**2001 ANNUAL REPORT OF**
**THE BOARD OF TRUSTEES OF THE**
**FEDERAL SUPPLEMENTARY MEDICAL INSURANCE**
**TRUST FUND**

**COMMUNICATION**

**From**

**THE BOARD OF TRUSTEES,**
**FEDERAL SUPPLEMENTARY MEDICAL INSURANCE**
**TRUST FUND**

**Transmitting**

**THE 2001 ANNUAL REPORT OF**
**THE BOARD OF TRUSTEES OF THE**
**FEDERAL SUPPLEMENTARY MEDICAL INSURANCE**
**TRUST FUND**

## LETTER OF TRANSMITTAL

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BOARD OF TRUSTEES OF THE
FEDERAL SUPPLEMENTARY MEDICAL INSURANCE TRUST FUND
Washington, D.C., March 19, 2001

HONORABLE J. Dennis Hastert
Speaker of the House of Representatives
Washington, D.C.

HONORABLE Richard B. Cheney
President of the Senate
Washington, D.C.

GENTLEMEN:

We have the honor of transmitting to you the 2001 Annual Report of the Board of Trustees of the Federal Supplementary Medical Insurance Trust Fund (the 36th such report).

Respectfully,

/S/
Paul H. O'Neill, *Secretary of the Treasury, and Managing Trustee of the Trust Fund.*

/S/
Elaine L. Chao, *Secretary of Labor, and Trustee.*

/S/
Tommy G. Thompson, *Secretary of Health and Human Services, and Trustee.*

/S/
William A. Halter, *Acting Commissioner of Social Security, and Trustee.*

/S/
John L. Palmer, *Trustee*.

/S/
Thomas R. Saving, *Trustee.*

/S/
Michael McMullan, *Acting Deputy Administrator of* the *Health Care Financing Administration, and Secretary, Board of Trustees.*

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# I. OVERVIEW

## *A. INTRODUCTION*

The Supplementary Medical Insurance (SMI) program, or Medicare Part B, pays for physician, outpatient hospital, home health, and other services for the aged and disabled. The SMI program is financed primarily by transfers from the general fund of the U.S. Treasury and by monthly premiums paid by beneficiaries. Income not currently needed to pay benefits and related expenses is held in the SMI trust fund and invested in U.S. Treasury securities.

The Board of Trustees was established under the Social Security Act to oversee the financial operations of the SMI trust fund. The Board is composed of six members. Four members serve by virtue of their positions in the federal government: the Secretary of the Treasury, who is the Managing Trustee; the Secretary of Labor; the Secretary of Health and Human Services; and the Commissioner of Social Security. The other two members are appointed by the President and confirmed by the Senate to serve as public representatives: John L. Palmer and Thomas R. Saving, the current public Trustees, began serving their 4-year terms October 28, 2000. The Administrator of the Health Care Financing Administration (HCFA) is designated as Secretary of the Board.

Because the future is uncertain, the financial condition of the SMI trust fund is examined under three alternative sets of assumptions: "low cost," "intermediate," and "high cost." These alternatives are intended to illustrate a reasonable range of possible outcomes. The intermediate assumptions represent the Trustees' best estimate of the expected future economic and demographic trends.

This 2001 report is the 36th to be submitted. The report evaluates the financial adequacy of the SMI program for calendar year 2001 and also describes both the near-term and the longer-term financial outlook throughout a 75-year valuation period.

## *B. HIGHLIGHTS*

The major findings of this report are summarized below. Unless otherwise noted, all estimates are based on the intermediate assumptions.

- Using current income and a small portion of accumulated assets, the SMI program is expected to be able to meet all benefit and administrative obligations throughout calendar year 2001. The SMI trust fund is adequately financed for calendar year 2001 under all three sets of assumptions.
- The SMI trust fund is expected to remain adequately financed into the indefinite future, but only because current law provides for the establishment of program financing each year based on an updated calculation of expected cost per SMI beneficiary.
- SMI trust fund assets decreased by $0.8 billion in 2000. This decrease occurred because beneficiary premiums and actuarial rates for calendar year 2000 were promulgated with specific margins to decrease slightly the size of the SMI trust fund, which is currently above levels considered adequate for contingency reserve purposes.
- In 2000, SMI benefits grew rapidly, registering a 10-percent increase over the level in 1999. This rate of growth is largely attributable to legislation enacted in 1997 and 1999, including the introduction of new preventative-care benefits and the shift of a further one-sixth of the cost of certain home health care services from the Hospital Insurance (HI) program to SMI.
- SMI benefits have historically increased very rapidly, although growth moderated significantly in the late 1990s. Over the past 5 years, benefit payments have increased by about 37 percent overall (31 percent on a per beneficiary basis). During this period the program benefits grew only slightly faster (1 percent in total) than the economy as a whole—in part as a result of efforts to control SMI costs and partially because economic growth was unusually rapid.
- SMI expenditures are expected to continue to grow faster than the economy as a whole. SMI outlays were 0.9 percent of the Gross Domestic Product (GDP) in 2000 and are projected to grow to about 3.8 percent by 2075.
- This eventual cost is much higher than projected in the 2000 annual report, because of a revision in the long-range Medicare growth rate assumptions. The change was recommended by the

2000 Medicare Technical Review Panel, an independent, expert panel of actuaries and economists convened by the Trustees to review the Medicare projections. Reflecting an expected continuing impact of advances in medical technology on health care costs—both in Medicare and the health sector as a whole—per beneficiary SMI expenditures are now assumed to increase in the long range at the rate of per capita GDP growth plus 1 percentage point.

- Although this report focuses on the financial status of the SMI trust fund, it is important to recognize the financial challenges facing the Medicare program as a whole and the need for integrated solutions. Combined HI and SMI expenditures as a percent of GDP are projected to increase rapidly, from 2.24 percent in 2000 to 5.03 percent in 2035 and then to 8.49 percent in 2075.
- General revenue transfers to SMI in fiscal year 2000 were equivalent to 5.4 percent of the personal and corporate income taxes collected in that year. If such taxes were to remain at their current level, relative to the national economy, then SMI general revenue financing in 2030 would represent roughly 13 percent of all income taxes collected, growing to roughly 22 percent by 2070.
- We note with great concern that program costs have generally grown faster than the GDP and that this trend is expected to continue under present law. Further effective and decisive action is necessary to build upon the strong steps taken in recent reforms.

**Key SMI Data for Calendar Year 2000:**

- SMI covered about 33 million aged and 5 million disabled persons who chose to enroll in the program. Approximately 87 percent of these individuals received medical services covered by SMI during the year. The total number of SMI enrollees increased by 0.7 percent in 2000 and by 14.5 percent over the past 10 years.
- SMI benefits amounted to $88.9 billion, a 10.1-percent increase over the prior year. Average benefits per SMI enrollee increased by 9.3 percent to $2,384.
- Administrative costs were $1.8 billion, or about 2 percent of program expenditures.

*Overview*

- Summary of SMI trust fund operations in 2000 (in billions):

| | |
|---|---|
| Fund Balance (12/31/99) | $44.8 |
| Income | 89.9 |
| Expenditures | 90.7 |
| Fund Balance (12/31/00) | 44.0 |
| Net Change in Balance | −0.8 |

- General revenue accounted for about 73 percent of income. Premiums were the second largest source of income, making up approximately 23 percent of the total. Interest and other miscellaneous income accounted for the remainder, or about 4 percent of income.
- Payments for the costs of fee-for-service physician and other professional services represented 58 percent of SMI benefits. Fee-for-service payments to facilities were another 22 percent, and managed care plans accounted for the final 20 percent.

## *C. 2000 TRUST FUND FINANCIAL OPERATIONS*

SMI income in calendar year 2000 was $89.9 billion, and total expenditures were $90.7 billion. The fund balance therefore decreased by a net total of $0.8 billion. As of December 31, 2000, the SMI trust fund had a balance of $44.0 billion.

### 1. Income

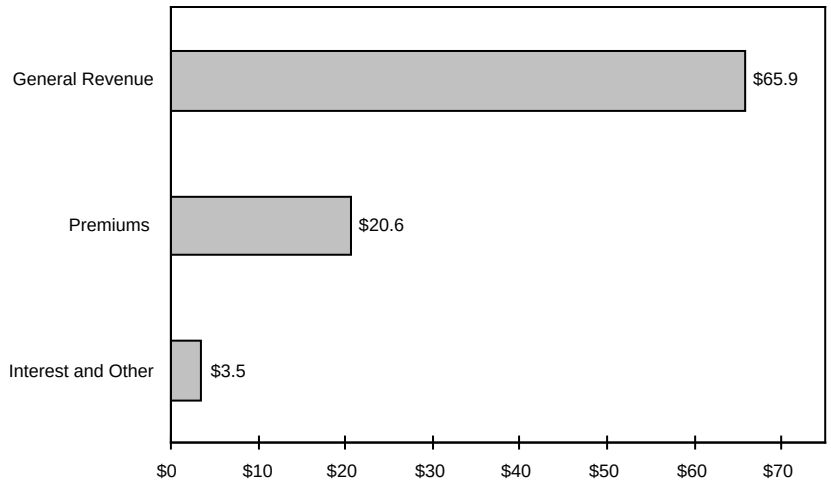
The $89.9 billion in income received by the SMI program last year was derived from the following sources:

- General revenue. Transfers from the general fund of the Treasury were the largest source of income, accounting for $65.9 billion—or about 73 percent of total SMI income—in calendar year 2000. The general revenue contribution is determined by means of a statutory formula based on expected cost per beneficiary less expected premium collections. In effect, general revenue approximately makes up the difference between premium collections plus other income and expected total program costs. The statutory formula also allows for the maintenance of a small reserve to cover any unforeseen contingencies.

- Premiums. Premium collections amounted to $20.6 billion, or about 23 percent of calendar year 2000 income. Premium rates are set annually, based on a method specified in the law. In calendar year 2000, the SMI premium was $45.50 per month.

- Interest. Interest income on the U.S. Treasury securities held by the trust fund, plus a very small amount of other income, amounted to $3.5 billion, or about 4 percent of total SMI income in calendar year 2000.

**Figure I.C1.—SMI Income in Calendar Year 2000**
[In billions]



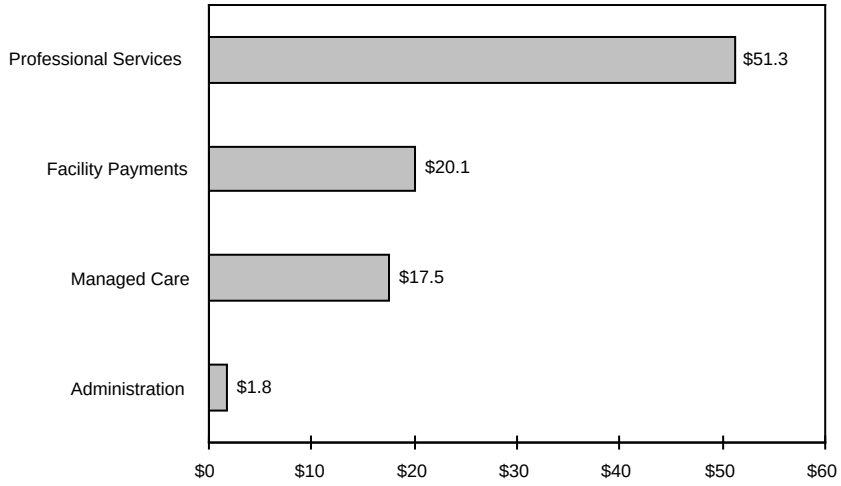

## 2. Expenditures

The SMI program spent $90.7 billion last year. The major expenditures consisted of the following:

- Benefit payments. Approximately 98 percent of SMI outlays in calendar year 2000 were for benefit payments to providers of services and managed care plans. Managed care payments were $17.5 billion, or about 20 percent of all benefit payments. This amount represented a 3.7-percent increase over the corresponding figure for 1999. Within the fee-for-service sector, $51.3 billion, or 58 percent of total benefits, was paid last year for physician and other professional services—the largest type of benefit payment. These payments grew about 13 percent over the previous year, reflecting the effect of higher per-person costs and a small increase in beneficiaries receiving care on a fee-for-service basis. Finally, payments to such establishments as outpatient hospital facilities and home health agencies ($20.1 billion) increased about 8.6 percent from 1999 to 2000 and made up about 22 percent of total SMI benefit outlays in 2000.

- Administrative expenses. Approximately $1.8 billion, or about 2 percent of SMI program outlays during calendar year 2000, paid the administrative expenses of the program. This amount included funds to support the Medicare carriers and intermediaries (generally insurance companies) that assist in administering SMI, as well as funds for federal salaries and related expenses.

**Figure I.C2.—SMI Expenditures in Calendar Year 2000**
[In billions]



## *D. ECONOMIC AND DEMOGRAPHIC ASSUMPTIONS*

Actual future costs of benefits under the SMI program will depend on a number of factors, apart from any possible changes in law and regulations. These factors include the size and composition of the population eligible for benefits, the volume and intensity of SMI covered services used per beneficiary, and changes in the price per service. Similarly, expected premium income will depend on, among other factors, the number of beneficiaries enrolled in SMI, and interest income to the trust fund will be contingent upon future interest rates.

Because of the uncertainty inherent in forecasting many of these factors, projections of SMI income and costs have been developed under three alternative scenarios, known as "low cost," "intermediate," and "high cost." In addition, section III.D of this report presents a supplementary analysis of uncertainty for the SMI trust fund, using statistical methods. For simplicity of presentation, much of the analysis in this overview centers on the projections under intermediate assumptions. However, it is important to recognize that actual conditions are very likely to differ from that scenario or any other specific set of assumptions.

Some of the key demographic and economic variables that determine SMI costs and income are common to both the Old-Age, Survivors, and Disability Insurance (OASDI) program and the Hospital Insurance (HI) program and are explained in detail in the report of the OASDI Board of Trustees. As shown in table I.D1 below, these variables include Consumer Price Index (CPI) change, real interest rates, fertility rates, and life expectancy. ("Real" indicates that the effects of inflation have been removed to allow better comparisons across time periods.) In most cases, the assumptions vary from year to year during the first 5 to 30 years, then reach their so-called "ultimate" values for the remainder of the 75-year projection period. These ultimate values are shown in the table below.

**Table I.D1.—Ultimate Assumptions**

| | Intermediate | Low Cost | High Cost |
|---|---|---|---|
| Annual percentage change in: | | | |
| Consumer Price Index (CPI) | 3.3 | 2.3 | 4.3 |
| Real interest rate (percent) | 3.0 | 3.7 | 2.2 |
| Total fertility rate (children per woman) | 1.95 | 2.2 | 1.7 |
| Average annual percentage reduction in total age-sex adjusted death rates from 2025 to 2075[1] | 0.68 | 0.31 | 1.20 |

[1]Actual ultimate assumptions for reductions in death rates are specified in detail—by age group, sex, and cause of death

Other assumptions are specific to the SMI program. As with all of the assumptions underlying the Trustees' financial projections, the SMI-specific assumptions are reviewed annually and updated based on the latest available data and analysis of trends. In addition, the assumptions and projection methodology are subject to periodic review by independent panels of expert actuaries and economists.

