASI and DI programs. In contrast, under alternative III, the OASI and DI Trust Funds are estimated to be exhausted within 42 years and 9 years, respectively. Thus, because of the high ultimate cost rates that are projected under all but the most optimistic assumptions, eventually income will need to be increased or program costs will need to be reduced in order to prevent the OASI and DI Trust Funds from becoming exhausted.

The OASI and DI funds combined are projected to be exhausted in 2026 under the pessimistic assumptions in alternative III and in 2048 under the intermediate assumptions of alternative II-B. Under either alternative I or II-A the combined OASDI funds are projected to remain positive throughout the projection period. This means that under the most pessimistic assumptions the OASDI funds and income would be able to cover expenditures for about 40 years into the future and that under the alternative II-B assumptions the OASDI funds and income would be able to cover expenditures for about 60 years into the future. The program would be able to cover expenditures for a longer period under alternative II-A and for the indefinite future under the most optimistic assumptions in alternative I. In the 1987 report, the combined trust funds were projected to be exhausted in 2025 under alternative III and in 2051 under alternative II-B.

TABLE 31.—ESTIMATED CONTINGENCY FUND RATIOS BY TRUST FUND AND ALTERNATIVE, CALENDAR YEARS 1988-2065
[In percent]

| Calendar year | Alternative I | | | Alternative II-A | | | Alternative II-B | | | Alternative III | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OASI | DI | Total | OASI | DI | Total | OASI | DI | Total | OASI | DI | Total |
| 1988 | 41 | 39 | 41 | 41 | 38 | 41 | 41 | 38 | 41 | 41 | 37 | 41 |
| 1989 | 59 | 41 | 58 | 59 | 39 | 57 | 58 | 38 | 56 | 56 | 33 | 54 |
| 1990 | 79 | 47 | 76 | 77 | 41 | 73 | 75 | 39 | 71 | 68 | 27 | 64 |
| 1991 | 102 | 68 | 99 | 97 | 56 | 93 | 93 | 53 | 89 | 80 | 30 | 74 |
| 1992 | 128 | 92 | 124 | 120 | 74 | 115 | 112 | 67 | 107 | 90 | 31 | 84 |
| 1993 | 156 | 118 | 153 | 144 | 92 | 139 | 132 | 81 | 127 | 99 | 28 | 91 |
| 1994 | 188 | 145 | 183 | 170 | 109 | 164 | 153 | 96 | 147 | 109 | 25 | 100 |
| 1995 | 221 | 171 | 216 | 197 | 126 | 190 | 176 | 110 | 169 | 120 | 21 | 109 |
| 1996 | 256 | 196 | 250 | 225 | 140 | 216 | 199 | 122 | 191 | 132 | 15 | 119 |
| 1997 | 292 | 218 | 285 | 254 | 153 | 244 | 223 | 132 | 214 | 144 | (1) | 128 |
| 2000 | 414 | 281 | 399 | 349 | 182 | 330 | 301 | 154 | 285 | 185 | (1) | 160 |
| 2005 | 635 | 434 | 611 | 514 | 263 | 482 | 431 | 221 | 404 | 248 | (1) | 210 |
| 2010 | 843 | 505 | 798 | 663 | 267 | 607 | 547 | 213 | 501 | 303 | (1) | 243 |
| 2015 | 948 | 554 | 895 | 722 | 240 | 656 | 587 | 173 | 531 | 302 | (1) | 229 |
| 2020 | 956 | 600 | 915 | 698 | 200 | 635 | 550 | 118 | 497 | 236 | (1) | 159 |
| 2025 | 945 | 622 | 908 | 639 | 141 | 580 | 477 | 46 | 427 | 126 | (1) | 48 |
| 2030 | 937 | 667 | 908 | 568 | 73 | 513 | 388 | (1) | 341 | (1) | (1) | (1) |
| 2035 | 956 | 739 | 934 | 501 | 14 | 448 | 295 | (1) | 251 | (1) | (1) | (1) |

TABLE 31.—ESTIMATED CONTINGENCY FUND RATIOS BY TRUST FUND AND ALTERNATIVE, CALENDAR YEARS 1988-2065 (Cont.)
[In percent]

| Calendar year | Alternative I | | | Alternative II-A | | | Alternative II-B | | | Alternative III | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OASI | DI | Total | OASI | DI | Total | OASI | DI | Total | OASI | DI | Total |
| 2040 | 1,013 | 807 | 991 | 443 | (1) | 390 | 204 | (1) | 162 | (1) | (1) | (1) |
| 2045 | 1,086 | 848 | 1,060 | 386 | (1) | 331 | 113 | (1) | 71 | (1) | (1) | (1) |
| 2050 | 1,154 | 893 | 1,125 | 322 | (1) | 265 | 18 | (1) | (1) | (1) | (1) | (1) |
| 2055 | 1,217 | 949 | 1,187 | 249 | (1) | 190 | (1) | (1) | (1) | (1) | (1) | (1) |
| 2060 | 1,285 | 1,011 | 1,254 | 170 | (1) | 111 | (1) | (1) | (1) | (1) | (1) | (1) |
| 2065 | 1,362 | 1,066 | 1,328 | 88 | (1) | 29 | (1) | (1) | (1) | (1) | (1) | (1) |
| Trust fund is estimated to be exhausted in: | (2) | (2) | (2) | (2) | 2035 | (2) | 2050 | 2027 | 2048 | 2029 | 1996 | 2026 |

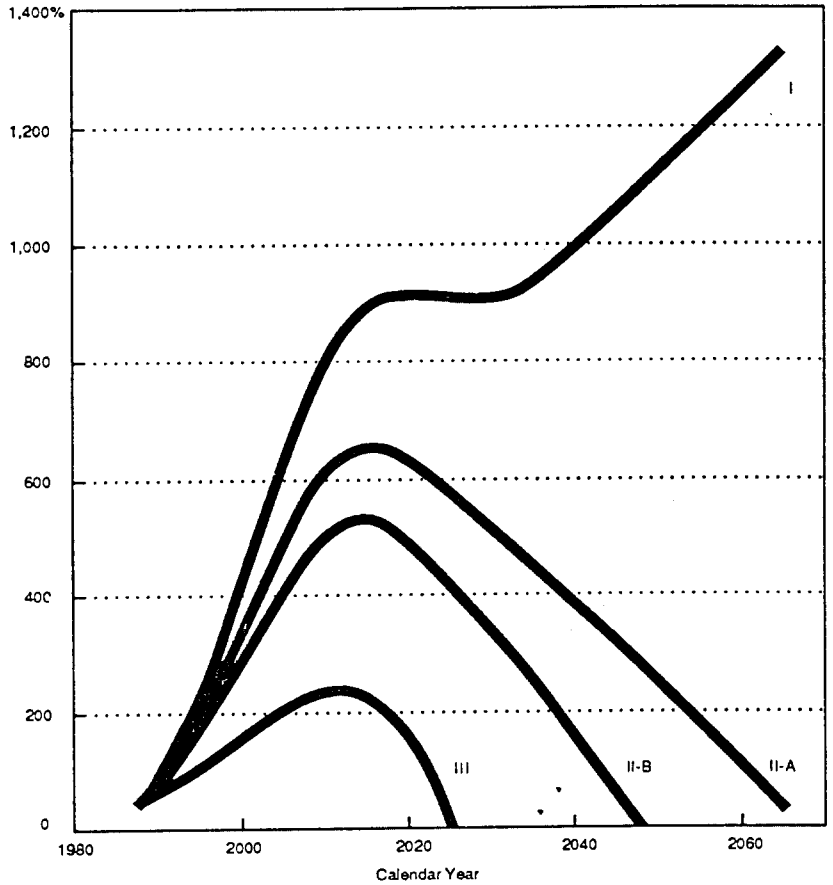
[1]The fund is estimated to be exhausted in the year shown in the last line of the table.

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

Note: See footnote 2 of table 13 for definition of contingency fund ratio. The OASDI ratios shown for years after a given fund is estimated to be exhausted are theoretical and are shown for informational purposes only.

A graphic illustration of the contingency fund ratios for the combined trust funds is shown in figure 4 for each of the alternative sets of assumptions.

FIGURE 4.—ESTIMATED CONTINGENCY FUND RATIOS, FOR OASI AND DI TRUST FUNDS COMBINED, CALENDAR YEARS 1987-2065



Reasons for differences between last year's report and this report in the long-range actuarial balance under the II-B assumptions are itemized in table 32. Also shown are the estimated effects associated with each reason for change.

TABLE 32.—CHANGE IN ACTUARIAL BALANCE ESTIMATED ON THE BASIS OF ALTERNATIVE II-B BY TRUST FUND AND REASON FOR CHANGE
[As a percentage of taxable payroll]

| Item | OASI | DI | Total |
|---|---|---|---|
| Shown in last year's report[1]: | | | |
| Average income rate | 11.46 | 1.44 | 12.89 |
| Average-cost rate | 11.89 | 1.63 | 13.51 |
| Actuarial balance (average-cost basis) | -.43 | -.19 | -.62 |
| Changes in actuarial balance due to changes in: | | | |
| Valuation period | -.04 | -.01 | -.05 |
| Methods[2] | -.31 | +.01 | -.30 |
| Demographic assumptions | +.16 | +.01 | +.17 |
| Economic assumptions | -.12 | -.01 | -.13 |
| Disability assumptions | +.00 | +.02 | +.02 |
| All other changes | +.01 | +.02 | +.03 |
| Total change in actuarial balance | -.30 | +.04 | -.26 |
| Shown in this report[3]: | | | |
| Actuarial balance (average-cost basis) | -.72 | -.15 | -.87 |
| Average income rate | 11.53 | 1.41 | 12.95 |
| Average-cost rate | 12.26 | 1.56 | 13.82 |
| Recognition of January 1, 1988 funds[4] | +.05 | +.01 | +.06 |
| Modified actuarial balance (average-cost basis) | -.67 | -.14 | -.81 |
| Change due to level-financing calculations[5] | +.23 | +.01 | +.24 |
| Rates shown in this report on level-financing basis: | | | |
| Actuarial balance | -.45 | -.13 | -.58 |
| Income rate[4] | 11.53 | 1.40 | 12.94 |
| Cost rate | 11.99 | 1.53 | 13.52 |

[1]Income rates, cost rates, and taxable payroll are calculated on the basis of alternative II-B assumptions, as described in the 1987 report. Several of those assumptions have been modified for this year's report. A description of the modifications is presented in the text of this report.

[2]Methods used to project the annual income and expenditures have been modified to attain higher consistency between the short-range and long-range projections.

[3]Includes the trust fund balances as of the start of the valuation period.

[4]Average-cost calculations, as previously used, did not take into account the funds on hand at the start of the valuation period.

[5]Level-financing calculations more accurately take into account interest earnings on the accumulated funds and result in a lower long-range balance.

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

In changing from the valuation period of last year's report, which was 1987-2061, to the valuation period of this report, 1988-2062, the positive balance year of 1987 was replaced by the deficit year of 2062. This results in a decrease in the long-range actuarial balance, on an average-cost basis. (However, the positive balance for 1987 is, in effect, restored—using actual experience—later in table 32, when the January 1, 1988, funds are recognized.)

Several modifications in the methods used to prepare the projections and in the assumptions adopted as the basis for the projections were incorporated in this year's report. The most significant modifications in methods were made to improve the consistency between the short-range and the long-range projections. The two separate sets of methods, which necessarily differ because of their different uses, were yielding projected values that were significantly different at their common point of juncture. The modified methods, which now yield a smoother transition from the short-range projections to the long-range projections, result in a decrease in the long-range actuarial balance.

All demographic assumptions were modified: (1) the starting population, used in the projection of the Social Security Area population, was updated; (2) the ultimate total fertility rate was lowered from 2.0 to 1.9; (3) mortality assumptions were revised to incorporate the latest data and analyses; and (4) the net immigration assumption was increased from 400,000 to 600,000 persons per year in order to reflect current estimates of other-than-legal immigration. The net effect of these modifications is an increase in the long-range actuarial balance.

Short-range economic assumptions were updated to incorporate the latest information and analyses, and the ultimate assumed real-wage differential was lowered from 1.5 to 1.4 percent per year. These have the net effect of decreasing the long-range actuarial balance.

Death rates for disabled beneficiaries were modified. While previously it was assumed that the ultimate rates would be about 75 percent of the recent experience, now it is assumed that the ultimate rates will be 70 percent of the recent experience for men and 80 percent of recent experience for women. The net result is a small increase in the long-range actuarial balance.

Other assumptions were updated and modified, but the net effect on the long-range actuarial balance is small.

The long-range actuarial balances are presented in this report on the basis of two different calculations: (1) average-cost and (2) level-financing. These two different calculations for summarizing values over the entire 75-year projection period are based on the same annual projections of income and expenditures. Their difference consists of the way in which these projected annual values are summarized. The level-financing calculations fully and explicitly take into account interest earnings on the accumulated funds, while the average-cost calculations do so implicitly and, in general, only partially. Although the Board believes that for this report the level-financing calculations are preferable, it is presenting the results of both calculations so as to document the effect of the change.

Table 32 shows an intermediate step in moving from the average-cost basis to the level-financing basis. The average-cost calculations shown in earlier reports did not take into account the trust fund balances at the start of the valuation period. The starting fund balance can be incorporated into the calculations of the long-range actuarial balance on either basis. According to table 32, therefore, under alternative II-B the OASDI long-range actuarial balance is a deficit of 0.87 percent of taxable payroll based on average-cost calculations, a deficit of 0.81 percent of taxable payroll if the starting fund balance is taken into account in the average-cost calculations, and a deficit of 0.58 percent of taxable payroll based on the level-financing calculations with the starting trust fund balance taken into account.

The cost of the OASDI program has been discussed in this section in relation to taxable payroll, which is a program-related concept that is very useful in analyzing the financial status of the OASDI program. The cost can also be discussed in relation to broader economic concepts, such as the gross national product (GNP). A discussion of both the cost and the taxable payroll of the OASDI program in relation to GNP is presented in Appendix F.

## VI. CONCLUSION

The economy continued to grow in 1987, and the combined assets of the OASI and DI Trust Funds also grew. The growth of the combined trust funds in calendar year 1987 was larger than estimated in the 1987 Annual Report on the basis of both sets of intermediate assumptions, alternatives II-A and II-B. As a result, the ability of the OASDI program to withstand temporary economic downturns improved significantly during the year.

The long-range actuarial estimates in this report show that the OASDI program as a whole is in close actuarial balance, on a level-financing basis. Over the 75-year projection period, the OASDI program has an estimated level-financing deficit of 0.58 percent of taxable payroll, based on the intermediate alternative II-B assumptions. This deficit represents about 4.3 percent of the level-financing cost rate. In other words, the long-range income rate (including the funds on hand at the beginning of the valuation period) represents about 95.7 percent of the long-range cost rate.

However, while the program is in close actuarial balance, deficits appear after the first three decades, based on both sets of intermediate assumptions—alternatives II-A and II-B. The OASDI long-range estimates based on both alternatives show a pattern of recurring annual positive balances in the first three decades and recurring annual deficits thereafter. These annual balances do not reflect interest earnings, which, when taken into account, result in trust fund growth, in dollars, continuing for another 10 to 15 years after the first annual deficit occurs.

The estimates therefore show that the assets of the OASI and DI Trust Funds, on a combined basis, will be sufficient to enable the timely payment of OASDI benefits for many years into the future, on the basis of all four sets of economic and demographic assumptions. Based on alternative I, the funds continue to grow throughout the 75-year projection period. On the basis of alternative II-A, the combined funds build up and then decline, but do not become exhausted, during the next 75 years. The combined funds are estimated to build up, then decline, and then become exhausted in 2048, or 60 years from now, based on alternative II-B. Based on alternative III, the combined funds are estimated to become exhausted in 2026, after first building up and then declining. Thus, even under the most pessimistic assumptions shown in this report, OASDI benefits can be paid for another 3 1/2 decades without legislation to increase income or reduce expenditures.

The estimates for each trust fund, separately, indicate that the OASI program can operate satisfactorily for many years, as shown by all four sets of estimates. However, while the DI program would operate satisfactorily for many years on the basis of optimistic or intermediate assumptions like those designated as alternatives I, II-A, and II-B, it would become exhausted by late 1996, on the basis of the more pessimistic assumptions represented by alternative III.

For OASI and DI, separately, the level-financing long-range deficits, based on alternative II-B, are 0.45 percent and 0.13 percent of taxable payroll, respectively. The deficit for DI represents about 8.3 percent of the 75-year cost rate; thus, the DI program is not in close actuarial

balance. The DI program could be brought into close actuarial balance, however, by a small reallocation of the contribution rate from OASI to DI, in such a way that the OASI program would still remain in close actuarial balance. While such a reallocation is not being recommended, the financial condition of the DI program needs to be carefully monitored in both the short-range and long-range periods.

For several years, the single figure representing the long-range actuarial balance over the 75-year projection period, as well as the figure for each of the 25-year subperiods, has been calculated on an "average-cost" basis. For comparability with the 1987 report, the OASDI average actuarial balance over the 75-year projection period is a deficit of 0.87 percent of taxable payroll, based on the alternative II-B assumptions. During the first 25 years, the average balance is a positive balance of 2.15 percent of taxable payroll. However, the average balances in the second and third 25-year subperiods are deficits of 1.45 percent and 3.32 percent, respectively. On a level-financing basis, the corresponding balances for the first, second, and third 25-year subperiods are a positive balance of 2.07 percent and deficits of 1.44 percent and 3.39 percent, respectively. (These balances are based on alternative II-B and do not include the funds on hand at the beginning of the projection period.)

Thus, in the absence of other changes, the long-range actuarial balance will tend to decline slowly in future annual reports, 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, which will result in a lower ratio of workers to beneficiaries in the distant future.

Under the average-cost basis, the balance for each period is determined by calculating the arithmetic mean of the annual balances over the period. The average-cost calculation does not correctly reflect the full effects of the interest earnings of the accumulated trust funds. On the other hand, the level-financing calculations shown in this report properly reflect the full effect of interest earnings. Thus, the 75-year actuarial deficit of 0.58 percent of taxable payroll, on a level-financing basis, is a more accurate measure because it takes account of all the interest earnings of the trust funds, as well as the funds on hand at the beginning of the projection period.

# IV. SUMMARY OF THE OPERATIONS OF THE OLD-AGE AND SURVIVORS INSURANCE AND DISABILITY INSURANCE TRUST FUNDS, FISCAL YEAR 1987

## *A. OLD-AGE AND SURVIVORS INSURANCE TRUST FUND*

A statement of the income and disbursements of the Federal Old-Age and Survivors Insurance Trust Fund in fiscal year 1987, and of the assets of the fund at the beginning and end of the fiscal year, is presented in table 2.

TABLE 2.—STATEMENT OF OPERATIONS OF THE OASI TRUST FUND DURING FISCAL YEAR 1987
[In thousands]

| | | |
|---|---|---|
| Total assets, September 30, 1986 | | $37,519,378 |
| Receipts: | | |
| Contributions: | | |
| Appropriations: | | |
| Employment taxes | $192,601,710 | |
| Tax credits | 1,652,655 | |
| Total appropriations | 194,254,366 | |
| Deposits arising from State agreements | 5,324,577 | |
| Payment from general fund of the Treasury representing employee-employer contributions on deemed wage credits for military service in 1987 | 348,391 | |
| Gross contributions | 199,927,333 | |
| Less payment to the general fund of the Treasury for contributions subject to refund | 373,170 | |
| Net contributions | | 199,554,163 |
| Income from taxation of benefit payments: | | |
| Withheld from benefit payments to non-resident aliens | 66,717 | |
| All other, not subject to withholding[1] | 3,256,000 | |
| Total income from taxation of benefits | | 3,322,717 |
| Reimbursement from general fund of the Treasury for costs of payments to uninsured persons who attained age 72 before 1968 | | 69,394 |
| Investment income and interest adjustments: | | |
| Interest on investments | 4,496,366 | |
| Interest on transfers from the general fund account for the Supplemental Security Income program due to adjustment in allocation of administrative expenses | 1,098 | |
| Gross investment income and interest adjustments | 4,497,463 | |
| Less interest on interfund transfers due to adjustment in allocation of administrative expenses | 2,510 | |
| Less interest on general fund advance tax transfers | 625,017 | |
| Net investment income and interest adjustments | | 3,669,936 |
| Income from merger of the Northern Mariana Islands Social Security Retirement Fund with the United States Social Security program | | 29,434 |
| Gifts | | 454 |
| Total receipts | | 206,846,097 |

## APPENDIX A.—ASSUMPTIONS AND METHODS UNDERLYING THE ACTUARIAL ESTIMATES

This appendix describes the assumptions and methods which underlie the actuarial estimates in this report. Unless specifically stated otherwise, the assumptions and methods were used for each of the four alternatives and for both the short-range and long-range periods. Some of the economic and demographic assumptions which vary by alternative are summarized in the section entitled "Actuarial Estimates." Further details about the assumptions, methods, and actuarial estimates are contained in Actuarial Studies published by the Office of the Actuary, Social Security Administration, and are available upon request.

### *TOTAL POPULATION*

Projections were made of the population in the Social Security coverage area by age, sex, and marital status as of January 1 of each year 1987 through 2065. The projections started with the United States population, including armed forces overseas, on January 1, 1986, based on estimates by the Bureau of the Census. This population estimate was adjusted for net census undercount and increased by the estimated populations in the geographic areas covered by the OASDI program but not included in the U.S. population. The population was then projected using assumed rates of birth and death and assumed levels of net immigration.

Historically, fertility rates in the U.S. have fluctuated widely. The total fertility rate is defined to be the average number of children that would be born to a woman in her lifetime if she were to experience the birth rates by age observed in, or assumed for, the selected year, and if she were to survive the entire child-bearing period. The total fertility rate decreased from 3.3 after World War I to 2.1 during the Great Depression, rose to 3.7 in 1957, and then fell to 1.7 in 1976. Since then, it has risen slightly and has been between 1.8 and 1.9 children per woman since 1978.

These variations in fertility rates have resulted from changes in social attitudes, economic conditions, and the use of birth-control methods. Future fertility rates may be expected to remain close to recent levels. The recent historical and projected trends in certain population characteristics are consistent with a continued relatively low fertility rate. These trends include the rising percentages of women who have never married, of women who are divorced, and of young women who are in the labor force. Based on consideration of these factors, ultimate total fertility rates of 2.2, 1.9, and 1.6 children per woman were selected for alternatives I, II-A and II-B, and III, respectively. These compare with rates of 2.3, 2.0, and 1.6 children per woman used for the same alternatives in the 1987 Trustees Reports. For each alternative, the total fertility rate is assumed to reach its ultimate level in 2012. These ultimate values can be compared to those used by the Bureau of the Census for its latest series of population projections. Those fertility rates range from 2.3 to 1.6, with an intermediate assumption of 1.9.[1] A rate of 2.1 would

[1]U.S. Bureau of the Census, Current Population Reports, Series P-25, No. 952, "Projections of the Population of the United States By Age, Sex, and Race: 1983-2080," U.S. Government Printing Office, Washington, D.C., May 1984.

ultimately result in a nearly constant population if net immigration were zero and if death rates were constant at levels close to current U.S. experience.

Historically, death rates in the U.S. have steadily declined. The age-sex-adjusted death rate—which is the crude rate that would occur in the enumerated total population as of April 1, 1980, if that population were to experience the death rates by age and sex for the selected year—declined at an average rate of 1.2 percent per year between 1900 and 1986. These reductions in death rates have resulted from many factors, including increased medical knowledge, increased availability of health-care services, and improvements in personal health-care practices such as diet and exercise. Based on consideration of the likelihood of continued progress in these and other areas, three alternative sets of ultimate annual percentage reductions in central death rates by sex and cause of death were selected for 2012 and later. The intermediate set, which is used for both alternatives II-A and II-B, is considered most likely to be realized. The average annual percentage reductions used for alternative I are smaller than those for alternatives II-A and II-B, while those used for alternative III are greater. Between 1987 and 2012, these reductions in central death rates for alternatives II-A and II-B are assumed to change gradually from the average annual reductions by age, sex, and cause of death observed between 1968 and 1985, to the ultimate annual percentage reductions by sex and cause of death assumed for 2012 and later. Alternative I reductions are assumed to change gradually from 50 percent of the average annual reductions observed between 1968 and 1985, while alternative III reductions are assumed to change gradually from 150 percent of the average annual reductions observed between 1968 and 1985. The age-sex-adjusted death rate (for all causes combined) declined at an average rate of 1.6 percent per year between 1968 and 1985.

After adjustment for changes in the age-sex distribution of the population, death rates were projected to decline at an average annual rate of about 0.3 percent, 0.6 percent, and 1.1 percent between 1987 and 2062 for alternatives I, II-A and II-B, and III, respectively. Death rates for AIDS were included based on estimates through 1991 prepared by the Centers for Disease Control, Public Health Service. Until more data are available to assess the prevalence of this disease, an assumption has been adopted that no new infections with the Human Immunodeficiency Virus (HIV) will occur after 1991.

Beginning with 1988, net immigration is assumed to be 750,000, 600,000, and 450,000 persons per year for alternatives I, II-A and II-B, and III, respectively. Of these net numbers of immigrants, 450,000, 400,000, and 350,000, respectively, are assumed to be legal, and the remainders are assumed to be other-than-legal. For 1986 and 1987, the net legal immigration is assumed to be 400,000 persons per year and, consistent with the estimates of other-than-legal immigration made by the Bureau of the Census since the 1980 Census, net other-than-legal immigration is assumed to be 200,000 persons per year. For the 1987 Trustees Report net legal immigration was assumed to be 600,000, 400,000, and 200,000 persons per year for alternatives I, II-A and II-B,

and III, respectively. No assumption was made for other-than-legal immigration for the 1987 Trustees Report.

Table A1 shows the projected population as of July 1 by broad age group, for the four alternatives. Because eligibility for many types of OASDI benefits depends on marital status, the population was projected by marital status, as well as by age and sex. Marriage and divorce rates were based on recent data from the National Center for Health Statistics.

