

## Required Supplementary Stewardship Information: Social Insurance

### Statement of Social Insurance Old-Age, Survivors and Disability Insurance 75-Year Projection as of January 1, 2001 (In billions)

	<u>2001</u>	<u>Estimates from Prior Years</u>			
		<u>2000</u>	<u>1999</u>	<u>1998</u>	<u>1997</u>
<i>Actuarial present value<sup>1</sup> for the 75-year projection period of estimated future income (excluding interest)<sup>2</sup> received from or on behalf of:</i>					
Current participants <sup>3</sup> who, at the start of projection period:					
Have not yet attained retirement eligibility age (Ages 15-61)	\$12,349	\$11,335	\$10,325	\$9,482	\$8,760
Have attained retirement eligibility age (Age 62 and over)	309	266	235	204	186
Those expected to become participants (Under Age 15) <sup>4</sup>	11,035	10,088	9,033	8,727	8,181
All participants	23,693	21,688	19,593	18,413	17,127
<i>Actuarial present value<sup>1</sup> for the 75-year projection period of estimated future expenditures<sup>5</sup> paid to or on behalf of:</i>					
Current participants <sup>3</sup> who, at the start of projection period:					
Have not yet attained retirement eligibility age (Ages 15-61)	18,944	17,217	15,676	14,605	13,405
Have attained retirement eligibility age (Age 62 and over)	4,255	4,020	3,856	3,659	3,518
Those expected to become participants (Under Age 15) <sup>4</sup>	4,700	4,297	3,758	3,719	3,539
All participants	27,899	25,534	23,291	21,983	20,462
<i>Actuarial present value<sup>1</sup> for the 75-year projection period of estimated future excess of income (excluding interest) over expenditures</i>	-\$4,207	-\$3,845	-\$3,698	-\$3,570	-\$3,335
<i>Trust fund assets<sup>6</sup> at start of period</i>	1,049	896	763	656	567
<i>Actuarial present value<sup>1</sup> for the 75-year projection period of estimated future excess<sup>7</sup> of income (excluding interest) and Trust fund assets at start of period over expenditures</i>	-\$3,157	-\$2,949	-\$2,935	-\$2,914	-\$2,768

## Footnotes to the Statement of Social Insurance

- <sup>1</sup>Present values are computed on the basis of the intermediate economic and demographic assumptions specified in the Report of the Board of Trustees for the year shown and over the 75-year projection period beginning January 1 of that year. Totals do not necessarily equal the sum of the rounded components.
- <sup>2</sup>Income (excluding interest) consists of payroll taxes from employers, employees, and self-employed persons; revenue from Federal income-taxation of OASDI benefits; and miscellaneous reimbursements from the General Fund of the Treasury.
- <sup>3</sup>Current participants are the “closed group” of individuals age 15 and over at the start of the period. To calculate the actuarial present value of the excess of future income (excluding interest) from or on behalf of these individuals over future expenditures for them or on their behalf, subtract the actuarial present value of future expenditures for them or on their behalf from the actuarial present value of future income (excluding interest) from them or on their behalf. The projection period for the closed group would theoretically include all future working and retirement years, a period which may exceed 75 years in some instances. While the estimates are limited to the 75-year projection period, the present value of future income and expenditures for the closed group participants beyond 75 years is not material.
- <sup>4</sup>Includes births during the period.
- <sup>5</sup>Expenditures include benefit payments, administrative expenses, net transfers with the Railroad Retirement program, and vocational rehabilitation expenses for disabled beneficiaries.
- <sup>6</sup>Trust fund assets represent the accumulated excess of all past income, including interest on trust fund assets, over all past expenditures for the social insurance program. The assets are invested only in securities backed by the full faith and credit of the Federal Government.
- <sup>7</sup>If this excess is positive, it represents the estimated trust fund assets (expressed in present value dollars) at the end of the 75-year projection period; if negative, the absolute value of the excess represents the magnitude of the unfunded obligation of the program over the 75-year projection period. The calculation of the actuarial balance used for analysis by the Social Security trustees differs from the calculation of the amount presented on this line. The trustees’ actuarial balance is expressed as a percentage of the taxable payroll and includes the cost of attaining a target fund balance equal to the estimated next year’s expenditures at the end of the period.

## Program Description

The Old-Age, Survivors, and Disability Insurance (OASDI) program, collectively referred to as “Social Security,” provides cash benefits for eligible U.S. citizens and residents. At the end of calendar year 2000, OASDI benefits were paid to approximately 45 million beneficiaries. Eligibility and benefit amounts are determined under the laws applicable for the period. Current law provides that the amount of the monthly benefit payments for workers, or their eligible dependents or survivors, is based on the workers’ lifetime earnings histories.

The OASDI program has been described as an income transfer program--that is, a program to reduce economic disparity by redistributing income among households. The program transfers income in at least two ways. First, because the program is financed largely on a pay-as-you-go basis--that is, OASDI payroll taxes paid each year by current workers are primarily used to pay the benefits provided during that year to current beneficiaries--the program transfers income generally from younger to older people. Second, because the retired-worker benefits it pays replace a larger proportion of earned income for lower earners than for higher earners, income is transferred among workers with different earnings levels, even if they are of the same age. The amount of OASDI income and benefits may be altered by changes in laws governing the program.

## Program Finances and Sustainability

As discussed in Note 8 to the consolidated financial statements, a liability of \$42 billion as of September 30, 2001 is included in “Benefits Due and Payable” on the balance sheet for unpaid amounts of OASDI benefits due to recipients on or before that date (\$38 billion as of September 30, 2000, as presented in last year’s report). Virtually all of this amount was paid in October 2001. Also, an asset of \$1,170 billion is recognized for the “investments in Treasury securities” as of September 30, 2001 (\$1,007 billion as of September 30, 2000). These investments are referred to as “trust fund assets” or “balance” throughout the remainder of this disclosure. They represent the accumulated excess for the OASDI program of all past income, including interest, over all past expenditures. They are invested only in securities backed by the full faith and credit of the Federal government.

No liability has been recognized on the balance sheet for future payments to be made to current and future program participants beyond the unpaid amounts as of September 30, 2001. This is because OASDI is accounted for as a social insurance program rather than as a pension program. Accounting for a social insurance program recognizes the expense of benefits when they are actually paid, or are due to be paid, because benefit payments are primarily nonexchange transactions and are not considered deferred compensation, as would employer-sponsored pension benefits for employees. Accrual accounting for a pension program, by contrast, recognizes retirement benefit expenses as they are earned so that the full estimated actuarial present value of the worker’s expected retirement benefits has been recognized by the time the worker retires.

*Supplementary Stewardship Information* - While no liability has been recognized on the balance sheet for future payments beyond those due at the reporting date, actuarial estimates are made of the long-range financial condition of the OASDI program and are presented here. Throughout this section, the following terms will generally be used as indicated:

- **income:** payroll taxes from employers, employees, and self-employed persons; revenue from Federal income-taxation of OASDI benefits; interest income from Treasury securities held as assets of the trust funds; and miscellaneous reimbursements from the General Fund of the Treasury;

- **income excluding interest:** income, as defined above, excluding the interest income from Treasury securities held as assets of the trust funds;
- **expenditures:** benefit payments, administrative expenses, net transfers with the Railroad Retirement program, and vocational rehabilitation expenses for disabled beneficiaries;
- **cashflow:** either income excluding interest, or expenditures, depending on the context, expressed in nominal dollars;
- **net cashflow:** income excluding interest less expenditures, expressed in nominal dollars.