The most recent such review was conducted by the 2000 Medicare Technical Review Panel, which issued its findings in December 2000. Based on their comprehensive review, the panel members found the assumptions and methods to be reasonable, with the exception of the long-range Medicare expenditure growth rates, which they believed to be too low (as discussed further below). They also made a number of recommendations for refining some of the other assumptions and projection methods. The projections in this year's annual report reflect the panel recommendations that could be implemented within the available time frame. Other recommendations will be considered for future implementation, as time and available health research knowledge permit. The panel's report is available on the HCFA Internet web site at http://www.hcfa.gov/pubforms/actuary/TechnicalPanel/.

The long-range growth rate assumption, mentioned above, is one of the most critical determinants of the projected cost of SMI-covered health care services in the more distant future. The SMI expenditure projections shown in this year's report reflect the 2000 Medicare Technical Review Panel's recommended change to the assumed long-range growth rates. In past reports, growth in SMI per beneficiary expenditures was assumed to gradually slow and to reach the level of per capita GDP growth after about 25 years. In this report, the long-range growth rate assumption is set equal to per capita GDP growth plus 1 percentage point. Expenditure growth for years 13 to 25 are assumed to decline gradually and to grade smoothly into the long-range assumptions.

The expert panel believed that, in the long run, Medicare and overall health care spending would have the same per-capita growth rate. Their conclusion that both Medicare costs and overall health care spending will grow faster than GDP was largely based on the historical impact of advances in medical technology on health care cost increases, which they expected to continue indefinitely. They also considered other factors contributing to health care cost increases, the assumptions of other forecasters, and the "sustainability" of such cost increases in the very long range. Based on the analysis of the

expert panel, the Board of Trustees has adopted the recommended long-range growth rate.

While it is reasonable to assume that actual trust fund experience will fall within the range defined by the three alternative sets of assumptions, no definite assurance can be given in light of the wide variations in experience that have occurred since the beginning of the program. In general, a greater degree of confidence can be placed in the assumptions and estimates for the earlier years than for the later years. Nonetheless, even for the earlier years, the estimates are only an indication of the expected trend and the general range of future program experience.

## *E. ACTUARIAL ESTIMATES*

The SMI program differs fundamentally from the OASDI and HI programs in regard to the nature of financing and the method by which financial status is evaluated. In particular, the SMI premium and the corresponding income from general revenues are established annually at a level sufficient to cover the following year's expenditures. Thus, the SMI program is automatically in financial balance under present law. In the OASDI and HI programs, however, financing established many years earlier may prove significantly higher or lower than subsequent actual costs. Moreover, the SMI program is voluntary (whereas OASDI and HI are generally compulsory), and income is not based on payroll taxes. These disparities result in a financial assessment that differs in some respects from that for OASDI or HI, as described in the following sections.

### 1. Financial Adequacy in Calendar Year 2001

The SMI program is traditionally considered to have met the primary tests of financial adequacy if the financing established for a given period (for example, through the end of calendar year 2001) is sufficient to fund all services provided through that period, as well as associated administrative expenses. Further, to protect against the possibility that cost increases under the program will be higher than assumed, the program needs assets adequate to cover a reasonable degree of variation between actual and projected costs. These traditional tests of adequacy reflect, in part, the similarity of SMI to some private sector group health insurance plans.

According to these tests, the financing established through December 2001, together with a small amount of trust fund assets, is estimated to be sufficient to cover benefits and administrative costs incurred through that time period. The tests of financial adequacy are met under intermediate assumptions as well as under lower-range and upper-range projections. Planned program financing is sufficient to maintain a level of trust fund assets that is able to cover a reasonable degree of variation between actual costs and projected costs.

During 1996-1999, SMI expenditures increased somewhat more slowly than expected when financing was established. As a result, income from premiums and general revenues exceeded program costs, and trust fund assets grew to a level above what is generally

considered adequate for a contingency reserve for the SMI program. In 2000, total expenditures increased at a faster pace than in the previous 4 years, prompting an increase in the calendar year 2001 premium to $50.00. Even so, following the practice used in 1997-2000, the financing for 2001 was set below the level estimated to fully cover costs, with the expectation that a small portion of trust fund assets would be used in 2001 to make up the difference. This procedure is intended to gradually bring trust fund assets in line with the lower level that is adequate for contingency purposes.

The amount of the contingency reserve needed in SMI is much smaller (both in absolute dollars and as a fraction of annual program costs) than in the HI or OASDI programs. This is so because the SMI premium rate and corresponding general revenue transfers are determined annually based on estimated future costs, while the HI and OASDI payroll tax rates are set in law and are therefore much more difficult to adjust should circumstances change.

**2. SMI Trust Fund Outlook after Calendar Year 2001**

Table I.E1 shows the estimated operations of the SMI trust fund under the intermediate assumptions during calendar years 2000 through 2010. As indicated, both income and expenditures are estimated to grow at about 7 percent per year for most of the 10-year period, with the exception of the double-digit increase in 2001. Income and outgo would remain in balance as a result of the annual adjustment of premium and general revenue income to match program costs. Assets held in the trust fund are projected to decrease slightly in 2001 and 2002, as part of the effort to adjust asset levels to better match the program's contingency needs (as noted above). After 2002, assets held in the fund are projected to increase sufficiently to maintain an adequate contingency reserve for the program. Similar projections under the low cost and high cost assumptions are shown in section II of this report. Under all assumptions, the SMI program would grow rapidly but would remain adequately financed into the indefinite future because of the automatic financing on a year-to-year basis. Continuing rapid growth, however, has significant implications both for beneficiaries and the federal budget, as discussed more fully in subsequent sections.

**Table I.E1.—Estimated Operations of the SMI Trust Fund under Intermediate Assumptions, Calendar Years 2000-2010**

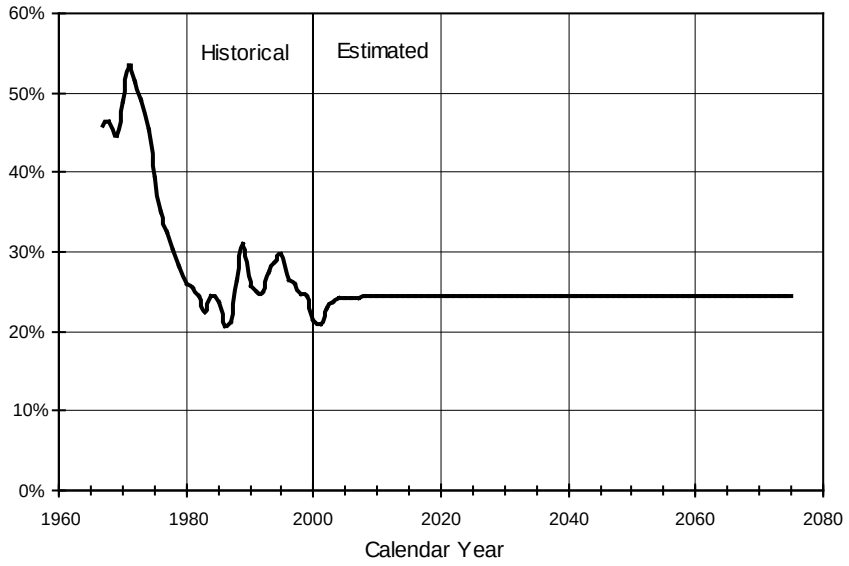
[Dollar amounts in billions]

| Calendar year | Total income | Total expenditures | Change in fund | Fund at year end |
|---|---|---|---|---|
| 2000[1] | $89.9 | $90.7 | -$0.8 | $44.0 |
| 2001 | 97.9 | 103.8 | -5.9 | 38.2 |
| 2002 | 113.0 | 113.8 | -0.8 | 37.3 |
| 2003 | 123.0 | 121.7 | 1.3 | 38.6 |
| 2004 | 131.4 | 130.3 | 1.2 | 39.8 |
| 2005 | 141.2 | 139.8 | 1.4 | 41.2 |
| 2006 | 150.8 | 149.4 | 1.4 | 42.7 |
| 2007 | 160.6 | 159.2 | 1.4 | 44.1 |
| 2008 | 173.4 | 170.7 | 2.7 | 46.8 |
| 2009 | 186.4 | 183.0 | 3.4 | 50.1 |
| 2010 | 200.1 | 196.3 | 3.8 | 54.0 |

[1]Figures for 2000 represent actual experience.

The Balanced Budget Act of 1997 (BBA) made numerous changes to the Medicare program, many of them quite substantial. One of the most important provides for the monthly SMI premium to be permanently established at the level of about 25 percent of program expenditures, as shown in figure I.E1. Prior to this legislation, premiums would have represented a steadily declining share of costs. Other provisions in the BBA include a new prospective payment system for outpatient hospital services under Medicare and coverage of several new preventive or "screening" benefits. In addition, annual payment updates for all SMI health care providers are constrained, and a problem with beneficiary coinsurance for outpatient hospital services is gradually being corrected. Finally, roughly two-thirds of home health care services are reclassified as an SMI benefit, shifting the cost of such services over a 6-year period from the HI trust fund to the SMI trust fund. Collectively, the SMI benefit provisions in the BBA result in a net increase in costs. SMI costs were further increased by the provisions of the Medicare, Medicaid, and SCHIP Balanced Budget Refinement Act of 1999 and the Medicare, Medicaid, and SCHIP Benefits Improvement and Protection Act of 2000 (BIPA).

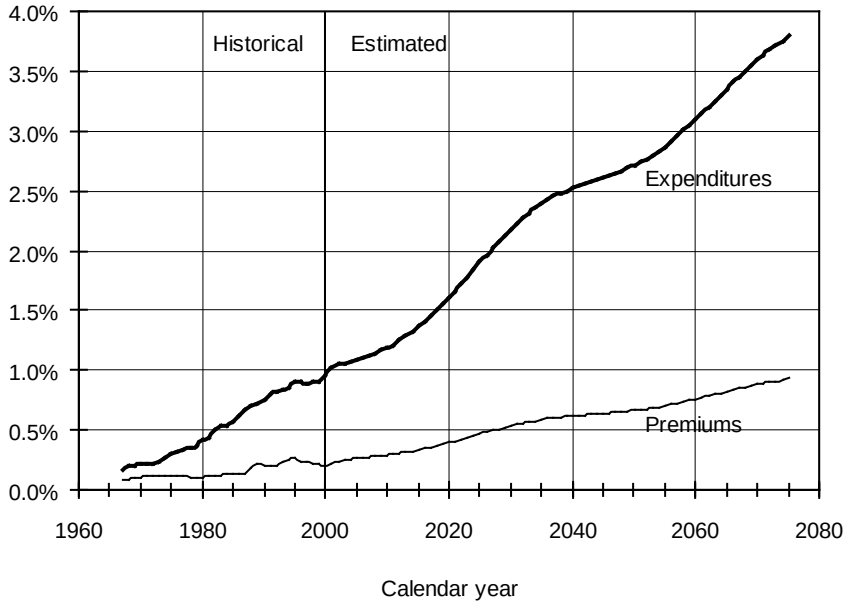
**Figure I.E1.—Premium Income as a Percent of SMI Expenditures**




The estimated costs shown in this annual report are slightly higher over the next 10 years than those in the 2000 annual report. The higher estimates are partly a result of BIPA, as noted. This impact, however, is mostly offset by (1) outpatient hospital payments for 2000 being lower than the estimates in the 2000 annual report, and (2) slightly lower assumed rates of medical inflation for the future. Overall, program costs in the 2001 annual report are still expected to increase faster than the economy as a whole. Thus, even though the SMI program is considered adequately financed by traditional standards, the continuing trend of relatively rapid cost increases remains a source of great concern.

Figure I.E2 shows past SMI expenditures and premium income as a percent of GDP and projections through 2075 based on intermediate assumptions. Under these assumptions, annual SMI expenditures would grow from less than 1 percent of GDP in 2000 to about 2.2 percent of GDP within 30 years. Similarly, total Medicare expenditures (for HI and SMI combined) would grow from about 2.2 percent of GDP in 2000 to over 8 percent of GDP by 2075.

**Figure I.E2.—SMI Expenditures and Premiums as a Percent of GDP**




Projecting forward 75 years is difficult, given the many uncertainties about future performance of the economy and other variables, but it allows for the presentation of future trends that may reasonably be expected to occur. Most importantly, this forecast reflects (1) continuing growth in the volume and intensity of services provided per beneficiary throughout the projection period, and (2) the impact of a large increase in SMI beneficiaries starting in about 2010 as the "baby boom" generation (those born between 1946 and 1965) turns age 65 and begins to receive benefits. Other key demographic trends are also reflected, including continuing improvements in life expectancy and future birth rates at roughly the same level as the last 2 decades.

In this intermediate projection, increases in the costs per enrollee during the initial 25-year period are assumed to decline gradually in the last 12 years of that period to the same growth rate as GDP per capita plus 1 percentage point and then to continue to grow at GDP per capita plus 1 percentage point in the last 50 years. As noted previously in section I.D, this assumption represents a significant change from the 2000 annual report which assumed that long-term per beneficiary SMI expenditures grew at the same rate as per capita GDP.

*Overview*

Even with the assumed moderation of expenditure growth described above, the projected cost of the SMI program under present law would place steadily increasing demands on beneficiaries and society at large. Over time, the SMI premiums and coinsurance amounts paid by beneficiaries would represent a growing share of their total income. In 2000, for example, about 6 percent of a typical 65-year-old's Social Security benefit was withheld to pay the monthly SMI premium of $45.50. Twenty years later, under the intermediate assumptions, the same beneficiary's premium would require 11 percent of his or her benefit. Similarly, SMI general revenues in fiscal year 2000 were equivalent to 5.4 percent of the personal and corporate federal income taxes collected in that year. If such taxes were to remain at their current level, relative to the national economy, then SMI general revenue financing in 2075 would represent roughly 22 percent of total income taxes. Further details regarding these illustrations are presented in section II.F.

## *F. FINANCIAL OUTLOOK FOR HI AND SMI, COMBINED*

The primary purpose of this report is to evaluate the financial status of the SMI trust fund. To that end, projections are shown for SMI premiums, general revenue transfers, total income, and expenditures, and the Trustees assess the program's ability to meet incurred costs over the period for which financing has been set. Often, however, individuals may focus primarily on HI and place less emphasis on the financial aspects of the SMI trust fund.

This imbalance occurs in large part because of the very different ways in which HI and SMI are financed. HI is subject to substantial variation in asset growth, since program financing is established through statutory tax rates that cannot be adjusted except by enactment of new legislation. In contrast, SMI premiums and general revenue financing are reestablished annually to match expected costs for the following year. As such, the SMI trust fund is free from periodic financing crises, and attention to its expenditure growth and financing requirements tends to be muted.