TABLE A1.—SOCIAL SECURITY AREA POPULATION AS OF JULY 1 AND DEPENDENCY RATIOS, BY ALTERNATIVE AND BROAD AGE GROUP, CALENDAR YEARS 1950-2065

| Calendar year | Population (in thousands) | | | | Dependency ratio | |
|---|---|---|---|---|---|---|
| | Under 20 | 20-64 | 65 and over | Total | Aged[1] | Total[2] |
| Past experience: | | | | | | |
| 1950 | 53,895 | 92,739 | 12,752 | 159,386 | 0.138 | 0.719 |
| 1960 | 72,989 | 99,842 | 17,250 | 190,081 | .173 | .904 |
| 1965 | 80,072 | 104,850 | 19,068 | 203,990 | .182 | .946 |
| 1970 | 80,885 | 113,073 | 20,892 | 214,850 | .185 | .900 |
| 1975 | 78,787 | 122,639 | 23,227 | 224,653 | .189 | .832 |
| 1980 | 74,928 | 134,203 | 26,115 | 235,246 | .195 | .753 |
| 1985 | 73,167 | 144,994 | 28,966 | 247,127 | .200 | .704 |
| Alternative I: | | | | | | |
| 1990 | 74,255 | 152,778 | 31,952 | 258,985 | .209 | .695 |
| 1995 | 76,635 | 159,546 | 34,004 | 270,185 | .213 | .693 |
| 2000 | 78,577 | 166,796 | 34,782 | 280,155 | .209 | .680 |
| 2005 | 79,496 | 174,918 | 35,694 | 290,108 | .204 | .659 |
| 2010 | 81,017 | 181,561 | 38,221 | 300,799 | .211 | .657 |
| 2015 | 83,670 | 184,756 | 43,461 | 311,887 | .235 | .688 |
| 2020 | 86,855 | 185,573 | 49,979 | 322,408 | .269 | .737 |
| 2025 | 89,755 | 185,146 | 57,099 | 332,000 | .308 | .793 |
| 2030 | 92,017 | 186,289 | 62,421 | 340,727 | .335 | .829 |
| 2035 | 93,976 | 190,446 | 64,454 | 348,877 | .338 | .832 |
| 2040 | 96,410 | 195,821 | 64,476 | 356,708 | .329 | .822 |
| 2045 | 99,274 | 200,995 | 64,168 | 364,437 | .319 | .813 |
| 2050 | 102,164 | 205,254 | 64,940 | 372,357 | .316 | .814 |
| 2055 | 104,805 | 209,818 | 66,183 | 380,806 | .315 | .815 |
| 2060 | 107,294 | 215,198 | 67,507 | 390,000 | .314 | .812 |
| 2065 | 109,888 | 221,287 | 68,696 | 399,872 | .310 | .807 |
| Alternatives II-A and II-B: | | | | | | |
| 1990 | 74,009 | 152,556 | 31,999 | 258,565 | .210 | .695 |
| 1995 | 75,456 | 158,910 | 34,348 | 268,713 | .216 | .691 |
| 2000 | 75,914 | 165,782 | 35,601 | 277,297 | .215 | .673 |
| 2005 | 74,805 | 173,514 | 37,024 | 285,343 | .213 | .644 |
| 2010 | 73,753 | 179,600 | 40,022 | 293,375 | .223 | .633 |
| 2015 | 73,674 | 181,595 | 45,743 | 301,012 | .252 | .656 |
| 2020 | 74,250 | 180,603 | 52,799 | 307,652 | .292 | .703 |
| 2025 | 74,610 | 177,778 | 60,549 | 312,936 | .341 | .760 |
| 2030 | 74,411 | 175,907 | 66,524 | 316,842 | .378 | .801 |
| 2035 | 73,965 | 176,456 | 69,119 | 319,539 | .392 | .811 |
| 2040 | 73,758 | 177,862 | 69,605 | 321,225 | .391 | .806 |
| 2045 | 73,866 | 178,618 | 69,644 | 322,128 | .390 | .803 |
| 2050 | 74,030 | 177,894 | 70,659 | 322,583 | .397 | .813 |
| 2055 | 74,024 | 176,963 | 71,975 | 322,962 | .407 | .825 |
| 2060 | 73,874 | 176,762 | 72,903 | 323,539 | .412 | .830 |
| 2065 | 73,746 | 177,243 | 73,357 | 324,345 | .414 | .830 |
| Alternative III: | | | | | | |
| 1990 | 73,756 | 152,335 | 32,046 | 258,137 | .210 | .695 |
| 1995 | 74,237 | 158,263 | 34,675 | 267,174 | .219 | .688 |
| 2000 | 73,162 | 164,729 | 36,367 | 274,258 | .221 | .665 |
| 2005 | 69,987 | 172,037 | 38,291 | 280,315 | .223 | .629 |
| 2010 | 66,399 | 177,552 | 41,839 | 285,790 | .236 | .610 |
| 2015 | 63,757 | 178,335 | 48,218 | 290,309 | .270 | .628 |
| 2020 | 62,027 | 175,521 | 56,083 | 293,631 | .320 | .673 |
| 2025 | 60,294 | 170,291 | 64,836 | 295,421 | .381 | .735 |
| 2030 | 58,204 | 165,459 | 71,937 | 295,600 | .435 | .787 |
| 2035 | 56,047 | 162,551 | 75,637 | 294,235 | .465 | .810 |
| 2040 | 54,029 | 160,253 | 77,169 | 291,452 | .482 | .819 |
| 2045 | 52,323 | 156,999 | 78,128 | 287,450 | .498 | .831 |
| 2050 | 50,797 | 151,849 | 79,925 | 282,570 | .526 | .861 |
| 2055 | 49,270 | 146,174 | 81,778 | 277,222 | .559 | .897 |
| 2060 | 47,711 | 141,403 | 82,648 | 271,762 | .584 | .922 |
| 2065 | 46,206 | 137,557 | 82,589 | 266,352 | .600 | .936 |

[1]Population aged 65 and over, divided by population aged 20-64.

[2]Sum of population aged 65 and over, and population under age 20, divided by population aged 20-64.

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

### *COVERED POPULATION*

The number of covered workers in a year is defined as the number of persons who, at any time during the year, have OASDI taxable earnings. Projections of the numbers of covered workers were made by applying projected coverage rates to the projected Social Security area population. The coverage rates—i.e., the number of covered workers in the year, as a percentage of the population as of July 1—were determined by age and sex using projected labor force participation rates and unemployment rates, and their historical relationships to coverage rates. In addition, the coverage rates were adjusted to reflect the increase in coverage of Federal civilian employment that will result from the 1983 Social Security Amendments and the subsequent opportunity offered to Federal civilian employees, who were hired before 1983, to become covered under the OASDI program.

Labor force participation rates were projected by age and sex, taking into account projections of the percentage of the population that is married, the percentage of the population that is disabled, the number of children in the population, the level of retirement benefits, and the state of the economy. All of these factors vary by alternative. For men, the projected age-adjusted labor force participation rates for the year 2065 for alternatives I, II-A, II-B, and III are 1.1, 1.3, 1.5, and 1.9 percentage points lower, respectively, than the 1987 level of 76.7 percent. For women, the projected age-adjusted labor force participation rates increase for all of the alternatives. The projected rates for 2065 are 3.4, 2.2, 1.7, and 0.4 percentage points, respectively, above the 1987 level of 56.1 percent.

The total age-sex-adjusted unemployment rate averaged 6.0 percent for the 30 years 1958-87 and 7.1 percent for the 10 years 1978-87. The ultimate total age-sex-adjusted unemployment rate is assumed to be 5.0, 5.5, 6.0, and 7.0 percent for alternatives I, II-A, II-B, and III, respectively. For alternatives I, II-A, and II-B, the unemployment rate is assumed to decline gradually from its 1987 level of 6.2 percent, reaching its ultimate level by 2000. For alternative III, the unemployment rate is assumed to peak in 1990 and again in 1992, because of assumed recessions, and thereafter to decline gradually, reaching its ultimate level by 2000.

The projected age-adjusted coverage rate for men changes from its 1987 level of 75.4 percent to 76.1, 75.6, 75.0, and 73.8 percent in 2065 on the basis of alternatives I, II-A, II-B, and III, respectively. For women, it increases from its 1987 level of 57.3 percent to 61.4, 60.1, 59.4, and 57.7 percent for alternatives I, II-A, II-B, and III, respectively.

### *AVERAGE EARNINGS AND INFLATION*

Future increases in average earnings and in the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W, hereinafter denoted as "CPI") will directly affect the OASDI program. Average earnings in covered employment for each year have a direct effect on the size of the taxable payroll and on the future level of average benefits. Increases in the CPI directly affect the automatic cost-of-living benefit increases, while inflation in general affects the nominal levels of average

earnings, GNP, and taxable payroll. In addition, increases in average wages in the U.S. economy directly affect the indexation, under the automatic-adjustment provisions in the law, of the benefit formulas, the contribution and benefit base, the exempt amounts under the retirement earnings test, the amount of earnings required for a quarter of coverage, and under certain circumstances, the automatic cost-of-living benefit increases.

Increases in average earnings were projected in two components—average earnings of wage-and-salary workers, usually referred to as average wages (and shown in table 10 of this report), and average net earnings of self-employed persons. Each of these was subdivided into increases in real average earnings and increases in the CPI. For simplicity, real-earnings increases are expressed in the form of real-earnings differentials—i.e., the percentage increase in average nominal earnings, minus the percentage increase in the CPI.

The assumed ultimate increases in average real earnings are based on analysis of trends in productivity gains and the factors linking productivity gains with increases in average real earnings. For the 30 years 1957-86, annual increases in productivity for the total U.S. economy averaged 1.7 percent, the result of average annual increases of 2.7, 1.6, and 0.9 percent for the 10-year periods 1957-66, 1967-76, and 1977-86, respectively. Meanwhile, the average annual rate of change in average real earnings was an increase of 0.9 percent for the 30 years 1957-86, the result of average annual increases of 2.3 and 0.5 percent, and an average annual decrease of 0.2 percent, respectively, for the aforementioned 10-year periods. The change in the linkage between annual increases in productivity and real earnings averaged 0.8 percent for the 30 years 1957-86, and 0.4, 1.1, and 1.0 percent, respectively, for the aforementioned 10-year periods. The change in the linkage reflects changes in such factors as the average number of hours worked per year, the extent to which workers share in the value of production, and the proportion of employee compensation paid as wages.

The ultimate annual increases in productivity for all sectors—wage-and-salary workers, self-employed persons, and the total economy—are assumed to be 2.3, 2.0, 1.7, and 1.5 percent for alternatives I, II-A, II-B, and III, respectively. The corresponding ultimate annual rates of change in the linkage for wage and salary workers are assumed to be 0.0 percent for alternative I and declines of 0.2, 0.35, and 0.6 percent for alternatives II-A, II-B, and III, respectively. The resulting ultimate real-wage differentials are 2.4, 1.9, 1.4, and 0.9 percent. Ultimate annual declines in the linkage for self-employed persons are smaller because the proportion of reported compensation that is considered earnings remains constant. As a result, ultimate real-earnings differentials for the self-employed are assumed to be higher than for wage-and-salary workers. The corresponding ultimate real-earnings differentials for wage-and-salary workers and self-employed persons, combined, are slightly higher than those assumed for wage-and-salary workers only.

For alternative II-A, the CPI is assumed to increase ultimately at an annual rate of 3.0 percent. For alternative II-B, the CPI is assumed to increase ultimately at an annual rate of 4.0 percent, which is somewhat

lower than the average annual increase of 4.7 percent experienced between 1957 and 1987. The ultimate increases in the average annual CPI for alternatives I and III of 2.0 percent and 5.0 percent, respectively, were chosen to include a reasonable range of possible values. Ultimate annual increases in the GNP price deflator are assumed to be the same, for each alternative, as for the CPI.

The ultimate increases in average annual wages in covered employment are assumed to be 4.4, 4.9, 5.4, and 5.9 percent, for alternatives I, II-A, II-B, and III, respectively. These were obtained, for each alternative, by adding the assumed annual percentage increase in the CPI to the real-wage differential. Ultimate increases in average wages and earnings for the U.S. economy are very similar to those assumed for average wages in covered employment.

### *TAXABLE PAYROLL AND TAXES*

The taxable payroll is that amount which, when multiplied by the combined employee-employer tax rate, yields the total amount of taxes paid by employees, employers, and the self-employed. The taxable payroll is important not just in estimating OASDI income, but also in determining income and cost rates, and actuarial balances. These terms are defined in the introduction to the section entitled "Actuarial Estimates."

In practice, the taxable payroll is calculated as a weighted average of the earnings on which employees, employers, and self-employed persons make contributions to the OASDI program. The weighting takes into account the lower tax rates, as compared to the combined employee-employer rate, which apply to multiple-employer "excess wages," and which did apply, before 1984, to net earnings from self-employment and, before 1988, to tips. For 1984 and later, the amounts of earnings for employees, employers, and the self-employed were projected separately. For 1983 and later, taxable payroll also includes deemed wage credits for military service. Estimates of taxable earnings for employees, employers, and the self-employed were developed from corresponding estimates of earnings in the U.S. economy, by means of factors which adjust for various differences in these measures. The factors adjust total U.S. earnings by removing earnings from noncovered employment, adding earnings from various outlying areas which are covered by Social Security but are not included in published "U.S." data, and removing earnings above the taxable earnings base.

Estimates of taxes collected were developed from the corresponding estimates of taxable earnings by applying the employee, employer, or self-employed tax rate, and by taking into account the lag time from the incurrence of tax liability to the collection of taxes.

### *INSURED POPULATION*

There are three types of insured status under the OASDI program: fully, currently, and disability. Fully insured status is required of an aged worker for eligibility to a primary retirement benefit and for the eligibility of the worker's spouse and children to auxiliary benefits. Fully insured status is also required of a deceased worker for the eligibility of the worker's survivors to benefits (with the exception of child survivors and parents of eligible child survivors, in which cases the deceased worker is required to have had either currently insured status or fully insured status). Disability insured status, which is more restrictive than fully insured status, is required of a disabled worker for eligibility to a primary disability benefit and for the eligibility of the worker's spouse and children to auxiliary benefits.

Projections of the percentage of the population that is fully insured were made by age and sex, based on past and projected coverage rates, the requirement for fully insured status, and their historical relationships to fully insured rates. Currently insured status was disregarded for purposes of these estimates, because the number of cases in which eligibility for benefits is based solely on currently insured status is relatively small. Projections of the percentage of fully insured persons who are also disability insured were made by age and sex based on past and projected coverage rates, the requirement for disability insured status, and their historical relationships. Finally, the fully insured and disability insured populations were developed from the projected total population by applying the appropriate percentages.

Under this procedure, the percentage of the Social Security area population aged 62 and over that is fully insured is projected to increase from 75.5 on January 1, 1988, to 90.4, 90.1, 89.9, and 89.5 on January 1, 2061, based on alternatives I, II-A, II-B, and III, respectively. The increase for females is projected to be much greater than the increase for males. Based on alternative II-B, for example, the percentage for males is projected to increase only slightly during this period from 92.4 to 94.0, while that for females is projected to increase more substantially from 63.3 to 86.7. The percentage of fully insured persons under the normal retirement age who are disability insured is projected to change only slightly from 85.7 on January 1, 1988, to 86.0, 85.6, 85.4, and 84.9 on January 1, 2061, for alternatives I, II-A, II-B, and III, respectively.

The fully insured population by age and sex was further subdivided by marital status, by using the variation in labor force participation rates by marital status to estimate the variation in coverage rates by marital status. These coverage rates were then used to estimate the variation in the fully insured rates by marital status.

### *OLD-AGE AND SURVIVORS INSURANCE BENEFICIARIES*

The numbers of OASI beneficiaries were projected for each type of benefit separately, by the sex of the worker on whose earnings the benefits are based, and by the age of the beneficiary. For selected types of benefits, the numbers of beneficiaries were also projected by marital status.

In the short-range period, the numbers of retired-worker beneficiaries were developed by applying award rates to the numbers of persons who are insured but not yet retired, and by applying termination rates to the numbers of persons already receiving retired-worker benefits. In the long range, the numbers of retired-worker beneficiaries who are not converted from disabled-worker beneficiaries were projected as a percentage of the aged fully insured population less those persons entitled to disability or widow(er)'s benefits (i.e., the exposed population). The percentages for ages 70 and over are assumed to be 100, because the retirement earnings test and delayed retirement credit do not apply after age 70. For 1990, the retired-worker beneficiaries as a percentage of the exposed population for ages 65 through 69 are assumed to increase, reflecting the change effective then in benefit withholding under the retirement earnings test. The percentages for ages 62 through 69 are assumed to change for two reasons. They were adjusted upward at a decreasing rate until 1997, thus continuing the trend toward earlier retirement. They were also adjusted, however, in the long-range period, for each year of birth, as a function of the ratio of the monthly benefit amount payable at each age of entitlement to the amount payable at age-70 entitlement. This resulted in a gradual downward adjustment as the increases in the delayed retirement credit become effective and, beginning in 2000, during the years in which the normal retirement age is scheduled to increase. The net effect of these two adjustments is to increase the percentages at ages 62 through 69 into the 1990s and then to decrease the percentages. Ultimate percentages are assumed to be reached in 2030. The numbers of retired-worker beneficiaries who are converted from disabled-worker beneficiaries were calculated separately in a manner consistent with the calculation of disabled-worker beneficiaries.

The numbers of aged-spouse beneficiaries were estimated from the population projected by age and sex. The benefits of aged-spouse beneficiaries are based on the earnings records of their husbands or wives, who are referred to as "wage earners." In the short-range period, a regression equation was used to project the number of aged-spouse beneficiaries, as a proportion of the aged female or male population not receiving retired-worker or aged-widow(er) benefits. In the long-range period, aged-spouse beneficiaries were estimated from the population projected by age, sex, and marital status. To the numbers of spouses aged 62 and over in the population, a series of factors were applied, representing the probabilities that the spouse and the wage earner meet all of the conditions of eligibility—i.e., the probabilities that (1) the wage earner is 62 or over, (2) the wage earner is insured, (3) the wage earner is receiving benefits, (4) the spouse is not receiving a benefit for the care of an entitled child, (5) the spouse is not insured, (6) the spouse is not eligible to receive a significant government pension based on earnings in noncovered employment, and (7) a residual factor.

In addition, the same factors were applied to the numbers of divorced persons aged 62 and over in the population, with three differences. First, an additional factor is required to reflect the probability that the person's former wage-earner spouse is still alive (otherwise, the person may be entitled to a divorced widow(er)'s benefit). Second, a factor is required

to reflect the probability that the marriage to the wage-earner spouse was at least 10 years in duration. Third, factor (3) was not applied because, effective for January 1985, a divorced person generally need not wait to receive benefits until the former wage-earner spouse is receiving benefits.

The projected numbers of children under age 18, and students aged 18, who are eligible for benefits as children of retired-worker beneficiaries, were based on the projected numbers of children in the population. In the short-range period, a factor was applied, representing the probability that both parents are alive. A regression equation was then used to project the number of children of retired-worker beneficiaries. In the long-range period, entitled children were projected separately by sex of the wage-earner parent. To the numbers of children in the population, factors were applied representing the probabilities that the parent is alive, aged 62 or over, insured, and receiving a retired-worker benefit. Another factor was applied representing the probability that the child is not entitled to a benefit based on the other parent's earnings. For children aged 18, a factor was applied representing the probability that the child is attending a secondary school. The numbers of disabled children aged 18 and over of retired-worker beneficiaries were projected from the adult population in a similar manner, with the inclusion of a factor representing the probability of being disabled since childhood.

In the short-range period, the numbers of young-spouse beneficiaries were projected as a proportion of the projected numbers of child beneficiaries who are either under age 16 or disabled. In the long-range period, young-spouse beneficiaries were projected as a proportion of the projected numbers of child beneficiaries of retired workers, taking into account projected changes in average family size.

The numbers of aged-widow(er) beneficiaries were projected from the population by age and sex. In the short-range period, a regression equation projected the number of aged-widow(er) beneficiaries, as a proportion of the aged female or male population not receiving retired-worker or aged-spouse benefits. In the long-range period, aged-widow(er) beneficiaries were projected from the population by age, sex, and marital status. Four factors were applied to the numbers of widow(er)s in the population aged 60 and over. These factors represent the probabilities that (1) the deceased wage-earner was fully insured at death, (2) the widow(er) is not receiving a benefit for the care of an entitled child, (3) the widow(er) is not fully insured, and (4) the widow(er)'s benefits are not withheld because of receipt of a significant government pension based on earnings in noncovered employment. In addition, some insured widow(er)s who had not applied for their retired-worker benefits are assumed to receive widow(er) benefits. Also, the same factors were applied to the numbers of divorced persons aged 60 and over in the population, with additional factors representing the probability that the person's former wage-earner spouse is deceased and that the marriage was at least 10 years in duration.

In the short-range period, the numbers of disabled-widow(er) beneficiaries were estimated as a proportion of the female or male population aged 50-64. In the long-range period, the numbers were projected for

bers of such beneficiaries entitled on December 31, 1987, by adding new entitlements and subtracting terminations. The starting numbers of entitled disabled-worker beneficiaries were estimated by age, sex, and duration of entitlement, from the tabulated number of disabled-worker beneficiaries in current payment status on December 31, 1987. The numbers of new entitlements during each year were projected by applying assumed disability incidence rates. In the short-range period, an age-adjusted rate was applied to the total age-adjusted disability insured population for each sex. In the long-range period, incidence rates by age and sex were applied to the projected disability insured population (excluding those already entitled to disabled-worker benefits) to obtain new entitlements. The numbers of terminations were projected by applying assumed termination rates to the disabled-worker population. In the short-range period, overall termination rates for each sex were projected based on recent experience and on expected changes in the administration of the DI program. In the long-range period, the numbers of terminations were projected by applying assumed death and recovery rates, by age, sex, and duration of entitlement, to the entitled disabled-worker population, and adding the number of disabled-worker beneficiaries automatically converted to retired-worker beneficiaries at the normal retirement age (currently, age 65).

The disability incidence rates, which declined during 1975-82, increased during 1983-86, and remained steady in 1987, are assumed to resume the increasing trend in 1988. The rates are assumed to increase significantly faster for males than for females during the next decade, as workers afflicted by AIDS become disabled-worker beneficiaries. The incidence rates increase through 2005, when they reach ultimate levels which, for alternatives II-A and II-B, are about 20 percent for males and 28 percent for females higher than the corresponding average rates for 1983-85. This produces age-adjusted rates in 2005 of 5.2 per thousand for males and 3.6 per thousand for females, and an age-sex-adjusted rate of 4.6 per thousand. These adjusted rates are approximately the same as those used in the four prior reports. For the other alternatives, the disability incidence rates are assumed to follow patterns through time similar to the one for alternatives II-A and II-B. For alternative I, the ultimate levels are assumed to be higher by about 5 percent for both males and females than the average for 1983-85. For alternative III, the ultimate levels are assumed to be higher by about 43 percent for males and 53 percent for females.

The overall termination rates were projected quarterly in the short-range period. For alternatives II-A and II-B, the rates were projected to increase from the relatively low levels of 1984-86, to levels comparable to the average experienced over the last decade. For alternative III, the termination rates increase more slowly and to lower levels, whereas for alternative I the termination rates increase more quickly and to higher levels.

In the long-range period, the death and recovery rates were projected by age, sex, and duration of entitlement. For all alternatives, the death rates are assumed to decline steadily throughout the 75-year projection period. For alternatives II-A and II-B, they reach levels in 2065

approximately 30 percent lower for males and approximately 20 percent lower for females than those experienced by disabled-worker beneficiaries during 1977-80, the most recent period for which detailed data exist. The recovery rates are assumed to increase from 1987 levels until 1995, when they attain ultimate levels about 15 percent higher than those experienced during the period 1977-80, thereby allowing for the estimated effect of the periodic reviews required by provisions of law first enacted in 1980, and amended in 1983 and 1984.

For alternative I, the death rates in 2065 are assumed to be roughly 20 percent lower for males and approximately 10 percent lower for females than those experienced by disabled-worker beneficiaries during 1977-80, and the recovery rates are assumed to increase to levels 30 percent higher than those of the same period. For alternative III, the death rates in 2065 are assumed to be about 45 percent lower for males and approximately 35 percent lower for females than those experienced during 1977-80, and recovery rates are assumed to be equal to those experienced during 1977-80.

In the short-range period, the projected numbers of children under age 18, students aged 18, and disabled children aged 18 and over, who are eligible for benefits as children of disabled-worker beneficiaries, were projected by applying quarterly award and termination rates. Awards to the three categories of child beneficiaries were based on the numbers of awards to disabled-worker beneficiaries.

In the long-range period, the projected numbers of minor-child and student beneficiaries were based on the projected numbers of children in the population by age. To these numbers of children were applied factors representing the probability that either of their parents is insured and disabled. The numbers of disabled children aged 18 and over were projected as a function of the numbers of disabled-worker beneficiaries and the size of the adult population.

In the short-range period, the numbers of young-spouse beneficiaries were projected by applying quarterly award and termination rates, where awards were based on the numbers of awards to child beneficiaries who are either under age 16 or disabled. The numbers of aged-spouse beneficiaries were also projected by applying quarterly award and termination rates, where awards were based on the number of awards to disabled-worker beneficiaries.

In the long-range period, the numbers of young-spouse beneficiaries were projected as a proportion of the projected numbers of child beneficiaries who are either under age 16 or disabled, taking into account projected changes in family size. The numbers of aged-spouse beneficiaries were projected as a proportion of the numbers of disabled-worker beneficiaries, based on recent experience and allowing for projected changes in marriage rates.

Table A3 shows the projected numbers of beneficiaries under the DI program.