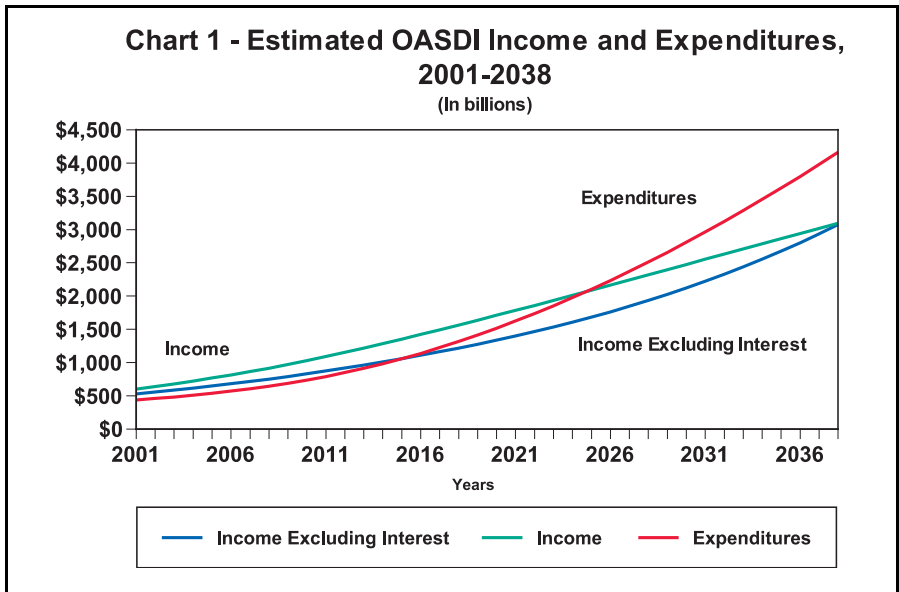
All estimates in this section are based on the intermediate assumptions in the 2001 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds (2001 Trustees Report) (see Table 7). The statement presented on page 91 and the supplementary stewardship information below are derived from estimates of future income and expenditures based on these assumptions and on the current Social Security Act, including future changes previously enacted. This information includes:

- (1) actuarial present values of future estimated expenditures for, and estimated income (excluding interest) from, or on behalf of, current and future program participants;
- (2) estimated annual income excluding interest and expenditures in nominal dollars and as percentages of taxable payroll and GDP;
- (3) the ratio of estimated covered workers to estimated beneficiaries showing the relationship between the program's tax payers and benefit recipients; and
- (4) an analysis of the sensitivity of the projections to changes in selected assumptions, which is included in recognition of the inherent uncertainty noted above.

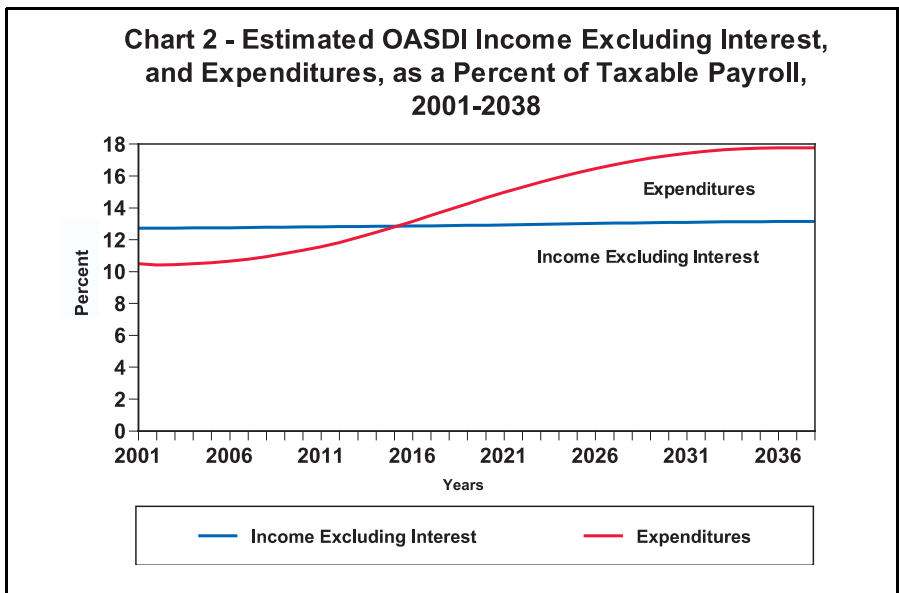
Estimates are generally based on a 75-year projection period but are displayed in the charts through the year in which the OASDI trust funds are projected to become exhausted (2038 for this accountability report). Estimates extending far into the future are inherently uncertain, and uncertainty is greater for the more distant years.

*Cashflow Projections* - Chart 1 shows actuarial estimates of OASDI annual income, income excluding interest, and expenditures for 2001-2038 in nominal dollars. The estimates are for the open-group population, all persons projected to participate in the OASDI program as covered workers or beneficiaries, or both, during that period. Thus, the estimates include payments from, and on behalf of, workers who will enter covered employment during the period as well as those already in covered employment at the beginning of that period. They also include expenditures made to, and on behalf of, such workers during that period.

As chart 1 shows, estimated expenditures start to exceed income (including interest) in 2025. This occurs because of a variety of factors including the retirement of the "baby boom" generation, the relatively small number of people born during the subsequent period of low birth rates, and the projected increases in life expectancy, which increase the average number of years of receiving benefits relative to the average number of years of paying taxes. Estimated expenditures start to exceed income excluding interest even earlier, in 2016. At that time, to meet all OASDI expenditures on a timely basis, the trust funds would begin to redeem assets (Treasury securities). To finance this redemption, the government would have to increase its borrowing from the public, raise taxes (other than OASDI payroll taxes), and/or reduce expenditures (other than OASDI expenditures). (The government, of course, could make this redemption unnecessary by changing the law to increase OASDI taxes and/or reduce OASDI benefits.)



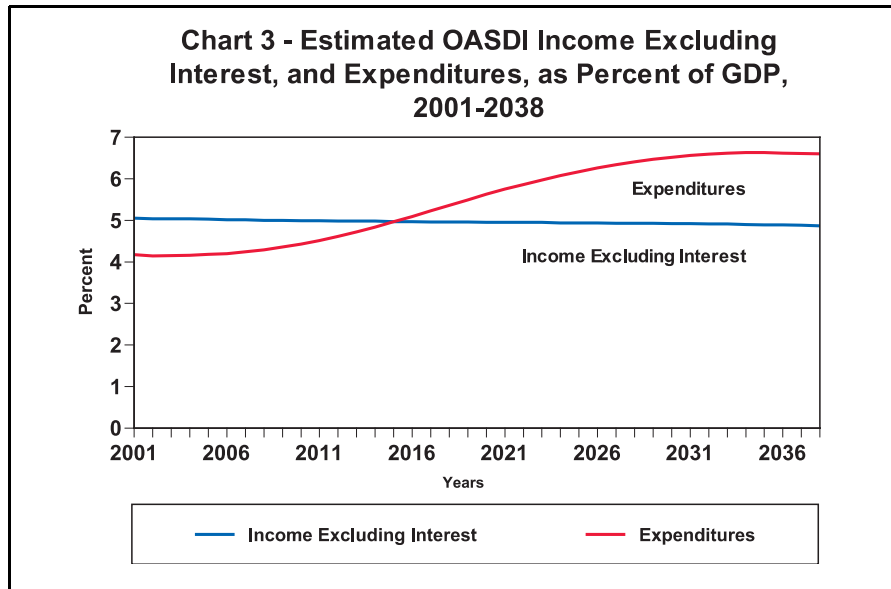
*Percentage of Taxable Payroll* - Chart 2 shows estimated annual income excluding interest and expenditures expressed as percentages of taxable payroll. As presently constructed, the program receives most of its income from the 6.2 percent payroll tax that employees and employers each pay on taxable wages and salaries (for a combined payroll tax rate of 12.4 percent of taxable payroll), and the 12.4 percent that is paid on taxable self-employment income. Because estimated annual income excluding interest consists primarily of payroll taxes, when expressed as a percentage of taxable payroll, it is close in magnitude to the OASDI payroll tax rate. The amount by which the income exceeds the tax rate reflects revenue transferred to the trust funds based on Federal income-taxation of OASDI benefits. When estimated expenditures are compared to income as percentages of taxable payroll, they necessarily reflect a similar pattern as when compared in nominal dollars. Whether expressed in nominal dollars or as percentages of taxable payroll, prior to 2016 estimated annual expenditures are less than estimated annual income, excluding interest, whereas thereafter they are more.