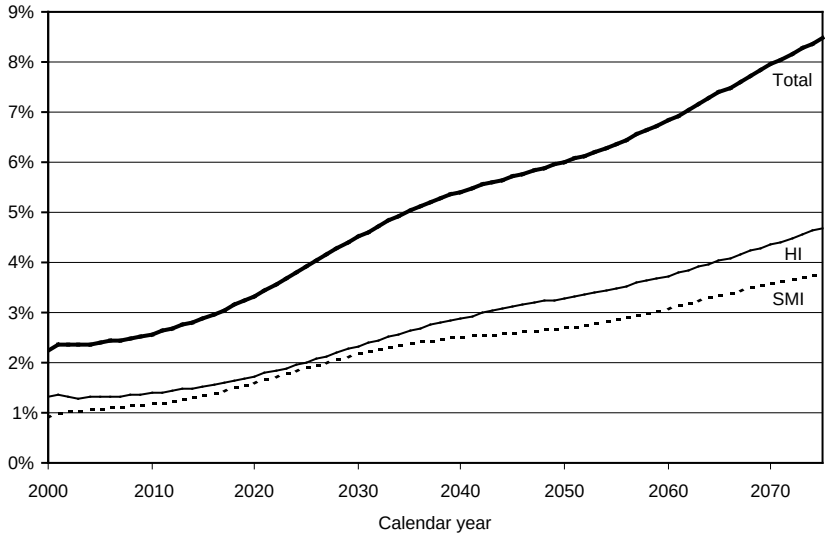
Despite the significant differences in eligibility rules, benefit provisions, and financing between HI and SMI, the two parts of Medicare are closely related. Efforts to improve and reform either part must necessarily involve the other part as well. In view of the anticipated growth in Medicare expenditures, it is also important to consider the balance among the various sources of revenues for financing Medicare, and the manner in which these will change over time under present law.

In this section, the projected total expenditures for the Medicare program are considered, along with the primary sources of financing. Further details are available in appendices III.A and III.B of this report.

Figure I.F1 shows projected costs as a percentage of GDP. Medicare expenditures represented 2.24 percent of GDP in 2000. Most of the factors affecting SMI cost growth, as described previously in this report, will have a similar impact on HI. As a result, total Medicare spending is projected to increase to about 5 percent of GDP over the next 35 years under the intermediate assumptions and to more than 8 percent of GDP by the end of the 75-year period. For comparison, that cost would represent roughly one-fourth more than today's cost for Medicare and Social Security combined. (These estimates reflect

the conclusion of the 2000 Medicare Technical Panel that in the long run both Medicare and overall health care spending will grow at a rate 1 percentage point faster than GDP per capita, which implies that overall health care spending would also account for an expanding share of GDP.)

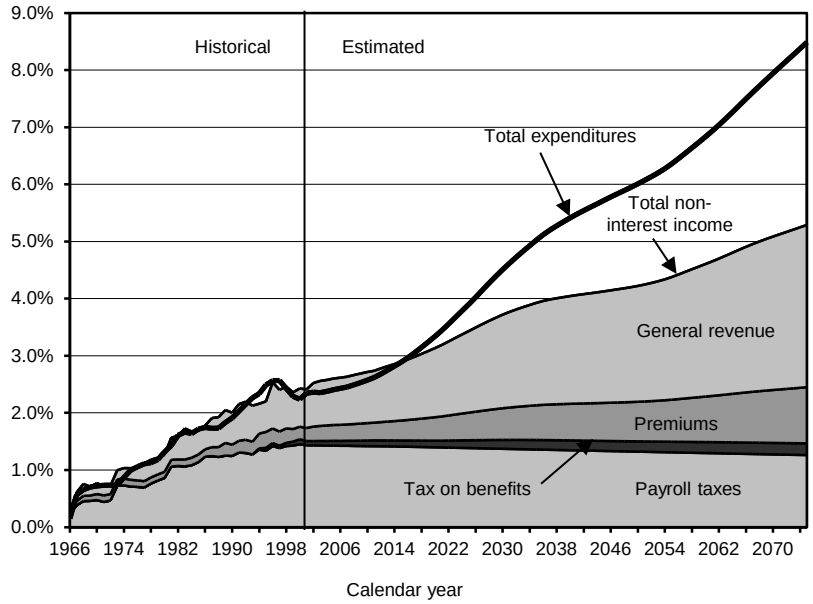
**Figure I.F1.—Medicare Incurred Disbursements as a Percent of Gross Domestic Product**




The past and projected amounts of Medicare revenues are shown in figure I.F2, based on the intermediate assumptions. Interest income is excluded since, under present law, it would not be a significant part of program financing in the long range. Medicare revenues—from HI payroll taxes, HI income from the taxation of Social Security benefits, HI and SMI premiums, and SMI general revenues—are compared to total Medicare expenditures. As one would expect, the two amounts are generally very similar in past years, since these revenues represented the major sources of program financing. Over the next 15 years, such Medicare revenues are estimated to slightly exceed program expenditures, reflecting the automatic financing of SMI plus the expected excess of HI tax income over expenditures described in the 2001 HI Trustees Report. Thereafter, however, overall expenditures are projected to exceed aggregate revenues. Again, the growing difference arises from the projected imbalance between HI tax income and expenditures. Throughout this period, SMI revenues

would continue to approximately match SMI expenditures, due to the annual adjustment of program financing.

**Figure I.F2.—Medicare Sources of Income and Expenditures as a Percent of Gross Domestic Product**




As shown in figure I.F2, payroll tax revenues increased rapidly as a percentage of GDP in the past, as a result of increases in the tax rate and maximum taxable earnings base (eliminated in 1994). In the future, however, payroll taxes are not projected to grow faster than GDP primarily because no further increases in the tax rate are scheduled in present law. (The ratio decreases slowly over time, since wages, salaries, and self-employment income are expected to decline gradually as a share of total compensation, with faster growth in fringe benefits making up the difference.) HI revenue from income taxes on Social Security benefits would increase as a share of GDP as additional beneficiaries become subject to such taxes.

By comparison, growth in SMI premiums and general fund transfers is expected to continue to outpace GDP growth and HI payroll tax growth in the future. This phenomenon occurs primarily because, under present law, SMI revenue increases at the same rate as expenditures, whereas HI revenue does not. Thus, as the HI sources of revenue become increasingly inadequate to cover HI costs, SMI

revenues would represent a growing share of total Medicare revenues. Indeed, if nothing were done to address the large financing gap projected for HI under current law and total program expenditures exceed future income as shown in figure I.F2, then general revenue transfers would ultimately constitute the largest single source of income to the Medicare program as a whole—and would place a large burden on the federal budget. Although a smaller share of the total, SMI premiums would grow just as rapidly as general revenues, which would also place a growing burden on beneficiaries. (Section II.F of this report provides a further assessment of the implications of SMI cost growth for the federal budget and for beneficiaries.)

Under present law, the two trust funds are separate and distinct, each with its own sources of revenues and mandated expenditures. Accordingly, the financial status of each Medicare trust fund is assessed separately, as is appropriate. The total financial obligation posed by Medicare, and how it is financed, is an important issue for policy makers and the public to consider.

## *G. CONCLUSION*

The financing established for the SMI program for calendar year 2001 is estimated to be sufficient to cover program expenditures for that year and to preserve an adequate contingency reserve in the SMI trust fund. Moreover, trust fund income is projected to equal expenditures for all future years—but only because beneficiary premiums and government general revenue contributions are set to meet expected costs each year.

The short-range projections of SMI expenditures shown in this year's annual report are slightly higher than in the 2000 report. The increase, which is partially dampened by more-favorable-than-expected 2000 experience, is primarily due to legislative changes to the program. When expressed as a percentage of GDP, the long-term SMI expenditures are projected to be substantially higher than those in the 2000 report, largely as a result of a change in the long-term growth assumption in this year's report. This assumption change was adopted based on the recommendation of an independent expert panel of actuaries and economists. In our judgement (as well as the expert panel's), it represents a more realistic assessment of likely longer-term growth rates.

As in past reports, we note with great concern that program costs have generally grown faster than the GDP and that this trend is expected to continue under present law. Initially, the projected increases are attributable in part to assumed continuing growth in the volume and intensity of services provided per beneficiary. Demographic factors, including the retirement of the post-World War II baby boom generation starting in 2010, will also have a major influence on the growth in program costs. Consequently, we continue to be very concerned by the rate of growth in SMI expenditures.

As described in our accompanying report on the HI trust fund, prior to the Balanced Budget Act of 1997, HI assets were projected to be exhausted in the very near future. The urgency of this situation prompted considerable attention and led directly to the provisions in the Act to slow HI expenditure growth. In contrast, the automatic financing provisions for SMI prevent such crises. As a result, there has been substantially less attention directed toward the financial status of the SMI program than to the HI program—even though SMI expenditures have increased faster than HI expenditures in most years and are expected to continue to do so for a number of years in the future.

Given the past and projected cost of the program, we urge the nation's policy makers to consider effective means of controlling SMI costs in the near term. For the longer term, the Administration and the Congress should work together to develop legislative proposals to address the large increases in SMI costs associated with the baby boom's retirement at the same time that they address the HI cost increases caused by the aging of that generation. We are encouraged by the widespread interest in Congress and the Administration in improving Medicare's financial status. We believe that effective and decisive action is necessary to build on the strong steps taken in recent reforms.

## II. ACTUARIAL ANALYSIS

### *A. MEDICARE AMENDMENTS SINCE THE 2000 REPORT*

Since the 2000 annual report was transmitted to Congress on March 30, 2000, two laws have been enacted that affect the SMI program in a significant way.

The Military Construction Appropriations Act for 2001 (Public Law 106-246, enacted on July 13, 2000) included a provision affecting the SMI program. This legislation authorized adjustments to the SMI interest earnings for fiscal year 1999-2000 and to the interest and maturity structure of SMI assets to correct for certain trust fund accounting errors that occurred in fiscal year 1999. As described in section II.C, this legislation permitted restoration of the asset portfolio that would have been in effect in the absence of such errors.

The Medicare, Medicaid, and SCHIP Benefits Improvement and Protection Act of 2000 (Public Law 106-554, enacted on December 21, 2000) included numerous provisions affecting the SMI program. The more important provisions, from an actuarial perspective, are described in the following paragraphs. Certain provisions with a relatively minor financial impact on the SMI program, but which are important from a policy standpoint, are described as well.

- Coverage for screening pap smears and pelvic exams (including a clinical breast exam) is provided every 2 years (increased from every 3 years), beginning July 1, 2001.

- Annual coverage of glaucoma screenings is provided, effective January 1, 2002, for certain high-risk individuals.

- Screening colonoscopies are covered for all individuals, not just those at high risk, beginning July 1, 2001. For persons not at high risk, a screening colonoscopy is covered 10 years after a previous screening colonoscopy or 4 years after a screening flexible sigmoidoscopy.

- Coverage for medical nutrition therapy services is established under certain circumstances, effective January 1, 2002, for beneficiaries who have diabetes or a renal disease. Such services are defined as nutritional diagnostic, therapy, and counseling services that are furnished by a registered dietician or nutrition professional, pursuant to a physician's referral, for the purpose of disease management. Payment equals 80 percent of the lesser of the actual charge for the services or 85 percent of the payment that

would be made under the physician fee schedule if such services were provided by a physician. Assignment is required for all claims.

- The amount of a beneficiary's copayment for a procedure in a hospital outpatient department is limited, beginning April 1, 2001, to the hospital inpatient deductible applicable in that year. In addition, the Secretary must reduce the effective copayment rate for outpatient services to a maximum rate of 57 percent in 2001 (for services received after April 1); 55 percent in 2002 and 2003; 50 percent in 2004; 45 percent in 2005; and 40 percent in 2006 and thereafter.

- With regard to coverage of drugs and biologicals that are provided incident to a physician's services and that cannot be self-administered, policy is clarified to specify that such drugs and biologicals are covered when they are not usually self-administered by the patient.

- Time and budget limitations are removed on the coverage of immunosuppressive drugs, making coverage of these drugs a permanent benefit for beneficiaries who have received a covered organ transplant.

- Effective July 1, 2001, the 24-month waiting period (otherwise required for an individual to establish Medicare eligibility on the basis of a disability) is waived for persons with amyotrophic lateral sclerosis. The entitlement to Medicare begins with the first month of the Social Security Administration's determination of eligibility for Disability Insurance benefits.

- From July 1, 2001 through December 31, 2003, a transitional increase in mileage rates is provided for ground ambulance services for trips that originate in rural areas and that are greater than 17 miles and up to 50 miles. Payment is specified as the mileage rate otherwise established under the fee schedule increased by not less than half of the additional payment per mile for the first 17 miles of a rural trip. For services beginning July 1, 2001 and before January 1, 2002, the rate increase is $1.25 per mile.

- Payment provisions are revised, effective no later than October 1, 2001, for services provided via a telecommunications system by a physician or practitioner to an eligible beneficiary in a rural area. The Secretary must pay the physician or practitioner the same amount that would have been paid if the service had been furnished without the use of a telecommunications system. In

addition, a facility fee of $20, updated after 2002, will be paid to the originating site where the beneficiary is located.

- The telemedicine benefit under Medicare is further expanded by (1) removing the requirement for a telepresenter, unless the physician or provider deems it medically necessary to have a telepresenter with the beneficiary; (2) designating professional consultations, office visits, and psychiatry office visits—in addition to services that the Secretary deems appropriate to be delivered via telemedicine—as eligible services; and (3) specifying that originating sites must be located in rural health professional shortage areas or non-Metropolitan Statistical Areas.

- An update equal to the full rate of increase in the market basket index is provided for calendar year 2001 for the hospital outpatient prospective payment system (PPS). Under a special rule, this increase will be implemented by paying for services furnished on or after January 1, 2001 and before April 1, 2001 under the PPS rates established by the prior law (the fee schedule updated by the hospital market basket index increase minus 1 percentage point). For services furnished on or after April 1, 2001 and before January 1, 2002, payment will be the fee schedule updated with the full market basket plus an additional 0.32 percent. The combination of these increases provides an increase in payment equivalent to a full market basket update for all of 2001.

- If the Secretary identifies a change in outpatient PPS payments due to hospitals' changing their coding or classification of covered services, the Secretary may adjust the conversion factor to eliminate the collective effect of such "upcoding."

- The moratorium placed by the Balanced Budget Refinement Act of 1999 (BBRA) on the physical therapy and occupational therapy caps is extended for 1 year through 2002. In addition, the payment requirement for focused medical reviews of physical and occupational therapy claims is extended for the same period.

- The update to the composite rate payment for renal dialysis services is increased by 1.2 percent for 2001. The increase will be implemented, effective April 1, 2001, in such a way that the average payment for calendar year 2001 will reflect the full increase.

- The payment reduction for ambulance services mandated by the Balanced Budget Act of 1997 for 2001 is eliminated (though left in

place for 2002). The increase will be implemented, effective July 1, 2001, in such a way that the average payment for calendar year 2001 will reflect the full increase. In addition, effective July 1, 2001, any phase-in of the ambulance fee schedule provides for full payment of national mileage rates for suppliers in States where separate mileage payments were not made prior to implementation of the fee schedule.