TABLE A3.—DI BENEFICIARIES WITH MONTHLY BENEFITS IN CURRENT-PAYMENT STATUS AS OF DECEMBER 31 BY ALTERNATIVE, CALENDAR YEARS 1960-2065
[In thousands]

| Calendar year | Disabled workers | Auxiliaries | | Total |
|---|---|---|---|---|
| | | Wife-husband | Child | |
| Past experience: | | | | |
| 1960 | 455 | 77 | 155 | 687 |
| 1965 | 988 | 193 | 558 | 1,739 |
| 1970 | 1,493 | 283 | 889 | 2,665 |
| 1975 | 2,489 | 453 | 1,411 | 4,352 |
| 1980 | 2,859 | 462 | 1,358 | 4,678 |
| 1985 | 2,656 | 306 | 945 | 3,907 |
| 1986 | 2,727 | 301 | 965 | 3,993 |
| 1987 | 2,785 | 291 | 968 | 4,045 |
| Alternative I: | | | | |
| 1988 | 2,829 | 287 | 971 | 4,087 |
| 1989 | 2,849 | 284 | 972 | 4,105 |
| 1990 | 2,869 | 280 | 971 | 4,120 |
| 1995 | 3,081 | 285 | 1,026 | 4,393 |
| 2000 | 3,504 | 282 | 1,081 | 4,868 |
| 2005 | 4,076 | 302 | 1,126 | 5,504 |
| 2010 | 4,715 | 318 | 1,148 | 8,181 |
| 2015 | 5,080 | 308 | 1,168 | 8,555 |
| 2020 | 5,247 | 308 | 1,203 | 6,758 |
| 2025 | 5,559 | 337 | 1,257 | 7,153 |
| 2030 | 5,483 | 325 | 1,298 | 7,106 |
| 2035 | 5,443 | 317 | 1,327 | 7,087 |
| 2040 | 5,533 | 313 | 1,358 | 7,203 |
| 2045 | 5,799 | 329 | 1,398 | 7,526 |
| 2050 | 5,966 | 341 | 1,444 | 7,751 |
| 2055 | 6,079 | 351 | 1,491 | 7,921 |
| 2060 | 6,188 | 356 | 1,535 | 8,080 |
| 2065 | 6,376 | 365 | 1,577 | 8,317 |
| Alternative II-A: | | | | |
| 1988 | 2,844 | 289 | 976 | 4,108 |
| 1989 | 2,887 | 288 | 983 | 4,158 |
| 1990 | 2,932 | 286 | 988 | 4,206 |
| 1995 | 3,263 | 299 | 1,075 | 4,637 |
| 2000 | 3,847 | 324 | 1,178 | 5,349 |
| 2005 | 4,542 | 363 | 1,226 | 6,131 |
| 2010 | 5,322 | 398 | 1,232 | 6,952 |
| 2015 | 5,772 | 401 | 1,226 | 7,399 |
| 2020 | 5,974 | 414 | 1,231 | 7,619 |
| 2025 | 6,317 | 455 | 1,254 | 8,026 |
| 2030 | 6,202 | 441 | 1,268 | 7,912 |
| 2035 | 6,123 | 430 | 1,272 | 7,825 |
| 2040 | 6,184 | 422 | 1,270 | 7,876 |
| 2045 | 6,424 | 441 | 1,275 | 8,140 |
| 2050 | 6,512 | 452 | 1,284 | 8,248 |
| 2055 | 6,484 | 454 | 1,293 | 8,230 |
| 2060 | 6,428 | 449 | 1,299 | 8,175 |
| 2065 | 6,460 | 448 | 1,303 | 8,211 |
| Alternative II-B: | | | | |
| 1988 | 2,844 | 289 | 976 | 4,108 |
| 1989 | 2,887 | 288 | 983 | 4,158 |
| 1990 | 2,932 | 286 | 988 | 4,206 |
| 1995 | 3,262 | 299 | 1,075 | 4,636 |
| 2000 | 3,844 | 323 | 1,177 | 5,345 |
| 2005 | 4,537 | 362 | 1,224 | 6,124 |
| 2010 | 5,313 | 398 | 1,230 | 6,941 |
| 2015 | 5,760 | 401 | 1,222 | 7,383 |
| 2020 | 5,959 | 414 | 1,227 | 7,600 |
| 2025 | 6,299 | 455 | 1,250 | 8,004 |
| 2030 | 6,183 | 442 | 1,264 | 7,889 |
| 2035 | 6,103 | 431 | 1,267 | 7,800 |
| 2040 | 6,162 | 423 | 1,266 | 7,851 |
| 2045 | 6,401 | 443 | 1,270 | 8,114 |
| 2050 | 6,489 | 454 | 1,279 | 8,221 |
| 2055 | 6,461 | 455 | 1,288 | 8,204 |
| 2060 | 6,404 | 450 | 1,294 | 8,149 |
| 2065 | 6,437 | 450 | 1,298 | 8,185 |
| Alternative III: | | | | |
| 1988 | 2,881 | 293 | 990 | 4,164 |
| 1989 | 2,967 | 296 | 1,011 | 4,274 |
| 1990 | 3,056 | 299 | 1,030 | 4,384 |
| 1995 | 3,646 | 335 | 1,198 | 5,179 |
| 2000 | 4,334 | 381 | 1,315 | 6,030 |
| 2005 | 5,188 | 448 | 1,366 | 7,002 |
| 2010 | 6,154 | 509 | 1,348 | 8,011 |
| 2015 | 6,717 | 524 | 1,304 | 8,545 |
| 2020 | 6,964 | 544 | 1,271 | 8,780 |
| 2025 | 7,353 | 595 | 1,258 | 9,205 |
| 2030 | 7,187 | 574 | 1,243 | 9,005 |

TABLE A3.—DI BENEFICIARIES WITH MONTHLY BENEFITS IN CURRENT-PAYMENT STATUS AS OF DECEMBER 31 BY ALTERNATIVE, CALENDAR YEARS 1960-2065 (Cont.)
[In thousands]

| Calendar year | Disabled workers | Auxiliaries | | Total |
|---|---|---|---|---|
| | | Wife-husband | Child | |
| Alternative III: (Cont.) | | | | |
| 2035 | 7,059 | 554 | 1,219 | 8,833 |
| 2040 | 7,084 | 537 | 1,185 | 8,807 |
| 2045 | 7,299 | 555 | 1,154 | 9,008 |
| 2050 | 7,284 | 560 | 1,127 | 8,972 |
| 2055 | 7,064 | 548 | 1,103 | 8,715 |
| 2060 | 6,786 | 524 | 1,077 | 8,387 |
| 2065 | 6,621 | 508 | 1,051 | 8,180 |

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

### *AVERAGE BENEFITS*

Average benefits were projected by type of benefit based on recent historical averages, projected average Primary Insurance Amounts (PIAs), and projected ratios of average benefits to average PIAs. Average PIAs were calculated from projected distributions of beneficiaries by duration from year of award, average awarded PIAs, and increases thereto since the year of award, because of automatic benefit increases, recomputations to reflect additional covered earnings, and other factors. Average awarded PIAs were calculated from projected earnings histories, which were developed from the actual earnings histories associated with a sample of awards made in 1983.

For several types of benefits—retired-worker, aged-spouse, and aged-widow(er) benefits—the percentage of the PIA that is payable depends on the age at initial entitlement to benefits. Projected ratios of average benefits to average PIAs for these types of benefits were based on projections of age distributions at initial entitlement.

### *BENEFIT PAYMENTS*

For each type of benefit, benefit payments were calculated as the product of a number of beneficiaries and a corresponding average monthly benefit. In the short-range period, benefit payments were calculated on a quarterly basis. In the long-range period, all benefit payments were calculated on an annual basis, using the number of beneficiaries on December 31. These amounts were adjusted to include retroactive payments to newly awarded beneficiaries, and other amounts not reflected in the regular monthly benefit payments.

Lump-sum death payments were calculated as the product of (1) the number of such payments, which was projected on the basis of the assumed death rates, the projected fully insured population, and the estimated percentage of the fully insured population that would qualify for benefits, and (2) the amount of the lump-sum death payment, which is $255.

### *ADMINISTRATIVE EXPENSES*

The projection of administrative expenses through 1997 was based on assumed increases in average wages, increases in the CPI, and increases in the number of beneficiaries. For years after 1997, administrative expenses are assumed to increase with the numbers of beneficiaries and

with average earnings in covered employment, taking into account assumed increases in productivity.

*RAILROAD RETIREMENT FINANCIAL INTERCHANGE*

The effect of the financial interchange with the Railroad Retirement program was evaluated on the basis of trends similar to those used in estimating the cost of OASDI benefits. The resulting effect was annual short-range costs of about $3-4 billion and an average annual long-range cost of 0.03 percent of taxable payroll to the OASDI program.

*BENEFITS TO UNINSURED PERSONS*

The law provides for special monthly cash payments to certain uninsured persons who attained age 72 before 1968 or who have 3 quarters of coverage for each year after 1966 and before the year of attainment of age 72. The numbers of such uninsured persons were projected based on an extrapolation of the historical survival rate of the members of that group. The benefit payable to these uninsured persons is a fixed amount which increases by the percentage benefit increase applicable to regular OASDI benefits. These payments are made from the OASI Trust Fund, which is then reimbursed from the general fund of the Treasury for the costs (including administrative expenses and interest) associated with providing payments to those persons with fewer than 3 quarters of coverage. The nonreimbursable payments are assumed to be insignificant after 1997. Neither the reimbursable payments nor the associated reimbursements are reflected in the cost rates or the income rates. These amounts are reflected, however, in tables which show trust fund operations.

*MILITARY-SERVICE TRANSFERS*

As a result of the 1983 amendments, the OASI and DI Trust Funds received lump-sum payments, in May 1983, for the cost (including administrative expenses) of providing additional benefit payments resulting from noncontributory wage credits for military service performed prior to 1957. Adjustments to the payments were made in 1985, and additional adjustments will be made in 1990 and every fifth year thereafter. The adjustments for 1990 were estimated based on the change in interest rates since the determination of the adjustments in 1985. No adjustments after 1990 would be due unless actual interest rates are different from those assumed, or changes are made in the methods used to determine the military-service transfers.

*INCOME FROM TAXATION OF BENEFITS*

The OASI and DI Trust Funds are credited with the additional income taxes attributable to the partial taxation of OASDI benefit payments. For the short-range period, income to the trust funds from such taxation was estimated by applying the following two factors to total OASI and DI benefit payments: (1) the percentage of benefit payments that is taxable, and (2) the average tax rate applicable to those benefits. For the long-range period, income to the trust funds from such

taxation was projected by applying factors representing the ratio of such income to total OASDI benefit payments under varying levels of income thresholds. Because the thresholds are constant in the law, their values in relation to future income and benefit levels decline. These factors were projected based on the results of a model developed by the Office of Tax Analysis, Department of the Treasury, relating OASDI benefit payments to total personal income for a sample of recent tax returns.

## APPENDIX B.—SENSITIVITY ANALYSIS

This appendix presents estimates which illustrate the sensitivity of the level-financing estimates to changes in selected individual assumptions. Although the estimates based on the four alternative sets of assumptions illustrate variations that result from different combinations of assumptions, they do not show variations that result from changes in any single assumption. In this sensitivity analysis, alternative II-B is used as the reference point, and one assumption at a time within that alternative is varied. Similar variations in the selected assumptions within the other alternatives would result in similar relative variations in the estimates.

Each table which follows shows the effects of changing the particular assumption under consideration on the OASDI income rates, cost rates, and actuarial balances. Because the income rate varies only slightly with changes in assumptions, it is not considered in the discussion of the tables. The change in each of the actuarial balances is approximately equal to the change in the corresponding cost rate, but in the opposite direction.

### *TOTAL FERTILITY RATE*

Table B1 shows the estimated OASDI income rates, cost rates, and actuarial balances, on the basis of alternative II-B with various assumptions about the ultimate total fertility rate. These assumptions are that the ultimate total fertility rate will be 1.6 children per woman (as assumed for alternative III), 1.9 (as assumed for alternatives II-A and II-B), and 2.2 (as assumed for alternative I). The rate is assumed to change gradually from its current level and to reach the various ultimate values in 2012.

TABLE B1.—ESTIMATED OASDI INCOME RATES, COST RATES, AND ACTUARIAL BALANCES, BASED ON ALTERNATIVE II-B WITH VARIOUS FERTILITY ASSUMPTIONS
[As a percentage of taxable payroll]

| Calendar years | Ultimate total fertility rate[1] | | |
|---|---|---|---|
| | 1.6 | 1.9 | 2.2 |
| Income rate: | | | |
| 25-year: 1988-2012 | 12.78 | 12.78 | 12.78 |
| 50-year: 1988-2037 | 12.88 | 12.87 | 12.87 |
| 75-year: 1988-2062 | 12.96 | 12.94 | 12.92 |
| Cost rate: | | | |
| 25-year: 1988-2012 | 10.51 | 10.54 | 10.58 |
| 50-year: 1988-2037 | 12.45 | 12.34 | 12.25 |
| 75-year: 1988-2062 | 14.03 | 13.52 | 13.04 |
| Actuarial balance: | | | |
| 25-year: 1988-2012 | +2.27 | +2.24 | +2.21 |
| 50-year: 1988-2037 | +.43 | +.53 | +.62 |
| 75-year: 1988-2062 | -1.07 | -.58 | -.12 |

[1]The total fertility rate for any year is the average number of children who would be born to a woman in her lifetime if she were to experience the birth rates by age observed in, or assumed for, the selected year, and if she were to survive the entire child-bearing period. The ultimate total fertility rate is assumed to be reached in 2012.

For the 25-year period, the cost rate for the three fertility assumptions varies by only 0.07 percent of taxable payroll. In contrast, the 75-year cost rate varies over a wide range, decreasing from 14.03 to 13.04 percent, as the assumed ultimate total fertility rate increases from 1.6 to 2.2. Similarly, while the 25-year actuarial balance varies by only 0.06 percent of taxable payroll, the 75-year actuarial balance varies over a much wider range—from -1.07 to -0.12 percent.

During the 25-year period, changes in fertility affect the working population only slightly and result in relatively minor changes in the number of child beneficiaries. Hence, the program cost is affected only slightly. For the 75-year long-range period, however, changes in fertility have a relatively greater impact on the labor force than on the beneficiary population. As a result, an increase in fertility significantly reduces the cost rate. Each increase of 0.1 in the ultimate total fertility rate increases the long-range actuarial balance by about 0.16 percent of taxable payroll.

*DEATH RATES*

Table B2 shows the estimated OASDI income rates, cost rates, and actuarial balances, on the basis of alternative II-B with various assumptions about future reductions in death rates. The analysis was developed by varying the percentage decrease assumed to occur during 1988-2062 in the age-sex-adjusted death rate. The decreases assumed for this period are about 20 percent (as assumed for alternative I), 36 percent (as assumed for alternatives II-A and II-B), and 56 percent (as assumed for alternative III).

TABLE B2.—ESTIMATED OASDI INCOME RATES, COST RATES, AND ACTUARIAL BALANCES, BASED ON ALTERNATIVE II-B WITH VARIOUS DEATH-RATE ASSUMPTIONS
[As a percentage of taxable payroll]

| Calendar years | Reduction in death rates[1] | | |
|---|---|---|---|
| | 20 percent | 36 percent | 56 Percent |
| Income rate: | | | |
| 25-year: 1988-2012 | 12.78 | 12.78 | 12.79 |
| 50-year: 1988-2037 | 12.86 | 12.87 | 12.89 |
| 75-year: 1988-2062 | 12.91 | 12.94 | 12.98 |
| Cost rate: | | | |
| 25-year: 1988-2012 | 10.39 | 10.54 | 10.70 |
| 50-year: 1988-2037 | 11.96 | 12.34 | 12.81 |
| 75-year: 1988-2062 | 12.90 | 13.52 | 14.38 |
| Actuarial balance: | | | |
| 25-year: 1988-2012 | +2.39 | +2.24 | +2.09 |
| 50-year: 1988-2037 | +.90 | +.53 | +.08 |
| 75-year: 1988-2062 | +.01 | -.58 | -1.40 |

[1]The measure of the reduction in death rates is the decrease in the age-sex-adjusted death rate during 1988-2062.

The variation in cost for the 25-year period is less pronounced than the variation for the 75-year period because the decreases in death rates are assumed to occur gradually and because of the specific changes in the age composition of the population that are projected to occur. The 25-year cost rate increases from 10.39 percent (for 20-percent lower ultimate death rates) to 10.70 percent (for 56-percent lower ultimate rates). The long-range cost rate increases from 12.90 to 14.38 percent. The actuarial balance decreases from +2.39 to +2.09 percent for the 25-year period, and from +0.01 to -1.40 percent for the 75-year period.

Lower death rates cause both the income (as well as taxable payroll) and the outgo of the OASDI program to be higher than they would otherwise be. The relative increase in outgo, however, exceeds the relative increase in taxable payroll. For any given year, reductions in the death rates for people who have attained the normal retirement age (people whose death rates are the highest) increase the number of retired-worker beneficiaries (and, therefore, the amount of retirement benefits paid) without adding significantly to the number of covered

workers (and, therefore, to the taxable payroll). Although reductions for people aged 50 to normal retirement age do result in significant increases to the taxable payroll, those increases are not large enough to offset the sum of the additional retirement benefits mentioned above and the disability benefits paid to additional beneficiaries in this pre-retirement age group. At ages under 50, death rates are so low that even substantial reductions would not result in significant increases in the numbers of covered workers or beneficiaries. Consequently, if death rates for all ages are lower by the same relative amount, outgo increases at a rate greater than the rate of growth in payroll, thereby resulting in higher cost rates. Each additional 10-percent reduction in the age-sex-adjusted death rate assumed to occur in 1988-2062, relative to the 36-percent reduction assumed for alternative II-B, decreases the long-range actuarial balance by about 0.40 percent of taxable payroll.

*NET IMMIGRATION*

Table B3 shows the estimated OASDI income rates, cost rates, and actuarial balances, on the basis of alternative II-B with various assumptions about the magnitude of net immigration. These assumptions are that the annual net immigration will be 450,000 persons (as assumed for alternative III), 600,000 persons (as assumed for alternatives II-A and II-B), and 750,000 persons (as assumed for alternative I).

TABLE B3.—ESTIMATED OASDI INCOME RATES, COST RATES, AND ACTUARIAL BALANCES, BASED ON ALTERNATIVE II-B WITH VARIOUS NET-IMMIGRATION ASSUMPTIONS
[As a percentage of taxable payroll]

| Calendar years | Net immigration per year | | |
|---|---|---|---|
| | 450,000 | 600,000 | 750,000 |
| Income rate: | | | |
| 25-year: 1988-2012 | 12.78 | 12.78 | 12.78 |
| 50-year: 1988-2037 | 12.88 | 12.87 | 12.87 |
| 75-year: 1988-2062 | 12.95 | 12.94 | 12.93 |
| Cost rate: | | | |
| 25-year: 1988-2012 | 10.61 | 10.54 | 10.48 |
| 50-year: 1988-2037 | 12.48 | 12.34 | 12.21 |
| 75-year: 1988-2062 | 13.68 | 13.52 | 13.36 |
| Actuarial balance: | | | |
| 25-year: 1988-2012 | +2.18 | +2.24 | +2.30 |
| 50-year: 1988-2037 | +.40 | +.53 | +.66 |
| 75-year: 1988-2062 | -.73 | -.58 | -.43 |

For all three periods, the cost rate decreases with increasing rates of net immigration. For the 25-year period, the cost rate decreases from 10.61 percent of taxable payroll (for annual net immigration of 450,000 persons) to 10.48 percent (for annual net immigration of 750,000 persons). For the 50-year period, it decreases from 12.48 percent to 12.21 percent, and for the 75-year period, it decreases from 13.68 percent to 13.36 percent. The actuarial balance increases from +2.18 to +2.30 percent for the 25-year period, from +0.40 to +0.66 for the 50-year period, and from -0.73 to -0.43 percent for the 75-year period.

The cost rate decreases with increasing rates of net immigration because immigration occurs at relatively young ages, thereby increasing the numbers of covered workers earlier than the numbers of beneficiaries. Each additional group of 100,000 immigrants relative to the 600,000 net immigration assumed for alternative II-B, increases the long-range actuarial balance by about 0.10 percent of taxable payroll.

### *REAL-WAGE DIFFERENTIAL*

Table B4 shows the estimated OASDI income rates, cost rates, and actuarial balances, on the basis of alternative II-B with various assumptions about the real-wage differential. These assumptions are that the ultimate real-wage differential will be 0.9 percentage point (as assumed for alternative III), 1.4 percentage points (as assumed for alternative II-B), 1.9 percentage points (as assumed for alternative II-A), and 2.4 percentage points (as assumed for alternative I). In each case, the ultimate annual increase in the CPI is assumed to be 4.0 percent (as assumed for alternative II-B), yielding ultimate percentage increases in average annual wages in covered employment of 4.9, 5.4, 5.9, and 6.4 percent, respectively.

TABLE B4.—ESTIMATED OASDI INCOME RATES, COST RATES, AND ACTUARIAL BALANCES, BASED ON ALTERNATIVE II-B WITH VARIOUS REAL-WAGE ASSUMPTIONS
[As a percentage of taxable payroll]

| Calendar years | Ultimate percentage increase in wages-CPI[1] | | | |
|---|---|---|---|---|
| | 4.9-4.0 | 5.4-4.0 | 5.9-4.0 | 6.4-4.0 |
| Income rate: | | | | |
| 25-year: 1988-2012 | 12.80 | 12.78 | 12.76 | 12.75 |
| 50-year: 1988-2037 | 12.89 | 12.87 | 12.85 | 12.83 |
| 75-year: 1988-2062 | 12.96 | 12.94 | 12.92 | 12.89 |
| Cost rate: | | | | |
| 25-year: 1988-2012 | 10.89 | 10.54 | 10.20 | 9.86 |
| 50-year: 1988-2037 | 12.82 | 12.34 | 11.87 | 11.40 |
| 75-year: 1988-2062 | 14.04 | 13.52 | 12.99 | 12.46 |
| Actuarial balance: | | | | |
| 25-year: 1988-2012 | +1.90 | +2.24 | +2.57 | +2.89 |
| 50-year: 1988-2037 | +.07 | +.53 | +.98 | +1.43 |
| 75-year: 1988-2062 | -1.08 | -.58 | -.07 | +.44 |

[1]The first value in each pair is the assumed ultimate annual percentage increase in average wages in covered employment. The second value is the assumed ultimate annual percentage increase in the Consumer Price Index. The difference between the two values is the real-wage differential.

For the 25-year period, the cost rate decreases from 10.89 percent (for a real-wage differential of 0.9 percentage point) to 9.86 percent (for a differential of 2.4 percentage points). For the 50-year period, it decreases from 12.82 to 11.40 percent, and for the 75-year period it decreases from 14.04 to 12.46 percent. The actuarial balance increases from +1.90 to +2.89 percent for the 25-year period, from +0.07 to +1.43 for the 50-year period, and from -1.08 to +0.44 percent for the 75-year period.

The cost rate decreases with increasing real-wage differentials, because the higher real-wage levels increase the taxable payroll, while benefit increases are not affected. Although the initial benefit levels are higher because of the higher wages, these increases are more than offset by the increases in the taxable payroll of future workers. Each 0.5-percentage-point increase in the assumed real-wage differential increases the long-range actuarial balance by about 0.51 percent of taxable payroll.

### *CONSUMER PRICE INDEX*

Table B5 shows the estimated OASDI income rates, cost rates, and actuarial balances, on the basis of alternative II-B with various assumptions about the rate of increase for the Consumer Price Index (CPI). These assumptions are that the ultimate annual increase in the CPI will be 2.0 percent (as assumed for alternative I), 3.0 percent (as assumed for alternative II-A), 4.0 percent (as assumed for alternative II-B), 5.0 percent (as assumed for alternative III), and 6.0 percent. In

each case, the ultimate real-wage differential is assumed to be 1.4 percentage points (as assumed for alternative II-B), yielding ultimate percentage increases in average annual wages in covered employment of 3.4, 4.4, 5.4, 6.4, and 7.4 percent, respectively.

TABLE B5.—ESTIMATED OASDI INCOME RATES, COST RATES, AND ACTUARIAL BALANCES, BASED ON ALTERNATIVE II-B WITH VARIOUS CPI-INCREASE ASSUMPTIONS
[As a percentage of taxable payroll]

| Calendar years | Ultimate percentage increases in wages-CPI[1] | | | | |
|---|---|---|---|---|---|
| | 3.4-2.0 | 4.4-3.0 | 5.4-4.0 | 6.4-5.0 | 7.4-6.0 |
| Income rate: | | | | | |
| 25-year: 1988-2012 | 12.80 | 12.79 | 12.78 | 12.77 | 12.77 |
| 50-year: 1988-2037 | 12.89 | 12.88 | 12.87 | 12.86 | 12.85 |
| 75-year: 1988-2062 | 12.97 | 12.95 | 12.94 | 12.93 | 12.91 |
| Cost rate: | | | | | |
| 25-year: 1988-2012 | 10.77 | 10.65 | 10.54 | 10.44 | 10.33 |
| 50-year: 1988-2037 | 12.70 | 12.52 | 12.34 | 12.17 | 12.00 |
| 75-year: 1988-2062 | 13.95 | 13.73 | 13.52 | 13.31 | 13.11 |
| Actuarial balance: | | | | | |
| 25-year: 1988-2012 | +2.03 | +2.14 | +2.24 | +2.34 | +2.44 |
| 50-year: 1988-2037 | +.20 | +.36 | +.53 | +.69 | +.85 |
| 75-year: 1988-2062 | -.98 | -.78 | -.58 | -.39 | -.20 |

[1]The first value in each pair is the assumed ultimate annual percentage increase in average wages in covered employment. The second value is the assumed ultimate annual percentage increase in the Consumer Price Index.

For all three periods, the cost rate decreases with greater assumed rates of increase in the CPI. For the 25-year period, the cost rate decreases from 10.77 (for CPI increases of 2.0 percent) to 10.33 percent (for CPI increases of 6.0 percent). For the 50-year period, it decreases from 12.70 to 12.00 percent, and for the 75-year period, it decreases from 13.95 to 13.11 percent. The actuarial balance increases from +2.03 to +2.44 percent for the 25-year period, from +0.20 to +0.85 for the 50-year period, and from -0.98 to -0.20 percent for the 75-year period.

The patterns described above result primarily from the time lag between the effects of the CPI changes on taxable payroll and on benefit payments. When assuming a greater rate of increase in the CPI (in conjunction with a constant real-wage differential), the effect on taxable payroll of the implied greater rate of increase in average wages is experienced immediately, while the effect on benefits of the greater rate of increase in the CPI is experienced with a lag of about 1 year. In addition, the effect on benefits of the greater rate of increase in average wages is experienced no sooner than 2 years later. Thus, the higher taxable payrolls have a stronger effect than the higher benefits, thereby resulting in lower cost rates. The effect of each 1.0-percentage-point increase in the rate of change assumed for the CPI is an increase in the long-range actuarial balance of about 0.20 percent of taxable payroll.

### *REAL-INTEREST RATE*

Table B6 shows the estimated OASDI income rates, cost rates, and actuarial balances, on the basis of alternative II-B with various assumptions about the annual real-interest rate. These assumptions are that the ultimate annual real-interest rate will be 1.0 percent, 1.5 percent (as assumed for alternative III), 2.0 percent (as assumed for alternative II-B), 2.5 percent (as assumed for alternative II-A), and 3.0 percent (as assumed for alternative I). In each case, the ultimate annual increase in the CPI is assumed to be 4.0 percent (as assumed for alternative II-B), resulting in ultimate annual yields of 5.0, 5.6, 6.1, 6.6, and 7.1 percent, respectively.