The statement of social insurance on page 91 shows that the present value of the excess of income (excluding interest) over expenditures for the 75-year period is -\$4,207 billion. If augmented by the trust fund assets at the start of the period (January 1, 2001), it is -\$3,157 billion. This excess does not equate to the actuarial balance in the Trustees Report. To reconcile these values, the excess (including the starting trust fund assets) would need to consider the cost of attaining a target Trust Fund balance by the end of the period. The present value of this cost is \$237 billion, which reduces the excess to -\$3,394 billion. This reduced (more negative) excess, when expressed as a percent of taxable payroll, is defined by the Trustees in their annual reports to be the actuarial balance. Thus, the excess of -\$3,394 billion equates to the actuarial balance of -1.86 percent of taxable payroll reported in the 2001 Trustees Report.

One interpretation of this negative actuarial balance (-1.86 percent of taxable payroll) is that it represents the magnitude of the increase in the average combined payroll tax rate for the 75-year period that would result in an actuarial balance of zero. The combined payroll tax rate is 12.4 percent today and is currently scheduled to remain at that level. An increase of 1.86 percentage points in this rate in each year of the 75-year projection period--about 0.93 percentage points for employees and employers each, resulting in a total rate for each of 7.13 percent--is estimated to produce enough income to pay all benefits due under current law for that period. Equivalent benefits reductions, or combinations of both tax increases and benefit reductions, could be made to achieve the same effect. Any accumulation and subsequent redemption of substantial trust fund assets may have economic and public policy implications that go beyond the operation of the OASDI program itself. Discussion of these broader issues is not within the scope of this report.

*Percentage of Gross Domestic Product (GDP)* - Chart 3 shows estimated annual income, excluding interest, and expenditures, expressed as percentages of GDP. Analyzing these cashflows in terms of percentage of the GDP, which represents the total value of goods and services produced in the United States, provides a measure of the size of the OASDI program in relation to the capacity of the national economy to sustain it.



In 2000, OASDI expenditures were about \$415 billion, which was about 4.2 percent of GDP. When the baby boomers will have retired, the cost of the program (based on current law) is estimated to be about 6.6 percent of GDP, which is significantly more than it is today. Nearly

all of the increase between now and 2038 will occur because baby boomers will become eligible for OASDI benefits, while subsequent lower birth rates will result in fewer workers per beneficiary.

*Sensitivity Analysis* - As indicated by the assumptions shown at the end of this section (Table 7), projections of the future financial status of the OASDI program depend on many economic and demographic assumptions, including GDP, labor force, unemployment, average wages and self-employment earnings, interest rates on Treasury securities, 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 level and distribution of wages and earnings. Similarly, the expenditures will depend on how these factors affect the size and composition of the beneficiary population and the general level of benefits. Because perfect long-range projections of these factors are impossible, this section is included to illustrate the sensitivity of the long-range projections to changes in assumptions by analyzing six key assumptions: total fertility rate, death rate, net immigration, real-wage differential, consumer price index, and real interest rate.

For this analysis, the intermediate assumptions in the 2001 Trustees Report are used as the reference point, and each selected assumption is varied individually. All present values are calculated as of January 1, 2001 and are based on estimates of income and expenditures during the 75-year projection period 2001-2075. In this section, for brevity, “income” means “income excluding interest.”

For each assumption analyzed, one table and two charts are presented. The table shows the present value of the estimated excess of OASDI income over expenditures based on each of three selected values of the assumption being analyzed. The middle values provided correspond to the intermediate assumption of the Trustees. The first chart shows estimated annual OASDI net cashflow based on each of those values. The second chart, labeled with the suffix “A,” shows the present value of each net cashflow amount shown in the first chart and is included to facilitate interpreting net cashflow in terms of today’s dollar. Because the calculation of present values is a discounting process, the magnitude of the present value for each year in the second chart is lower than the corresponding net cashflow amount in the first chart--positive values are less positive and negative values are less negative.

*Total Fertility Rate* - Table 1 shows the present value of the estimated excess of OASDI income over expenditures for the 75-year period, using various assumptions about the ultimate total fertility rate<sup>1</sup>. These assumptions are 1.7, 1.95 and 2.2 children per woman, where 1.95 is the intermediate assumption in the 2001 Trustees Report. The total fertility rate is assumed to change gradually from its current level and to reach the selected ultimate value in 2025.

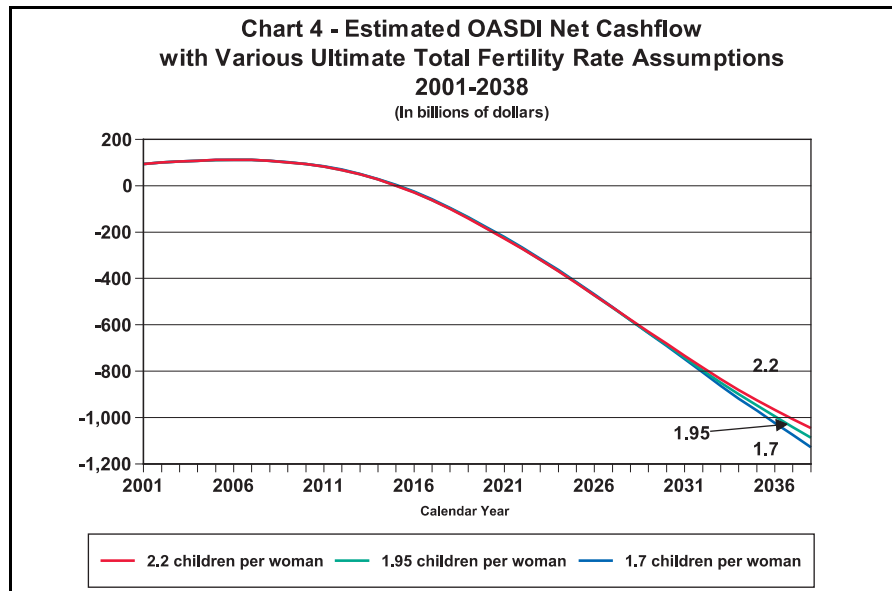
Table 1 demonstrates that, if the ultimate total fertility rate is changed from 1.95 children per woman, the Trustees’ intermediate assumption, to 1.7, the shortfall for the period of estimated OASDI income relative to expenditures would increase to \$4,636 billion, from \$4,207 billion; if the ultimate rate were changed to 2.2, the shortfall would decrease to \$3,737 billion.

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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 childbearing period.

<b>Table 1: Present Value of Estimated Excess of OASDI Income over Expenditures with Various Ultimate Total Fertility Rate Assumptions</b>			
<b>Valuation Period: 2001-2075</b>			
Ultimate Total Fertility Rate	1.7	1.95	2.2
Excess in Present Value Dollars (In billions)	-\$4,636	-\$4,207	-\$3,737

Charts 4 and 4A show estimates using the same total fertility rates used for the estimates in Table 1. Chart 4 shows the estimated annual OASDI net cashflow.

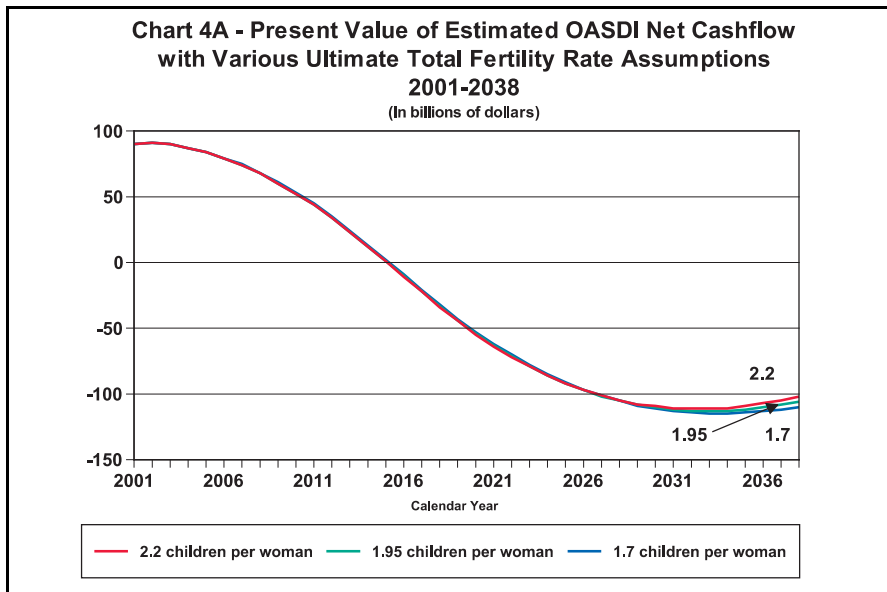


The three patterns of estimated annual OASDI net cashflow shown in Chart 4 are similar. After increasing slightly in the first few years, the net cashflow estimates decrease steadily through 2038. They remain positive through 2015 and are negative thereafter. While the fertility rate would have a substantial effect for the next 75-year period as a whole, it would have only a minor effect for the first 37 years of this period.