- A full CPI update is provided for durable medical equipment (except for oxygen and oxygen equipment) in 2001. The increase will be implemented, effective July 1, 2001, in such a way that the average payment for calendar year 2001 will reflect the full increase. In general, in 2002 and thereafter, the annual update will equal the full increase in the CPI-U for the 12 months ending the previous June.

- A full CPI update is provided for orthotics and prosthetics in 2001. The increase will be implemented, effective July 1, 2001, in such a way that the average payment for calendar year 2001 will reflect the full increase. For 2002, payments will be increased by 1 percent over the prior year's amounts.

- Medicare coverage of artificial limbs and replacement parts for such prosthetic devices is liberalized, effective April 1, 2001.

- Beginning July 1, 2001, hospitals and free-standing ambulatory care clinics operated by the Indian Health Service, or by a tribe or tribal organization, are authorized to bill SMI—under the same situations, terms, and conditions as apply to non-Indian hospitals and clinics—for certain services furnished by physicians and other specified health care staff at the direction of the hospital or clinic.

- The aggregate amount of Medicare payments to home health agencies in the second year of the PPS (fiscal year 2002) must equal the aggregate payments in the first year of the PPS, updated by the market basket index increase minus 1.1 percentage points; therefore, the 15-percent reduction to aggregate home health PPS amounts—which, under the BBRA, would go into effect October 1, 2001—is delayed until October 1, 2002. In addition, if the Secretary identifies changes in aggregate payments due to changes in coding or classification of beneficiaries' service needs that do not reflect real changes in case mix, the Secretary may adjust PPS amounts, effective for home health episodes concluding

on or after October 1, 2001, to eliminate the effect of such coding or classification changes.

- The home health PPS payment updates are modified. For 60-day episodes (or visits) ending on or after April 1, 2001 and before October 1, 2001, rates are increased by 2.2 percent. This results in the full home health market basket increase for payments for fiscal year 2001. This increase is included in determining subsequent payment amounts.

- The homebound benefit is clarified to specify that beneficiaries who require home health services may attend adult day-care for therapeutic, psychosocial, or medical treatment and still remain eligible for the home health benefit. Homebound beneficiaries may also attend religious services without being disqualified from receiving home health benefits.

- For home health services furnished in certain rural areas between April 1, 2001 and April 1, 2003, Medicare payments are increased by 10 percent, without regard to budget neutrality for the overall home health PPS. This temporary increase is not included in determining subsequent payments.

- For cost reporting periods beginning during fiscal year 2002, the direct graduate medical education payment floor for hospitals is increased from 70 percent of a geographically adjusted national average per-resident amount to 85 percent of that amount.

- The national limitation amount for a new clinical laboratory test—for which no national limitation amount has previously been established—is set at 100 percent of the national median for such a test, effective January 1, 2001.

- The minimum payment amount for Medicare+Choice capitation rates is increased to $525, beginning March 1, 2001, in a Metropolitan Statistical Area with a population of more than 250,000. For all other areas, the minimum payment amount is increased to $475. This is applied such that the 2001 minimum payment amount may not exceed 120 percent of the 2000 minimum payment amount.

- Beginning March 1, 2001, the 2-percent minimum update for Medicare+Choice capitation rates is increased to 3 percent in 2001. Thereafter, a minimum update of 2 percent will again apply.

- The phase-in of risk adjustment for payments to Medicare+Choice organizations is extended from 5 years to 8 years. The current risk adjustment methodology (in which 10 percent of payments are based on risk-adjusted inpatient data, and 90 percent are adjusted solely using the older demographic method) will continue through 2003. Beginning in 2004, the risk adjustment will be based on data from inpatient hospital and ambulatory settings (comprehensive risk adjustment). The phase-in of the portion of payment subject to risk adjustment will then be as follows: 30 percent for 2004, 50 percent for 2005, 75 percent for 2006, and 100 percent for 2007 and subsequent years.

- The Secretary is required to appropriately adjust Medicare+Choice payment rates for enrollees with end-stage renal disease (ESRD) to reflect the demonstration rate (including the risk-adjustment methodology) of social health maintenance organizations' ESRD capitation demonstrations. These revised rates, which will be effective beginning January 1, 2002, must include adjustments for factors such as renal treatment modality, age, and underlying cause of the disease.

- For 1 year only, beginning on January 1, 2001, an exception to the Medicare+Choice risk-adjustment phase-in exists for congestive heart failure enrollees. While generally only 10 percent of payment is subject to risk adjustment, full risk-adjusted payment is implemented for enrollees who had a qualifying congestive heart failure inpatient diagnosis (as determined by the Secretary) between July 1, 1999 and June 30, 2000, if those individuals were enrolled in a coordinated care plan offered on January 1, 2001. This payment amount is excluded from the determination of the budget neutrality factor.

Detailed information regarding these changes and other less significant 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.

## *B. NATURE OF THE TRUST FUND*

The Federal Supplementary Medical Insurance Trust Fund was established on July 30, 1965 as a separate account in the U.S. Treasury. All the financial operations of the SMI program are handled through this fund.

The major sources of revenue of the trust fund are (1) contributions of the federal government that are authorized to be appropriated and transferred from the general fund of the Treasury, and (2) premiums paid by eligible persons who are voluntarily enrolled in the program. Eligible persons aged 65 and over have been able to enroll in the program since its inception in July 1966. Since July 1973, disabled persons who are under age 65 and who have met certain eligibility requirements have also been able to enroll in the program.

The premiums paid by enrollees are based on the standard monthly premium rate, which is the same for enrollees aged 65 and over and for disabled enrollees under age 65. In the early years of the program (fiscal years 1967 through 1973), when only persons aged 65 and over were covered, the premium rate was set by law to cover 50 percent of program costs. Beginning July 1973, eligibility was extended to disabled individuals under age 65. The premium rates for fiscal years 1974 and 1975 were still set to cover 50 percent of program costs, but only for aged enrollees. As a result, the standard premium rates payable by the disabled enrollees met less than 50 percent of their costs.

Beginning with fiscal year 1976 and extending through June 1983, the percentage increase in the premium rate was limited to the percentage increase in Social Security benefits. During this period, since SMI program costs were increasing faster than increases in Social Security benefits, the portion of program costs covered by the premium steadily declined to approximately 25 percent by June 1983. In January 1984, the financing period changed to a calendar-year basis, and for the transitional period July 1983 through December 1983, the premium remained frozen. Under legislation enacted periodically from 1984 through 1990, the premium was set to cover 25 percent of the program costs for aged enrollees.

In 1990, the Congress legislated specific premium rates for 1991 through 1995. These premium amounts were intended to cover approximately 25 percent of costs during this period. Actual SMI expenditures, however, increased less rapidly than assumed (in part as a result of subsequent legislation to reduce costs). Consequently, the premium rates legislated for 1992 through 1995 covered more than 25 percent of program costs.

For 1996 and later, the premium rates were set to cover 25 percent of the program costs for aged enrollees. However, the Balanced Budget Act of 1997 modified the determination of the premium rates for

1998 through 2003 to phase in the impact of the transfer of some home health expenditures from the HI program to the SMI program. The transfer of the costs associated with these home health services will occur over a 6-year period with an additional one-sixth being transferred each year. However, for purposes of establishing the premium, program costs for aged enrollees will be determined as if the transfer will occur over a 7-year period with an additional one-seventh being transferred each year. Accordingly, the premium rates for 1998 through 2003 will cover less than 25 percent of actual program costs.

Beginning July 1973, when eligibility was extended to disabled individuals under 65, two other monthly rates were established in addition to the monthly premium rate: the actuarial rate for enrollees aged 65 and over and the actuarial rate for disabled enrollees under age 65. The monthly actuarial rate for each of the two respective groups of enrollees equals one-half of the monthly projected cost of benefits and administrative expenses for that group, adjusted to allow for interest earnings on assets in the trust fund and to maintain a sufficient contingency margin, which is an amount appropriate to provide for a moderate degree of variation between actual and projected costs.

Premiums paid for fiscal years 1967 through 1973 were matched by an equal amount of government contributions. Beginning July 1973, the amount of government contributions corresponding to premiums paid by each of the two groups of enrollees is determined by applying a "matching ratio," prescribed in the law for each group, to the amount of premiums received from that group. The ratio is equal to (1) twice the monthly actuarial rate applicable to the particular group of enrollees, minus the standard monthly premium rate, divided by (2) the standard monthly premium rate.

Standard monthly premium rates and actuarial rates are promulgated each year by the Secretary of Health and Human Services (HHS). The standard monthly premium rates in effect since the beginning of the SMI program are shown in table II.B1. Actuarial rates in effect from July 1973 and later, and the corresponding percentages of program costs covered by the premium rate, are also shown. Estimated future premium amounts under the intermediate set of assumptions appear in section III.B.

**Table II.B1.—Standard Monthly Premium Rates, Actuarial Rates, and Premium Rates as a Percent of Program Cost**

| | | Monthly actuarial rate | | Premium rates as a percent of program cost | |
|---|---|---|---|---|---|
| | Standard monthly premium rate | Enrollees aged 65 and over | Disabled enrollees under age 65 | Enrollees aged 65 and over | Disabled enrollees under age 65 |
| July 1966-March 1968 | $3.00 | — | — | 50.0% | — |
| April 1968-June 1970 | 4.00 | — | — | 50.0 | — |
| 12-month period ending June 30 of | | | | | |
| 1971 | 5.30 | — | — | 50.0 | — |
| 1972 | 5.60 | — | — | 50.0 | — |
| 1973 | 5.80 | — | — | 50.0 | — |
| 1974[1] | 6.30 | $6.30 | $14.50 | 50.0 | 21.7% |
| 1975 | 6.70 | 6.70 | 18.00 | 50.0 | 18.6 |
| 1976 | 6.70 | 7.50 | 18.50 | 44.7 | 18.1 |
| 1977 | 7.20 | 10.70 | 19.00 | 33.6 | 18.9 |
| 1978 | 7.70 | 12.30 | 25.00 | 31.3 | 15.4 |
| 1979 | 8.20 | 13.40 | 25.00 | 30.6 | 16.4 |
| 1980 | 8.70 | 13.40 | 25.00 | 32.5 | 17.4 |
| 1981 | 9.60 | 16.30 | 25.50 | 29.4 | 18.8 |
| 1982 | 11.00 | 22.60 | 36.60 | 24.3 | 15.0 |
| 1983 | 12.20 | 24.60 | 42.10 | 24.8 | 14.5 |
| July 1983-December 1983 | 12.20 | 27.00 | 46.10 | 22.6 | 13.2 |
| Calendar year | | | | | |
| 1984 | 14.60 | 29.20 | 54.30 | 25.0 | 13.4 |
| 1985 | 15.50 | 31.00 | 52.70 | 25.0 | 14.7 |
| 1986 | 15.50 | 31.00 | 40.80 | 25.0 | 19.0 |
| 1987 | 17.90 | 35.80 | 53.00 | 25.0 | 16.9 |
| 1988 | 24.80 | 49.60 | 48.60 | 25.0 | 25.5 |
| 1989 | 31.90[2] | 55.80 | 34.30 | 25.0[3] | 40.7[3] |
| 1990 | 28.60 | 57.20 | 44.10 | 25.0 | 32.4 |
| 1991 | 29.90 | 62.60 | 56.00 | 23.9 | 26.7 |
| 1992 | 31.80 | 60.80 | 80.80 | 26.2 | 19.7 |
| 1993 | 36.60 | 70.50 | 82.90 | 26.0 | 22.1 |
| 1994 | 41.10 | 61.80 | 76.10 | 33.3 | 27.0 |
| 1995 | 46.10 | 73.10 | 105.80 | 31.5 | 21.8 |
| 1996 | 42.50 | 84.90 | 105.10 | 25.0 | 20.2 |
| 1997 | 43.80 | 87.60 | 110.40 | 25.0 | 19.8 |
| 1998 | 43.80 | 87.90 | 97.10 | 24.9 | 22.6 |
| 1999 | 45.50 | 92.30 | 103.00 | 24.6 | 22.1 |
| 2000 | 45.50 | 91.90 | 121.10 | 24.8 | 18.8 |
| 2001 | 50.00 | 101.00 | 132.20 | 24.8 | 18.9 |

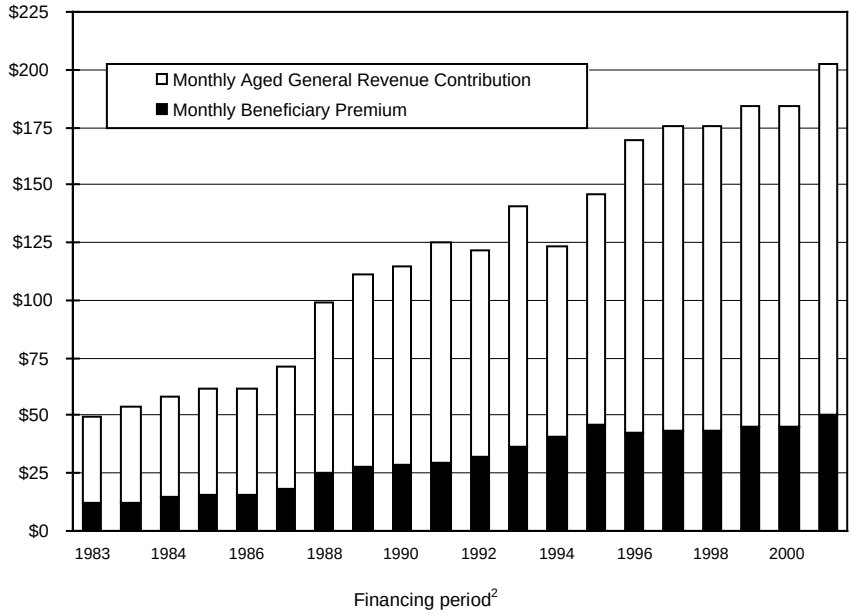
[1]In accordance with limitations on the costs of health care imposed under Phase III of the Economic Stabilization program, the standard premium rates for July and August 1973 were set at $5.80 and $6.10, respectively. Effective September 1973, the rate increased to $6.30.

[2]This rate includes the $4.00 catastrophic coverage monthly premium that was paid by most enrollees under the Medicare Catastrophic Coverage Act of 1988 (subsequently repealed).

[3]The premium rates as a percent of program cost for calendar year 1989 apply to the non-catastrophic portion of the standard monthly premium rate.

Figures II.B1 and II.B2 are graphic representations of the monthly per capita financing rates, for financing periods since 1982, for enrollees aged 65 and over and for disabled individuals under age 65, respectively. The graphs show the portion of the financing contributed by the beneficiaries and by general revenues. As indicated, general revenue financing is the major source of income for the program.