TABLE B6.—ESTIMATED OASDI INCOME RATES, COST RATES, AND ACTUARIAL BALANCES, BASED ON ALTERNATIVE II-B WITH VARIOUS REAL-INTEREST ASSUMPTIONS
[As a percentage of taxable payroll]

| Calendar years | Ultimate annual real-interest rate | | | | |
|---|---|---|---|---|---|
| | 1.0 percent | 1.5 percent | 2.0 percent | 2.5 percent | 3.0 percent |
| Income rate: | | | | | |
| 25-year: 1988-2012 | 12.78 | 12.78 | 12.78 | 12.78 | 12.79 |
| 50-year: 1988-2037 | 12.88 | 12.88 | 12.87 | 12.87 | 12.86 |
| 75-year: 1988-2062 | 12.97 | 12.95 | 12.94 | 12.93 | 12.91 |
| Cost rate: | | | | | |
| 25-year: 1988-2012 | 10.54 | 10.54 | 10.54 | 10.55 | 10.55 |
| 50-year: 1988-2037 | 12.63 | 12.48 | 12.34 | 12.21 | 12.08 |
| 75-year: 1988-2062 | 14.04 | 13.78 | 13.52 | 13.26 | 13.01 |
| Actuarial balance: | | | | | |
| 25-year: 1988-2012 | +2.24 | +2.24 | +2.24 | +2.24 | +2.24 |
| 50-year: 1988-2037 | +.26 | +.40 | +.53 | +.66 | +.79 |
| 75-year: 1988-2062 | -1.07 | -.82 | -.58 | -.34 | -.10 |

For the 25-year period, the cost rate increases with increasing real-interest rates from 10.54 percent (for an ultimate real-interest rate of 1.0 percent) to 10.55 percent (for an ultimate real-interest of 3.0 percent). For the 50-year period, it decreases from 12.63 to 12.08 percent, and for the 75-year period, it decreases from 14.04 to 13.01 percent. The actuarial balance remains at +2.24 percent for the 25-year period, increases from +0.26 to +0.79 percent for the 50-year period, and increases from -1.07 to -0.10 percent for the 75-year period.

*DISABILITY INCIDENCE RATES*

Table B7 shows the estimated OASDI income rates, cost rates, and actuarial balances, on the basis of alternative II-B with various assumptions about future disability incidence rates. These assumptions are that the ultimate annual age-sex-adjusted disability incidence rate will be about 5 percent higher for both men and women than the average of the corresponding annual rates experienced during 1983-85 (as assumed for alternative I), about 20 percent higher for men and 28 percent higher for women than such experience (as assumed for alternatives II-A and II-B), and about 43 percent higher for men and 53 percent higher for women than such experience (as assumed for alternative III). The rates are assumed to change gradually from their current levels and to reach their ultimate values in 2005.

TABLE B7.—ESTIMATED OASDI INCOME RATES, COST RATES, AND ACTUARIAL BALANCES, BASED ON ALTERNATIVE II-B WITH VARIOUS DISABILITY INCIDENCE ASSUMPTIONS
[As a percentage of taxable payroll]

| Calendar years | Disability incidence rates based on alternative— | | |
|---|---|---|---|
| | I | II-A and II-B | III |
| Income rate: | | | |
| 25-year: 1988-2012 | 12.78 | 12.78 | 12.78 |
| 50-year: 1988-2037 | 12.87 | 12.87 | 12.87 |
| 75-year: 1988-2062 | 12.94 | 12.94 | 12.94 |
| Cost rate: | | | |
| 25-year: 1988-2012 | 10.47 | 10.54 | 10.65 |
| 50-year: 1988-2037 | 12.24 | 12.34 | 12.49 |
| 75-year: 1988-2062 | 13.40 | 13.52 | 13.69 |
| Actuanal balance: | | | |
| 25-year: 1988-2012 | +2.31 | +2.24 | +2.13 |
| 50-year: 1988-2037 | +.64 | +.53 | +.38 |
| 75-year: 1988-2062 | -.46 | -.58 | -.74 |

For the 25-year period, the cost rate increases with increasing disability incidence rates from 10.47 percent (for the relatively low rates assumed for alternative I) to 10.65 percent (for the relatively high rates assumed for alternative III). For the 50-year period, it increases from 12.24 to 12.49 percent, and for the 75-year period, it increases from 13.40 to 13.69 percent. The actuarial balance decreases from +2.31 to +2.13 percent for the 25-year period, from +0.64 to +0.38 percent for the 50-year period, and from -0.46 to -0.74 percent for the 75-year period.

*DISABILITY TERMINATION RATES*

Table B8 shows the estimated OASDI income rates, cost rates, and actuarial balances, on the basis of alternative II-B with various assumptions about future disability termination rates.

For all four alternatives, death-termination rates by age and sex are assumed to decline throughout the 75-year period. At the end of that period, they reach levels that, in comparison to the corresponding annual rates experienced during the base period, 1977-80, are about 10 percent lower for alternative I, about 25 percent lower for alternatives II-A and II-B, and about 50 percent lower for alternative III.

For all four alternatives, ultimate recovery-termination rates by age and sex are assumed to be attained in 1990. For alternative I, they are about 30 percent higher than the corresponding rates experienced during the base period. For alternative III, they are about the same as the base-period rates. For alternatives II-A and II-B, such rates are about 15 percent higher than those experienced in the base period, in order to reflect the effects of the additional periodic reviews that began in 1981.

TABLE B8.—ESTIMATED OASDI INCOME RATES, COST RATES, AND ACTUARIAL BALANCES, BASED ON ALTERNATIVE II-B WITH VARIOUS DISABILITY TERMINATION ASSUMPTIONS
[As a percentage of taxable payroll]

| Calendar years | Disability termination rates based on alternative— | | |
|---|---|---|---|
| | I | II-A and II-B | III |
| Income rate: | | | |
| 25-year: 1988-2012 | 12.78 | 12.78 | 12.78 |
| 50-year: 1988-2037 | 12.87 | 12.87 | 12.87 |
| 75-year: 1988-2062 | 12.94 | 12.94 | 12.94 |
| Cost rate: | | | |
| 25-year: 1988-2012 | 10.52 | 10.54 | 10.57 |
| 50-year: 1988-2037 | 12.31 | 12.34 | 12.39 |
| 75-year: 1988-2062 | 13.47 | 13.52 | 13.58 |
| Actuarial balance: | | | |
| 25-year: 1988-2012 | +2.26 | +2.24 | +2.21 |
| 50-year: 1988-2037 | +.57 | +.53 | +.48 |
| 75-year: 1988-2062 | -.54 | -.58 | -.64 |

For the 25-year period, the cost rate increases with decreasing disability termination rates from 10.52 percent (for the relatively high rates assumed for alternative I) to 10.57 percent (for the relatively low rates assumed for alternative III). For the 50-year period, it increases from 12.31 to 12.39 percent, and for the 75-year period, it increases from 13.47 to 13.58 percent. The actuarial balance decreases from +2.26 to +2.21 percent for the 25-year period, from +0.57 to +0.48 percent for the 50-year period, and from -0.54 to -0.64 percent for the 75-year period.

## DEPARTMENT OF HEALTH AND HUMAN SERVICES

### Office of the Secretary

### 1988 Cost-of-Living Increase and Other Determinations

**AGENCY:** Social Security Administration, HHS.

**ACTION:** Notice.

**SUMMARY:** The Secretary has determined—

(1) A 4.2 percent cost-of-living increase in benefits under title II (section 215(i)) of the Social Security Act (the Act);

(2) An increase in the Federal SSI (title XVI) benefit amounts for 1988 to $354 for an eligible individual, $532 for an eligible individual with an eligible spouse, and $177 for an essential person (section 1617 of the Act);

(3) The average of the total wages for 1986 to be $17,321.82;

(4) The Social Security contribution and benefit base to be $45,000 for remuneration paid in 1988 and self-employment income earned in taxable years beginning in 1988;

(5) The amount of earnings a person must have to be credited with a quarter of coverage in 1988 to be $470;

(6) The monthly exempt amounts under the Social Security retirement earnings test for taxable years ending in calendar year 1988 to be $700 for beneficiaries age 65 through 69 and $510 for beneficiaries under age 65;

(7) The "old-law" contribution and benefit base to be $33,600 for 1988.

We also describe the computation of benefits for a worker and the worker's family who first become eligible for benefits in 1988, and the computation of the OASDI fund ratio used to determine whether the automatic increase in benefits under title II of the Act is affected by the "stabilizer" provision.

Finally, we are publishing a table of OASDI "special minimum" benefit amounts. This table provides the range of primary insurance amounts and the corresponding maximum family benefits under the "special minimum" benefit provision, as revised to reflect the automatic benefit increase. These benefits are payable to certain individuals with long periods of relatively low earnings.

**FOR FURTHER INFORMATION CONTACT:** Jeffrey L. Kunkel, Office of the Actuary, Social Security Administration, 6401 Security Boulevard, Baltimore, MD 21235, telephone (301) 965–3013.

**SUPPLEMENTARY INFORMATION:** The Secretary is required by the Act to publish within 45 days after the close of the third calendar quarter of 1987 the benefit increase percentage and the revised table of "special minimum" benefits (section 215(i)(2)(D)). Also, the Secretary is required to publish before November 1 the average of the total wages for 1986 (section 215(i)(2)(C)(iii)) and the OASDI fund ratio for 1987 (section 215(i)(2)(C)(iii)). Finally, the Secretary is required to publish on or before November 1 the contribution and benefit base for 1988 (section 230(a)), the amount of earnings required to be credited with a quarter of coverage in 1988 (section 213(d)(2)), the monthly exempt amounts under the Social Security retirement earnings test for 1988 (section 203(f)(8)(A)), the formula for computing a primary insurance amount for workers who first become eligible for benefits or die in 1988 (section 215(a)(1)(D)), and the formula for computing the maximum amount of benefits payable to the family of a worker who first becomes eligible for old-age benefits or dies in 1988 (section 203(a)(2)(C)).

#### Cost-of-Living Increases

*General.* The cost-of-living increase is 4.2 percent for benefits under titles II and XVI of the Social Security Act.

Under title II, old-age, survivors, and disability insurance benefits will increase by 4.2 percent beginning with the December 1987 benefits, which are payable on December 31, 1987. The kinds of benefits payable to individuals entitled under this program are old-age, disability, wife's, husband's, child's, widow's, widower's, mother's, father's, and parent's insurance benefits. This increase is based on the authority contained in section 215(i) of the Act (42 U.S.C. 415(i)).

Under title XVI, Federal SSI payment levels will also increase by 4.2 percent effective for payments made for the month of January 1988 but paid on December 31, 1987. This is based on the authority contained in section 1617 of the Act (42 U.S.C. 1382f). The percentage increase effective January 1988 is the same as the title II benefit increase and the annual payment amount is rounded, when not a multiple of $12, to the next lower multiple of $12.

*Automatic Benefit Increase Computation.* Under section 215(i) of the Act, the third calendar quarter of 1987 is a cost-of-living computation quarter for all the purposes of the Act. The Secretary is therefore required to increase benefits, effective with December 1987, for individuals entitled under section 227 or 228 of the Act, to increase primary insurance amounts of all other individuals entitled under title II of the Act, and to increase maximum benefits payable to a family. For December 1987, the benefit increase is the percentage increase in the Consumer Price Index for Urban Wage Earners and Clerical Workers from the third quarter of 1986 through the third quarter of 1987. Automatic benefit increases may be modified by a "stabilizer" provision under certain adverse financial conditions that are described in the section on the OASDI fund ratio. The December 1987 benefit increase is not affected by this provision.

Section 215(i)(1) of the Act provides that the Consumer Price Index for a cost-of-living computation quarter shall be the arithmetical mean of this index for the 3 months in that quarter. The Department of Labor's revised Consumer Price Index for Urban Wage Earners and Clerical Workers for each month in the quarter ending September 30, 1986, was: for July 1986, 322.9; for August 1986, 323.4; and for September 1986, 324.9. The arithmetical mean for this calendar quarter is 323.7 (after rounding to the nearest 0.1). The corresponding Consumer Price Index for each month in the quarter ending September 30, 1987 was: For July 1987, 335.6; for August 1987, 337.4; and for September 1987, 339.1. The arithmetical mean for this calendar quarter is 337.4. Thus, because the Consumer Price Index for the calendar quarter ending September 30, 1987 exceeds that for the calendar quarter ending September 30, 1986 by 4.2 percent, a cost-of-living benefit increase of 4.2 percent is effective for benefits under title II of the Act beginning December 1987.

*Title II Benefit Amounts.* In accordance with section 215(i) of the Act, in the case of insured workers and family members for whom eligibility for benefits (i.e., the worker's attainment of age 62, or disability or death before age 62) occurred before 1988, benefits will increase by 4.2 percent beginning with benefits for December 1987 which will be received December 31, 1987. In the case of first eligibility after 1987, the 4.2 percent increase will not apply.

For eligibility after 1978, benefits are generally determined by a benefit formula provided by the Social Security Amendments of 1977 (Pub. L. 95–216), as described later in this notice.

For eligibility before 1979, benefits are determined by means of a benefit table. In accordance with section 215(i)(4) of the Act, the primary insurance amounts and the maximum family benefits shown in this table are revised by (1) increasing by 4.2 percent the corresponding amounts established by the last cost-of-living increase and the last extension of the benefit table made under section 215(i)(4) (to reflect the increase in the contribution and benefit base for 1987); and (2) by extending the table to reflect the higher monthly wage and related benefit amounts now possible under the increased contribution and benefit base for 1988, as described later in this notice. A copy of this table may be obtained by writing to: Social Security Administration, Office of Governmental Affairs, Office of Public Inquiries, 4100 Annex, Baltimore, MD 21235.

Section 215(i)(2)(D) of the Act also requires that, when the Secretary determines an automatic increase in Social Security benefits, the Secretary shall publish in the **Federal Register** a revision of the range of the primary insurance amounts and corresponding

maximum family benefits based on the dollar amount and other provisions described in section 215(a)(1)(C)(i). These benefits are referred to as "special minimum" benefits and are payable to certain individuals with long periods of relatively low earnings. In accordance with section 215(a)(1)(C)(i), the attached table shows the revised range of primary insurance amounts and corresponding maximum family benefit amounts after the 4.2 percent benefit increase.

Section 227 of the Act provides flat-rate benefits to a worker who became age 72 before 1969 and was not insured under the usual requirements, and to his or her spouse or surviving spouse. Section 228 of the Act provides similar benefits at age 72 for certain uninsured persons. The current monthly benefit amount of $140.30 for an individual under sections 227 and 228 of the Act is increased by 4.2 percent to obtain the new amount of $146.10. The present monthly benefit amount of $70.30 for a spouse under section 227 is increased by 4.2 percent to $73.20.

*Title XVI Benefit Amounts.* In accordance with section 1617 of the Act, Federal SSI benefit amounts for the aged, blind, and disabled are increased by 4.2 percent effective January 1988. Therefore, the yearly Federal SSI benefit amount of $4,080 for an eligible individual, $6,120 for an eligible individual with an eligible spouse and $2,040 for an essential person, which became effective January 1987, are increased, effective with January 1988, to $4,248, $6,384, and $2,124 respectively after rounding. The monthly payment amount is determined by dividing the yearly amount by 12, and subtracting monthly countable income. In the case of an eligible individual with an eligible spouse, the amount payable is further divided equally between the two spouses.

**Average of the Total Wages for 1986**

The determination of the average wage figure for 1986 is based on the 1985 average wage figure of $16,822.51 announced in the Federal Register on November 5, 1986 (51 FR 40256), along with the percentage increase in average wages from 1985 to 1986 measured by annual wage data tabulated by the Social Security Administration (SSA). The average amounts of wages calculated directly from this data were $15,900.51 and $16,372.45 for 1985 and 1986, respectively. To determine an average wage figure for 1986 at a level that is consistent with the series of average wages for 1951 to 1977 (published December 29, 1978, at 43 FR 61016), we multiplied the 1985 average wage figure of $16,822.51 by the percentage increase in average wages from 1985 to 1986 (based on SSA-tabulated wage data) as follows (with the result rounded to the nearest cent): Average wage for 1986 = $16,822.51 × $16,372.45 ÷ $15,900.51 = $17,321.82. Therefore, the average wage for 1986 is determined to be $17,321.82.

**Contribution and Benefit Base**

*General.* The contribution and benefit base is $45,000 for remuneration paid in 1988 and self-employment income earned in taxable years beginning in 1988.

The contribution and benefit base serves two purposes:

(1) It is the maximum annual amount of earnings on which Social Security taxes are paid.

(2) It is the maximum annual amount used in determining a person's Social Security benefits.

*Computation.* Section 230(c) of the Act provides a table with the contribution and benefit base for each year 1978, 1979, 1980, and 1981. For years after 1981, section 230(b) of the Act contains a formula for determining the contribution and benefit base. Under the prescribed formula, the contribution and benefit base for 1988 shall be equal to the 1987 base of $43,800 multiplied by the ratio of (1) the average amount, per employee, of total wages for the calendar year 1986 to (2) the average amount of those wages for the calendar year 1985. Section 230(b) further provides that if the amount so determined is not a multiple of $300, it shall be rounded to the nearest multiple of $300.

*Average Wages.* The average wage for calendar year 1985 was previously determined to be $16,822.51. The average wage for calendar year 1986 has been determined to be $17,321.82 as stated herein.

*Amount.* The ratio of the average wage for 1986, $17,321.82, compared to that for 1985, $16,822.51, is 1.029681. Multiplying the 1987 contribution and benefit base of $43,800 by the ratio 1.029681 produces the amount of $45,100.03 which must then be rounded to $45,000. Accordingly, the contribution and benefit base is determined to be $45,000 for 1988.

**Quarter of Coverage Amount**

*General.* The 1988 amount of earnings required for a quarter of coverage is $470. A quarter of coverage is the basic unit for determining whether a worker is insured under the Social Security program. For years before 1978, an individual generally was credited with a quarter of coverage for each quarter in which wages of $50 or more were paid, or an individual was credited with 4 quarters of coverage for every taxable year in which $400 or more of self-employment income was earned. Beginning in 1978, wages generally are no longer reported on a quarterly basis; instead, annual reports are made. With the change to annual reporting, section 352(b) of the Social Security Amendments of 1977 (Pub. L. 95–216) amended section 213(d) of the Act to provide that a quarter of coverage would be credited for each $250 of an individual's total wages and self-employment income for calendar year 1978 (up to a maximum of 4 quarters of coverage for the year). Individuals generally must have self-employment income of at least $400 in a taxable year in order to be credited with any quarters of coverage.

*Computation.* Under the prescribed formula, the quarter of coverage amount for 1988 shall be equal to the 1978 amount of $250 multiplied by the ratio of: (1) The average amount, per employee, of total wages for calendar year 1986 to (2) the average amount of those wages reported for calendar year 1976. The section further provides that if the amount so determined is not a multiple of $10, it shall be rounded to the nearest multiple of $10.

*Average Wages.* The average wage for calendar year 1976 was previously determined to be $9,226.48. This was published in the **Federal Register** on December 29, 1978, at 43 FR 61016. The average wage for calendar year 1986 has been determined to be $17,321.82 as stated herein.

*Quarter of Coverage Amount.* The ratio of the average wage for 1986, $17,321.82, compared to that for 1976, $9,226.48, is 1.8774. Multiplying the 1978 quarter of coverage amount of $250 by the ratio of 1.8774 produces the amount of $469.35 which must then be rounded to $470. Accordingly, the quarter of coverage amount is determined to be $470 for 1988.

**Retirement Earnings Test Exempt Amounts**

(a) *Beneficiaries Aged 70 or Over.* Beginning with months after December 1982, there is no limit on the amount an individual aged 70 or over may earn and still receive Social Security benefits.

(b) *Beneficiaries Aged 65 through 69.* The retirement earnings test monthly exempt amount for beneficiaries aged 65 through 69 is stated in the Act at section 203(f)(8)(D) for years 1976 through 1982. A formula is provided in section 203(f)(8)(B) for computing the exempt amount applicable for years after 1982. The monthly exempt amount for 1987 was determined by this formula to be $680. Under the formula, the exempt amount for 1988 shall be the 1987 exempt amount multiplied by the ratio of: (1) The average amount, per employee, of the total wages for calendar year 1986 to (2) the average amount of those wages for calendar year 1985. The section further provides that if the amount so determined is not a multiple of $10, it shall be rounded to the nearest multiple of $10.

*Average Wages.* Average wages for this purpose are determined in the same way as for the contribution and benefit base. Therefore, the ratio of the average wages for 1986, $17,321.82, compared to that for 1985, $16,822.51, is 1.029681.

*Exempt Amount for Beneficiaries Aged 65 through 69.* Multiplying the 1987 retirement earnings test monthly exempt amount of $680 by the ratio of 1.029681 produces the amount of $700.18. This must then be rounded to $700. The retirement earnings test monthly exempt amount for beneficiaries aged 65 through 69 is determined to be $700 for 1988. The corresponding retirement earnings test annual exempt amount for these beneficiaries is $8,400.

(c) *Beneficiaries Under Age 65.* Section 203 of the Act provides that beneficiaries under age 65 have a lower retirement earnings test monthly exempt amount than those beneficiaries aged 65 through 69. The exempt amount for beneficiaries under age 65 is determined by a formula provided in section 203(f)(8)(B) of the Act. Under the formula, the monthly exempt amount for beneficiaries under age 65 is $500 for 1987. The formula provides that the exempt amount for 1988 shall be the 1987 exempt amount for beneficiaries under age 65 multiplied by the ratio of: (1) The average amount, per employee, of the total wages for calendar year 1988 to (2) the average amount of those wages for calendar year 1985. The section further provides that if the amount so determined is not a multiple of $10, it shall be rounded to the nearest multiple of $10.

*Average Wages.* Average wages for this purpose are determined in the same way as for the contribution and benefit base. Therefore, the ratio of the average wages for 1986, $17,321.82, compared to that of 1985, $16,822.51, is 1.029681.

*Exempt Amount for Beneficiaries Under Age 65.* Multiplying the 1987 retirement earnings test monthly exempt amount of $500 by the ratio 1.029681 produces the amount of $514.84. This must then be rounded to $510. The retirement earnings test monthly exempt amount for beneficiaries under age 65 is thus determined to be $510 for 1988. The corresponding retirement earnings test annual exempt amount for these beneficiaries is $6,120.

**Computing Benefits After 1978**

The Social Security Amendments of 1977 changed the formula for determining an individual's primary insurance amount after 1978. This basic new formula is based on "wage indexing" and was fully explained with interim regulations and final regulations published in the **Federal Register** on December 29, 1978 (43 FR 60877) and July 15, 1982 (47 FR 30731) respectively. It generally applies when a worker after 1978 attains age 62, becomes disabled, or dies before age 62. This formula uses the worker's earnings after they have been adjusted, or "indexed," in proportion to the increase in average wages of all workers. Using this method, we determine the worker's "average indexed monthly earnings." We then compute the primary insurance amount, using the worker's average indexed monthly earnings. The computation formula is adjusted automatically each year to reflect changes in general wage levels.

*Average Indexed Monthly Earnings.* To assure that a worker's future benefits reflect the general rise in the standard of living that occurs during his or her working lifetime, we adjust or "index" the worker's past earnings to take into account the change in general wage levels that has occurred during the worker's years of employment. These adjusted earnings are then used to compute the worker's primary insurance amount.

For example, to compute the average indexed monthly earnings for a worker attaining age 62, becoming disabled, or dying before attaining age 62, in 1988, we divide the average of the total wages for 1986, $17,321.82, by the average of the total wages for each year prior to 1986 in which the worker had earnings. We then multiply the actual wages and self-employment income as defined in section 211(b) of the Act credited for each year by the corresponding ratio to obtain the worker's adjusted earnings for each year. After determining the number of years we must use to compute the primary insurance amount, we pick those years with highest indexed earnings, total those indexed

earnings and divide by the total number of months in those years. This figure is rounded down to the next lower dollar amount, and becomes the average indexed monthly earnings figure to be used in computing the worker's primary insurance amount for 1988.

*Computing the Primary Insurance Amount.* The primary insurance amount is the sum of three separate percentages of portions of the average indexed monthly earnings. In 1979 (the first year the formula was in effect), these portions were the first $180, the amount between $180 and $1,085, and the amount over $1,085. The amounts for 1988 are obtained by multiplying the 1979 amounts by the ratio between the average of the total wages for 1986, $17,321.82, and for 1977, $9,779.44. These results are then rounded to the nearest dollar. For 1988, the ratio is 1.7712487. Multiplying the 1979 amounts of $180 and $1,085 by 1.7712487 produces the amounts of $318.82 and $1,921.80. These must then be rounded to $319 and $1,922. Accordingly, the portions of the average indexed monthly earnings to be used in 1988 are determined to be the first $319, the amount between $319 and $1,922, and the amount over $1,922.

Consequently, for individuals who first become eligible for old-age insurance benefits or disability insurance benefits in 1988, or who die in 1988 before becoming eligible for benefits, we will compute their primary insurance amount by adding the following:

(a) 90 percent of the first $319 of their average indexed monthly earnings, plus

(b) 32 percent of the average indexed monthly earnings over $319 and through $1,922, plus

(c) 15 percent of the average indexed monthly earnings over $1,922.

This amount is then rounded to the next lower multiple of $.10 if it is not already a multiple of $.10. This formula and the adjustments we have described are contained in section 215(a) of the Act (42 U.S.C. 415(a)).

**Maximum Benefits Payable to a Family**

The 1977 Amendments continued the long established policy of limiting the total monthly benefits which a worker's family may receive based on his or her primary insurance amount. Those amendments also continued the then existing relationship between maximum family benefits and primary insurance amounts but did change the method of computing the maximum amount of benefits which may be paid to a worker's family. The Social Security Disability Amendments of 1980 (Pub. L. 96–265) established a new formula for computing the maximum benefits payable to the family of a disabled worker. This new formula is applied to the family benefits of workers who first become entitled to disability insurance benefits after June 30, 1980, and who first become eligible for these benefits after 1978. The new formula was explained in a Final Rule published in the Federal Register on May 8, 1981, at 46 FR 25601. For disabled workers initially entitled to disability benefits before July 1980, or whose disability began before 1979, the family maximum payable is computed the same as the old-age and survivor family maximum.

*Computing the Old-Age and Survivor Family Maximum.* The formula used to compute the family maximum is similar to that used to compute the primary insurance amount. It involves computing the sum of four separate percentages of portions of the worker's primary insurance amount. In 1979, these portions were the first $230, the amount between $230 and $332, the amount between $332 and $433, and the amount over $433. The amounts for 1988 are obtained by multiplying the 1979 amounts by the ratio between the average of the total wages for 1986, $17,321.82, and the average for 1977, $9,779.44. This amount is then rounded to the nearest dollar. For 1988, the ratio is 1.7712487. Multiplying the amounts of $230, $332, and $433 by 1.7712487 produces the amounts of $407.39, $588.05, and $766.95. These amounts are then rounded to $407, $588, and $767. Accordingly, the portions of the primary insurance amounts to be used in 1988 are determined to be the first $407, the amount between $407 and $588, the amount between $588 and $767, and the amount over $767.