Very little difference is discernible among the estimates of annual net cashflow based on the three ultimate total fertility rates throughout this period. In particular, it is difficult to discern from Chart 4 that annual net cashflow based on higher fertility rates is lower in the early years, although higher thereafter. In the early years, more births are assumed to result in fewer women in the labor force and more children receiving OASDI benefits. Thus, in the early years, higher fertility rates result in both reduced payroll taxes and increased benefits and, therefore, lower net cashflow. As the larger birth cohorts age and enter the labor force, however, the effect on payroll taxes gradually changes from a reduction to a net increase. By 2029 and for all years thereafter, increased payroll taxes more than offset increased benefits. Thus, from that year on, annual net cashflow based on higher fertility rates is higher (less negative) than annual net cashflow based on lower fertility rates.



Chart 4A shows the present value of the estimated annual OASDI net cashflow.



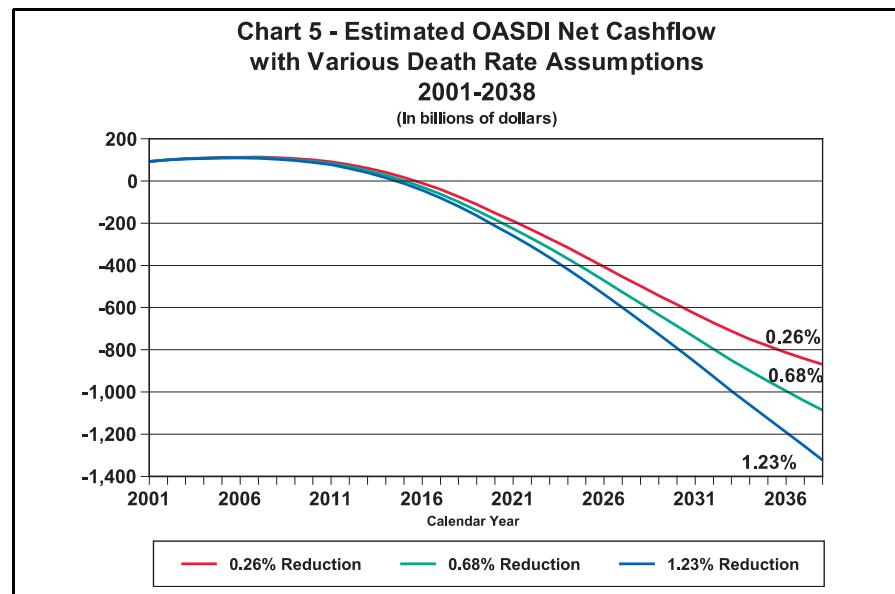
The three patterns of the present values shown in Chart 4A are similar. The present values decrease steadily through the early 2030's. They remain positive through 2015 and are negative thereafter. Present values based on all three ultimate total fertility rates begin to increase (become less negative) in the 2030's (2032 for 2.2 and 2033 for the others). Thus, in terms of today's investment dollar, annual OASDI net cashflow, although still negative, begins to increase (become less negative) at that time. For example, based on all three ultimate total fertility rates, it would take less of an investment today to cover the annual deficit in 2033 than it would to cover the annual deficit in 2032.

*Death Rates* - Table 2 shows the present values of the estimated excess of OASDI income over expenditures for the 75-year period, using various assumptions about future reductions in death rates. The analysis was developed by varying the reduction assumed to occur during 2000-2075 in death rates by age, sex, and cause of death. The reductions assumed for this period, summarized as average annual reductions in the age-sex-adjusted death rate, are 0.26, 0.68 and 1.23 percent per year, where 0.68 percent is the intermediate assumption in the 2001 Trustees Report. (The resulting cumulative decreases in the age-sex-adjusted death rate during the same period are 17, 40 and 60 percent, respectively.)

Table 2 demonstrates that, if the annual reduction in death rates is changed from 0.68 percent, the Trustees' intermediate assumption, to 0.26 percent, meaning that people die younger, the shortfall for the period of estimated OASDI income relative to expenditures would decrease to \$2,980 billion, from \$4,207 billion; if the annual reduction were changed to 1.23 percent, meaning that people live longer, the shortfall would increase to \$5,574 billion.

<b>Table 2: Present Value of Estimated Excess of OASDI Income over Expenditures with Various Death Rate Assumptions</b> Valuation Period: 2001-2075			
Average Annual Reduction in Death Rates (from 2000 to 2075)	0.26 Percent	0.68 Percent	1.23 Percent
Excess in Present Value Dollars (In billions)	-\$2,980	-\$4,207	-\$5,574

Charts 5 and 5A show estimates using the same assumptions about future reductions in death rates used for the estimates in Table 2. Chart 5 shows the estimated annual OASDI net cashflow.

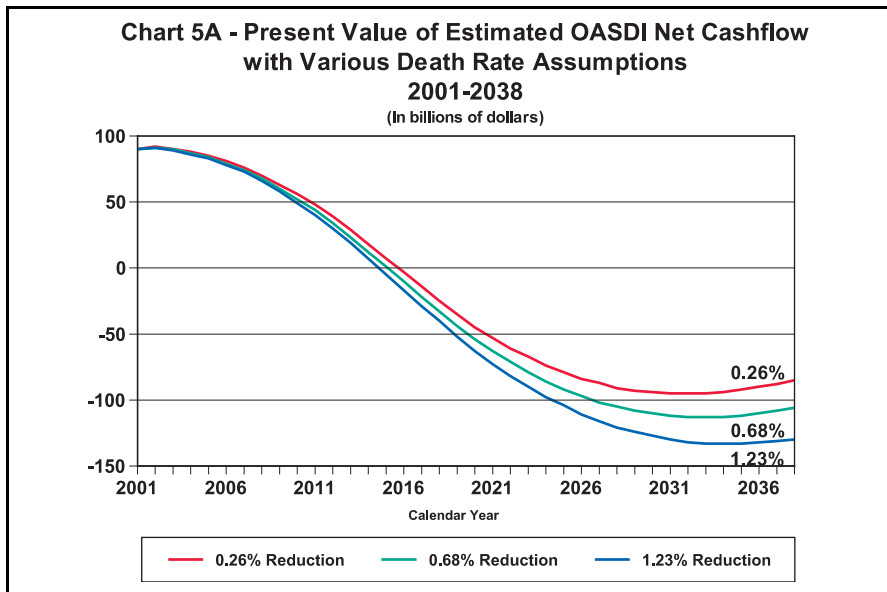


The three patterns of estimated annual OASDI net cashflow shown in Chart 5 are similar. After increasing slightly in the first few years, the net cashflow estimates decrease steadily through 2038. They remain positive through 2014 for an assumed average annual reduction of 1.23 percent and through 2015 for the other assumptions, after which the annual net cashflow estimates are negative. Relatively little difference is discernible in the early years among the estimates of annual net cashflow based on the three assumptions about the reduction in death rates. Thereafter, differences become more apparent. Because annual death rates resulting from the three assumptions diverge steadily with time, resulting estimated annual OASDI net cashflows do so, too.

Although lower death rates result in both higher income and higher expenditures, expenditures increase more than income. For any given year, reductions in death rates at the earliest retirement eligibility age of 62 and older, which are the ages of highest death rates, increase the number of retired-worker beneficiaries (and, therefore, the amount of retirement benefits) without adding significantly to the number of covered workers (and, therefore, the amount of payroll taxes). Although reductions at age 50 to retirement eligibility age add significantly to the number of covered workers, the increased payroll tax income is not large enough to offset the additional retirement and disability benefits resulting from the increased number of people

surviving to age 50 and over. At ages under 50, death rates are so low that even substantial reductions do not result in significant increases in either the number of covered workers or beneficiaries.