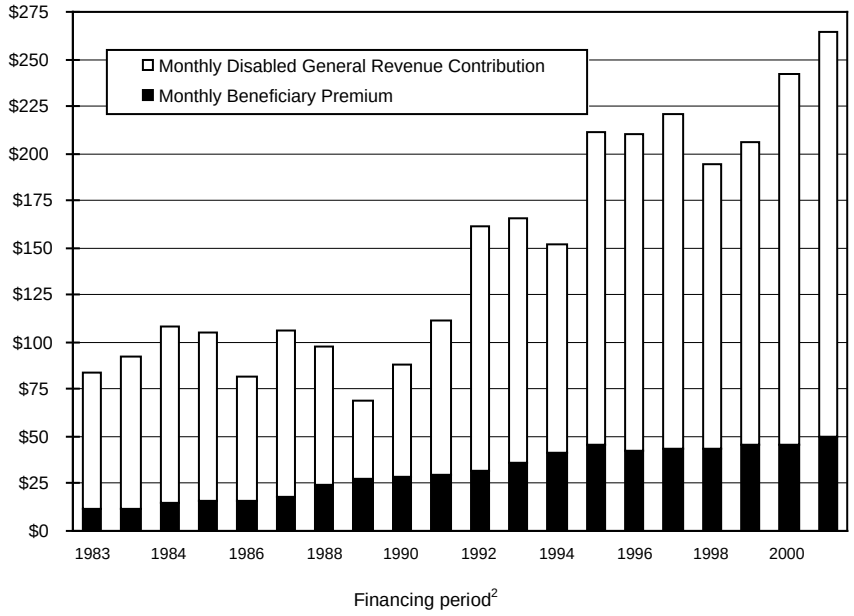
**Figure II.B1.—SMI Aged Monthly Per Capita Income[1]**




[1]The amounts shown do not include the catastrophic coverage monthly premium rate for 1989.

[2]For 1983 and earlier, the financing period is July 1 through June 30. For the transitional semester (T.S.), the financing period is July 1, 1983 through December 31, 1983. For 1984 and later, the financing period is January 1 through December 31.

**Figure II.B2.—SMI Disabled Monthly Per Capita Income[1]**




[1]See footnote 1 of figure II.B1.
[2]See footnote 2 of figure II.B1.

Another source from which revenue of the trust fund is derived is interest received on investments held by the fund. The investment procedures of the fund are described later in this section. Section 201(i) of the Social Security Act authorizes the Managing Trustee to accept and deposit in the trust fund unconditional money gifts or bequests made for the benefit of the fund or for any activity financed through the fund.

Expenditures for benefit payments and administrative expenses under the program are paid out of the trust fund. All expenses incurred by the Department of HHS, the Social Security Administration (SSA), and the Department of the Treasury in carrying out the SMI provisions of Title XVIII of the Social Security Act are charged to the trust fund. The Secretary of HHS certifies benefit payments to the Managing Trustee, who makes the payments from the trust fund.

The Social Security Act authorizes the Secretary of HHS to develop and conduct a broad range of experiments and demonstration projects designed to determine various methods of increasing efficiency and economy in providing health care services, while maintaining the

quality of such services under the HI and SMI programs. The costs of these experiments and demonstration projects are paid out of the HI and SMI trust funds.

Congress has authorized expenditures from the trust funds for construction, rental and lease, or purchase contracts of office buildings and related facilities for use in connection with the administration of the SMI program. Both the capital costs of construction financed directly from the trust fund, and the rental and lease or purchase contract costs of acquiring facilities, are included in trust fund expenditures. Whatever the manner of acquisition, the net worth of facilities and other fixed capital assets is not carried in the statement of trust fund assets presented in this report, since the value of fixed capital assets does not represent funds available for benefit or administrative expenditures and, therefore, is not pertinent in assessing the actuarial status of the funds.

The portion of the trust fund that is not required to meet current expenditures for benefits and administration is invested in interest-bearing obligations of the U.S. Government (including special public-debt obligations described below). Investments may also be made in obligations guaranteed as to both principal and interest by the United States, including 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 fund. The law requires that these special public-debt obligations shall bear interest at a rate based on the average market yield (computed on the basis of market quotations as of the end of the calendar month immediately preceding the date of such issue) on all marketable interest-bearing obligations of the United States forming a part of the public debt that are not due or callable until after the expiration of 4 years from the end of that calendar month. Since the inception of the SMI program, the assets have always been invested in special public-debt obligations.

## *C. OPERATIONS OF THE TRUST FUND, FISCAL YEAR 2000*

A statement of the revenue and disbursements of the Federal Supplementary Medical Insurance Trust Fund in fiscal year 2000, and of the fund's assets at the beginning and end of the fiscal year, is presented in table II.C1.

**Table II.C1.—Statement of Operations of the SMI Trust Fund during Fiscal Year 2000**
[In thousands]

| | | |
|---|---|---|
| Total assets of the trust fund, beginning of period | | $45,648,570 |
| Revenue: | | |
| Premiums from enrollees: | | |
| Enrollees aged 65 and over | $17,960,990 | |
| Disabled enrollees under age 65 | 2,553,780 | |
| Total premiums | | 20,514,771 |
| Government contributions: | | |
| Enrollees aged 65 and over | 54,960,978 | |
| Disabled enrollees under age 65 | 10,600,089 | |
| Total Government contributions | | 65,561,068 |
| Other | | 3,915 |
| Interest: | | |
| Interest on investments | 2,929,059 | |
| Interest on amounts of interfund transfers[1] | 230,615 | |
| Total interest | | 3,159,674 |
| Total revenue | | 89,239,428 |
| Disbursements: | | |
| Net benefit payments | | 87,212,399 |
| Administrative expenses: | | |
| Treasury administration expenses | 294 | |
| Salaries and expenses, HCFA[2] | 1,259,041 | |
| Salaries and expenses, Office of the Secretary, HHS | 3,511 | |
| Salaries and expenses, SSA | 510,387 | |
| Medicare Payment Advisory Commission | 2,806 | |
| Railroad Retirement administrative expenses | 4,055 | |
| Total administrative expenses | | 1,780,094 |
| Total disbursements | | 88,992,493 |
| Net addition to the trust fund | | 246,935 |
| Total assets of the trust fund, end of period | | 45,895,505 |

[1] A positive figure represents a transfer of interest to the SMI trust fund from the other trust funds. A negative figure represents a transfer of interest from the SMI trust fund to the other trust funds.
[2] Includes administrative expenses of the carriers and intermediaries.

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

The total assets of the trust fund amounted to $45,649 million on September 30, 1999. During fiscal year 2000, total revenue amounted to $89,239 million, and total disbursements were $88,992 million. Total assets thus increased $247 million during the year, to $45,896 million as of September 30, 2000.

Of the total revenue, $20,515 million represented premium payments by (or on behalf of) aged and disabled enrollees—an increase of 1.8 percent over the amount of $20,160 million for the preceding year. This increase resulted from the growth of the number of persons

enrolled in the SMI program, since the SMI premium for 2000 remained $45.50, the same as in 1999.

Contributions received from the general fund of the Treasury amounted to $65,561 million, which accounted for 73.5 percent of total revenue. The remaining $3,164 million of revenue consisted almost entirely of interest on the investments of the trust fund.

Of the $88,992 million in total disbursements, $87,212 million represented (1) benefits paid directly from the trust fund for health services covered under Title XVIII of the Social Security Act, and (2) costs of experiments and demonstration projects in providing health care services. Net benefit payments were $87,212 million, consisting of gross benefit payments less recoveries from fraud and abuse control activities.

The remaining $1,780 million of disbursements was for administrative expenses, which are allocated and charged to each of the four trust funds—Old-Age and Survivors Insurance (OASI), Disability Insurance (DI), HI, and SMI—on the basis of provisional estimates. Similarly, the expenses of administering other programs of HCFA are also allocated and charged to the general fund of the Treasury on a provisional basis. Periodically, as actual experience develops and is analyzed, the allocations of administrative expenses and costs of construction for prior periods are adjusted by interfund transfers. This adjustment includes transfers between the HI and SMI trust funds and the program management general fund account, with appropriate interest allowances.

Table II.C2 compares the actual experience in fiscal year 2000 with the estimates presented in the 1999 and 2000 annual reports. The estimates for premiums from enrollees and government contributions in both reports were very close to actual experience. Actual SMI benefit payments in fiscal year 2000 were slightly lower than estimated in the 2000 annual report, and significantly lower than in the 1999 report. This latter result occurred in part because of lower increases in allowed fees due to lower general and medical inflation. In addition, actual benefit payments reflected slightly lower increases in the volume and intensity of services used than had been estimated. These effects more than offset the slightly higher costs in 2000 attributable to the Balanced Budget Refinement Act of 1999, which was enacted subsequent to the release of the 1999 report.

**Table II.C2.—Comparison of Actual and Estimated Operations of the SMI Trust Fund, Fiscal Year 2000**

[Dollar amounts in millions]

| Item | Actual amount | Comparison of actual experience with estimates for fiscal year 2000 published in: 2000 report: Estimated amount[1] | 2000 report: Actual as percentage of estimate | 1999 report: Estimated amount[1] | 1999 report: Actual as percentage of estimate |
|---|---|---|---|---|---|
| Premiums from enrollees | $20,515 | $20,405 | 101 | $21,308 | 96 |
| Government contributions | 65,561 | 65,209 | 101 | 68,208 | 96 |
| Benefit payments | 87,212 | 89,571 | 97 | 93,243 | 94 |

[1]Under the intermediate assumptions.

Table II.C3 shows a comparison of the total assets of the SMI trust fund and their distribution at the end of fiscal years 1999 and 2000. The assets of the fund at the end of 1999 totaled $45,649 million: $26,528 million in the form of obligations of the U.S. Government and an undisbursed balance of $19,120 million. At the end of 2000, assets totaled $45,896 million: $45,075 million in the form of obligations of the U.S. Government and an undisbursed balance of $821 million. A comparison of assets of the trust fund with liabilities for incurred but unpaid benefits (and related administrative expenses) is shown in section II.E.

An undisbursed balance normally represents cash receipts that have not yet been invested and/or trust fund securities that have been redeemed to obtain the cash necessary to meet expenditures anticipated in the immediate future. Thus, such amounts are assets of the trust fund that are not currently invested in interest-bearing Treasury securities. (Conversely, if redeemed assets temporarily fall short of immediate expenditures, the undisbursed balance can be negative, representing an extension of credit against securities to be redeemed within the following few days.)

The undisbursed balance at the end of fiscal year 1999 substantially exceeded normal levels, due to accounting errors involving the crediting and debiting of amounts to the SMI trust fund during the fiscal year. These errors led to an excessive level of uninvested assets and a shortfall in the amount of interest earnings that would otherwise have been credited to the trust fund. The principal component of the error was largely corrected in early October 1999, when the excess undisbursed balance was invested in interest-bearing Treasury securities. Final correction of the principal and interest components—including restoration of the specific asset holdings and interest earnings that would have occurred in the absence of the accounting errors—was completed in August 2000, as authorized by Public Law 106-246.

**Table II.C3.—Assets of the SMI Trust Fund, by Type, at the End of Fiscal Years 1999 and 2000[1]**

| | September 30, 1999 | September 30, 2000 |
|---|---|---|
| Investments in public-debt obligations sold only to the trust funds (special issues): | | |
| Certificates of indebtedness: | | |
| 6.125-percent, 2001 | —— | 728,545,000.00 |
| Bonds: | | |
| 5.875-percent, 2002-2003 | —— | 598,234,000.00 |
| 5.875-percent, 2004-2013 | 5,218,641,000.00 | 5,218,641,000.00 |
| 6.000-percent, 2002-2013 | —— | 5,643,110,000.00 |
| 6.000-percent, 2014 | 581,313,000.00 | 2,991,887,000.00 |
| 6.250-percent, 2003 | —— | 230,256,000.00 |
| 6.250-percent, 2004-2008 | 2,444,388,000.00 | 2,444,388,000.00 |
| 6.500-percent, 2001-2015 | —— | 3,509,839,000.00 |
| 6.875-percent, 2001-2003 | —— | 1,357,906,000.00 |
| 6.875-percent, 2004-2012 | 6,768,347,000.00 | 6,768,347,000.00 |
| 7.000-percent, 2001-2003 | —— | 2,617,182,000.00 |
| 7.000-percent, 2004-2011 | 3,856,027,000.00 | 3,856,027,000.00 |
| 7.250-percent, 2003 | —— | 47,112,000.00 |
| 7.250-percent, 2004-2009 | 1,806,037,000.00 | 1,806,037,000.00 |
| 7.375-percent, 2003 | —— | 74,294,000.00 |
| 7.375-percent, 2004-2007 | 1,515,991,000.00 | 1,515,991,000.00 |
| 8.125-percent, 2003 | —— | 227,381,000.00 |
| 8.125-percent, 2004-2006 | 1,673,574,000.00 | 1,673,574,000.00 |
| 8.750-percent, 2002 | —— | 791,925,000.00 |
| 8.750-percent, 2003 | 681,098,000.00 | 991,433,000.00 |
| 8.750-percent, 2004-2005 | 1,982,866,000.00 | 1,982,866,000.00 |
| Total investments | $26,528,282,000.00 | $45,074,975,000.00 |
| Undisbursed balance[2] | 19,120,287,986.87 | 820,529,764.74 |
| Total assets | $45,648,569,968.87 | $45,895,504,764.74 |

[1]Certificates of indebtedness and bonds are carried at par value, which is the same as book value.
[2]See text for explanation of the unusually large September 30, 1999 amount.

The effective annual rate of interest earned by the assets of the SMI trust fund for the 12 months ending on December 31, 2000 was 7.2 percent. 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 2000 was 6.5 percent, payable semiannually.

## *D. EXPECTED OPERATIONS AND STATUS OF THE TRUST FUND*

Future operations of the trust fund are projected using the Trustees' economic and demographic assumptions, as detailed in the OASDI Trustees Report, as well as other assumptions unique to the SMI program. Section II.G presents an explanation of the effects of the Trustees' intermediate assumptions, and the other assumptions unique to SMI, on the estimates in this report. Although financing rates have been set only through December 31, 2001, it has been assumed that financing for future periods will be determined according to the statutory provisions described in section II.B. In

addition, for the benefit expenditure estimates, it is assumed that current statutory provisions are maintained.

Table II.D1 shows the estimated operations of the SMI trust fund under the intermediate assumptions on a fiscal-year basis through 2010. Table II.D2 shows the corresponding development on a calendar-year basis. These estimated operations reflect the transfer of certain home health services from the HI program to the SMI program, as specified by the Balanced Budget Act of 1997. For individuals enrolled in both HI and SMI, the HI program covers the first 100 home health visits following a hospital or skilled nursing facility stay of at least 3 days, and coverage of all other home health services for these individuals has been transferred from the HI program to the SMI program. However, for the 6-year period 1998 through 2003, sums of money are to be transferred from the HI trust fund to the SMI trust fund to phase in the financial impact of the transfer of these services. The sums of money to be transferred are determined so that the net additional expenditures of the SMI trust fund are one-sixth of the cost of the services being transferred in 1998, incremented by an additional one-sixth of the cost each year thereafter. The benefit payments for 1998 through 2003, shown in tables II.D1 and II.D2 and elsewhere in this section, as well as in section II.E, represent aggregate SMI benefit payments less the funds transferred from the HI trust fund.