Consequently, for the family of a worker who becomes age 62 or dies in 1988, the total amount of benefits payable to them will be computed so that it does not exceed:

(a) 150 percent of the first $407 of the worker's primary insurance amount, plus

(b) 272 percent of the worker's primary insurance amount over $407 through $588, plus

(c) 134 percent of the worker's primary insurance amount over $588 through $767, plus

(d) 175 percent of the worker's primary insurance amount over $767

This amount is then rounded to the next lower multiple of 10 cents if it is not already a multiple of 10 cents. This formula and the adjustments we have described are contained in section 203(a) of the Act (42 U.S.C. 403(a)).

## "Old-Law" Contribution and Benefit Base

*General.* The 1988 "old-law" contribution and benefit base is $33,600. This is the base that would have been effective under the Social Security Act without the enactment of the 1977 amendments. The base is computed under section 230(b) of the Social Security Act as it read prior to the 1977 amendments.

The "old-law" contribution and benefit base is used by:

(1) The Railroad Retirement program to determine certain tax liabilities and tier II benefits payable under that program to supplement the tier I payments which correspond to basic Social Security benefits,

(2) The Pension Benefit Guaranty Corporation to determine the maximum amount of pension guaranteed under the Employee Retirement Income Security Act (as stated in section 230(d) of the Social Security Act), and

(3) Social Security to determine a "year of coverage" in computing the "special minimum" benefit and in computing benefits for persons who are also eligible to receive pensions based on employment not covered under section 210 of the Social Security Act.

*Computation.* The base is computed using the automatic adjustment formula in section 230(b) of the Act as it read prior to the enactment of the 1977 amendments. Under the formula, the "old-law" contribution and benefit base shall be the "old-law" 1987 base multiplied by the ratio of (1) the average amount, per employee, of total wages for the calendar year of 1986 to (2) the average amount of those wages for the calendar year of 1985. If the amount so determined is not a multiple of $300, it shall be rounded to the nearest multiple of $300.

*Average Wages.* The average wage for calendar year 1985 was previously determined to be $16,822.51. The average wage for calendar year 1986 has been determined to be $17,321.82, as stated herein.

*Amount.* The ratio of the average wage for 1986, $17,321.82, compared to that for 1985, $16,822.51, is 1.029681. Multiplying the 1987 "old-law" contribution and benefit base amount of $32,700 by the ratio of 1.029681 produces the amount of $33,670.57 which must then be rounded to $33,600. Accordingly, the "old-law" contribution and benefit base is determined to be $33,600 for 1986.

## OASDI Fund Ratio

*General.* Section 215(i) of the Act was amended by section 112 of Pub. L. 98-21, the Social Security Amendments of 1983, to include a "stabilizer" provision that can limit the automatic OASDI benefit increase under certain circumstances. If the combined assets of the OASI and DI Trust Funds, as a percentage of annual expenditures, are below a specified level, the automatic benefit increase is equal to the lesser of: (1) The increase in average wages or (2) the increase in prices. The threshold level specified for the OASDI fund ratio is 15.0 percent for benefit increases for December of 1984 through December 1988, and 20.0 percent thereafter. The amendments also provide for subsequent "catch-up" benefit increases for beneficiaries whose previous benefit increases were

affected by this provision. "Catch-up" benefit increases occur only when trust fund assets exceed 32.0 percent of annual expenditures.

*Computation.* Section 215(i) specifies the computation and application of the OASDI fund ratio. The OASDI fund ratio for 1987 is the ratio of (1) the combined assets of the OASI and DI Trust Funds at the beginning of 1987, including advance tax transfers for January 1987, to (2) the estimated expenditures of the OASI and DI Trust Funds during 1987, excluding transfer payments between the OASI and DI Trust Funds, and reducing any transfers to the Railroad Retirement Account by any transfers from that account into either trust fund.

*Ratio.* The combined assets of the OASI and DI Trust Funds at the beginning of 1987 (including advance tax transfers for January 1987) equaled $65,227 million, and the expenditures are estimated to be $209,580 million. Thus, the OASDI fund ratio for 1987 is 31.1 percent, which exceeds the applicable threshold of 15.0 percent. As a result, the "stabilizer" provision does not affect the benefit increase for December 1987.

(Catalog of Federal Domestic Assistance Programs Nos. 13.802–13.805, and 13.807 Social Security Programs.)

Dated: October 19, 1987.

**Otis R. Bowen,**

*Secretary of Health and Human Services.*

SPECIAL MINIMUM PRIMARY INSURANCE AMOUNTS AND MAXIMUM FAMILY BENEFITS

| Special minimum primary insurance amount payable for Dec. 1986 | Number of years required at minimum earnings level | Special minimum primary insurance amount payable for Dec. 1987 | Special minimum maximum family benefit payable for Dec. 1987 |
|---|---|---|---|
| $19.40 | 11 | $20.20 | $30.40 |
| 38.50 | 12 | 40.10 | 60.40 |
| 57.90 | 13 | 60.30 | 90.70 |
| 77.10 | 14 | 80.30 | 120.70 |
| 96.40 | 15 | 100.40 | 150.70 |
| 115.80 | 16 | 120.60 | 181.20 |
| 135.10 | 17 | 140.70 | 211.20 |
| 154.40 | 18 | 160.80 | 241.40 |
| 173.70 | 19 | 180.90 | 271.50 |
| 192.80 | 20 | 200.80 | 301.50 |
| 212.30 | 21 | 221.20 | 331.90 |
| 231.50 | 22 | 241.20 | 362.00 |
| 251.00 | 23 | 261.50 | 392.50 |
| 270.20 | 24 | 281.50 | 422.50 |
| 289.40 | 25 | 301.50 | 452.40 |
| 308.90 | 26 | 321.80 | 483.00 |
| 328.20 | 27 | 341.90 | 513.10 |
| 347.40 | 28 | 361.90 | 543.00 |
| 366.60 | 29 | 381.90 | 573.30 |
| 384.80 | 30 | 402.60 | 603.30 |

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BILLING CODE 4190-11-M

## APPENDIX D.—AUTOMATIC ADJUSTMENTS UNDER OLD-AGE, SURVIVORS, AND DISABILITY INSURANCE

The Social Security Act specifies that certain program amounts affecting the determination of OASDI benefits are to be adjusted annually, in general, to reflect changes in the economy. The law prescribes specific formulas which, when applied to reported statistics, produce "automatic" revisions in these program amounts and hence in the benefit-computation procedures.

In this appendix, values are shown for the program amounts which are subject to automatic adjustment, from the time that such adjustments became effective through 1988. Projected values for future years through 1993, based on the two intermediate sets of assumptions (alternatives II-A and II-B), are also shown. Many of these assumptions are described in the subsection of this report entitled "Economic and Demographic Assumptions" and are shown in tables 10 and 11. The subsection entitled "Automatic Adjustments," and Appendix C, provide a more complete description of the program amounts affected by the automatic-adjustment procedures.

Under section 215(b)(3) of the Social Security Act, the average amount of total wages for each year after 1950 is used to index the earnings of most workers first becoming eligible for benefits in 1979 or later. This procedure converts a worker's past earnings to approximately their equivalent values near the time of the worker's retirement or other eligibility, and these values are used to calculate the worker's Average Indexed Monthly Earnings (AIME). The average amount of total wages for each year is also used to adjust most of the program amounts that are subject to the automatic-adjustment provisions. A copy of the notice announcing the average wage for 1986, including a brief description of its derivation, is shown in Appendix C, which also describes the determinations of other program amounts that are in effect for 1988. Table D1 shows the average amount of total wages as announced for each year 1951 through 1986.

TABLE D1.—AVERAGE AMOUNT OF TOTAL WAGES, CALENDAR YEARS 1951-86

| Year | Amount | Year | Amount | Year | Amount |
|---|---|---|---|---|---|
| 1951 | $2,799.16 | 1966 | $4,938.36 | 1981 | $13,773.10 |
| 1952 | 2,973.32 | 1967 | 5,213.44 | 1982 | 14,531.34 |
| 1953 | 3,139.44 | 1968 | 5,571.76 | 1983 | 15,239.24 |
| 1954 | 3,155.64 | 1969 | 5,893.76 | 1984 | 16,135.07 |
| 1955 | 3,301.44 | 1970 | 6,186.24 | 1985 | 16,822.51 |
| 1956 | 3,532.36 | 1971 | 6,497.08 | 1986 | 17,321.82 |
| 1957 | 3,641.72 | 1972 | 7,133.80 | | |
| 1958 | 3,673.80 | 1973 | 7,580.16 | | |
| 1959 | 3,855.80 | 1974 | 8,030.76 | | |
| 1960 | 4,007.12 | 1975 | 8,630.92 | | |
| 1961 | 4,086.76 | 1976 | 9,226.48 | | |
| 1962 | 4,291.40 | 1977 | 9,779.44 | | |
| 1963 | 4,396.64 | 1978 | 10,556.03 | | |
| 1964 | 4,576.32 | 1979 | 11,479.46 | | |
| 1965 | 4,658.72 | 1980 | 12,513.46 | | |

Table D2 shows the estimated average amount of total wages for each year 1987 through 1993, based on the four alternative sets of assumptions.

TABLE D2.—ESTIMATED AVERAGE AMOUNT OF TOTAL WAGES BY ALTERNATIVE, CALENDAR YEARS 1987-93

| Calendar year | I | II-A | II-B | III |
|---|---|---|---|---|
| 1987 | $17,976.58 | $17,857.08 | $17,856.95 | $17,794.71 |
| 1988 | 18,835.09 | 18,664.17 | 18,611.36 | 18,315.00 |
| 1989 | 19,849.43 | 19,683.57 | 19,607.10 | 19,330.64 |
| 1990 | 20,924.96 | 20,757.35 | 20,638.38 | 20,553.07 |
| 1991 | 21,977.50 | 21,812.75 | 21,736.39 | 21,751.91 |
| 1992 | 22,971.31 | 22,886.25 | 22,943.82 | 22,756.45 |
| 1993 | 23,957.64 | 23,984.44 | 24,207.60 | 24,273.09 |

The provisions for automatic cost-of-living increases in OASDI benefits were originally enacted in 1972 and first became effective with the benefit increase effective for June 1975. The determination of the benefit increase effective for December 1987 is shown in Appendix C. Table D3 shows the automatic benefit increases determined for each year 1975-87, and the benefit increases for each year 1988-93, on the basis of the two intermediate sets of assumptions.

The law provides for an automatic increase in the contribution and benefit base for the year following a year in which an automatic benefit increase became effective. The base for 1975 was the first one determined on this basis. (Amendments enacted in December 1973 provided that the 11-percent general benefit increase that became effective in 1974 would be considered an automatic cost-of-living benefit increase for purposes of the automatic-adjustment provisions.) The bases for 1979-81 were specified by the 1977 amendments at levels above those which were expected to occur under the automatic-adjustment provisions (and which, in fact, as the experience developed, were above such levels). Starting again in 1982, the bases have been determined automatically on the basis of increases in average wages. Table D3 shows actual past and projected future amounts for the contribution and benefit base.

The law provides for the determination of the contribution and benefit bases that would have been in effect in each year after 1978 under the automatic-adjustment provisions as in effect before the enactment of the 1977 amendments. This "old-law" base is used in determining special-minimum benefits for certain workers who have many years of low earnings in covered employment. Beginning in 1986, the old-law base is also used in the calculation of OASDI benefits for certain workers who are eligible to receive pensions based on noncovered employment. In addition, it is used for certain purposes under the Railroad Retirement program and the Employee Retirement Income Security Act of 1974. Table D3 shows the old-law bases for 1979-88, together with estimated amounts for 1989-93 on the basis of the two intermediate sets of assumptions.

The 1972 amendments specified that the amount of earnings exempted from the withholding of benefits under the retirement earnings test would increase automatically in the year following a year in which an automatic cost-of-living benefit increase became effective. The 1977 amendments modified this procedure by establishing two different exempt amounts—one for those under age 65 and another for those aged 65 and over. The former amounts continued to increase automatically, while the latter amounts were specified for 1978-82, after which they again increase automatically. The exempt amounts are shown in table D3 for 1975-93.

The 1977 amendments specified the amount of earnings required in 1978 to be credited with a "quarter of coverage" and provided for automatic adjustment of this amount for future years. Table D3 shows the amounts for 1978-93.

The 1977 amendments substantially revised the method of computing benefits for most workers first becoming eligible for benefits in 1979 and later. The formula used to compute the Primary Insurance Amount (PIA) for workers who first become eligible for benefits, or who died before becoming eligible, in 1979 is:

90 percent of the first $180 of AIME, plus
32 percent of AIME in excess of $180
but not in excess of $1,085, plus
15 percent of AIME in excess of $1,085.

The amounts separating the individual's AIME into intervals—the "bend points"—are adjusted automatically by the changes in average wages as specified in section 215(a)(1)(B) of the Social Security Act. (A regular-minimum benefit of $122 and a special-minimum benefit varying by "years of coverage" are also provided, although for most workers first becoming eligible for benefits in 1982 and later, the regular-minimum benefit of $122 has been eliminated.) The bend points for 1979-88, and the values projected for 1989-93, are shown in table D3.

A similar formula is used to compute the maximum total amount of monthly benefits payable on the basis of the earnings of a retired or deceased individual. This formula is a function of the individual's PIA, and is shown below for workers who first became eligible for benefits, or who died before becoming eligible, in 1979:

150 percent of the first $230 of PIA, plus
272 percent of the PIA in excess of $230
but not in excess of $332, plus
134 percent of the PIA in excess of $332
but not in excess of $433, plus
175 percent of the PIA in excess of $433.

These PIA-interval bend points are adjusted automatically in accordance with section 203(a)(2) of the Act. The maximum-family-benefit bend points for 1979-93 are shown in table D3.

TABLE D3.—OASDI PROGRAM AMOUNTS DETERMINED UNDER THE AUTOMATIC-ADJUSTMENT PROVISIONS, CALENDAR YEARS 1975-88, AND PROJECTED FUTURE AMOUNTS, CALENDAR YEARS 1989-93, ON THE BASIS OF THE INTERMEDIATE SETS OF ASSUMPTIONS

| Calendar year | Benefit increase[1] (percent) | Contribution and benefit base | "Old-law" contribution and benefit base[2] | Retirement earnings test exempt amounts | | Amount of earnings required for quarter of coverage[4] | AIME "bend points" in PIA formula | | PIA "bend points" in maximum-family-benefit formula | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Under age 65 | Ages 65 and over[3] | | First | Second | First | Second | Third |
| Actual experience: | | | | | | | | | | | |
| 1975 | 8.0 | $14,100 | (*) | $2,520 | $2,520 | (*) | (*) | (*) | (*) | (*) | (*) |
| 1976 | 6.4 | 15,300 | (*) | 2,760 | 2,760 | (*) | (*) | (*) | (*) | (*) | (*) |
| 1977 | 5.9 | 16,500 | (*) | 3,000 | 3,000 | (*) | (*) | (*) | (*) | (*) | (*) |
| 1978 | 6.5 | 17,700 | (*) | 3,240 | [7]4,000 | [5]$250 | (*) | (*) | (*) | (*) | (*) |
| 1979 | 9.9 | [7]22,900 | $18,900 | 3,480 | [7]4,500 | 260 | [6]$180 | [6]$1,085 | [6]$230 | [6]$332 | [6]$433 |
| 1980 | 14.3 | [7]25,900 | 20,400 | 3,720 | [7]5,000 | 290 | 194 | 1,171 | 248 | 358 | 467 |
| 1981 | 11.2 | [7]29,700 | 22,200 | 4,080 | [7]5,500 | 310 | 211 | 1,274 | 270 | 390 | 508 |
| 1982 | 7.4 | 32,400 | 24,300 | 4,440 | [7]6,000 | 340 | 230 | 1,388 | 294 | 425 | 554 |
| 1983 | 3.5 | 35,700 | 26,700 | 4,920 | 6,600 | 370 | 254 | 1,528 | 324 | 468 | 610 |
| 1984 | 3.5 | 37,800 | 28,200 | 5,160 | 6,960 | 390 | 267 | 1,612 | 342 | 493 | 643 |
| 1985 | 3.1 | 39,600 | 29,700 | 5,400 | 7,320 | 410 | 280 | 1,691 | 358 | 517 | 675 |
| 1986 | 1.3 | 42,000 | 31,500 | 5,760 | 7,800 | 440 | 297 | 1,790 | 379 | 548 | 714 |
| 1987 | 4.2 | 43,800 | 32,700 | 6,000 | 8,160 | 460 | 310 | 1,866 | 396 | 571 | 745 |
| 1988 | (*) | 45,000 | 33,600 | 6,120 | 8,400 | 470 | 319 | 1,922 | 407 | 588 | 767 |
| Alternative II-A: | | | | | | | | | | | |
| 1989 | 4.0 | 46,500 | 34,500 | 6,360 | 8,640 | 480 | 329 | 1,981 | 420 | 606 | 791 |
| 1990 | 3.6 | 48,600 | 36,000 | 6,600 | 9,000 | 510 | 344 | 2,071 | 439 | 634 | 826 |
| 1991 | 3.1 | 51,300 | 38,100 | 6,960 | 9,480 | 530 | 362 | 2,184 | 463 | 668 | 872 |
| 1992 | 3.0 | 54,000 | 40,200 | 7,320 | 9,960 | 560 | 382 | 2,303 | 488 | 705 | 919 |
| 1993 | 3.0 | 56,700 | 42,300 | 7,680 | 10,440 | 590 | 401 | 2,420 | 513 | 741 | 966 |
| Alternative II-B: | | | | | | | | | | | |
| 1989 | 4.5 | 46,500 | 34,500 | 6,360 | 8,640 | 480 | 329 | 1,981 | 420 | 606 | 791 |
| 1990 | 4.3 | 48,600 | 36,000 | 6,600 | 9,000 | 500 | 343 | 2,065 | 438 | 632 | 824 |
| 1991 | 4.2 | 51,300 | 37,800 | 6,960 | 9,480 | 530 | 361 | 2,175 | 461 | 666 | 868 |
| 1992 | 4.0 | 54,000 | 39,900 | 7,320 | 9,960 | 560 | 380 | 2,290 | 485 | 701 | 914 |
| 1993 | 4.0 | 57,000 | 42,000 | 7,680 | 10,440 | 590 | 400 | 2,412 | 511 | 738 | 962 |

[1]Effective with benefits payable for June in each year 1975-82, and for December in each year after 1982.

[2]Contribution and benefit base that would have been determined automatically under the law in effect prior to enactment of the Social Security Amendments of 1977.

[3]In 1955-82, retirement earnings test did not apply at ages 72 and over; beginning in 1983, it does not apply at ages 70 and over.

[4]See Appendix C for a description of quarter-of-coverage requirements prior to 1978.

[5]No provision in law for this amount in this year.

[6]Amount not subject to automatic-adjustment provisions in this year.

[7]Amount specified by Social Security Amendments of 1977.

[8]Amount specified for first year by Social Security Amendments of 1977; amounts for subsequent years subject to automatic-adjustment provisions.

[9]Actual benefit increase for December 1988 has not been determined. Estimates of that increase, based on alternatives II-A and II-B, are 3.4 percent and 3.8 percent, respectively.

## APPENDIX E.—ACTUARIAL ESTIMATES FOR THE OASI, DI, AND HI PROGRAMS, COMBINED

In this appendix, actuarial estimates for the OASI, DI, and Hospital Insurance (HI) programs are combined to facilitate analysis of the adequacy of the combined income and assets of these three trust funds relative to their combined expenditures. These estimates represent the combination of the estimates shown in this report and in the concurrent report for the HI Trust Fund.

As is the case with the OASI and DI Trust Funds, the primary source of income to the HI Trust Fund is contributions paid by employees, employers, and self-employed persons. The contribution base for the HI program is the same as for the OASDI program and is shown in table 1. Contribution (or tax) rates for the OASDI and HI programs are summarized in table E1 for 1966 and later. The combined OASDI and HI tax on employees and their employers is often referred to as the FICA tax, because it is authorized by the Federal Insurance Contributions Act.

TABLE E1.—CONTRIBUTION RATES FOR THE OASDI AND HI PROGRAMS

| Calendar years | Contribution rates (percent) | | | | | |
|---|---|---|---|---|---|---|
| | Employees and employers, each | | | Self-employed | | |
| | OASDI | HI | Total | OASDI | HI | Total |
| 1966 | 3.85 | 0.35 | 4.20 | 5.80 | 0.35 | 6.15 |
| 1967 | 3.90 | 0.50 | 4.40 | 5.90 | 0.50 | 6.40 |
| 1968 | 3.80 | 0.60 | 4.40 | 5.80 | 0.60 | 6.40 |
| 1969-70 | 4.20 | 0.60 | 4.80 | 6.30 | 0.60 | 6.90 |
| 1971-72 | 4.60 | 0.60 | 5.20 | 6.90 | 0.60 | 7.50 |
| 1973 | 4.85 | 1.00 | 5.85 | 7.00 | 1.00 | 8.00 |
| 1974-77 | 4.95 | 0.90 | 5.85 | 7.00 | 0.90 | 7.90 |
| 1978 | 5.05 | 1.00 | 6.05 | 7.10 | 1.00 | 8.10 |
| 1979-80 | 5.08 | 1.05 | 6.13 | 7.05 | 1.05 | 8.10 |
| 1981 | 5.35 | 1.30 | 8.65 | 8.00 | 1.30 | 9.30 |
| 1982-83 | 5.40 | 1.30 | 6.70 | 8.05 | 1.30 | 9.35 |
| 1984[1] | 5.70 | 1.30 | 7.00 | 11.40 | 2.60 | 14.00 |
| 1985[1] | 5.70 | 1.35 | 7.05 | 11.40 | 2.70 | 14.10 |
| 1966-87[1] | 5.70 | 1.45 | 7.15 | 11.40 | 2.90 | 14.30 |
| 1988-89[1] | 6.06 | 1.45 | 7.51 | 12.12 | 2.90 | 15.02 |
| 1990 and later | 6.20 | 1.45 | 7.65 | 12.40 | 2.90 | 15.30 |

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

The Social Security Act authorized borrowing among the OASI, DI, and HI Trust Funds through the end of 1987. Loans could not be made from a trust fund if its assets were below specified levels, and minimum standards are specified for the repayment of interfund loans (including a requirement for the complete repayment of all such loans before 1990). Estimates shown in this appendix for the combined trust funds are theoretical because, under present law, no authority exists for transferring assets from one trust fund to another after 1987 except to repay amounts owed. Currently, there are no such amounts owed. The emphasis in this appendix on combined operations should not obscure the financial status of the individual trust funds.

Table E2 shows estimated contingency fund ratios for the three funds, separate and combined, for calendar years 1988-97, based on the four alternative sets of assumptions used in this report. The contingency fund ratio is defined to be the ratio of trust fund assets at the beginning of a

year (including advance tax transfers for January, in the case of OASI and DI) to expenditures during the year, expressed as a percentage.

The estimates in table E2 show that, based on all four alternatives, the contingency fund ratio for the OASI and DI Trust Funds, combined, is estimated to increase throughout the short-range projection period. The DI fund ratio, however, is projected to decline in 1989 and 1990 based on alternative III, but then to increase under all alternatives. Based on alternative III, however, the DI fund ratio is projected to resume its decline in 1993 until being exhausted in 1996. Based on all but alternative I, the HI fund ratio is estimated to increase for a few years and then to begin declining. As described in the concurrent HI Annual Report, the HI Trust Fund would have sufficient assets to meet obligations throughout the medium-range period based on alternative I, but would be exhausted in 2009 based on alternative II-A, in 2006 based on alternative II-B, and in 2000 based on alternative III.

Table E2 shows that the combined assets of the OASI, DI, and HI Trust Funds will be sufficient to meet combined obligations through at least the period shown, based on all four alternative sets of assumptions. The combined fund ratio is projected to increase from 52 in 1988 to 270, 219, 192, and 108 in 1997 based on alternatives I, II-A, II-B, and III, respectively. Thus, a reallocation of tax rates among the OASI, DI, and HI programs, or the extension of interfund borrowing authority beyond 1987, would be sufficient to prevent the potential financing problems of the DI and HI programs for a number of years.

TABLE E2.—ESTIMATED CONTINGENCY FUND RATIOS[1] FOR THE OASI, DI, AND HI TRUST FUNDS, SEPARATE AND COMBINED, BY ALTERNATIVE, CALENDAR YEARS 1988-97

| Calendar year | OASI | DI | OASDI | HI | Total OASDI and HI |
|---|---|---|---|---|---|
| Alternative I: | | | | | |
| 1988 | 41 | 39 | 41 | 101 | 52 |
| 1989 | 59 | 41 | 58 | 122 | 70 |
| 1990 | 79 | 47 | 76 | 137 | 89 |
| 1991 | 102 | 68 | 99 | 149 | 109 |
| 1992 | 128 | 92 | 124 | 162 | 132 |
| 1993 | 156 | 118 | 153 | 175 | 157 |
| 1994 | 188 | 145 | 183 | 187 | 184 |
| 1995 | 221 | 171 | 216 | 198 | 212 |
| 1996 | 256 | 196 | 250 | 209 | 240 |
| 1997 | 292 | 218 | 285 | 219 | 270 |
| Alternative II-A: | | | | | |
| 1988 | 41 | 38 | 41 | 101 | 52 |
| 1989 | 59 | 39 | 57 | 120 | 69 |
| 1990 | 77 | 41 | 73 | 131 | 85 |
| 1991 | 97 | 56 | 93 | 139 | 103 |
| 1992 | 120 | 74 | 115 | 146 | 122 |
| 1993 | 144 | 92 | 139 | 150 | 141 |
| 1994 | 170 | 109 | 164 | 152 | 161 |
| 1995 | 197 | 126 | 190 | 152 | 181 |
| 1996 | 225 | 140 | 216 | 149 | 200 |
| 1997 | 254 | 153 | 244 | 144 | 219 |
| Alternative II-B: | | | | | |
| 1988 | 41 | 38 | 41 | 101 | 52 |
| 1989 | 58 | 38 | 56 | 119 | 69 |
| 1990 | 75 | 39 | 71 | 130 | 84 |
| 1991 | 93 | 53 | 89 | 136 | 99 |
| 1992 | 112 | 67 | 107 | 141 | 115 |
| 1993 | 132 | 81 | 127 | 142 | 130 |
| 1994 | 153 | 96 | 147 | 142 | 146 |
| 1995 | 176 | 110 | 169 | 138 | 162 |
| 1996 | 199 | 122 | 191 | 133 | 177 |
| 1997 | 223 | 132 | 214 | 126 | 192 |

TABLE E2.—ESTIMATED CONTINGENCY FUND RATIOS[1] FOR THE OASI, DI, AND HI TRUST FUNDS, SEPARATE AND COMBINED, BY ALTERNATIVE, CALENDAR YEARS 1988-97 (Cont.)

| Calendar year | OASI | DI | OASDI | HI | Total OASDI and HI |
|---|---|---|---|---|---|
| Alternative III: | | | | | |
| 1988 | 41 | 37 | 41 | 101 | 52 |
| 1989 | 56 | 33 | 54 | 117 | 66 |
| 1990 | 68 | 27 | 64 | 122 | 78 |
| 1991 | 80 | 30 | 74 | 123 | 85 |
| 1992 | 90 | 31 | 84 | 121 | 92 |
| 1993 | 99 | 28 | 91 | 112 | 96 |
| 1994 | 109 | 25 | 100 | 100 | 100 |
| 1995 | 120 | 21 | 109 | 86 | 103 |
| 1996 | 132 | 15 | 119 | 68 | 106 |
| 1997 | 144 | (2) | 128 | 48 | 108 |

[1]See text for definition of contingency fund ratio.