Chart 5A shows the present value of the estimated annual OASDI net cashflow.



The three patterns of the present values shown in Chart 5A are similar. After increasing for one year, the present values decrease steadily through the early 2030's. They remain positive through 2014 for an assumed average annual reduction of 1.23 percent and through 2015 for the other assumptions, after which the present values are negative. Present values based on all three assumptions begin to increase (become less negative) in the 2030's (2033, 2034 and 2035 for assumptions of reductions of 0.26, 0.68 and 1.23 percent per year, respectively). Thus, in terms of today's investment dollar, annual OASDI net cashflow, although still negative, begins to increase (become less negative) at that time.

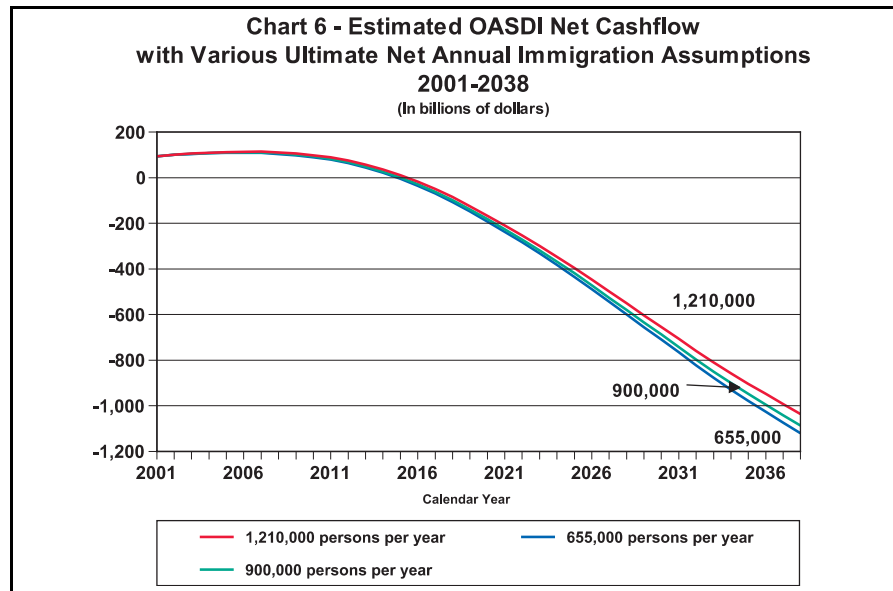
*Net Annual Immigration* - Table 3 shows the present values of the estimated excess of OASDI income over expenditures for the 75-year period, using various assumptions about the magnitude of net annual immigration. These assumptions are that the ultimate net annual immigration (legal and other-than-legal) will be 655,000 persons, 900,000 persons and 1,210,000 persons, where 900,000 persons is the intermediate assumption in the 2001 Trustees Report.

Table 3 demonstrates that, if net annual immigration is changed from 900,000 persons, the Trustees' intermediate assumption, to 655,000 persons, the present value of the shortfall for the period of estimated OASDI income relative to expenditures would increase to \$4,336 billion, from \$4,207 billion. If the net annual immigration were changed to 1,210,000 persons, the present value of the shortfall would decrease to \$3,983 billion.

**Table 3: Present Value of Estimated Excess of OASDI Income over Expenditures with Various Ultimate Net Annual Immigration Assumptions**  
Valuation Period: 2001-2075

Ultimate Net Annual Immigration	655,000 Persons	900,000 Persons	1,210,000 Persons
Excess in Present Value Dollars (In billions)	-\$4,336	-\$4,207	-\$3,983

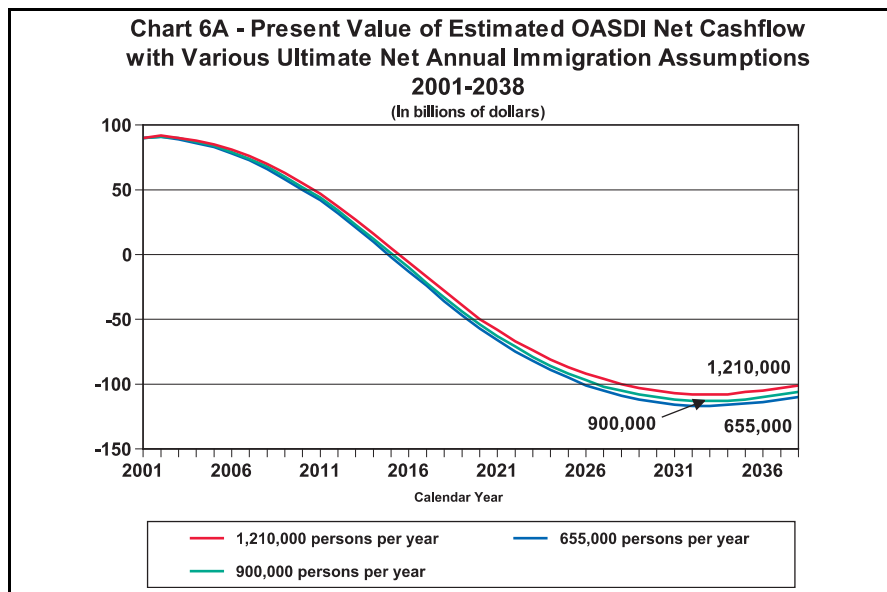
Charts 6 and 6A show estimates using the same assumptions about net annual immigration used for the estimates in Table 3. Chart 6 shows the estimated annual OASDI net cashflow.



The three patterns of estimated annual OASDI net cashflow estimates shown in Chart 6 are similar. After increasing slightly in the first few years, the net cashflow estimates decrease steadily through 2038. They remain positive through 2014 for assumed ultimate net annual immigration of 655,000 persons and through 2015 for the other assumptions, after which the annual net cashflow estimates are negative.

Very little difference is discernible in the early years among the estimates of net annual cashflow based on the three assumptions about net annual immigration. However, as these three levels of net annual immigration accumulate, variations in cashflows become more apparent. Because immigration generally occurs at relatively young adult ages, the effects are similar to those of total fertility rates, except that the ultimate effect occurs earlier. There is no significant effect on beneficiaries (and, therefore, on benefits) in the early years but the effect on workers (and, therefore, on payroll tax income) is immediate. Thus, even in the early years, annual net cashflow, year by year, is higher (less negative in later years) for higher net annual immigration. As more and more of the larger immigration cohorts enter the labor force, the increased payroll taxes that accumulate are only partially offset by subsequent increased benefits. Thus, annual net cashflow based on higher net annual immigration is increasingly higher (less negative) than annual net cashflow based on lower net annual immigration.

Chart 6A shows the present value of the estimated annual OASDI net cashflow.



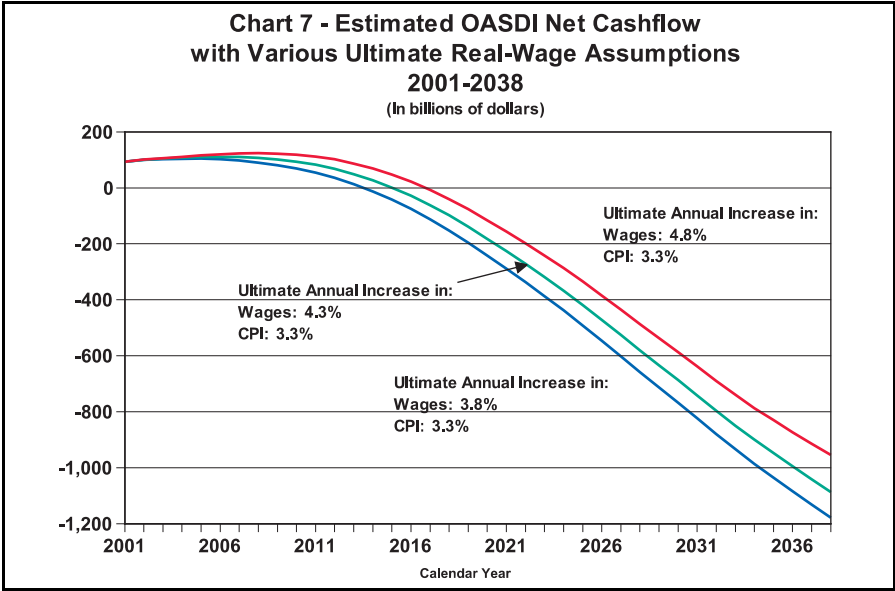
The three patterns of the present values shown in Chart 6A are similar. After increasing for one year, the present values decrease steadily through 2033. They remain positive through 2014 for assumed ultimate net annual immigration of 655,000 persons and through 2015 for the other assumptions, after which the present values are negative. Present values based on all three assumptions about net annual immigration begin to increase (become less negative) in 2034. Thus, in terms of today's investment dollar, annual OASDI net cashflow, although still negative, begins to increase (become less negative) at that time.