**Table II.D1.—Operations of the SMI Trust Fund (Cash Basis) during Fiscal Years 1970-2010**

[In millions]

| Fiscal year[1] | Income | | | | Disbursements | | | Balance at end of year[4] |
|---|---|---|---|---|---|---|---|---|
| | Premium from enrollees | Government contributions[2] | Interest and other income[3] | Total income | Benefit payments | Adminis-trative expenses | Total disburse-ments | |
| Historical Data: | | | | | | | | |
| 1970 | $936 | $928 | $12 | $1,876 | $1,979 | $217 | $2,196 | $57 |
| 1975 | 1,887 | 2,330 | 105 | 4,322 | 3,765 | 405 | 4,170 | 1,424 |
| 1980 | 2,928 | 6,932 | 415 | 10,275 | 10,144 | 593 | 10,737 | 4,532 |
| 1985 | 5,524 | 17,898 | 1,155 | 24,577 | 21,808 | 922 | 22,730 | 10,646 |
| 1990 | 11,494[5] | 33,210 | 1,434[5] | 46,138[5] | 41,498 | 1,524[5] | 43,022[5] | 14,527[5] |
| 1991 | 11,807 | 34,730 | 1,629 | 48,166 | 45,514 | 1,505 | 47,019 | 15,675 |
| 1992 | 12,748 | 38,684 | 1,717 | 53,149 | 48,627 | 1,661 | 50,288 | 18,535 |
| 1993 | 14,683 | 44,227 | 1,889 | 60,799 | 54,214[6] | 1,845 | 56,059 | 23,276 |
| 1994 | 16,895 | 38,355 | 2,118 | 57,368 | 58,006 | 1,718 | 59,724 | 20,919 |
| 1995 | 19,244 | 36,988 | 1,937 | 58,169 | 63,491 | 1,722 | 65,213 | 13,874 |
| 1996 | 18,931 | 61,702 | 1,392 | 82,025 | 67,176 | 1,771 | 68,946 | 26,953 |
| 1997 | 19,141 | 59,471 | 2,193 | 80,806 | 71,133 | 1,420 | 72,553 | 35,206 |
| 1998 | 19,427 | 59,919 | 2,608 | 81,955 | 74,837[7] | 1,435 | 76,272 | 40,889 |
| 1999 | 20,160 | 62,185 | 2,933 | 85,278 | 79,008[7] | 1,510 | 80,518 | 45,649 |
| 2000 | 20,515 | 65,561 | 3,164 | 89,239 | 87,212[7] | 1,780 | 88,992 | 45,896 |
| Intermediate Estimates: | | | | | | | | |
| 2001 | 22,036 | 69,777 | 3,039 | 94,852 | 99,339[7] | 1,779 | 101,118 | 39,630 |
| 2002 | 25,649 | 81,650 | 2,748 | 110,047 | 108,200[7] | 1,833 | 110,033 | 39,643 |
| 2003 | 28,517 | 89,290 | 2,714 | 120,521 | 117,736[7] | 1,921 | 119,657 | 40,507 |
| 2004 | 31,013 | 95,535 | 2,767 | 129,315 | 126,069[7] | 2,006 | 128,075 | 41,747 |
| 2005 | 33,437 | 102,499 | 2,836 | 138,772 | 136,814 | 2,093 | 138,907 | 41,612 |
| 2006 | 35,801 | 109,720 | 2,911 | 148,432 | 142,875 | 2,184 | 145,059 | 44,985 |
| 2007 | 38,131 | 117,033 | 2,996 | 158,160 | 154,191 | 2,280 | 156,471 | 46,674 |
| 2008 | 41,085 | 125,993 | 3,119 | 170,198 | 165,103 | 2,379 | 167,482 | 49,389 |
| 2009 | 44,263 | 135,588 | 3,297 | 183,148 | 177,175 | 2,481 | 179,656 | 52,881 |
| 2010 | 47,542 | 145,618 | 3,517 | 196,678 | 190,046 | 2,588 | 192,634 | 56,925 |

[1]Fiscal years 1970 and 1975 consist of the 12 months ending on June 30 of each year; fiscal years 1980 and later consist of the 12 months ending on September 30 of each year.

[2]General fund matching payments, plus certain interest-adjustment items.

[3]Other income includes recoveries of amounts reimbursed from the trust fund that are not obligations of the trust fund and other miscellaneous income.

[4]The financial status of the program depends on both the assets and the liabilities of the program (see table II.E2).

[5]Includes the impact of the Medicare Catastrophic Coverage Act of 1988 (Public Law 100-360).

[6]Includes the impact of the transfer to the HI trust fund of the SMI catastrophic coverage reserve fund on March 31, 1993 as specified in Public Law 102-394. Actual benefit payments for 1993 were $52,409 million, and the amount transferred was $1,805 million.

[7]Benefit payments less monies transferred from the HI trust fund for home health agency costs, as provided for by the Balanced Budget Act of 1997.

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

**Table II.D2.—Operations of the SMI Trust Fund (Cash Basis) during Calendar Years 1970-2010**

[In millions]

| Calendar year | Income | | | | Disbursements | | | Balance at end of year[3] |
|---|---|---|---|---|---|---|---|---|
| | Premium from enrollees | Government contributions[1] | Interest and other income[2] | Total income | Benefit payments | Administrative expenses | Total disbursements | |
| Historical Data: | | | | | | | | |
| 1970 | $1,096 | $1,093 | $12 | $2,201 | $1,975 | $237 | $2,212 | $188 |
| 1975 | 1,918 | 2,648 | 107 | 4,673 | 4,273 | 462 | 4,735 | 1,444 |
| 1980 | 3,011 | 7,455 | 408 | 10,874 | 10,635 | 610 | 11,245 | 4,530 |
| 1985 | 5,613 | 18,250 | 1,243 | 25,106 | 22,947 | 933 | 23,880 | 10,924 |
| 1990 | 11,320 | 33,035 | 1,558 | 45,913 | 42,468 | 1,519 | 43,987 | 15,482 |
| 1991 | 11,934 | 37,602 | 1,688 | 51,224 | 47,336 | 1,541 | 48,877 | 17,828 |
| 1992 | 14,077[4] | 41,359[4] | 1,801 | 57,237 | 49,260 | 1,570 | 50,830 | 24,235 |
| 1993 | 14,193[4] | 41,465[4] | 2,021 | 57,679 | 55,784[5] | 2,000 | 57,784 | 24,131 |
| 1994 | 17,386 | 36,203 | 2,018 | 55,607 | 58,618 | 1,699 | 60,317 | 19,422 |
| 1995 | 19,717 | 39,007 | 1,582 | 60,306 | 64,972 | 1,627 | 66,599 | 13,130 |
| 1996 | 18,763 | 65,035 | 1,811 | 85,609 | 68,598 | 1,810 | 70,408 | 28,332 |
| 1997 | 19,289 | 60,171 | 2,464 | 81,924 | 72,757 | 1,368 | 74,124 | 36,131 |
| 1998 | 20,933[6] | 64,068[6] | 2,711 | 87,711 | 76,125[7] | 1,505 | 77,630 | 46,212 |
| 1999 | 18,967[6] | 59,095[6] | 2,841 | 80,902 | 80,724[7] | 1,603 | 82,327 | 44,787 |
| 2000 | 20,555 | 65,898 | 3,450 | 89,903 | 88,893[7] | 1,770 | 90,663 | 44,027 |
| Intermediate Estimates: | | | | | | | | |
| 2001 | 22,594 | 72,401 | 2,902 | 97,898 | 101,918[7] | 1,855 | 103,773 | 38,152 |
| 2002 | 26,667 | 83,607 | 2,697 | 112,971 | 111,875[7] | 1,944 | 113,818 | 37,305 |
| 2003 | 29,134 | 91,184 | 2,720 | 123,038 | 119,679[7] | 2,027 | 121,706 | 38,637 |
| 2004 | 31,639 | 96,985 | 2,783 | 131,407 | 128,136 | 2,114 | 130,250 | 39,794 |
| 2005 | 34,036 | 104,338 | 2,854 | 141,228 | 137,570 | 2,207 | 139,778 | 41,243 |
| 2006 | 36,390 | 111,514 | 2,930 | 150,833 | 147,119 | 2,305 | 149,423 | 42,653 |
| 2007 | 38,712 | 118,873 | 3,019 | 160,603 | 156,794 | 2,404 | 159,198 | 44,058 |
| 2008 | 41,876 | 128,367 | 3,153 | 173,396 | 168,153 | 2,507 | 170,660 | 46,794 |
| 2009 | 45,059 | 137,995 | 3,345 | 186,398 | 180,433 | 2,615 | 183,048 | 50,144 |
| 2010 | 48,370 | 148,160 | 3,575 | 200,105 | 193,555 | 2,727 | 196,282 | 53,967 |

[1]See footnote 2 of table II.D1.
[2]See footnote 3 of table II.D1.
[3]See footnote 4 of table II.D1.
[4]Section 708 of the Social Security Act modifies the provisions for the delivery of Social Security benefit checks when the regularly designated day falls on a Saturday, Sunday, or legal public holiday. Delivery of benefit checks normally due January 3, 1993 occurred on December 31, 1992. Consequently, the SMI premiums withheld from the checks ($1,089 million) and the associated general revenue contributions ($3,175 million) were added to the SMI trust fund on December 31, 1992. These amounts are excluded from the premium income and general revenue income for 1993.
[5]Includes the impact of the transfer to the HI trust fund of the SMI catastrophic coverage reserve fund on March 31, 1993 as specified in Public Law 102-394. Actual benefit payments for 1993 were $53,979 million, and the amount transferred was $1,805 million.
[6]Delivery of benefit checks normally due January 3, 1999 occurred on December 31, 1998. Consequently, the SMI premiums withheld from the checks ($1,512 million) and the associated general revenue contributions ($4,711 million) were added to the SMI trust fund on December 31, 1998. These amounts are excluded from the premium income and general revenue income for 1999 (refer to footnote 4).
[7]See footnote 7 of table II.D1.

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

The beneficiary premiums and actuarial rates for calendar year 2001 were promulgated with specific margins to decrease slightly the size of the SMI trust fund, which is currently well above levels considered adequate for contingency reserve purposes. As a result, the fund is estimated to decrease during 2001 to an estimated $38.2 billion by

the end of the year, and then to decrease to $37.3 billion by the end of 2002. For subsequent years, financing margins are assumed to be set in such a way that the trust fund assets will increase less rapidly than expenditures, such that the preferred contingency level would be reached in 2007 and then maintained at that level thereafter.

The amount and rate of growth of benefit payments have been a source of some concern for many years. In table II.D3, amounts of payments are considered in the aggregate, on a per capita basis, and relative to the GDP. Rates of growth are shown historically and for the next 10 years, based on the intermediate set of assumptions. During 2000, program benefits grew 10.1 percent on an aggregate basis and 9.3 percent on a per capita basis, and increased to 0.89 percent of GDP. For 2001, the program is expected to grow 14.7 percent on an aggregate basis and 13.5 percent on a per capita basis, and to increase from 0.89 to 0.97 percent of GDP. These larger increases are due in part to the provisions contained in the Balanced Budget Act of 1997 (BBA), including the transfer of additional home health care costs from the HI program to SMI. To a lesser degree, SMI growth in 2001 is also affected by the provisions of the Balanced Budget Refinement Act of 1999 and the Benefits Improvement and Protection Act of 2000 (BIPA), which limited the cost-reducing provisions of the BBA and/or expanded SMI benefit coverage (see section II.A).

**Table II.D3.—Growth in Total Benefits under the SMI Program (Cash Basis) through December 31, 2010**

| Calendar year | Aggregate benefits [millions] | Percent change | Per capita benefits | Percent change | SMI benefits as a percent of GDP |
|---|---|---|---|---|---|
| Historical Data: | | | | | |
| 1970 | $1,975 | 5.9 | $101.30 | 3.5 | 0.19 |
| 1975 | 4,273 | 28.8 | 179.96 | 24.6 | 0.26 |
| 1980 | 10,635 | 22.1 | 389.87 | 19.3 | 0.38 |
| 1985 | 22,947 | 16.7 | 768.25 | 14.5 | 0.55 |
| 1990 | 42,468 | 10.9 | 1,303.98 | 9.2 | 0.74 |
| 1991 | 47,336 | 11.5 | 1,426.15 | 9.3 | 0.79 |
| 1992 | 49,260 | 4.1 | 1,454.85 | 2.0 | 0.78 |
| 1993 | 53,979 | 9.6 | 1,562.77 | 7.4 | 0.81 |
| 1994 | 58,618 | 8.6 | 1,669.87 | 6.9 | 0.83 |
| 1995 | 64,972 | 10.8 | 1,822.98 | 9.2 | 0.88 |
| 1996 | 68,598 | 5.6 | 1,900.01 | 4.2 | 0.88 |
| 1997 | 72,757 | 6.1 | 1,996.37 | 5.1 | 0.88 |
| 1998 | 76,125[1] | 4.6 | 2,071.09 | 3.8 | 0.87 |
| 1999 | 80,724[1] | 6.0 | 2,180.41 | 5.3 | 0.87 |
| 2000 | 88,893[1] | 10.1 | 2,383.71 | 9.3 | 0.89 |
| Intermediate Estimates: | | | | | |
| 2001 | 101,918[1] | 14.7 | 2,706.49 | 13.5 | 0.97 |
| 2002 | 111,875[1] | 9.8 | 2,945.09 | 8.8 | 1.01 |
| 2003 | 119,679[1] | 7.0 | 3,120.31 | 5.9 | 1.03 |
| 2004 | 128,136 | 7.1 | 3,304.73 | 5.9 | 1.04 |
| 2005 | 137,570 | 7.4 | 3,506.76 | 6.1 | 1.06 |
| 2006 | 147,119 | 6.9 | 3,701.66 | 5.6 | 1.08 |
| 2007 | 156,794 | 6.6 | 3,883.45 | 4.9 | 1.10 |
| 2008 | 168,153 | 7.2 | 4,086.15 | 5.2 | 1.12 |
| 2009 | 180,433 | 7.3 | 4,300.69 | 5.3 | 1.14 |
| 2010 | 193,555 | 7.3 | 4,532.94 | 5.4 | 1.16 |

[1]See footnote 7 of table II.D1.

The estimated costs shown in this annual report are slightly higher over the next 10 years than those in the 2000 annual report. The higher estimates are partly a result of BIPA, as noted. This impact, however, is mostly offset by (1) outpatient hospital payments for 2000 being lower than the estimates in the 2000 annual report, and (2) slightly lower assumed rates of medical inflation for the future. Overall, program costs in the 2001 annual report are still expected to increase faster than the GDP, as indicated in table II.D3.

Since future economic, demographic, and health care usage and cost experience may vary considerably from the intermediate assumptions on which the preceding cost estimates were based, estimates have also been prepared using two alternative sets of assumptions: low cost and high cost. The estimated operations of the SMI trust fund during 2000-2010 are summarized in table II.D4 for all three alternatives. The assumptions underlying the intermediate assumptions are presented in substantial detail in section II.G. The assumptions used in preparing estimates under the low cost and high cost alternatives are also summarized in that section.