[2]The fund is estimated to be exhausted.

Note: The assumptions underlying the estimates for the HI Trust Fund are described in Appendix A of the HI Annual Report. The ratios for OASDI and for OASDI and HI, combined, for 1997, based on alternative III, are theoretical and are shown for informational purposes only.

Table E3 shows estimated cost rates for the OASI, DI, and HI programs for the long-range 75-year projection period, based on the four alternative sets of assumptions. Table E3 also shows a comparison of total income and cost rates for the three programs combined. The cost rates shown for the HI program exclude the cost associated with maintaining the HI Trust Fund at a level suitable for a contingency reserve. These amounts are presented in the HI Annual Report.

TABLE E3.—COMPARISON OF ESTIMATED TOTAL INCOME RATES AND COST RATES FOR THE OASI, DI, AND HI PROGRAMS, BY ALTERNATIVE, CALENDAR YEARS 1988-2060
[As a percentage of taxable payroll[1]]

| Calendar year | Total income rate | Cost rate | | | | Balance[2] |
|---|---|---|---|---|---|---|
| | | OASI | DI | HI[3] | Total | |
| Alternative I: | | | | | | |
| 1988 | 15.19 | 9.58 | 1.06 | 2.50 | 13.13 | 2.06 |
| 1989 | 15.20 | 9.48 | 1.04 | 2.51 | 13.01 | 2.19 |
| 1990 | 15.48 | 9.39 | 1.01 | 2.59 | 13.00 | 2.46 |
| 1991 | 15.50 | 9.27 | .99 | 2.63 | 12.89 | 2.81 |
| 1992 | 15.50 | 9.15 | .98 | 2.66 | 12.78 | 2.72 |
| 1993 | 15.50 | 9.01 | .97 | 2.68 | 12.85 | 2.85 |
| 1994 | 15.50 | 8.87 | .96 | 2.70 | 12.53 | 2.97 |
| 1995 | 15.50 | 8.75 | .97 | 2.72 | 12.44 | 3.06 |
| 1996 | 15.50 | 8.63 | .97 | 2.74 | 12.34 | 3.15 |
| 1997 | 15.50 | 8.53 | .98 | 2.74 | 12.25 | 3.24 |
| 2000 | 15.54 | 8.17 | 1.01 | 2.75 | 11.92 | 3.61 |
| 2005 | 15.59 | 7.76 | 1.09 | 2.70 | 11.56 | 4.02 |
| 2010 | 15.63 | 7.90 | 1.22 | 2.67 | 11.79 | 3.84 |
| 2015 | 15.69 | 8.75 | 1.29 | 2.67 | 12.71 | 2.98 |
| 2020 | 15.76 | 9.93 | 1.33 | 2.78 | 14.04 | 1.72 |
| 2025 | 15.81 | 10.82 | 1.38 | 2.98 | 15.18 | .63 |
| 2030 | 15.84 | 11.27 | 1.35 | 3.17 | 15.79 | .05 |
| 2035 | 15.85 | 11.23 | 1.31 | 3.31 | 15.85 | .00 |
| 2040 | 15.84 | 10.87 | 1.30 | 3.40 | 15.57 | .27 |
| 2045 | 15.83 | 10.55 | 1.32 | 3.44 | 15.32 | .51 |
| 2050 | 15.83 | 10.42 | 1.33 | 3.48 | 15.23 | .60 |
| 2055 | 15.83 | 10.37 | 1.32 | 3.52 | 15.21 | .62 |
| 2060 | 15.83 | 10.29 | 1.31 | 3.56 | 15.16 | .67 |
| Alternative II-A: | | | | | | |
| 1988 | 15.19 | 9.81 | 1.08 | 2.51 | 13.21 | 1.98 |
| 1989 | 15.20 | 9.55 | 1.07 | 2.56 | 13.18 | 2.03 |
| 1990 | 15.48 | 9.57 | 1.05 | 2.68 | 13.30 | 2.19 |
| 1991 | 15.50 | 9.49 | 1.04 | 2.75 | 13.29 | 2.22 |
| 1992 | 15.51 | 9.40 | 1.03 | 2.82 | 13.25 | 2.26 |
| 1993 | 15.51 | 9.31 | 1.03 | 2.89 | 13.24 | 2.27 |
| 1994 | 15.51 | 9.23 | 1.04 | 2.96 | 13.23 | 2.28 |
| 1995 | 15.51 | 9.15 | 1.05 | 3.03 | 13.22 | 2.28 |
| 1996 | 15.51 | 9.06 | 1.06 | 3.10 | 13.22 | 2.29 |
| 1997 | 15.51 | 8.99 | 1.08 | 3.15 | 13.22 | 2.29 |

TABLE E3.—COMPARISON OF ESTIMATED TOTAL INCOME RATES AND COST RATES FOR THE OASI, DI, AND HI PROGRAMS, BY ALTERNATIVE, CALENDAR YEARS 1988-2060 (Cont.)
[As a percentage of taxable payroll[1]]

| Calendar year | Total income rate | Cost rate | | | | Balance[2] |
|---|---|---|---|---|---|---|
| | | OASI | DI | HI[3] | Total | |
| Alternative II-A: (Cont.) | | | | | | |
| 2000 | 15.56 | 8.73 | 1.12 | 3.31 | 13.17 | 2.39 |
| 2005 | 15.62 | 8.44 | 1.26 | 3.53 | 13.23 | 2.39 |
| 2010 | 15.68 | 8.68 | 1.44 | 3.77 | 13.90 | 1.78 |
| 2015 | 15.74 | 9.72 | 1.55 | 4.12 | 15.38 | .36 |
| 2020 | 15.83 | 11.18 | 1.60 | 4.66 | 17.44 | -1.62 |
| 2025 | 15.90 | 12.45 | 1.69 | 5.29 | 19.44 | -3.53 |
| 2030 | 15.95 | 13.32 | 1.68 | 5.85 | 20.85 | -4.90 |
| 2035 | 15.98 | 13.65 | 1.65 | 6.22 | 21.51 | -5.53 |
| 2040 | 15.98 | 13.60 | 1.65 | 6.40 | 21.65 | -5.66 |
| 2045 | 15.99 | 13.54 | 1.71 | 6.48 | 21.74 | -5.75 |
| 2050 | 16.00 | 13.70 | 1.74 | 6.55 | 22.00 | -6.00 |
| 2055 | 16.02 | 13.93 | 1.73 | 6.63 | 22.29 | -6.27 |
| 2060 | 16.02 | 14.07 | 1.72 | 6.70 | 22.49 | -6.46 |
| Alternative II-B: | | | | | | |
| 1988 | 15.19 | 9.65 | 1.08 | 2.52 | 13.25 | 1.94 |
| 1989 | 15.20 | 9.65 | 1.08 | 2.58 | 13.30 | 1.90 |
| 1990 | 15.50 | 9.74 | 1.07 | 2.71 | 13.52 | 1.98 |
| 1991 | 15.51 | 9.73 | 1.07 | 2.80 | 13.60 | 1.91 |
| 1992 | 15.52 | 9.68 | 1.06 | 2.88 | 13.62 | 1.89 |
| 1993 | 15.52 | 9.62 | 1.06 | 2.95 | 13.63 | 1.89 |
| 1994 | 15.52 | 9.54 | 1.07 | 3.03 | 13.64 | 1.88 |
| 1995 | 15.52 | 9.47 | 1.07 | 3.11 | 13.65 | 1.86 |
| 1996 | 15.52 | 9.40 | 1.09 | 3.18 | 13.66 | 1.86 |
| 1997 | 15.52 | 9.33 | 1.10 | 3.23 | 13.66 | 1.85 |
| 2000 | 15.57 | 9.14 | 1.16 | 3.42 | 13.72 | 1.85 |
| 2005 | 15.65 | 8.91 | 1.31 | 3.68 | 13.89 | 1.75 |
| 2010 | 15.71 | 9.18 | 1.49 | 3.96 | 14.63 | 1.07 |
| 2015 | 15.78 | 10.26 | 1.60 | 4.34 | 16.20 | -.42 |
| 2020 | 15.87 | 11.81 | 1.66 | 4.90 | 18.37 | -2.51 |
| 2025 | 15.94 | 13.18 | 1.76 | 5.57 | 20.50 | -4.56 |
| 2030 | 16.00 | 14.14 | 1.74 | 6.16 | 22.04 | -6.04 |
| 2035 | 16.03 | 14.54 | 1.71 | 6.54 | 22.79 | -6.76 |
| 2040 | 16.03 | 14.52 | 1.71 | 6.73 | 22.96 | -6.92 |
| 2045 | 16.04 | 14.47 | 1.78 | 6.81 | 23.06 | -7.02 |
| 2050 | 16.05 | 14.63 | 1.80 | 6.89 | 23.32 | -7.27 |
| 2055 | 16.06 | 14.86 | 1.80 | 6.96 | 23.62 | -7.56 |
| 2060 | 16.07 | 15.02 | 1.78 | 7.04 | 23.84 | -7.77 |
| Alternative III: | | | | | | |
| 1988 | 15.19 | 9.80 | 1.13 | 2.56 | 13.48 | 1.71 |
| 1989 | 15.21 | 10.02 | 1.16 | 2.67 | 13.86 | 1.35 |
| 1990 | 15.53 | 10.19 | 1.17 | 2.85 | 14.21 | 1.32 |
| 1991 | 15.52 | 10.33 | 1.19 | 2.99 | 14.50 | 1.02 |
| 1992 | 15.54 | 10.69 | 1.24 | 3.16 | 15.09 | .45 |
| 1993 | 15.54 | 10.60 | 1.25 | 3.28 | 15.13 | .41 |
| 1994 | 15.54 | 10.52 | 1.27 | 3.43 | 15.22 | .32 |
| 1995 | 15.54 | 10.43 | 1.28 | 3.57 | 15.29 | .25 |
| 1996 | 15.54 | 10.37 | 1.31 | 3.71 | 15.40 | .14 |
| 1997 | 15.54 | 10.32 | 1.34 | 3.85 | 15.51 | .03 |
| 2000 | 15.61 | 10.18 | 1.40 | 4.31 | 15.89 | -.28 |
| 2005 | 15.70 | 10.00 | 1.59 | 5.07 | 16.65 | -.95 |
| 2010 | 15.77 | 10.35 | 1.84 | 5.98 | 18.17 | -2.40 |
| 2015 | 15.85 | 11.66 | 2.00 | 7.18 | 20.85 | -4.99 |
| 2020 | 15.97 | 13.63 | 2.10 | 8.79 | 24.52 | -8.56 |
| 2025 | 16.07 | 15.59 | 2.25 | 10.60 | 28.43 | -12.36 |
| 2030 | 16.17 | 17.30 | 2.28 | 12.17 | 31.73 | -15.57 |
| 2035 | 16.23 | 18.46 | 2.25 | 13.14 | 33.86 | -17.62 |
| 2040 | 16.27 | 19.15 | 2.30 | 13.53 | 34.99 | -18.72 |
| 2045 | 16.31 | 19.80 | 2.43 | 13.71 | 35.94 | -19.63 |
| 2050 | 16.36 | 20.72 | 2.51 | 13.86 | 37.08 | -20.72 |
| 2055 | 16.42 | 21.74 | 2.51 | 14.01 | 38.26 | -21.84 |
| 2060 | 16.46 | 22.57 | 2.48 | 14.17 | 39.22 | -22.76 |

[1]The taxable payroll for HI is somewhat larger than the taxable payroll for OASDI, because HI covers all Federal civilian employees, including those hired before 1984, all State and local government employees hired after April 1, 1986, and railroad employees. This difference is relatively small and does not significantly affect the comparisons.

[2]Cost rates for HI exclude amounts required for trust fund maintenance.

[3]The balance is the total income rate minus the combined OASDI and HI cost rate. Negative balances are deficits.

The trend in long-range OASDI cost rates was described earlier in this report. The HI cost rates are estimated to increase substantially based on the four alternatives, from the current level of about 2.5 percent of taxable payroll to 3.56, 6.70, 7.04, and 14.17 percent, respectively, in 2060. The most significant increases occur during 2010-35. The estimated combined OASDI and HI cost rates follow a similar pattern, rising from the current level of about 13.2 percent to 15.16, 22.49, 23.84, and 39.22 percent of taxable payroll in 2060 based on alternatives I, II-A, II-B, and III, respectively. The combined cost rates are estimated to be less than the combined income rates throughout the long-range period based on alternative I, but are estimated to exceed the combined income rates for all years 2020 and later, based on alternative II-A, for all years 2015 and later, based on alternative II-B, and for all years 2000 and later, based on alternative III.

Table E4 shows the summarizations of these long-range projections. As in the body of this report, the summarizations are shown on the level-financing cost basis in addition to the average cost basis. For the level-financing basis, the figures are shown including the starting trust fund balances and excluding the starting trust fund balances. The starting trust fund balances are included for only those periods that begin with 1988.

TABLE E4.—COMPARISON OF SUMMARIZED INCOME RATES AND COST RATES FOR THE OASI, DI, AND HI PROGRAMS, BY ALTERNATIVE, CALENDAR YEARS 1988-2062
[As a percentage of taxable payroll[1]]

| Period | Total income rate | Cost rate | | | | Balance[2] |
|---|---|---|---|---|---|---|
| | | OASI | DI | HI[3] | Total | |
| "Average-cost" basis[4]: | | | | | | |
| Alternative I: | | | | | | |
| 25-year averages: | | | | | | |
| 1988-2012 | 15.52 | 8.40 | 1.06 | 2.68 | 12.15 | 3.38 |
| 2013-2037 | 15.79 | 10.39 | 1.33 | 2.98 | 14.71 | 1.08 |
| 2038-2062 | 15.83 | 10.50 | 1.32 | 3.48 | 15.30 | .53 |
| 75-year average: | | | | | | |
| 1988-2062 | 15.72 | 9.76 | 1.24 | 3.05 | 14.05 | 1.66 |
| Alternative II-A: | | | | | | |
| 25-year averages: | | | | | | |
| 1988-2012 | 15.55 | 8.92 | 1.19 | 3.26 | 13.36 | 2.18 |
| 2013-2037 | 15.88 | 12.06 | 1.63 | 5.23 | 18.92 | -3.03 |
| 2038-2062 | 16.00 | 13.77 | 1.71 | 6.55 | 22.03 | -6.03 |
| 75-year average: | | | | | | |
| 1988-2062 | 15.81 | 11.58 | 1.51 | 5.01 | 18.10 | -2.29 |
| Alternative II-B: | | | | | | |
| 25-year averages: | | | | | | |
| 1988-2012 | 15.57 | 9.29 | 1.22 | 3.37 | 13.88 | 1.68 |
| 2013-2037 | 15.92 | 12.78 | 1.69 | 5.50 | 19.97 | -4.05 |
| 2038-2062 | 16.05 | 14.70 | 1.77 | 6.89 | 23.36 | -7.31 |
| 75-year average: | | | | | | |
| 1988-2062 | 15.85 | 12.26 | 1.56 | 5.25 | 19.07 | -3.22 |
| Alternative III: | | | | | | |
| 25-year averages: | | | | | | |
| 1988-2012 | 15.60 | 10.25 | 1.46 | 4.36 | 16.07 | -0.48 |
| 2013-2037 | 16.06 | 15.32 | 2.17 | 10.37 | 27.67 | -11.81 |
| 2038-2062 | 16.37 | 20.80 | 2.45 | 13.85 | 37.10 | -20.73 |
| 75-year average: | | | | | | |
| 1988-2062 | 16.01 | 15.46 | 2.03 | 9.53 | 27.01 | -11.00 |

TABLE E4.—COMPARISON OF SUMMARIZED INCOME RATES AND COST RATES FOR THE OASI, DI, AND HI PROGRAMS, BY ALTERNATIVE, CALENDAR YEARS 1988-2062 (Cont.)
[As a percentage of taxable payroll[1]]

| Period | Total income rate | Cost rate | | | | Balance[3] |
|---|---|---|---|---|---|---|
| | | OASI | DI | HI[2] | Total | |
| "Level-financing" basis[4]: | | | | | | |
| Alternative I: | | | | | | |
| 25-year: | | | | | | |
| 1988-2012 | 15.49 | 8.44 | 1.06 | 2.68 | 12.19 | 3.30 |
| 2013-2037 | 15.75 | 10.38 | 1.34 | 2.98 | 14.70 | 1.06 |
| 2038-2062 | 15.80 | 10.52 | 1.32 | 3.48 | 15.32 | .48 |
| 75-year: | | | | | | |
| 1988-2062 | 15.67 | 9.73 | 1.23 | 3.03 | 14.00 | 1.68 |
| Alternative II-A: | | | | | | |
| 25-year: | | | | | | |
| 1988-2012 | 15.50 | 8.96 | 1.18 | 3.24 | 13.38 | 2.12 |
| 2013-2037 | 15.84 | 12.01 | 1.63 | 5.19 | 18.83 | -2.99 |
| 2038-2062 | 15.97 | 13.78 | 1.71 | 6.55 | 22.04 | -6.08 |
| 75-year: | | | | | | |
| 1988-2062 | 15.75 | 11.34 | 1.48 | 4.83 | 17.66 | -1.91 |
| Alternative II-B: | | | | | | |
| 25-year: | | | | | | |
| 1988-2012 | 15.52 | 9.33 | 1.22 | 3.34 | 13.89 | 1.63 |
| 2013-2037 | 15.88 | 12.73 | 1.69 | 5.46 | 19.88 | -4.00 |
| 2038-2062 | 16.01 | 14.72 | 1.78 | 6.88 | 23.38 | -7.37 |
| 75-year: | | | | | | |
| 1988-2062 | 15.78 | 11.98 | 1.53 | 5.05 | 18.57 | -2.79 |
| Alternative III: | | | | | | |
| 25-year: | | | | | | |
| 1988-2012 | 15.54 | 10.27 | 1.44 | 4.26 | 15.98 | -0.43 |
| 2013-2037 | 16.00 | 15.17 | 2.17 | 10.21 | 27.56 | -11.55 |
| 2038-2062 | 16.32 | 20.73 | 2.45 | 13.83 | 37.01 | -20.69 |
| 75-year: | | | | | | |
| 1988-2062 | 15.89 | 14.55 | 1.94 | 8.67 | 25.16 | -9.27 |
| "Level-financing" basis[5]: | | | | | | |
| Alternative I: | | | | | | |
| 25-year:1988-2012 | 15.76 | 8.44 | 1.06 | 2.68 | 12.19 | 3.57 |
| 50-year:1988-2037 | 15.76 | 9.37 | 1.19 | 2.82 | 13.39 | 2.37 |
| 75-year:1988-2062 | 15.77 | 9.73 | 1.23 | 3.03 | 14.00 | 1.78 |
| Alternative II-A: | | | | | | |
| 25-year:1988-2012 | 15.79 | 8.96 | 1.18 | 3.24 | 13.38 | 2.41 |
| 50-year:1988-2037 | 15.81 | 10.38 | 1.39 | 4.15 | 15.92 | -.11 |
| 75-year:1988-2062 | 15.86 | 11.34 | 1.48 | 4.83 | 17.66 | -1.80 |
| Alternative II-B: | | | | | | |
| 25-year:1988-2012 | 15.81 | 9.33 | 1.22 | 3.34 | 13.89 | 1.92 |
| 50-year:1988-2037 | 15.84 | 10.90 | 1.44 | 4.33 | 16.67 | -.83 |
| 75-year:1988-2062 | 15.89 | 11.98 | 1.53 | 5.05 | 18.57 | -2.68 |
| Alternative III: | | | | | | |
| 25-year:1988-2012 | 15.86 | 10.27 | 1.44 | 4.26 | 15.98 | -0.11 |
| 50-year:1988-2037 | 15.92 | 12.46 | 1.77 | 6.92 | 21.15 | -5.22 |
| 75-year:1988-2062 | 16.02 | 14.55 | 1.94 | 8.67 | 25.16 | -9.14 |

[1]The taxable payroll for HI is somewhat larger than the taxable payroll for OASDI, because HI covers all Federal civilian employees, including those hired before 1984, all State and local government employees hired after April 1, 1986, and railroad employees. This difference is relatively small and does not significantly affect the comparisons.

[2]Cost rates for HI exclude amounts required for trust fund maintenance.

[3]The balance is the total income rate minus the combined OASDI and HI cost rate. Negative balances are deficits.

[4]Income rates do not include beginning trust fund balances.

[5]Income rates include beginning trust fund balances.

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

The combined level-financing actuarial balances, including the starting trust fund balances, for the 75-year projection period are a positive 1.78 percent of taxable payroll on the basis of alternative I, and a negative 1.80, 2.68, and 9.14 percent on the basis of alternatives II-A, II-B, and III, respectively. The alternative I positive balance is 13 percent of the combined cost rate, while the alternatives II-A, II-B, and III negative balances are 10, 14 and 36 percent of the combined cost rates, respectively.

In general, the estimates for the three 25-year subperiods display a pattern of large positive balances or small deficits in the first subperiod, followed by falling positive balances or rising deficits in the second and third subperiods. For example, under alternative II-B, the combined average positive balance is 1.63 percent of taxable payroll in 1988-2012, followed by average deficits of 4.00 percent and 7.37 percent in 2013-2037 and 2038-2062, respectively.

As noted previously in this report and in the HI Annual Report, long-range estimates such as these are subject to much uncertainty and as such should not be considered precise forecasts, but instead should be considered as indicative of the general trend and range of costs that could reasonably be expected to occur.

# IV. SUMMARY OF THE OPERATIONS OF THE OLD-AGE AND SURVIVORS INSURANCE AND DISABILITY INSURANCE TRUST FUNDS, FISCAL YEAR 1987

## *A. OLD-AGE AND SURVIVORS INSURANCE TRUST FUND*

A statement of the income and disbursements of the Federal Old-Age and Survivors Insurance Trust Fund in fiscal year 1987, and of the assets of the fund at the beginning and end of the fiscal year, is presented in table 2.

TABLE 2.—STATEMENT OF OPERATIONS OF THE OASI TRUST FUND DURING FISCAL YEAR 1987
[In thousands]

| | | |
|---|---|---|
| Total assets, September 30, 1986 | | $37,519,378 |
| Receipts: | | |
| Contributions: | | |
| Appropriations: | | |
| Employment taxes | $192,601,710 | |
| Tax credits | 1,652,655 | |
| Total appropriations | 194,254,366 | |
| Deposits arising from State agreements | 5,324,577 | |
| Payment from general fund of the Treasury representing employee-employer contributions on deemed wage credits for military service in 1987 | 348,391 | |
| Gross contributions | 199,927,333 | |
| Less payment to the general fund of the Treasury for contributions subject to refund | 373,170 | |
| Net contributions | | 199,554,163 |
| Income from taxation of benefit payments: | | |
| Withheld from benefit payments to non-resident aliens | 66,717 | |
| All other, not subject to withholding[1] | 3,256,000 | |
| Total income from taxation of benefits | | 3,322,717 |
| Reimbursement from general fund of the Treasury for costs of payments to uninsured persons who attained age 72 before 1968 | | 69,394 |
| Investment income and interest adjustments: | | |
| Interest on investments | 4,496,366 | |
| Interest on transfers from the general fund account for the Supplemental Security Income program due to adjustment in allocation of administrative expenses | 1,098 | |
| Gross investment income and interest adjustments | 4,497,463 | |
| Less interest on interfund transfers due to adjustment in allocation of administrative expenses | 2,510 | |
| Less interest on general fund advance tax transfers | 625,017 | |
| Net investment income and interest adjustments | | 3,669,936 |
| Income from merger of the Northern Mariana Islands Social Security Retirement Fund with the United States Social Security program | | 29,434 |
| Gifts | | 454 |
| Total receipts | | 206,846,097 |

## APPENDIX F.—PROJECTED COST AS A PERCENTAGE OF GNP FOR THE OASI, DI, AND HI PROGRAMS

In this appendix, the estimated cost of the OASI, DI, and HI programs is presented as a percentage of the gross national product (GNP). While expressing estimated cost as a percentage of taxable payroll is the most useful approach for assessing the financial status of the programs, (see table 26 and Appendix E), analysis of cost as a percentage of GNP provides an additional perspective on the cost of the programs in relation to the total value of goods produced and services performed in the U.S. economy.

Table F1 presents estimated OASI, DI, and HI costs as percentages of GNP on the basis of the four alternative sets of assumptions. For the next 20 years, the combined OASI and DI cost—hereafter referred to as the OASDI cost—as a percentage of GNP is projected to decline on the basis of alternatives I, II-A, and II-B, and to remain about level on the basis of alternative III. The projected HI cost as a percentage of GNP, however, increases through 2005 under all four alternatives. The combined OASDI and HI cost as a percentage of GNP is projected, for the next 20 years, to decrease based on alternative I, to remain about level based on the intermediate sets of assumptions (alternatives II-A and II-B), and to increase based on alternative III. Between 2005 and about 2035, both the OASDI and the HI costs as percentages of GNP are projected to rise substantially based on all four alternatives because of the baby-boom generation reaching retirement age. After 2035, the HI cost as a percentage of GNP is projected to stabilize, and the OASDI cost as a percentage of GNP is projected to decline slightly or to stabilize, except under alternative III, for which OASDI cost as a percentage of GNP is projected to continue rising. The combined OASDI and HI cost as a percentage of GNP is projected, after 2035, to follow the pattern of its largest component, the OASDI cost, changing only slightly on the basis of alternatives I, II-A, and II-B, while increasing significantly on the basis of alternative III.