*Real-Wage Differential* - The real-wage differential is the difference between the percentage increases in (1) the average annual wage in OASDI covered employment and (2) the average annual Consumer Price Index (CPI). Table 4 shows the present values of the estimated excess of OASDI income over expenditures for the 75-year period, using various assumptions about the ultimate real-wage differential. These assumptions are that the ultimate real-wage differential will be 0.5, 1.0 and 1.5 percentage points, where 1.0 percentage point is the intermediate assumption in the 2001 Trustees Report. In each case, the ultimate annual increase in the CPI is assumed to be 3.3 percent (as used in the intermediate assumptions), yielding ultimate percentage increases in the average annual wage in covered employment of 3.8, 4.3 and 4.8 percent, respectively.

Table 4 demonstrates that, if the ultimate real-wage differential is changed from 1.0 percentage point, the Trustees' intermediate assumption, to 0.5 percentage point, the shortfall for the period of estimated OASDI income relative to expenditures would increase to \$4,660 billion from \$4,207 billion; if the ultimate real-wage differential were changed from 1.0 to 1.5 percentage points, the shortfall would decrease to \$3,559 billion.

<b>Table 4: Present Value of Estimated Excess of OASDI Income over Expenditures with Various Ultimate Real-Wage Assumptions</b>			
<b>Valuation Period: 2001-2075</b>			
Ultimate Percentage Change in Wages - CPI	3.8 - 3.3	4.3 - 3.3	4.8 - 3.3
Excess in Present Value Dollars (In billions)	-\$4,660	-\$4,207	-\$3,559

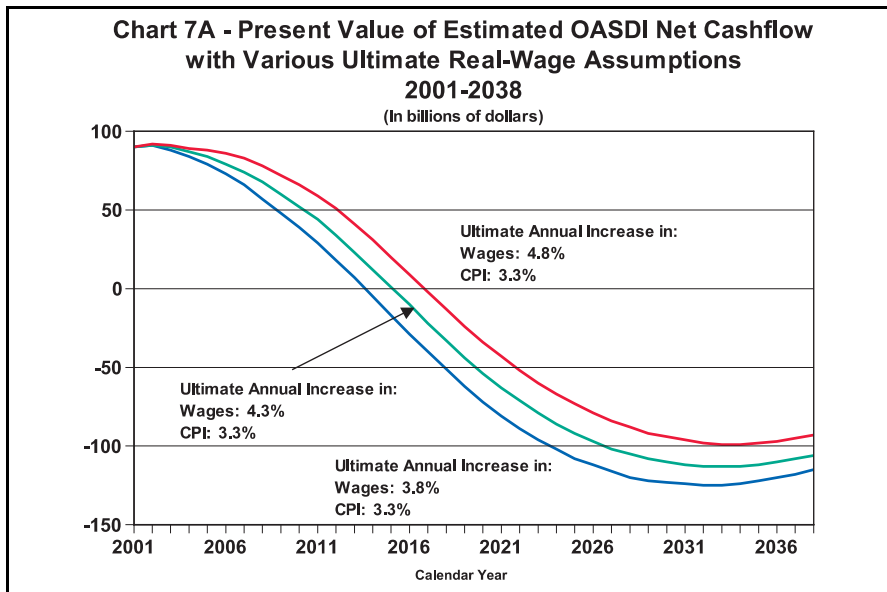
Charts 7 and 7A show estimates using the same assumptions about the ultimate real-wage differential used for the estimates in Table 4. Chart 7 shows the estimated annual OASDI net cashflow.



The three patterns of estimated net annual OASDI cashflow shown in Chart 7 are similar. After increasing in the early years, the net cashflow estimates decrease steadily through 2038. Estimated net cashflow remains positive through 2013, 2015 and 2016 for assumed ultimate real-wage differentials of 0.5, 1.0 and 1.5 percentage points, respectively, and is negative thereafter.

Differences among the estimates of annual net cashflow based on the three assumptions about the ultimate real-wage differential become apparent early in the projection period. Higher real-wage differentials increase both wages and initial benefit levels. Because the effects on wages and, therefore, on payroll taxes are immediate, while the effects on benefits occur with a substantial lag, annual net cashflow is higher (less negative in later years) for higher assumed real-wage differentials. In the early years, when the effects on benefits are quite small and the effects on wages are compounding, the patterns of the estimates of annual net cashflow based on the three assumptions diverge fairly rapidly.

Chart 7A shows the present value of the estimated annual OASDI net cashflow.



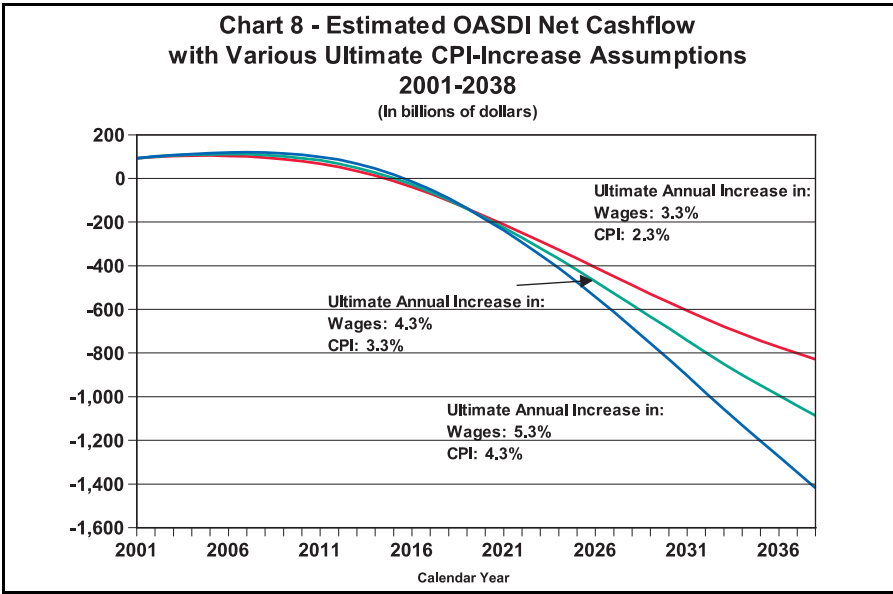
The three patterns of the present values shown in Chart 7A are similar. After increasing for one year, the present values decrease steadily through the early 2030's. They remain positive through 2013, 2015 and 2016 for assumed ultimate real-wage differentials of 0.5, 1.0 and 1.5 percentage points, respectively, and are negative thereafter. Present values based on all three assumptions begin to increase (become less negative) in the 2030's (2033 for an assumed ultimate real-wage differential of 0.5 percentage points and 2034 for the other two assumptions). Thus, in terms of today's investment dollar, annual OASDI net cashflow, although still negative, begins to increase (become less negative) at that time.

*Consumer Price Index* - Table 5 shows the present values of the estimated excess of OASDI income over expenditures for the 75-year period, using various assumptions about the ultimate rate of change in the CPI. These assumptions are that the ultimate annual increase in the CPI will be 2.3, 3.3 and 4.3 percent, where 3.3 percent is the intermediate assumption in the 2001 Trustees Report. In each case, the ultimate real-wage differential is assumed to be 1.0 percentage point (as used in the intermediate assumptions), yielding ultimate percentage increases in average annual wages in covered employment of 3.3, 4.3 and 5.3 percent, respectively.