**Table II.D4.—Estimated Operations of the SMI Trust Fund during Calendar Years 2000-2010, under Alternative Sets of Assumptions**

[Dollar amounts in billions]

| Calendar year | Premiums from enrollees | Other income[1] | Total income | Total disbursements | Balance in fund at end of year |
|---|---|---|---|---|---|
| Intermediate: | | | | | |
| 2000[2] | $20.6 | $69.3 | $89.9 | $90.7[3] | $44.0 |
| 2001 | 22.6 | 75.3 | 97.9 | 103.8[3] | 38.2 |
| 2002 | 26.7 | 86.3 | 113.0 | 113.8[3] | 37.3 |
| 2003 | 29.1 | 93.9 | 123.0 | 121.7[3] | 38.6 |
| 2004 | 31.6 | 99.8 | 131.4 | 130.3[3] | 39.8 |
| 2005 | 34.0 | 107.2 | 141.2 | 139.8 | 41.2 |
| 2006 | 36.4 | 114.4 | 150.8 | 149.4 | 42.7 |
| 2007 | 38.7 | 121.9 | 160.6 | 159.2 | 44.1 |
| 2008 | 41.9 | 131.5 | 173.4 | 170.7 | 46.8 |
| 2009 | 45.1 | 141.3 | 186.4 | 183.0 | 50.1 |
| 2010 | 48.4 | 151.7 | 200.1 | 196.3 | 54.0 |
| Low Cost: | | | | | |
| 2000[2] | $20.6 | $69.3 | $89.9 | $90.7[3] | $44.0 |
| 2001 | 22.6 | 75.4 | 98.0 | 102.1[3] | 39.9 |
| 2002 | 25.7 | 83.2 | 108.8 | 110.0[3] | 38.8 |
| 2003 | 27.5 | 88.8 | 116.3 | 115.2[3] | 39.9 |
| 2004 | 29.2 | 92.5 | 121.7 | 120.6[3] | 41.0 |
| 2005 | 30.7 | 97.0 | 127.7 | 126.5 | 42.2 |
| 2006 | 32.1 | 101.2 | 133.3 | 132.2 | 43.4 |
| 2007 | 33.4 | 105.3 | 138.7 | 137.6 | 44.5 |
| 2008 | 34.9 | 110.2 | 145.1 | 144.0 | 45.6 |
| 2009 | 36.6 | 115.4 | 152.0 | 150.7 | 46.9 |
| 2010 | 38.3 | 120.7 | 159.0 | 157.8 | 48.2 |
| High Cost: | | | | | |
| 2000[2] | $20.6 | $69.3 | $89.9 | $90.7[3] | $44.0 |
| 2001 | 22.6 | 75.3 | 97.9 | 104.5[3] | 37.4 |
| 2002 | 26.9 | 87.3 | 114.2 | 114.9[3] | 36.7 |
| 2003 | 30.1 | 96.9 | 127.0 | 125.6[3] | 38.1 |
| 2004 | 34.3 | 108.1 | 142.4 | 141.2[3] | 39.3 |
| 2005 | 37.2 | 116.9 | 154.2 | 152.7 | 40.8 |
| 2006 | 41.1 | 128.6 | 169.7 | 165.9 | 44.5 |
| 2007 | 45.6 | 142.8 | 188.3 | 184.1 | 48.7 |
| 2008 | 50.3 | 157.5 | 207.8 | 203.2 | 53.3 |
| 2009 | 55.3 | 173.2 | 228.5 | 223.5 | 58.3 |
| 2010 | 60.9 | 190.7 | 251.6 | 246.0 | 63.9 |

[1]Other income contains government contributions and interest.
[2]Figures for 2000 represent actual experience.
[3]See footnote 7 of table II.D1.

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

The three sets of assumptions were selected in order to indicate the general range in which the cost of the program might reasonably be expected to fall. The low and high cost alternatives provide for a fairly wide range of possible experience. Actual experience is expected to fall within the range, but no assurance can be given that this will be the case, particularly in light of the wide variations in experience that have occurred since the beginning of the program. In addition to the alternative projections shown here, a supplementary assessment of the possible range of SMI expenditures is shown in section III.D, based on a statistical analysis of past variation in SMI expenditure growth rates.

SMI expenditures are estimated to grow significantly faster than the GDP under the intermediate and high cost assumptions. Based on the low cost assumptions, expenditures would initially increase faster than the GDP, but only for the first few years. Thereafter, within the short-range period, costs would grow at approximately the same rate as the GDP.

The alternative projections shown in table II.D4 illustrate two important aspects of the financial operations of the SMI trust fund:

- Despite the widely differing assumptions underlying the three alternatives, the balance between SMI income and disbursements remains relatively stable. Under the low cost assumptions, for example, by 2010 both income and disbursements would be around 20 percent lower than projected under the intermediate assumptions. The corresponding amounts under the high cost assumptions would be around 26 percent higher than the intermediate estimates.

  This result occurs because the premiums and general revenue contributions underlying the financing for the SMI program are reestablished annually to match each year's anticipated incurred benefit costs and other expenditures. Thus, program income will automatically track program expenditures fairly closely, regardless of the specific economic and other conditions.

- As a result of the close matching of income and disbursements described above, projected trust fund assets show stable patterns of change under all three sets of assumptions. The annual adjustment of premiums and general revenue contributions permits the maintenance of a trust fund balance that, while relatively small, is sufficient to guard against chance fluctuations.

Table II.D5 shows the estimated incurred disbursements of the SMI program under the intermediate assumptions expressed as a percentage of GDP, for selected years over the calendar-year period 2000-2075. These estimated incurred disbursements are for benefit payments and administrative expenses combined, unlike the values in table II.D3, which express only benefit payments on a cash basis as a percentage of GDP. The 75-year projection period fully allows for the presentation of future trends that may reasonably be expected to occur, such as the impact of a large increase in enrollees after the turn of the century—when the relatively large number of persons born during the period between the end of World War II and the

mid-1960s (known as the "baby boom") will reach retirement age and begin to receive benefits.

As described in more detail in section III.A, increases in the costs per enrollee during the initial 25-year period are assumed to decline gradually in the last 12 years of that period to the same growth rate as GDP per capita plus 1 percentage point, and then to continue to grow at GDP per capita plus 1 percentage point in the last 50 years. Based on these assumptions, incurred SMI disbursements as a percentage of GDP would increase rapidly from 0.92 percent in 2000 to 3.80 percent in 2075.

This long-range projection represents a substantial change from the 2000 report, in which the long-range SMI growth rate was assumed to equal the growth in per capita GDP. As discussed in section I.D, this important assumption change was made based on the recommendation of an independent, expert panel of actuaries and economists convened by the Board of Trustees to review the assumptions and methods underlying the Medicare financial projections.

**Table II.D5.—SMI Disbursements (Incurred Basis) as a Percent of the Gross Domestic Product[1]**

| Calendar year | SMI Disbursements as a percent of GDP |
|---|---|
| 2000 | 0.92 |
| 2001 | 1.00 |
| 2002 | 1.03 |
| 2003 | 1.05 |
| 2004 | 1.07 |
| 2005 | 1.09 |
| 2006 | 1.11 |
| 2007 | 1.12 |
| 2008 | 1.14 |
| 2009 | 1.16 |
| 2010 | 1.19 |
| 2015 | 1.36 |
| 2020 | 1.61 |
| 2025 | 1.90 |
| 2030 | 2.18 |
| 2035 | 2.39 |
| 2040 | 2.52 |
| 2045 | 2.61 |
| 2050 | 2.71 |
| 2055 | 2.87 |
| 2060 | 3.10 |
| 2065 | 3.35 |
| 2070 | 3.59 |
| 2075 | 3.80 |

[1]Disbursements are the sum of benefit payments and administrative expenses.

## *E. ACTUARIAL STATUS OF THE TRUST FUND*

### l. Actuarial Status of the Supplementary Medical Insurance Program

The traditional concept of financial adequacy, as it applies to the SMI program, is closely related to the concept as it applies to many private group insurance plans. The SMI program is somewhat similar to yearly renewable term insurance, with financing from premium income paid by the enrollees and from income contributed from general revenue by the federal government. Consequently, the income to the program during a 12-month period for which financing is being established should be sufficient to cover the costs of services expected to be rendered during that period (including associated administrative costs), even though payment for some of these services will not be made until after the period closes. The portion of income required to cover those benefits not paid until after the end of the year is added to the trust fund. Thus, the assets that are in the trust fund at any time should be no less than the costs of the benefits and the administrative expenses incurred but not yet paid.

The law requires the Secretary of HHS to establish income for a calendar year on the basis of incurred costs (including associated administrative costs) for that year. Financing on an incurred basis means that income should be sufficient to cover the cost of services rendered during the period. However, since the income per enrollee (premium plus government contribution) is established prospectively, it is subject to projection error. Additionally, legislation enacted after the financing has been established, but effective for the period for which financing has been set, may affect program costs, resulting in incurred costs that may not be equal to income to the program. Trust fund assets, therefore, should be maintained at a level that is adequate to cover not only the value of incurred but unpaid expenses but also a reasonable degree of variation between actual and projected costs (in case actual costs exceed projected).

The actuarial status or financial adequacy of the SMI program is traditionally evaluated over the period for which the enrollee premium rates and level of general revenue financing have been established. The primary tests are that (1) the assets and income for years for which financing has been established should be sufficient to meet the projected benefits and associated administrative expenses incurred for that period; and (2) the assets should be sufficient to cover projected liabilities that have not yet been paid as of the end of the period. If these adequacy tests are not met, the program can still

continue to operate if the trust fund remains at a level adequate to permit the payment of claims as presented. However, to protect against the possibility that costs under the program will be higher than assumed, assets should be sufficient to include contingency levels that cover a reasonable degree of variation between actual and projected costs.

The adequacy of contingency reserves for accommodating higher-than-expected costs is measured by the excess of assets over liabilities. An appropriate target level for this excess depends on numerous factors, the most important of which are (1) the variation in the projection factors through the period for which the financing has been established; and (2) the expected relationship between incurred and cash expenditures. The former is analyzed on an ongoing basis, as trends in the differences vary over time. In addition, the traditional tests of asset adequacy have been augmented by a supplementary assessment of uncertainty using statistical methods, as shown in section III.D of this report.

## 2. Incurred Experience of the Supplementary Medical Insurance Program

The tests of financial adequacy for the SMI program that are noted above rely on the incurred experience of the program. Cash disbursements for benefits and administrative expenses by themselves are misleading, due to the relatively large liabilities outstanding at any time for benefits and processing costs. Outstanding liabilities result from the lag between the time that services are performed and the time that payments for them are made.

The experience of the program is substantially more difficult to determine on an incurred basis than on a cash basis. Payment for some services is reported only on a cash basis, and the incurred experience must be inferred from the cash payment information. Moreover, for recent time periods, the tabulations of bills are incomplete due to normal processing delays.

Table II.E1 shows the estimated transactions of the trust fund on an incurred basis. For the reasons stated above, the incurred experience must be viewed as an estimate, even for historical years. Various tests, however, such as the comparison to cash outlay data, assure that the estimates are reasonably close.

**Table II.E1.—Estimated Income and Disbursements Incurred under the SMI Program for Financing Periods through December 31, 2001**

[In millions]

| Financing period | Income: Premiums from enrollees | Income: Government contributions | Income: Interest and other income | Income: Total income | Disbursements: Benefit payments | Disbursements: Administrative expenses | Disbursements: Total disbursements | Net operations in year |
|---|---|---|---|---|---|---|---|---|
| Historical Data: | | | | | | | | |
| 12-month period ending June 30, | | | | | | | | |
| 1970 | $936 | $936 | $12 | $1,884 | $1,928 | $213 | $2,141 | -257 |
| 1975 | 1,887 | 2,396 | 105 | 4,388 | 3,957 | 438 | 4,395 | -7 |
| 1980 | 2,823 | 6,627 | 421 | 9,871 | 9,840 | 645 | 10,485 | -614 |
| Calendar year | | | | | | | | |
| 1985 | 5,613 | 18,243 | 1,248 | 25,104 | 22,750 | 986 | 23,736 | 1,368 |
| 1990 | 11,320 | 33,035 | 1,558 | 45,913 | 42,578 | 1,541 | 44,119 | 1,794 |
| 1991 | 11,934 | 37,558 | 1,732 | 51,224 | 46,329 | 1,572 | 47,901 | 3,323 |
| 1992 | 12,988 | 38,158 | 1,827 | 52,973 | 50,119 | 1,690 | 51,809 | 1,164 |
| 1993 | 15,282 | 44,640 | 2,021 | 61,943 | 55,716[1] | 1,713 | 57,429[1] | 4,514 |
| 1994 | 17,386 | 36,203 | 2,018 | 55,607 | 59,110 | 1,620 | 60,730 | -5,123 |
| 1995 | 19,717 | 45,743 | 1,739 | 67,199 | 64,918 | 1,607 | 66,525 | 674 |
| 1996 | 18,763 | 58,068 | 1,885 | 78,716 | 68,762 | 1,807 | 70,569 | 8,147 |
| 1997 | 19,289 | 60,169 | 2,466 | 81,924 | 72,726 | 1,367 | 74,093 | 7,831 |
| 1998 | 19,421 | 59,357 | 2,711 | 81,489 | 77,239[2] | 1,438 | 78,677 | 2,812 |
| 1999 | 20,479 | 63,806 | 2,841 | 87,126 | 81,506[2] | 1,603 | 83,109 | 4,017 |
| 2000 | 20,555 | 65,898 | 3,450 | 89,903 | 90,418[2] | 1,770 | 92,188 | -2,285 |
| Intermediate Estimates: | | | | | | | | |
| 2001 | 22,594 | 72,401 | 2,902 | 97,898 | 103,074[2] | 1,855 | 104,929 | -7,031 |

[1]Includes the impact of the transfer to the HI trust fund of the SMI catastrophic coverage reserve fund on March 31, 1993 as specified in Public Law 102-394. Estimated incurred payments for 1993 are $53,911 million, and the amount transferred was $1,805 million.
[2]See footnote 7 of table II.D1.

## 3. Accumulated Excess of Assets over Liabilities

The liability outstanding at any time, for the cost of services performed for which no payment has been made, is referred to as "benefits incurred but unpaid." Estimates of the amount of benefits incurred but unpaid as of the end of each financing period, and of the administrative expenses related to processing these benefits, appear in table II.E2. In some years, program assets have not been as large as liabilities. Nonetheless, the fund has remained positive, allowing claims to be paid.