The combined costs of the OASDI and HI programs as percentages of GNP, based on the four alternatives, differ by a relatively large amount at the end of the long-range period (about 7.8 percentage points between alternatives I and III in 2060), while differing by a much smaller amount at the end of the medium-range period (2.6 percentage points in 2010). In addition, the combined long-range cost as a percentage of GNP varies by a relatively large amount (from 6.18 percent based on alternative I, to 10.35 percent based on alternative III), while the medium-range cost varies by a much smaller amount (from 5.36 to 6.92 percent). Summarized cost rates are calculated on the level-financing basis including the trust fund balances on January 1, 1988. (See section 5 for explanation.)

TABLE F1.—ESTIMATED COST OF THE OASI, DI, AND HI PROGRAMS AS A PERCENTAGE OF GNP BY ALTERNATIVE AND TRUST FUND, CALENDAR YEARS 1988-2062

| Calendar year | OASI | DI | OASDI | HI | Total OASDI and HI |
|---|---|---|---|---|---|
| Alternative I: | | | | | |
| 1988 | 4.18 | 0.46 | 4.64 | 1.13 | 5.77 |
| 1989 | 4.12 | .45 | 4.57 | 1.13 | 5.70 |
| 1990 | 4.07 | .44 | 4.51 | 1.16 | 5.67 |
| 1991 | 4.02 | .43 | 4.45 | 1.18 | 5.63 |
| 1992 | 3.97 | .42 | 4.40 | 1.20 | 5.59 |
| 1993 | 3.91 | .42 | 4.33 | 1.21 | 5.54 |
| 1994 | 3.86 | .42 | 4.28 | 1.22 | 5.49 |
| 1995 | 3.81 | .42 | 4.23 | 1.23 | 5.45 |
| 1996 | 3.76 | .42 | 4.18 | 1.23 | 5.41 |
| 1997 | 3.71 | .43 | 4.13 | 1.24 | 5.37 |
| 2000 | 3.56 | .44 | 4.00 | 1.24 | 5.24 |
| 2005 | 3.40 | .48 | 3.87 | 1.23 | 5.10 |
| 2010 | 3.46 | .54 | 4.00 | 1.22 | 5.22 |
| 2015 | 3.84 | .57 | 4.41 | 1.22 | 5.63 |
| 2020 | 4.36 | .58 | 4.94 | 1.27 | 6.21 |
| 2025 | 4.75 | .61 | 5.35 | 1.36 | 6.72 |
| 2030 | 4.94 | .59 | 5.54 | 1.45 | 6.99 |
| 2035 | 4.93 | .57 | 5.50 | 1.52 | 7.02 |
| 2040 | 4.77 | .57 | 5.34 | 1.56 | 6.89 |
| 2045 | 4.63 | .58 | 5.21 | 1.58 | 6.79 |
| 2050 | 4.57 | .58 | 5.16 | 1.59 | 6.75 |
| 2055 | 4.55 | .58 | 5.13 | 1.61 | 6.74 |
| 2060 | 4.51 | .57 | 5.09 | 1.63 | 6.72 |
| Summarized rates:[1] | | | | | |
| 25-year: 1988-2012 | 3.68 | .46 | 4.15 | 1.21 | 5.36 |
| 50-year: 1988-2037 | 4.10 | .52 | 4.62 | 1.29 | 5.91 |
| 75-year: 1988-2062 | 4.26 | .54 | 4.80 | 1.38 | 6.18 |
| Alternative II-A: | | | | | |
| 1988 | 4.20 | .47 | 4.67 | 1.14 | 5.81 |
| 1989 | 4.16 | .46 | 4.62 | 1.16 | 5.78 |
| 1990 | 4.14 | .46 | 4.60 | 1.20 | 5.80 |
| 1991 | 4.12 | .45 | 4.57 | 1.24 | 5.80 |
| 1992 | 4.08 | .45 | 4.53 | 1.27 | 5.79 |
| 1993 | 4.04 | .45 | 4.49 | 1.30 | 5.79 |
| 1994 | 4.00 | .45 | 4.45 | 1.33 | 5.78 |
| 1995 | 3.97 | .45 | 4.42 | 1.36 | 5.78 |
| 1996 | 3.93 | .46 | 4.39 | 1.39 | 5.78 |
| 1997 | 3.89 | .47 | 4.36 | 1.41 | 5.77 |
| 2000 | 3.78 | .49 | 4.27 | 1.49 | 5.76 |
| 2005 | 3.66 | .55 | 4.20 | 1.58 | 5.79 |
| 2010 | 3.75 | .62 | 4.37 | 1.70 | 6.07 |
| 2015 | 4.18 | .67 | 4.85 | 1.85 | 6.69 |
| 2020 | 4.79 | .69 | 5.48 | 2.08 | 7.55 |
| 2025 | 5.31 | .72 | 6.03 | 2.35 | 8.38 |
| 2030 | 5.65 | .71 | 6.36 | 2.59 | 8.95 |
| 2035 | 5.76 | .69 | 6.45 | 2.73 | 9.19 |
| 2040 | 5.71 | .69 | 6.40 | 2.80 | 9.20 |
| 2045 | 5.66 | .72 | 6.38 | 2.82 | 9.20 |
| 2050 | 5.70 | .72 | 6.42 | 2.84 | 9.26 |
| 2055 | 5.77 | .72 | 6.48 | 2.86 | 9.34 |
| 2060 | 5.80 | .71 | 6.50 | 2.88 | 9.38 |
| Summarized rates:[1] | | | | | |
| 25-year: 1988-2012 | 3.88 | .51 | 4.39 | 1.46 | 5.85 |
| 50-year: 1988-2037 | 4.46 | .60 | 5.06 | 1.86 | 6.92 |
| 75-year: 1988-2062 | 4.83 | .63 | 5.46 | 2.14 | 7.60 |

TABLE F1.—ESTIMATED COST OF THE OASI, DI, AND HI PROGRAMS AS A PERCENTAGE OF GNP BY ALTERNATIVE AND TRUST FUND, CALENDAR YEARS 1988-2062 (Cont.)

| Calendar year | OASI | DI | OASDI | HI | Total OASDI and HI |
|---|---|---|---|---|---|
| Alternative II-B: | | | | | |
| 1988 | 4.22 | 0.47 | 4.70 | 1.15 | 5.84 |
| 1989 | 4.20 | .47 | 4.67 | 1.17 | 5.84 |
| 1990 | 4.22 | .46 | 4.69 | 1.22 | 5.91 |
| 1991 | 4.22 | .46 | 4.68 | 1.26 | 5.95 |
| 1992 | 4.20 | .46 | 4.66 | 1.29 | 5.95 |
| 1993 | 4.17 | .46 | 4.63 | 1.33 | 5.95 |
| 1994 | 4.14 | .46 | 4.60 | 1.36 | 5.96 |
| 1995 | 4.11 | .47 | 4.57 | 1.39 | 5.97 |
| 1996 | 4.07 | .47 | 4.55 | 1.43 | 5.97 |
| 1997 | 4.04 | .48 | 4.52 | 1.45 | 5.97 |
| 2000 | 3.95 | .50 | 4.45 | 1.53 | 5.98 |
| 2005 | 3.83 | .56 | 4.39 | 1.64 | 6.03 |
| 2010 | 3.91 | .64 | 4.55 | 1.76 | 6.31 |
| 2015 | 4.34 | .68 | 5.01 | 1.91 | 6.92 |
| 2020 | 4.95 | .70 | 5.64 | 2.14 | 7.78 |
| 2025 | 5.46 | .73 | 6.19 | 2.41 | 8.60 |
| 2030 | 5.81 | .71 | 6.52 | 2.64 | 9.16 |
| 2035 | 5.91 | .69 | 6.61 | 2.77 | 9.38 |
| 2040 | 5.85 | .69 | 6.54 | 2.82 | 9.36 |
| 2045 | 5.77 | .71 | 6.48 | 2.83 | 9.31 |
| 2050 | 5.78 | .71 | 6.49 | 2.84 | 9.33 |
| 2055 | 5.82 | .70 | 6.52 | 2.84 | 9.36 |
| 2060 | 5.82 | .69 | 6.51 | 2.84 | 9.36 |
| Summarized rates:[1] | | | | | |
| 25-year: 1988-2012 | 4.02 | .52 | 4.55 | 1.50 | 6.05 |
| 50-year: 1988-2037 | 4.62 | .61 | 5.23 | 1.91 | 7.13 |
| 75-year: 1988-2062 | 4.97 | .64 | 5.61 | 2.18 | 7.79 |
| Alternative III: | | | | | |
| 1988 | 4.32 | .50 | 4.82 | 1.17 | 5.99 |
| 1989 | 4.37 | .50 | 4.87 | 1.21 | 6.08 |
| 1990 | 4.40 | .50 | 4.90 | 1.28 | 6.18 |
| 1991 | 4.47 | .52 | 4.99 | 1.34 | 6.33 |
| 1992 | 4.64 | .54 | 5.18 | 1.42 | 6.60 |
| 1993 | 4.57 | .54 | 5.11 | 1.47 | 6.57 |
| 1994 | 4.53 | .55 | 5.08 | 1.53 | 6.61 |
| 1995 | 4.51 | .55 | 5.06 | 1.60 | 6.66 |
| 1996 | 4.48 | .57 | 5.05 | 1.66 | 6.71 |
| 1997 | 4.46 | .58 | 5.04 | 1.72 | 6.76 |
| 2000 | 4.37 | .60 | 4.97 | 1.91 | 6.89 |
| 2005 | 4.25 | .68 | 4.93 | 2.23 | 7.16 |
| 2010 | 4.35 | .77 | 5.12 | 2.61 | 7.73 |
| 2015 | 4.84 | .83 | 5.66 | 3.10 | 8.77 |
| 2020 | 5.57 | .86 | 6.43 | 3.74 | 10.17 |
| 2025 | 6.28 | .91 | 7.18 | 4.44 | 11.63 |
| 2030 | 6.87 | .90 | 7.77 | 5.03 | 12.80 |
| 2035 | 7.23 | .88 | 8.11 | 5.35 | 13.46 |
| 2040 | 7.39 | .89 | 8.28 | 5.44 | 13.71 |
| 2045 | 7.53 | .93 | 8.45 | 5.43 | 13.88 |
| 2050 | 7.77 | .94 | 8.71 | 5.41 | 14.11 |
| 2055 | 8.03 | .93 | 8.96 | 5.39 | 14.35 |
| 2060 | 8.22 | .90 | 9.13 | 5.37 | 14.50 |
| Summarized rates:[1] | | | | | |
| 25-year: 1988-2012 | 4.40 | .62 | 5.02 | 1.89 | 6.92 |
| 50-year: 1988-2037 | 5.20 | .74 | 5.93 | 3.00 | 8.93 |
| 75-year: 1988-2062 | 5.90 | .79 | 6.69 | 3.66 | 10.35 |

[1]Summarized rates are calculated on the level-financing basis including the value of the trust funds on January 1, 1988. (See section 5 for explanation.)

The difference between cost rates expressed as percentages of taxable payroll and those expressed as percentages of GNP can be seen by analyzing the estimated ratios of taxable payroll to GNP, which are presented in table F2. The cost as a percentage of GNP is approximately equal to the cost as a percentage of taxable payroll multiplied by the ratio of taxable payroll to GNP.

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

tent with assumed changes in the level of average earnings, the ratio of earnings to worker compensation, the ratio of worker compensation to GNP, and average hours worked per year.

Projections of taxable payroll, which are described in detail in Appendix A, were based on the projected increases in covered employment and average taxable earnings. Therefore, the projected increases in taxable payroll differ from projected increases in GNP primarily to the extent that average taxable earnings are assumed to increase more slowly than is productivity and to the extent that coverage of U.S. employment changes. For simplicity of presentation, table F2 is based on the projected OASDI taxable payroll even though the projected HI taxable payroll is somewhat larger because of the inclusion of the earnings of railroad employees and the more complete coverage of Federal, state, and local government employees.

TABLE F2.—RATIO OF TAXABLE PAYROLL TO GNP BY ALTERNATIVE, CALENDAR YEARS 1988-2060

| Calendar year | I | II-A | II-B | III |
|---|---|---|---|---|
| 1988 | 0.436 | 0.437 | 0.437 | 0.441 |
| 1989 | .435 | .435 | .436 | .436 |
| 1990 | .433 | .433 | .433 | .432 |
| 1991 | .434 | .433 | .434 | .433 |
| 1992 | .434 | .434 | .433 | .434 |
| 1993 | .434 | .434 | .433 | .431 |
| 1994 | .435 | .434 | .434 | .431 |
| 1995 | .435 | .434 | .433 | .432 |
| 1996 | .435 | .434 | .434 | .432 |
| 1997 | .435 | .433 | .433 | .432 |
| 2000 | .436 | .433 | .432 | .430 |
| 2005 | .437 | .433 | .429 | .425 |
| 2010 | .438 | .432 | .426 | .420 |
| 2015 | .439 | .430 | .423 | .415 |
| 2020 | .439 | .428 | .419 | .409 |
| 2025 | .439 | .426 | .415 | .403 |
| 2030 | .439 | .424 | .411 | .397 |
| 2035 | .439 | .422 | .407 | .391 |
| 2040 | .439 | .420 | .403 | .386 |
| 2045 | .439 | .418 | .399 | .380 |
| 2050 | .439 | .416 | .395 | .375 |
| 2055 | .439 | .414 | .391 | .369 |
| 2060 | .439 | .412 | .388 | .364 |

The long-range trend in the ratio of taxable payroll to GNP reflects the assumed trend in the ratio of wages to total employee compensation—i.e., wages plus fringe benefits. The ratio of wages to total employee compensation declined at average annual rates of 0.37 percent for the 30 years 1957-86, and 0.32, 0.61, and 0.19 percent for the 10-year periods 1957-66, 1967-76, and 1977-86, respectively. This ratio is assumed to stop its historical decline for alternative I, but to continue to decline ultimately by 0.1, 0.2, and 0.3 percent per year for alternatives II-A, II-B, and III, respectively.

Through 2015, however, the tendency toward decreases in the ratio of taxable payroll to GNP, discussed above, is at least partially offset by the gradually expanding OASDI coverage of Federal civilian employment resulting from the 1983 amendments. The ratio is projected to decrease slightly through 1990 for each alternative. For alternative I, the ratio of taxable payroll to GNP is projected to rise slightly between 1990 and 2010, thereafter remaining about the same. For alternative II-A, the ratio is projected to stay about the same from 1990 through 2005 before

beginning to decrease. For alternatives II-B and III, the ratio of taxable payroll to GNP is projected to stay about the same between 1990 and 1997 before beginning to decrease for the remainder of the long-range period.

## APPENDIX G.—LONG-RANGE ESTIMATES OF SOCIAL SECURITY TRUST FUND OPERATIONS IN DOLLARS

This appendix presents long-range estimates of the operations of the combined Old-Age and Survivors Insurance (OASI) and Disability Insurance (DI) Trust Funds as well as projections of combined OASDI and Hospital Insurance (HI) tax income and outgo.

Long-range trust fund operations typically are not shown in dollar amounts because inflation makes such amounts noncomparable over time. Instead, relative measures which are comparable over time have been developed. Two examples of such measures are cost rates and income rates, which express the cost and income of the program as percentages of taxable payroll, as shown in table 26. Another is the trust fund ratio, which expresses the assets of the trust funds as a proportion of the outgo during a specific period of time, usually the next year, as shown in table 15. They are the year-by-year measures that have been used by Social Security program planners and legislators to evaluate the long-range actuarial status of the program and the long-range financial effect of proposed changes to the program.

Nonetheless, in view of the interest that continues to be expressed in long-range dollar values, this appendix presents long-range OASDI estimates in current dollars, together with several indices which can be used to convert current dollars into constant (1988) dollars. It should be emphasized that any comparison of recent or near-term trust fund operations to longer-term current-dollar estimates which do not reflect the very considerable effects of inflation—especially for a period extending 75 years into the future—would be very misleading.

Table G1 shows estimated operations of the combined OASI and DI Trust Funds—that is, income excluding interest, interest, total income, total outgo, and assets at the end of the year. These items are defined in footnotes to the table. The estimates are based on four sets of economic and demographic assumptions identified as alternatives I, II-A, II-B, and III, which are described in detail earlier in this report. The estimates of all these financial items are shown in current dollars.

A major consideration in converting current dollars to constant dollars is the selection of the index of conversion. Price indices adjust for the effects of price inflation. The price index used in this appendix is the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W, hereinafter referred to as "CPI"), which is published by the Bureau of Labor Statistics, Department of Labor. The CPI was chosen mainly because it is used to determine automatic increases in OASDI benefits.

Wage indices adjust for the combined effects of price inflation and real-wage growth. The particular wage index presented in this appendix is the "SSA average wage index," as defined in section 215(i)(1)(G) of the Social Security Act. This index is used to adjust many of the Social Security program amounts that are subject to automatic adjustment (such as the contribution and benefit base).

Payroll indices adjust for the effects of changes in the number of workers as well as for the effect of price inflation and real-earnings growth. This note presents the OASDI taxable payroll, which consists of all earnings subject to OASDI contribution rates, adjusted to include deemed wages based on military service and to reflect the lower effective contribution rates (compared to the combined employee-employer rate) which apply to multiple-employer "excess wages."

Also shown are values of the gross national product (GNP). In addition to reflecting all of the effects of the three types of indices discussed above—price, wage, and payroll indices—the GNP values also reflect the effects of other changes in the national economy. The values of the Implicit Price Deflator for the Gross National Product, based on the projected values shown for the GNP, are similar to the values shown for the CPI.

The application of an interest rate is another way of converting dollar values through time. The selection of an interest rate can be based on many types of investments, such as those by individuals, groups, or the Social Security trust funds. The particular series of interest-rate factors presented in this appendix is based on the average of the assumed annual interest rates for special public-debt obligations issuable to the trust funds in the 12 months of the year, under each alternative.

The CPI, after several years of varying increases, is assumed to increase annually at rates of 2.0, 3.0, 4.0, and 5.0 percent for alternatives I, II-A, II-B, and III, respectively. Similarly, the average annual wage is assumed to increase by 4.4, 4.9, 5.4, and 5.9 percent. After the first few years, no explicit assumption is made about GNP growth; rather, estimates thereof are based on the complex interaction of many economic and demographic variables. Similarly, the estimates of payroll growth are based on the interaction of many economic and demographic variables. Appendix A of this report includes a more complete discussion of the payroll estimates. The ultimate annual interest rates are assumed to be nominal rates, compounded semiannually, of approximately 5.0, 5.5, 6.0, and 6.5 percent, for alternatives I, II-A, II-B, and III, respectively. These assumptions are the result of the compound effect of the ultimate annual increases assumed for the CPI (2.0, 3.0, 4.0, and 5.0 percent) with the respective ultimate real interest rates assumed (effective annual rates of 3.0, 2.5, 2.0, and 1.5 percent).

TABLE G1.—ESTIMATED OPERATIONS OF OASI AND DI TRUST FUNDS BY ALTERNATIVE, CALENDAR YEARS 1988-2065
[In billions]

| Calendar year | Income, excluding interest | Interest | Total income[1] | Total outgo[2] | Assets at end of year |
|---|---|---|---|---|---|
| Alternative I: | | | | | |
| 1988 | $256.0 | $8.0 | $264.1 | $221.9 | $110.9 |
| 1989 | 272.7 | 11.8 | 284.5 | 233.6 | 161.8 |
| 1990 | 296.8 | 16.4 | 313.2 | 246.5 | 228.5 |
| 1991 | 317.1 | 21.4 | 338.5 | 259.2 | 307.9 |
| 1992 | 336.0 | 26.6 | 362.7 | 270.9 | 399.6 |
| 1993 | 355.0 | 31.8 | 386.8 | 281.9 | 504.5 |
| 1994 | 374.3 | 36.7 | 411.0 | 292.9 | 622.6 |
| 1995 | 393.5 | 41.7 | 435.2 | 304.3 | 753.5 |
| 1996 | 413.7 | 47.5 | 461.2 | 316.2 | 898.5 |
| 1997 | 434.3 | 54.3 | 488.6 | 328.8 | 1,058.2 |
| 2000 | 509.1 | 79.9 | 589.1 | 370.6 | 1,653.1 |
| 2005 | 658.9 | 144.5 | 803.4 | 461.3 | 3,101.6 |
| 2010 | 842.2 | 246.4 | 1,088.6 | 605.3 | 5,238.2 |
| 2015 | 1,067.1 | 381.3 | 1,448.4 | 840.4 | 8,038.4 |
| 2020 | 1,344.1 | 543.4 | 1,887.5 | 1,179.8 | 11,381.4 |
| 2025 | 1,693.0 | 730.8 | 2,423.8 | 1,604.3 | 15,243.3 |
| 2030 | 2,142.3 | 952.6 | 3,094.9 | 2,094.5 | 19,838.7 |
| 2035 | 2,718.4 | 1,234.5 | 3,952.8 | 2,638.5 | 25,715.3 |
| 2040 | 3,446.4 | 1,616.3 | 5,062.8 | 3,248.7 | 33,710.9 |
| 2045 | 4,367.9 | 2,143.3 | 6,511.2 | 4,022.3 | 44,736.9 |
| 2050 | 5,542.5 | 2,859.0 | 8,401.5 | 5,051.0 | 59,682.7 |
| 2055 | 7,047.2 | 3,817.1 | 10,864.4 | 6,387.9 | 79,681.1 |
| 2060 | 8,970.3 | 5,099.2 | 14,069.4 | 8,070.4 | 106,444.0 |
| 2065 | 11,413.6 | 6,818.9 | 18,232.5 | 10,187.1 | 142,343.9 |
| Alternative II-A: | | | | | |
| 1988 | 255.4 | 8.0 | 263.4 | 222.4 | 109.8 |
| 1989 | 271.3 | 11.8 | 283.1 | 235.0 | 157.9 |
| 1990 | 295.6 | 16.4 | 312.0 | 250.1 | 219.8 |
| 1991 | 315.5 | 21.5 | 337.0 | 264.8 | 292.0 |
| 1992 | 335.4 | 26.8 | 362.2 | 278.4 | 375.8 |
| 1993 | 355.2 | 32.1 | 387.3 | 292.5 | 470.6 |
| 1994 | 375.8 | 37.5 | 413.4 | 307.1 | 576.9 |
| 1995 | 397.4 | 43.2 | 440.6 | 322.4 | 695.1 |
| 1996 | 420.3 | 49.4 | 469.7 | 338.4 | 826.5 |
| 1997 | 443.9 | 56.4 | 500.2 | 355.4 | 971.3 |
| 2000 | 526.3 | 81.2 | 607.5 | 411.0 | 1,507.7 |
| 2005 | 694.1 | 143.5 | 837.6 | 531.2 | 2,803.9 |
| 2010 | 903.8 | 243.5 | 1,147.2 | 718.5 | 4,710.6 |
| 2015 | 1,163.5 | 371.9 | 1,535.4 | 1,023.2 | 7,127.2 |
| 2020 | 1,484.6 | 513.5 | 1,998.1 | 1,472.9 | 9,754.5 |
| 2025 | 1,889.0 | 649.9 | 2,538.9 | 2,060.8 | 12,261.5 |
| 2030 | 2,407.2 | 768.3 | 3,175.5 | 2,772.8 | 14,424.1 |
| 2035 | 3,070.9 | 866.6 | 3,937.6 | 3,601.8 | 16,222.7 |
| 2040 | 3,908.0 | 950.9 | 4,858.8 | 4,566.9 | 17,774.2 |
| 2045 | 4,962.7 | 1,016.1 | 5,978.8 | 5,800.5 | 18,945.3 |
| 2050 | 6,298.7 | 1,027.4 | 7,326.0 | 7,445.0 | 19,042.1 |
| 2055 | 8,004.5 | 924.7 | 8,929.1 | 9,585.8 | 16,928.5 |
| 2060 | 10,181.7 | 641.1 | 10,822.8 | 12,280.1 | 11,360.7 |
| 2065 | 12,948.1 | 94.7 | 13,042.8 | 15,654.7 | 784.5 |
| Alternative II-B: | | | | | |
| 1988 | 254.7 | 8.0 | 262.7 | 222.4 | 109.1 |
| 1989 | 269.6 | 11.7 | 281.4 | 235.9 | 154.6 |
| 1990 | 293.3 | 16.3 | 309.5 | 252.2 | 211.9 |
| 1991 | 312.4 | 21.4 | 333.8 | 268.6 | 277.1 |
| 1992 | 333.4 | 26.8 | 360.3 | 285.2 | 352.1 |
| 1993 | 355.7 | 32.5 | 388.2 | 302.2 | 438.2 |
| 1994 | 379.0 | 38.5 | 417.4 | 319.8 | 535.9 |
| 1995 | 403.2 | 44.8 | 447.9 | 338.3 | 645.5 |
| 1996 | 429.3 | 51.6 | 480.8 | 357.8 | 768.5 |
| 1997 | 456.3 | 58.9 | 515.2 | 378.6 | 905.2 |
| 2000 | 547.9 | 83.6 | 631.5 | 446.8 | 1,409.4 |
| 2005 | 739.9 | 146.4 | 886.3 | 595.1 | 2,632.5 |
| 2010 | 987.4 | 250.5 | 1,237.9 | 825.8 | 4,460.6 |
| 2015 | 1,302.6 | 383.7 | 1,686.3 | 1,203.7 | 6,763.0 |
| 2020 | 1,703.0 | 523.2 | 2,226.2 | 1,775.4 | 9,124.3 |
| 2025 | 2,220.3 | 636.7 | 2,857.0 | 2,549.4 | 10,996.2 |
| 2030 | 2,898.7 | 692.0 | 3,590.7 | 3,524.5 | 11,837.5 |
| 2035 | 3,788.2 | 664.4 | 4,452.6 | 4,703.2 | 11,240.0 |
| 2040 | 4,937.8 | 532.8 | 5,470.6 | 6,121.7 | 8,840.4 |
| 2045 | 6,422.5 | 251.8 | 6,674.3 | 7,966.8 | 3,799.4 |
| 2050 | [3] | [3] | [3] | [3] | [3] |

TABLE G1.—ESTIMATED OPERATIONS OF OASI AND DI TRUST FUNDS BY ALTERNATIVE, CALENDAR YEARS 1988-2065 (Cont.)
[In billions]

| Calendar year | Income, excluding interest | Interest | Total income[1] | Total outgo[2] | Assets at end of year |
|---|---|---|---|---|---|
| Alternative III: | | | | | |
| 1988 | $251.6 | $7.9 | $259.5 | $223.1 | $105.2 |
| 1989 | 262.0 | 11.1 | 273.1 | 238.8 | 139.6 |
| 1990 | 287.1 | 14.9 | 302.1 | 259.1 | 182.6 |
| 1991 | 307.8 | 19.6 | 327.5 | 282.0 | 228.0 |
| 1992 | 322.1 | 23.7 | 345.8 | 305.3 | 268.6 |
| 1993 | 346.7 | 27.6 | 374.3 | 326.7 | 316.1 |
| 1994 | 373.1 | 31.5 | 404.6 | 349.4 | 371.3 |
| 1995 | 400.6 | 35.6 | 436.2 | 373.1 | 434.5 |
| 1996 | 429.3 | 40.0 | 469.2 | 398.2 | 505.6 |
| 1997 | 459.0 | 44.4 | 503.4 | 425.1 | 584.0 |
| 2000 | 557.5 | 58.0 | 615.5 | 510.1 | 872.0 |
| 2005 | 767.3 | 93.4 | 860.7 | 697.3 | 1,559.0 |
| 2010 | 1,042.8 | 153.5 | 1,196.3 | 991.4 | 2,528.9 |
| 2015 | 1,397.1 | 210.1 | 1,607.2 | 1,478.4 | 3,392.2 |
| 2020 | 1,850.6 | 208.1 | 2,058.7 | 2,235.9 | 3,229.3 |
| 2025 | 2,436.3 | 58.2 | 2,494.6 | 3,309.2 | 586.5 |
| 2030 | (*) | (*) | (*) | (*) | (*) |

[1]Total income consists of contributions, income from taxation of benefits, reimbursements from the general fund of the Treasury for the costs associated with special monthly payments to certain uninsured persons who attained age 72 before 1968 and also have fewer than 3 quarters of coverage, and interest income.