Table 5 demonstrates that, if the ultimate annual increase in the CPI is changed from 3.3 percent, the Trustees' intermediate assumption, to 2.3 percent, the shortfall for the period of estimated OASDI income relative to expenditures would increase to \$4,537 billion, from \$4,207 billion; if the ultimate annual increase in the CPI were changed to 4.3 percent, the shortfall would decrease to \$3,863 billion. This seemingly counter-intuitive result--that higher CPI-increases result in decreased shortfalls, and vice versa--occurs because varying CPI-increases while retaining the same annual real-wage differentials affects earnings (and, therefore, taxes) sooner than benefits (and, therefore, expenditures). See the discussion below for a more complete explanation.

<b>Table 5: Present Value of Estimated Excess of OASDI Income over Expenditures with Various Ultimate CPI-Increase Assumptions</b>			
<b>Valuation Period: 2001-2075</b>			
Ultimate Percentage Change in Wages - CPI	3.3 - 2.3	4.3 - 3.3	5.3 - 4.3
Excess in Present Value Dollars (In billions)	-\$4,537	-\$4,207	-\$3,863

Charts 8 and 8A show estimates using the same assumptions about the ultimate annual increase in the CPI used for the estimates in Table 5. Chart 8 shows the estimated annual OASDI net cashflow.



The three patterns of estimated annual OASDI net cashflow shown in Chart 8 are similar. After increasing in the early years, the net cashflow estimates decrease steadily through 2038. Larger increases in the CPI with the same real-wage differentials produce higher wages, which produce both higher payroll taxes and higher initial benefits. Larger increases in the CPI also produce higher benefits directly, by increasing the cost-of-living adjustments to benefits. Thus, larger increases in the CPI result in both higher income and higher expenditures.

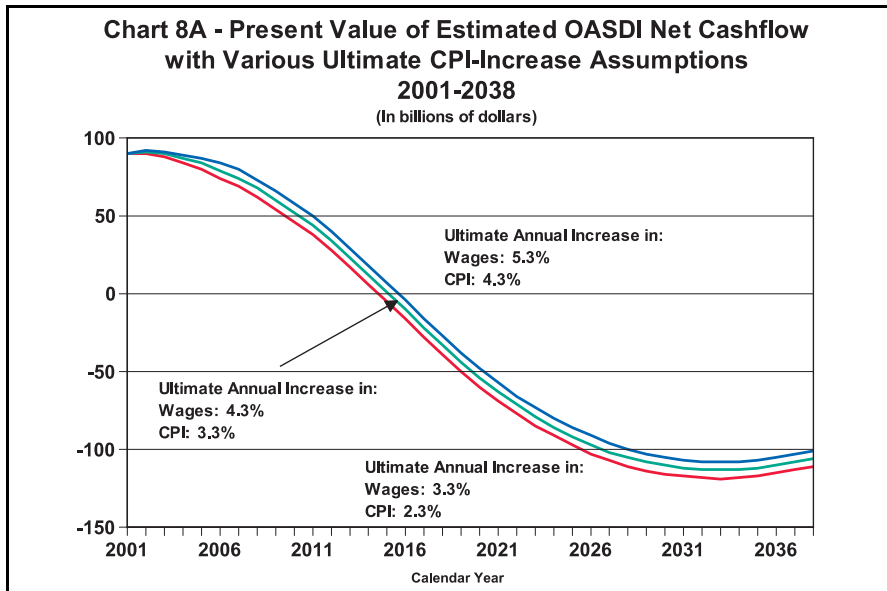
If expenditures were increased each year by the same percentage as income, the magnitude of annual net cashflow would increase--positive annual net cashflow would become more positive, and negative annual net cashflow would become more negative. Also, if positive net cashflow were followed by negative net cashflow (or vice versa), the year in which the annual net cashflow would cross zero would be unaffected by altering the assumed rate of change in the CPI. As a result, the patterns would cross each other at that time.

In practice, however, larger increases in the CPI cause income to increase sooner, and thus by more in each year, than expenditures. The effect on wages and payroll taxes occurs immediately, but the effect on benefits occurs with a lag. Thus, the theoretical results described above are shifted by the relatively large effect on income--positive annual net cashflow is even more positive, and negative annual net cashflow is less negative or becomes



positive. Chart 8 shows that annual net cashflow remains positive through 2014 for an assumed ultimate annual increase in the CPI of 2.3 percent and 2015 for the other two assumptions, and is negative thereafter. In addition, because of the shift described above, the patterns cross each other about 2019 or 2020 rather than when the annual net cashflow is zero.

Chart 8A shows the present value of the estimated annual OASDI net cashflow.



The three patterns of the present values shown in Chart 8A are similar. The present values decrease steadily through 2033 before beginning to increase. They remain positive through 2015 (2014 for assumed ultimate annual increase in the CPI of 2.3 percent) and are negative thereafter. Present values based on all three assumptions begin to increase (become less negative) in 2034. Thus, in terms of today's investment dollar, annual OASDI net cashflow, although still negative, begins to increase (become less negative) at that time.

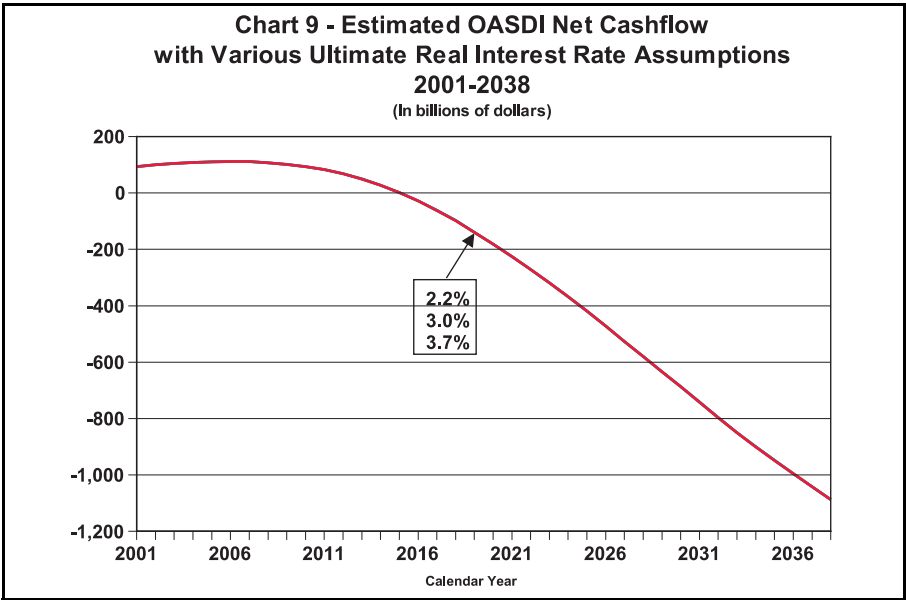
The magnitudes of the present values in Chart 8A are lower, year by year, than the amounts in Chart 8 because of the discounting process used for computing present values. This would be the case even if the nominal interest rates on which the present values are based were assumed to be the same for all three patterns of annual net cashflow. For this analysis, however, larger increases in the CPI are combined with the same assumed real interest rates, thereby producing higher nominal interest rates. The effect of these higher interest rates is to reduce the magnitudes of the present values of annual net cashflow even more--the present values of positive annual net cashflow become less positive, and the present values of negative annual net cashflow become less negative. The compounding effect of the higher interest rates is strong enough, relative to the factors increasing benefits, to reduce the magnitudes of the present values of the negative annual net cashflow of the later years sufficiently to eliminate the crossover of the patterns that occurred in Chart 8.

*Real Interest Rate* - Table 6 shows the present values of the estimated excess of OASDI income over expenditures for the 75-year period, using various assumptions about the ultimate annual real interest rate for special-issue Treasury obligations sold only to the trust funds. These assumptions are that the ultimate annual real interest rate will be 2.2, 3.0 and 3.7 percent, where 3.0 percent is the intermediate assumption in the 2001 Trustees Report.

Changes in real interest rates change the present value of cashflow, even though the cashflow itself does not change. Table 6 demonstrates that, if the ultimate real interest rate is changed from 3.0 percent, the Trustees' intermediate assumption, to 2.2 percent, the shortfall for the period of estimated OASDI income relative to expenditures, when measured in present-value terms, would increase to \$6,125 billion, from \$4,207 billion; if the ultimate annual real interest rate were changed to 3.7 percent, the present-value shortfall would decrease to \$3,025 billion.

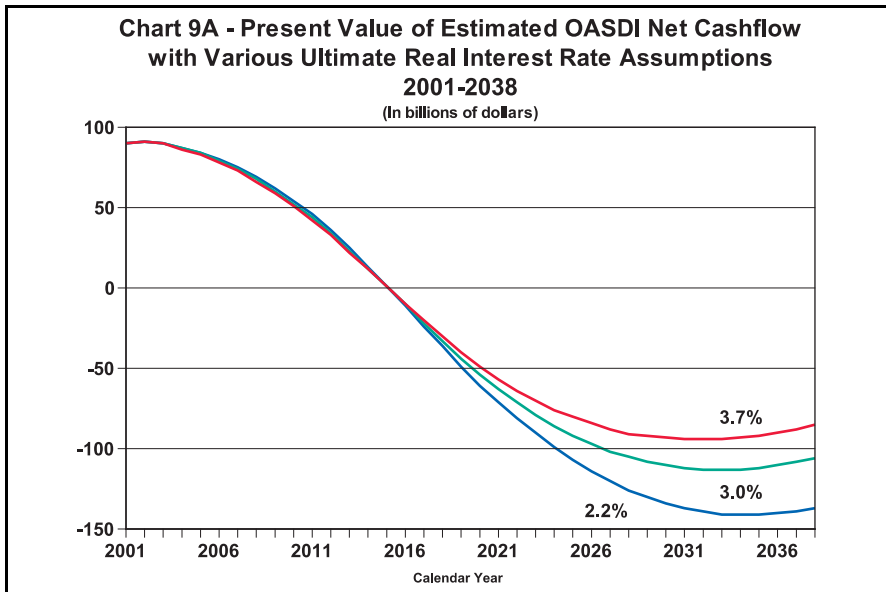
<b>Table 6: Present Value of Estimated Excess of OASDI Income over Expenditures with Various Ultimate Real-Interest Assumptions</b>			
<b>Valuation Period: 2001-2075</b>			
Ultimate Annual Real Interest Rate	2.2	3.0	3.7
Excess Present Value Dollars (In billions)	-\$6,125	-\$4,207	-\$3,025

Charts 9 and 9A show estimates using the same assumptions about the ultimate annual real interest rate used for the estimates in Table 6. Chart 9 shows the estimated annual OASDI net cashflow.



The three patterns of estimated annual OASDI net cashflow shown in Chart 9 are identical, because interest rates do not affect cashflow. After increasing through 2006, the net cashflow estimates decrease steadily through 2038. They remain positive through 2015 and are negative thereafter.

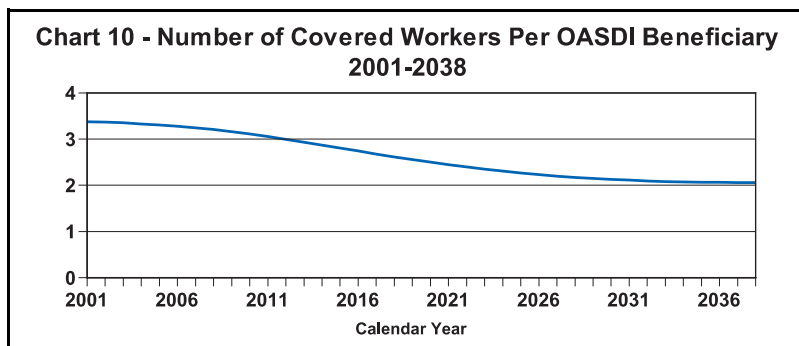
Chart 9A shows the present value of the estimated annual OASDI net cashflow.



The three patterns of the present values shown in Chart 9A are similar. After increasing for one year, the present values decrease steadily through the early 2030's. They remain positive through 2015 and are negative thereafter. Present values based on all three assumptions begin to increase (become less negative) in the 2030's (2035, 2034 and 2033 for assumed ultimate real interest rates of 2.2, 3.0 and 3.7 percent, respectively). Thus, in terms of today's investment dollar, annual OASDI net cashflow, although still negative, begins to increase (become less negative) at that time.

Chart 9A shows a crossover in the patterns of the present values of the net cashflow. The crossover occurs at the time the net cashflow changes from positive to negative, which happens in 2016. The crossover occurs because higher interest rates result in present values that are lower in magnitude--positive amounts become less positive and negative amounts become less negative. Thus, before the time of the crossover--when the net cashflow is positive--the use of higher interest rates results in lower present values; after that time--when the net cashflow is negative--the use of higher interest rates results in higher present values--that is, present values that are less negative--thereby resulting in the crossover.

Ratio of Workers to Beneficiaries - Chart 10 below shows the estimated number of covered workers per OASDI beneficiary using the Trustees' intermediate assumptions. As defined by the Trustees, covered workers are persons having earnings creditable for OASDI purposes on the basis of services for wages in covered employment and/or on the basis of income from covered self-employment. The estimated number of workers per beneficiary will decline from 3.4 in 2000 to 2.1 in 2038.



## Social Security Assumptions

The estimates used in this presentation are based on the assumption that the programs will continue as presently constructed. They are also based on various economic and demographic assumptions, including those in the following table:

	Total Fertility Rate <sup>1</sup>	Age-Sex-Adjusted Death Rate <sup>2</sup> (per 100,000)	Period Life Expectancy At Birth <sup>3</sup>		Net Annual Immigration (persons per year)	Real-Wage Differential <sup>4</sup> (percentage points)	Average Annual Percentage Change In:			Average Annual Interest Rate <sup>7</sup>
			Male	Female			Average Annual Wage in Covered Employment	CPI <sup>5</sup>	Real GDP <sup>6</sup>	
2001	2.06	796.5	74.0	79.6	840,000	1.9	4.9	3.0	3.1	5.6%
2005	2.04	773.7	74.6	80.0	900,000	1.2	4.4	3.2	2.3	6.2%
2010	2.02	751.1	75.3	80.3	900,000	1.0	4.3	3.3	2.0	6.3%
2020	1.97	701.7	76.4	81.1	900,000	1.0	4.3	3.3	1.7	6.3%
2030	1.95	649.4	77.3	81.9	900,000	1.0	4.3	3.3	1.7	6.3%
2040	1.95	603.3	78.2	82.6	900,000	1.0	4.3	3.3	1.7	6.3%

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 childbearing period. The ultimate total fertility rate is assumed to be reached in 2025.
2. The age-sex-adjusted death rate is the crude rate that would occur in the enumerated total population as of April 1, 1990, if that population were to experience the death rates by age and sex observed in, or assumed for, the selected year. It is a summary measure and not a basic assumption; it summarizes the basic assumptions from which it is derived.
3. The period life expectancy for a group of persons born in a given year is the average that would be attained by such persons if the group were to experience in succeeding years the death rates by age observed in, or assumed for, the given year. It is a summary measure and not a basic assumption; it summarizes the effects of the basic assumptions from which it is derived.
4. The real-wage differential is the difference between the percentage increases, before rounding, in the average annual wage in covered employment, and the average annual Consumer Price Index.
5. The Consumer Price Index (CPI) is the annual average value for the calendar year of the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).
6. The real Gross Domestic Product (GDP) is the value of total output of goods and services, expressed in 1996 dollars. It is a summary measure and not a basic assumption; it summarizes the effects of the basic assumptions from which it is derived.
7. 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.

These assumptions and the other values on which these displays are based reflect the intermediate assumptions of the 2001 Trustees Report. Estimates made in certain prior years have changed substantially because of revisions to the assumptions based on changed conditions or experience, and to changes in actuarial methodology. It is reasonable to expect more changes for similar reasons in future reports.