[2]Total outgo consists of benefit payments, administrative expenses, net transfers from the OASI and DI Trust Funds to the Railroad Retirement program under the financial-interchange provisions, payments for vocational rehabilitation services for disabled beneficiaries, and special monthly payments to certain uninsured persons who either attained age 72 before 1968 or who attained age 72 after 1967 and have at least 3 quarters of coverage for each year after 1966 and before the year of attainment of age 72.

[3]The combined OASI and DI Trust Funds are estimated to be exhausted in 2048, under alternative II-B, and in 2026, under alternative III.

Table G2 shows these economic variables or functions thereof. The form of these tables is similar to that of the tables on trust fund operations, in order to facilitate constant-dollar calculations that may be of interest to economists and financial analysts. It is left to the individual analyst to decide which index to use to accomplish his or her particular purpose.

TABLE G2.—SELECTED ECONOMIC VARIABLES BY ALTERNATIVE, CALENDAR YEARS 1988-2065
[GNP and taxable payroll in billions]

| Calendar year | Adjusted CPI[1] | SSA average wage index[2] | Taxable payroll[3] | Gross national product | Compound interest-rate factor[4] |
|---|---|---|---|---|---|
| Alternative I: | | | | | |
| 1988 | 100.00 | $18,835 | $2,066 | $4,780 | 1.0000 |
| 1989 | 103.20 | 19,849 | 2,225 | 5,112 | 1.0857 |
| 1990 | 106.32 | 20,925 | 2,369 | 5,470 | 1.1721 |
| 1991 | 109.18 | 21,978 | 2,526 | 5,824 | 1.2573 |
| 1992 | 111.57 | 22,971 | 2,676 | 6,161 | 1.3388 |
| 1993 | 113.79 | 23,958 | 2,826 | 6,504 | 1.4143 |
| 1994 | 116.07 | 24,972 | 2,979 | 6,850 | 1.4845 |
| 1995 | 118.39 | 26,009 | 3,132 | 7,200 | 1.5559 |
| 1996 | 120.76 | 27,085 | 3,291 | 7,568 | 1.6327 |
| 1997 | 123.17 | 28,213 | 3,457 | 7,954 | 1.7152 |
| 2000 | 130.71 | 32,104 | 4,041 | 9,275 | 1.9890 |
| 2005 | 144.32 | 39,816 | 5,207 | 11,907 | 2.5457 |
| 2010 | 159.34 | 49,381 | 6,633 | 15,133 | 3.2584 |
| 2015 | 175.92 | 61,244 | 8,367 | 19,065 | 4.1705 |
| 2020 | 194.23 | 75,957 | 10,482 | 23,887 | 5.3379 |
| 2025 | 214.45 | 94,204 | 13,146 | 29,960 | 6.8322 |
| 2030 | 236.77 | 116,835 | 16,594 | 37,820 | 8.7448 |
| 2035 | 261.41 | 144,902 | 21,045 | 47,968 | 11.1927 |
| 2040 | 288.62 | 179,712 | 26,701 | 60,862 | 14.3259 |
| 2045 | 318.66 | 222,884 | 33,863 | 77,188 | 18.3362 |
| 2050 | 351.83 | 276,428 | 42,976 | 97,963 | 23.4690 |
| 2055 | 388.44 | 342,834 | 54,642 | 124,558 | 30.0388 |
| 2060 | 428.87 | 425,193 | 69,561 | 158,568 | 38.4476 |
| 2065 | 473.51 | 527,338 | 88,525 | 201,800 | 49.2103 |

TABLE G2.—SELECTED ECONOMIC VARIABLES BY ALTERNATIVE, CALENDAR YEARS 1988-2065 (Cont.)
[GNP and taxable payroll in billions]

| Calendar year | Adjusted CPI[1] | SSA average wage index[2] | Taxable payroll[3] | Gross national product | Compound interest-rate factor[4] |
|---|---|---|---|---|---|
| Alternative II-A: | | | | | |
| 1988 | 100.00 | $18,664 | $2,079 | $4,759 | 1.0000 |
| 1989 | 103.94 | 19,684 | 2,214 | 5,087 | 1.0896 |
| 1990 | 107.73 | 20,757 | 2,356 | 5,444 | 1.1828 |
| 1991 | 111.16 | 21,813 | 2,513 | 5,796 | 1.2768 |
| 1992 | 114.50 | 22,886 | 2,670 | 6,153 | 1.3681 |
| 1993 | 117.93 | 23,984 | 2,826 | 6,515 | 1.4567 |
| 1994 | 121.47 | 25,143 | 2,990 | 6,895 | 1.5437 |
| 1995 | 125.11 | 26,343 | 3,162 | 7,291 | 1.6324 |
| 1996 | 128.86 | 27,595 | 3,342 | 7,709 | 1.7255 |
| 1997 | 132.73 | 28,916 | 3,531 | 8,151 | 1.8240 |
| 2000 | 145.04 | 33,378 | 4,171 | 9,628 | 2.1463 |
| 2005 | 168.14 | 42,397 | 5,472 | 12,641 | 2.8152 |
| 2010 | 194.92 | 53,853 | 7,095 | 16,432 | 3.6924 |
| 2015 | 225.96 | 68,405 | 9,085 | 21,117 | 4.8430 |
| 2020 | 261.95 | 86,890 | 11,517 | 26,899 | 6.3522 |
| 2025 | 303.67 | 110,368 | 14,569 | 34,195 | 8.3316 |
| 2030 | 352.04 | 140,192 | 18,492 | 43,613 | 10.9278 |
| 2035 | 408.11 | 178,074 | 23,545 | 55,800 | 14.3330 |
| 2040 | 473.11 | 226,192 | 29,951 | 71,326 | 18.7994 |
| 2045 | 548.47 | 287,313 | 38,019 | 90,980 | 24.6575 |
| 2050 | 635.83 | 364,949 | 48,207 | 115,915 | 32.3410 |
| 2055 | 737.10 | 463,564 | 61,196 | 147,861 | 42.4189 |
| 2060 | 854.50 | 588,626 | 77,789 | 188,858 | 55.6371 |
| 2065 | 990.60 | 747,936 | 98,893 | 241,255 | 72.9744 |
| Alternative II-B: | | | | | |
| 1988 | 100.00 | 18,611 | 2,072 | 4,736 | 1.0000 |
| 1989 | 104.52 | 19,607 | 2,199 | 5,048 | 1.0928 |
| 1990 | 109.06 | 20,638 | 2,333 | 5,382 | 1.1922 |
| 1991 | 113.61 | 21,736 | 2,488 | 5,734 | 1.2966 |
| 1992 | 118.20 | 22,944 | 2,654 | 6,123 | 1.3996 |
| 1993 | 122.92 | 24,208 | 2,830 | 6,532 | 1.5052 |
| 1994 | 127.84 | 25,530 | 3,015 | 6,954 | 1.6111 |
| 1995 | 132.95 | 26,914 | 3,207 | 7,399 | 1.7193 |
| 1996 | 138.27 | 28,368 | 3,413 | 7,873 | 1.8314 |
| 1997 | 143.80 | 29,901 | 3,630 | 8,376 | 1.9467 |
| 2000 | 161.76 | 35,011 | 4,339 | 10,048 | 2.3238 |
| 2005 | 196.80 | 45,541 | 5,824 | 13,563 | 3.1215 |
| 2010 | 239.44 | 59,239 | 7,736 | 18,147 | 4.1930 |
| 2015 | 291.31 | 77,057 | 10,149 | 24,006 | 5.6324 |
| 2020 | 354.43 | 100,234 | 13,177 | 31,473 | 7.5659 |
| 2025 | 431.22 | 130,382 | 17,074 | 41,178 | 10.1631 |
| 2030 | 524.64 | 169,598 | 22,195 | 54,048 | 13.6520 |
| 2035 | 638.30 | 220,609 | 28,946 | 71,169 | 18.3385 |
| 2040 | 776.59 | 286,963 | 37,713 | 93,621 | 24.6338 |
| 2045 | 944.85 | 373,275 | 49,035 | 122,907 | 33.0901 |
| 2050 | 1,149.55 | 485,548 | 63,691 | 161,184 | 44.4494 |
| 2055 | 1,398.60 | 631,590 | 82,806 | 211,584 | 59.7081 |
| 2060 | 1,701.61 | 821,558 | 107,817 | 278,154 | 80.2049 |
| 2065 | 2,070.27 | 1068,664 | 140,396 | 365,702 | 107.7379 |

TABLE G2.—SELECTED ECONOMIC VARIABLES BY ALTERNATIVE, CALENDAR YEARS 1988-2065 (Cont.)
[GNP and taxable payroll in billions]

| Calendar year | Adjusted CPI[1] | SSA average wage index[2] | Taxable payroll[3] | Gross national product | Compound interest-rate factor[4] |
|---|---|---|---|---|---|
| Alternative III: | | | | | |
| 1988 | 100.00 | $18,315 | $2,042 | $4,632 | 1.0000 |
| 1989 | 105.89 | 19,331 | 2,136 | 4,901 | 1.0995 |
| 1990 | 112.70 | 20,553 | 2,282 | 5,287 | 1.2154 |
| 1991 | 119.78 | 21,752 | 2,448 | 5,652 | 1.3462 |
| 1992 | 125.73 | 22,756 | 2,558 | 5,891 | 1.4804 |
| 1993 | 132.36 | 24,273 | 2,757 | 6,397 | 1.6148 |
| 1994 | 138.98 | 25,688 | 2,963 | 6,878 | 1.7468 |
| 1995 | 145.93 | 27,202 | 3,183 | 7,372 | 1.8827 |
| 1996 | 153.23 | 28,799 | 3,408 | 7,891 | 2.0211 |
| 1997 | 160.89 | 30,489 | 3,646 | 8,439 | 2.1613 |
| 2000 | 186.25 | 36,210 | 4,404 | 10,254 | 2.6163 |
| 2005 | 237.71 | 48,229 | 6,018 | 14,154 | 3.5972 |
| 2010 | 303.38 | 64,237 | 8,133 | 19,359 | 4.9458 |
| 2015 | 387.20 | 85,559 | 10,823 | 26,102 | 6.8001 |
| 2020 | 494.17 | 113,958 | 14,213 | 34,778 | 9.3495 |
| 2025 | 630.70 | 151,784 | 18,556 | 46,063 | 12.8548 |
| 2030 | 804.96 | 202,165 | 24,211 | 60,974 | 17.6743 |
| 2035 | 1,027.35 | 269,268 | 31,628 | 80,810 | 24.3007 |
| 2040 | 1,311.19 | 358,645 | 41,213 | 106,826 | 33.4115 |
| 2045 | 1,673.45 | 477,689 | 53,453 | 140,563 | 45.9381 |
| 2050 | 2,135.79 | 636,246 | 69,098 | 184,334 | 63.1611 |
| 2055 | 2,725.87 | 847,432 | 89,281 | 241,630 | 86.8413 |
| 2060 | 3,478.97 | 1128,716 | 115,520 | 317,170 | 119.3996 |
| 2065 | 4,440.15 | 1503,365 | 149,556 | 416,566 | 164.1647 |

[1]The CPI used to adjust OASDI benefits is the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W), as defined by the Bureau of Labor Statistics, Department of Labor. The values shown are adjusted by dividing the average of the 12 monthly values of the CPI by the analogous value for 1988, and multiplying the result by 100, thereby initializing the CPI at 100 for 1988.

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

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

[4]The compound interest-rate factor is based on the average of the assumed annual interest rates for special public-debt obligations issuable to the trust funds in the 12 months of the year, under each alternative. Each can be used to convert dollar values between July 1, 1988, and July 1 of the year shown.

The following table shows the tax income and outgo estimated based on the four alternatives for the OASDI, HI, and combined OASDI and HI programs. These items are defined in the footnotes to the table.

TABLE G3.—ESTIMATED OASDI, HI, AND COMBINED OASDI AND HI TAX INCOME AND OUTGO BY ALTERNATIVE, CALENDAR YEARS 1988-2060
[In billions]

| Calendar year | OASDI | | HI | | OASDI and HI | |
|---|---|---|---|---|---|---|
| | Tax income[1] | Outgo[2] | Tax income[3] | Outgo[4] | Tax income | Outgo |
| Alternative I: | | | | | | |
| 1988 | $256.0 | $221.9 | $62.8 | $54.1 | $318.8 | $276.0 |
| 1989 | 272.7 | 233.6 | 67.0 | 58.0 | 339.6 | 291.6 |
| 1990 | 296.8 | 246.5 | 71.3 | 63.7 | 368.1 | 310.3 |
| 1991 | 317.0 | 259.2 | 76.0 | 68.9 | 393.0 | 328.0 |
| 1992 | 336.0 | 270.9 | 80.5 | 73.7 | 416.5 | 344.6 |
| 1993 | 355.0 | 281.9 | 85.0 | 78.6 | 440.0 | 360.4 |
| 1994 | 374.3 | 292.9 | 89.6 | 83.5 | 463.9 | 376.3 |
| 1995 | 393.5 | 304.3 | 94.2 | 88.4 | 487.7 | 392.7 |
| 1996 | 413.7 | 316.2 | 98.9 | 93.3 | 512.7 | 409.5 |
| 1997 | 434.3 | 328.8 | 103.9 | 98.3 | 538.2 | 427.1 |
| 2000 | 509.1 | 370.6 | 121.5 | 115.3 | 630.7 | 485.9 |
| 2005 | 658.9 | 461.3 | 156.9 | 146.4 | 815.8 | 607.7 |
| 2010 | 842.2 | 605.3 | 200.6 | 184.6 | 1,042.8 | 789.9 |
| 2015 | 1,067.1 | 840.4 | 253.3 | 232.9 | 1,320.4 | 1,073.4 |
| 2020 | 1,344.1 | 1,179.8 | 317.3 | 304.1 | 1,661.4 | 1,483.9 |
| 2025 | 1,693.0 | 1,604.3 | 397.9 | 408.6 | 2,090.9 | 2,012.9 |
| 2030 | 2,142.3 | 2,094.5 | 502.2 | 549.0 | 2,644.5 | 2,643.5 |
| 2035 | 2,718.4 | 2,638.5 | 636.9 | 726.8 | 3,355.3 | 3,365.2 |
| 2040 | 3,446.4 | 3,248.7 | 808.1 | 947.4 | 4,254.5 | 4,196.1 |
| 2045 | 4,367.9 | 4,022.3 | 1,024.9 | 1,217.1 | 5,392.7 | 5,239.4 |
| 2050 | 5,542.5 | 5,051.0 | 1,300.7 | 1,561.2 | 6,843.2 | 6,612.3 |
| 2055 | 7,047.2 | 6,387.9 | 1,653.7 | 2,007.3 | 8,701.0 | 8,395.2 |
| 2060 | 8,970.3 | 8,070.4 | 2,105.3 | 2,584.4 | 11,075.5 | 10,654.8 |
| Alternative II-A: | | | | | | |
| 1988 | 255.4 | 222.4 | 62.6 | 54.3 | 318.0 | 276.7 |
| 1989 | 271.3 | 235.0 | 66.6 | 58.8 | 338.0 | 293.9 |
| 1990 | 295.6 | 250.1 | 70.9 | 65.5 | 366.5 | 315.6 |
| 1991 | 315.5 | 264.8 | 75.6 | 71.7 | 391.1 | 336.5 |
| 1992 | 335.3 | 278.4 | 80.3 | 78.0 | 415.6 | 356.4 |
| 1993 | 355.2 | 292.5 | 85.0 | 84.7 | 440.2 | 377.2 |
| 1994 | 375.8 | 307.1 | 89.9 | 91.8 | 465.7 | 398.9 |
| 1995 | 397.4 | 322.4 | 95.0 | 99.3 | 492.4 | 421.6 |
| 1996 | 420.3 | 338.4 | 100.4 | 107.2 | 520.7 | 445.6 |
| 1997 | 443.8 | 355.4 | 106.1 | 115.3 | 549.9 | 470.7 |
| 2000 | 526.3 | 411.0 | 125.3 | 143.2 | 651.7 | 554.2 |
| 2005 | 694.1 | 531.2 | 164.7 | 200.3 | 858.8 | 731.4 |
| 2010 | 903.8 | 718.5 | 214.3 | 278.6 | 1,118.1 | 997.1 |
| 2015 | 1,163.5 | 1,023.2 | 274.7 | 390.1 | 1,438.2 | 1,413.3 |
| 2020 | 1,484.6 | 1,472.9 | 348.2 | 558.9 | 1,832.8 | 2,031.8 |
| 2025 | 1,889.0 | 2,060.8 | 440.5 | 803.6 | 2,329.4 | 2,864.4 |
| 2030 | 2,407.2 | 2,772.8 | 559.0 | 1,128.5 | 2,966.2 | 3,901.3 |
| 2035 | 3,070.9 | 3,601.8 | 711.8 | 1,525.7 | 3,782.7 | 5,127.5 |
| 2040 | 3,908.0 | 4,566.9 | 905.5 | 1,997.3 | 4,813.4 | 6,564.2 |
| 2045 | 4,962.7 | 5,800.5 | 1,149.4 | 2,568.3 | 6,112.1 | 8,368.8 |
| 2050 | 6,298.7 | 7,445.0 | 1,457.3 | 3,293.1 | 7,756.0 | 10,738.1 |
| 2055 | 8,004.5 | 9,585.8 | 1,850.0 | 4,227.0 | 9,854.5 | 13,812.8 |
| 2060 | 10,181.7 | 12,280.1 | 2,351.6 | 5,435.5 | 12,533.3 | 17,715.6 |
| Alternative II-B: | | | | | | |
| 1988 | 254.7 | 222.4 | 62.4 | 54.3 | 317.1 | 276.7 |
| 1989 | 269.6 | 235.9 | 66.2 | 58.9 | 335.8 | 294.8 |
| 1990 | 293.2 | 252.2 | 70.2 | 65.7 | 363.5 | 317.9 |
| 1991 | 312.4 | 268.6 | 74.8 | 72.3 | 387.2 | 340.9 |
| 1992 | 333.4 | 285.2 | 79.8 | 79.2 | 413.3 | 364.4 |
| 1993 | 355.7 | 302.2 | 85.1 | 86.7 | 440.8 | 388.8 |
| 1994 | 379.0 | 319.8 | 90.6 | 94.7 | 469.6 | 414.5 |
| 1995 | 403.2 | 338.3 | 96.4 | 103.2 | 499.5 | 441.5 |
| 1996 | 429.2 | 357.8 | 102.5 | 112.3 | 531.8 | 470.1 |
| 1997 | 456.3 | 378.6 | 109.0 | 121.6 | 565.4 | 500.2 |
| 2000 | 547.9 | 446.8 | 130.5 | 154.1 | 678.4 | 600.9 |
| 2005 | 739.9 | 595.1 | 175.5 | 222.4 | 915.4 | 817.6 |
| 2010 | 987.4 | 825.8 | 233.9 | 319.3 | 1,221.3 | 1,145.1 |
| 2015 | 1,302.6 | 1,203.7 | 306.8 | 458.7 | 1,609.4 | 1,662.4 |
| 2020 | 1,703.0 | 1,775.4 | 398.3 | 673.0 | 2,101.3 | 2,448.4 |
| 2025 | 2,220.3 | 2,549.4 | 516.1 | 991.2 | 2,736.3 | 3,540.6 |
| 2030 | 2,898.7 | 3,524.5 | 670.8 | 1,424.9 | 3,569.5 | 4,949.4 |
| 2035 | 3,788.2 | 4,703.2 | 874.8 | 1,972.6 | 4,663.0 | 6,675.7 |
| 2040 | 4,937.8 | 6,121.7 | 1,139.8 | 2,643.9 | 8,077.6 | 8,765.6 |
| 2045 | 6,422.5 | 7,966.8 | 1,481.9 | 3,481.5 | 7,904.4 | 11,448.3 |
| 2050 | 8,349.7 | 10,465.0 | 1,924.8 | 4,571.1 | 10,274.5 | 15,036.1 |
| 2055 | 10,867.1 | 13,797.0 | 2,502.5 | 6,008.5 | 13,369.6 | 19,805.5 |
| 2060 | 14,159.3 | 18,109.0 | 3,258.3 | 7,913.1 | 17,417.6 | 26,022.2 |

TABLE G3.—ESTIMATED OASDI, HI, AND COMBINED OASDI AND HI TAX INCOME AND OUTGO BY ALTERNATIVE, CALENDAR YEARS 1988-2060 (Cont.)

[In billions]

| Calendar year | OASDI | | HI | | OASDI and HI | |
|---|---|---|---|---|---|---|
| | Tax income[1] | Outgo[2] | Tax income[3] | Outgo[4] | Tax income | Outgo |
| Alternative III: | | | | | | |
| 1988 | $251.5 | $223.1 | $61.5 | $54.2 | $313.1 | $277.3 |
| 1989 | 262.0 | 238.8 | 64.3 | 59.3 | 326.3 | 298.2 |
| 1990 | 287.1 | 259.1 | 68.7 | 67.6 | 355.8 | 326.7 |
| 1991 | 307.8 | 282.0 | 73.7 | 75.8 | 381.4 | 357.8 |
| 1992 | 322.1 | 305.3 | 77.0 | 83.8 | 399.1 | 389.1 |
| 1993 | 346.7 | 326.7 | 82.9 | 93.8 | 429.6 | 420.5 |
| 1994 | 373.1 | 349.4 | 89.0 | 105.2 | 462.1 | 454.6 |
| 1995 | 400.6 | 373.1 | 95.6 | 117.6 | 496.2 | 490.7 |
| 1996 | 429.3 | 398.2 | 102.3 | 131.0 | 531.6 | 529.1 |
| 1997 | 459.0 | 425.1 | 109.4 | 145.2 | 568.4 | 570.3 |
| 2000 | 557.5 | 510.1 | 132.2 | 196.2 | 689.7 | 706.3 |
| 2005 | 767.3 | 697.3 | 180.8 | 315.8 | 948.1 | 1,013.1 |
| 2010 | 1,042.8 | 991.4 | 245.1 | 505.2 | 1,288.0 | 1,496.5 |
| 2015 | 1,397.1 | 1,478.4 | 326.9 | 809.9 | 1,724.0 | 2,288.3 |
| 2020 | 1,850.6 | 2,235.9 | 429.2 | 1,301.3 | 2,279.8 | 3,537.2 |
| 2025 | 2,436.3 | 3,309.2 | 560.3 | 2,047.2 | 2,996.6 | 5,356.5 |
| 2030 | 3,201.5 | 4,736.3 | 731.0 | 3,068.1 | 3,932.5 | 7,804.4 |
| 2035 | 4,202.8 | 6,551.8 | 954.9 | 4,327.2 | 5,157.7 | 10,879.0 |
| 2040 | 5,493.7 | 8,843.0 | 1,244.2 | 5,806.4 | 6,737.9 | 14,649.4 |
| 2045 | 7,146.7 | 11,884.5 | 1,613.7 | 7,627.0 | 8,760.4 | 19,511.5 |
| 2050 | 9,273.2 | 16,049.7 | 2,085.9 | 9,965.6 | 11,359.1 | 26,015.3 |
| 2055 | 12,029.0 | 21,651.8 | 2,695.1 | 13,018.5 | 14,724.1 | 34,670.3 |
| 2060 | 15,612.5 | 28,942.0 | 3,487.1 | 17,037.6 | 19,099.7 | 45,979.6 |

[1]OASDI tax income consists of net OASDI contributions and income from taxation of benefits, on a cash basis.

[2]OASDI outgo consists of benefit payments, administrative expenses, net transfers from the OASI and DI Trust Funds to the Railroad Retirement program under the financial-interchange provisions, payments for vocational rehabilitation services for disabled beneficiaries, and special monthly payments to certain uninsured persons who either attained age 72 before 1968 or who attained age 72 after 1967 and have at least 3 quarters of coverage for each year after 1966 and before the year of attainment of age 72. The OASDI outgo is on a cash basis.

[3]HI tax income consists of HI contributions (including contributions from railroad employment) and payments from the general fund of the Treasury for contributions on deemed wage credits for military service. The HI income is on an incurred basis.

[4]HI outgo consists of HI outlays for insured beneficiaries and administrative expenses. The HI outgo is on an incurred basis.

## APPENDIX H.—STATEMENT OF ACTUARIAL OPINION

It is my opinion that (1) the techniques and methodology used herein to evaluate the financial and actuarial status of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds are generally accepted within the actuarial profession; and (2) the assumptions used and the resulting actuarial estimates are, in the aggregate, reasonable for the purpose of evaluating the financial and actuarial status of the trust funds, taking into consideration the experience and expectations of the program.

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