**Table II.E2.—Summary of Estimated Assets and Liabilities of the SMI Program as of the End of the Financing Period, for Periods through December 31, 2001**

[Dollar amounts in millions]

| | Balance in trust fund | Government contributions due but unpaid | Total assets | Benefits incurred but unpaid | Administrative costs incurred but unpaid | Total liabilities | Excess of assets over liabilities | Ratio[1] |
|---|---|---|---|---|---|---|---|---|
| Historical Data: | | | | | | | | |
| As of June 30, | | | | | | | | |
| 1970 | $57 | $15 | $72 | $567 | $0 | $567 | -495 | -0.21 |
| 1975 | 1,424 | 67 | 1,491 | 1,257 | 14 | 1,271 | 220 | 0.04 |
| 1980 | 4,657 | 0 | 4,657 | 2,621 | 188 | 2,809 | 1,848 | 0.15 |
| As of December 31, | | | | | | | | |
| 1985 | 10,924 | 0 | 10,924 | 3,142 | -38 | 3,104 | 7,820 | 0.28 |
| 1990 | 15,482 | 0 | 15,482 | 4,060 | 20 | 4,080 | 11,402 | 0.24 |
| 1991 | 17,828 | 0 | 17,828 | 3,052 | 51 | 3,103 | 14,724 | 0.28 |
| 1992 | 24,235[2] | 0 | 24,235[2] | 3,912 | 171 | 8,346[2] | 15,889 | 0.28 |
| 1993 | 24,131 | 0 | 24,131 | 3,844 | -116 | 3,727 | 20,404 | 0.34 |
| 1994 | 19,422 | 0 | 19,422 | 4,336 | -195 | 4,141 | 15,281 | 0.23 |
| 1995 | 13,130 | 6,893[3] | 20,023 | 4,282 | -214 | 4,068 | 15,955 | 0.23 |
| 1996 | 28,332 | 0 | 28,332 | 4,446 | -217 | 4,230 | 24,102 | 0.32 |
| 1997 | 36,131 | 0 | 36,131 | 4,416 | -217 | 4,199 | 31,932 | 0.41 |
| 1998 | 46,212[4] | 0 | 46,212[4] | 5,531 | -285 | 11,469[4] | 34,743 | 0.42 |
| 1999 | 44,787 | 0 | 44,787 | 6,312 | -285 | 6,028 | 38,760 | 0.42 |
| 2000 | 44,027 | 0 | 44,027 | 7,837 | -285 | 7,553 | 36,474 | 0.35 |
| Intermediate Estimates: | | | | | | | | |
| 2001 | 38,152 | 0 | 38,152 | 8,993 | -285 | 8,709 | 29,443 | 0.26 |

[1]Ratio of the excess of assets over liabilities to the following year's total incurred expenditures.

[2]Section 708 of the Social Security Act modifies the provisions for the delivery of Social Security benefit checks when the regularly designated day falls on a Saturday, Sunday, or legal public holiday. Delivery of benefit checks normally due January 3, 1993 occurred on December 31, 1992. Consequently, the SMI premiums withheld from the checks ($1,089 million) and the general revenue matching contributions ($3,175 million) were added to the SMI trust fund on December 31, 1992 and were included in the liabilities.

[3]This amount includes both the principal of $6,736 million and the accumulated interest through December 31, 1995 for the shortfall in the fiscal year 1995 appropriation for government contributions. Normally, this transfer would have been made on December 31, 1995 and, therefore, would have been reflected in the trust fund balance. However, due to absence of funding, the transfer of the principal and the appropriate interest was delayed until March 1, 1996.

[4]Delivery of benefit checks normally due January 3, 1999 occurred on December 31, 1998. Consequently, the SMI premiums withheld from the checks ($1,512 million) and the general revenue matching contributions ($4,711 million) were added to the SMI trust fund on December 31, 1998 and were included in the liabilities (see footnote 2).

The amount of assets minus liabilities can be compared with the estimated incurred expenditures for the following calendar year to form a relative measure of the SMI trust fund's financial status. The last column in table II.E2 shows such ratios for past years and the estimated ratio at the end of 2000. Past studies have indicated that a ratio of roughly 15-20 percent is sufficient to protect against unforeseen contingencies, such as unusually large increases in SMI expenditures. At the end of 2000, the SMI reserve ratio was 35 percent, or well in excess of normal requirements.

Program financing has been established through December 31, 2001. The financing for calendar year 2001 was designed with specific margins to begin to gradually reduce the excess of assets over

liabilities as a percent of incurred expenditures for the following year. As a result, the calendar year 2001 incurred income is expected to be less than incurred disbursements by $7,031 million, as shown in table II.E1, and the excess of assets over liabilities is expected to decrease from $36,474 million at the end of December 2000 to $29,443 million at the end of December 2001, under the intermediate assumptions, as indicated in table II.E2. This excess as a percent of incurred expenditures for the following year is expected to decrease from 35 percent as of December 31, 2000 to 26 percent as of December 31, 2001.

**4. Sensitivity Testing**

Some of the assumptions underlying the estimates presented in this report are highly uncertain, and variations in these assumptions would have a substantial impact on estimated expenditures. Since the financing rates are set prospectively, the actuarial status of the SMI program could be affected by variations in these assumptions. In order to test the status of the program under varying assumptions, a lower growth range projection and an upper growth range projection were prepared by varying these key assumptions through the period for which the financing has been set. The lower and upper growth range alternative sets of assumptions are intended to reflect growth rates for the various components of program costs, which are more favorable and more adverse, respectively, than those of the intermediate assumptions. These two alternative sets of assumptions are reasonable in light of the nature and historical experience of the program. As such, they provide a range of financial outcomes within which the actual experience of the program might reasonably be expected to fall. The values for the lower and upper growth range assumptions were determined from a statistical analysis of the historical variation in the respective increase factors. Section III.D of this report describes the statistical methodology in more detail and also extends the analysis through 2010.

This sensitivity analysis differs from the low cost and high cost projections discussed in section II.D in that this analysis examines the variation in the projection factors in the period for which the financing has been established (2001 for this report). The low cost and high cost projections, on the other hand, illustrate the financial impact of slower or faster growth trends throughout the short-range and long-range projection periods.

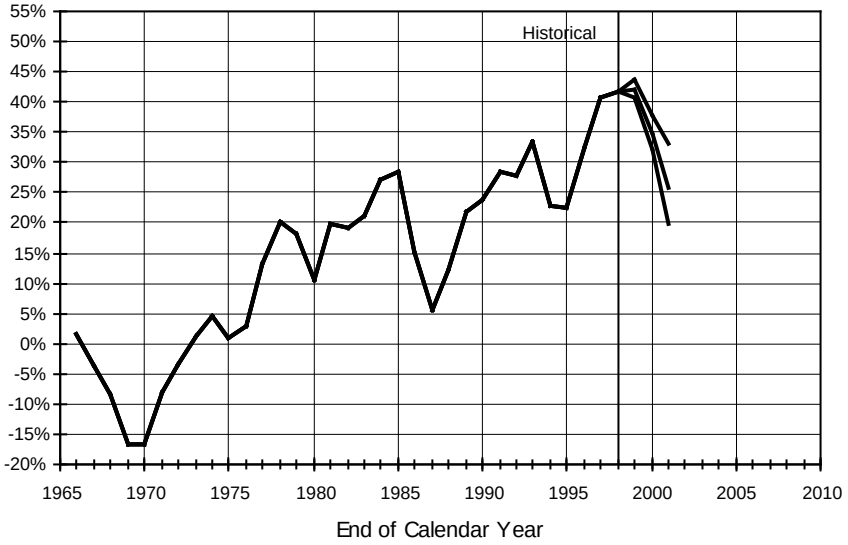
Table II.E3 indicates that, under the lower growth range scenario, trust fund assets would exceed liabilities at the end of December 2001 by a wide margin, equivalent to 33.0 percent of the following year's incurred expenditures. If this lower growth range scenario were actually to materialize, then subsequent financing rates would be adjusted downward in order to lower the excess of assets over liabilities to an appropriate level to maintain the adequacy of the trust fund. Under the upper growth range scenario, trust fund assets would still exceed liabilities by the end of December 2001, dropping to a level of 19.7 percent of the following year's incurred expenditures. Therefore, even if these upper range growth rates were to occur, assets would still be sufficient to cover outstanding liabilities. Figure II.E1 shows this ratio for historical years and for projected years under the intermediate scenario, as well as under the lower growth range (optimistic) and the upper growth range (pessimistic) cost sensitivity scenarios.

**Table II.E3.—Actuarial Status of the SMI Trust Fund under Three Cost Sensitivity Scenarios for Financing Periods through December 31, 2001**

| As of December 31, | 1999 | 2000 | 2001 |
|---|---|---|---|
| Intermediate Scenario: | | | |
| Actuarial Status (in millions) | | | |
| Assets | $44,787 | $44,027 | $38,152 |
| Liabilities | 6,028 | 7,553 | 8,709 |
| Assets Less Liabilities | 38,760 | 36,474 | 29,443 |
| Ratio (in percent)[1] | 42.0 | 34.8 | 25.7 |
| Low Range Scenario: | | | |
| Actuarial Status (in millions) | | | |
| Assets | $44,787 | $44,027 | $42,080 |
| Liabilities | 6,028 | 7,220 | 8,262 |
| Assets Less Liabilities | 38,760 | 36,807 | 33,817 |
| Ratio (in percent)[1] | 43.6 | 37.9 | 33.0 |
| Upper Range Scenario: | | | |
| Actuarial Status (in millions) | | | |
| Assets | $44,787 | $44,027 | $34,214 |
| Liabilities | 6,028 | 7,876 | 9,155 |
| Assets Less Liabilities | 38,760 | 36,151 | 25,059 |
| Ratio (in percent)[1] | 40.6 | 32.1 | 19.7 |

[1]Ratio of assets less liabilities at the end of the year to the total incurred expenditures during the following year, expressed as a percent.

**Figure II.E1.—Actuarial Status of the SMI Trust Fund through Calendar Year 2001**




Note: The actuarial status of the SMI trust fund is measured by the ratio of (1) assets minus liabilities at the end of the year to (2) the following year's incurred expenditures.

## *F. IMPLICATIONS OF SMI COST GROWTH*

The SMI program is considered to be financially adequate because the financing rates for determining beneficiary premiums and general revenue contributions are established annually to cover the expected costs for the upcoming year. Should actual costs exceed those anticipated when the financing is determined, future rates can include adjustments to recover the shortfall. Likewise, should actual costs be less than those anticipated, the savings would be passed along in future rates. As long as the financing rates are reasonably set, the SMI program will remain financially solvent.

However, a critical issue for the SMI program is the impact of the past and expected rapid growth of SMI costs, which place steadily increasing demands on beneficiaries and society at large. This section compares the past and projected growth in SMI costs with GDP growth and assesses the implications of the rapid growth on beneficiaries and the budget of the federal government.

Table II.F1 compares the growth in SMI expenditures with that of the economy as a whole. Based on our current estimates, SMI costs will continue to outpace growth in the GDP. Compared to the last

10 years, the growth differential is estimated to expand in the next 25 years, largely due to the increase in the SMI population as the baby boom generation turns age 65 and begins to receive benefits.

**Table II.F1.—Average Annual Rates of Growth in SMI and the Economy**

[In percent]

| Calendar years | SMI | | | U.S. Economy | | | Growth differential[1] |
|---|---|---|---|---|---|---|---|
| | Beneficiary population | Per capita benefits | Total benefits | Total population | Per capita GDP | Total GDP | |
| Historical Data: | | | | | | | |
| 1967-1980 | 3.3 | 14.1 | 17.9 | 0.9 | 8.7 | 9.8 | 7.4 |
| 1981-1990 | 1.8 | 12.6 | 14.6 | 1.0 | 6.5 | 7.6 | 6.6 |
| 1991-2000 | 1.4 | 6.8 | 8.2 | 0.9 | 4.4 | 5.6 | 2.5 |
| Intermediate Estimates: | | | | | | | |
| 2001-2010 | 1.4 | 6.1 | 7.6 | 0.8 | 4.4 | 5.2 | 2.2 |
| 2011-2025 | 2.7 | 5.4 | 8.3 | 0.7 | 4.2 | 4.9 | 3.2 |
| 2026-2050 | 0.9 | 5.4 | 6.3 | 0.4 | 4.4 | 4.8 | 1.4 |
| 2051-2075 | 0.6 | 5.4 | 6.1 | 0.3 | 4.4 | 4.7 | 1.3 |

[1] Excess of total SMI benefit growth above total GDP growth.

Since SMI per capita benefits are expected to continue to grow faster than per capita GDP, the premiums and coinsurance amounts paid by beneficiaries would represent a growing share of their total income. Table II.F2 illustrates the past and projected impact on beneficiaries of the increasing cost of the SMI program. In 2000, for example, about 6 percent of a typical 65-year-old's Social Security benefit was withheld to pay the monthly SMI premium of $45.50. In addition, 8 percent of that benefit was used to pay SMI copayments (deductible and coinsurance). Therefore, total out-of-pocket expenditures represented roughly 14 percent of a typical 65-year-old's Social Security benefit. Twenty years later, under the intermediate assumptions, the same beneficiary's out-of-pocket expenses would require an estimated 21.1 percent of his or her benefit. Similarly, in 2050, it is estimated that about 23 percent of a typical 65-year-old's Social Security benefit would be used to pay out-of-pocket expenses. By 2070 the same beneficiary's out-of-pocket expenses would require almost 35 percent of his or her benefit.

**Table II.F2.—SMI Out-of-Pocket Expenses as a Percent of Illustrative Social Security Benefit**

| | Illustrative 65-year-old (percent of Social Security benefit) | | | | Same person in 20 years (age 85) (percent of Social Security benefit) | | |
|---|---|---|---|---|---|---|---|
| Calendar year | SMI monthly premium | SMI copayments | Total SMI out-of-pocket expenses | Calendar year | SMI monthly premium | SMI copayments | Total SMI out-of-pocket expenses |
| 1970 | 3.8 | 4.3 | 8.1 | 1990 | 7.1 | 8.7 | 15.8 |
| 1980 | 3.0 | 3.9 | 6.9 | 2000 | 7.7 | 10.2 | 17.9 |
| 1990 | 5.4 | 6.6 | 12.0 | 2010 | 10.1 | 9.3 | 19.4 |
| 2000 | 6.1 | 8.1 | 14.1 | 2020 | 11.2 | 9.9 | 21.1 |
| 2010 | 8.5 | 7.8 | 16.3 | 2030 | 12.8 | 11.1 | 23.9 |
| 2020 | 8.9 | 7.9 | 16.8 | 2040 | 13.7 | 11.7 | 25.4 |
| 2030 | 9.9 | 8.6 | 18.5 | 2050 | 14.7 | 12.5 | 27.2 |
| 2040 | 11.3 | 9.6 | 20.8 | 2060 | 16.4 | 14.0 | 30.4 |
| 2050 | 12.3 | 10.4 | 22.7 | 2070 | 18.7 | 16.0 | 34.7 |

Notes: 1. "Illustrative" beneficiary is defined as (1) paying the standard SMI premium, (2) incurring the average level of copayments for all aged beneficiaries each year, and (3) receiving a monthly Social Security benefit at age 65 equal to approximately the average benefit for all OASDI beneficiaries in the year shown, with standard OASDI benefit increases applying in subsequent years. The examples shown are intended to illustrate the impact of growth in SMI out-of-pocket costs on beneficiaries. In practice, the impact on individual beneficiaries can vary substantially from these illustrations, depending on specific copayment and Social Security benefit levels.
2. Due to the impact of inflation, dollar amounts in widely separated time periods are difficult to compare (for example, 1970 versus 2000, or 2000 versus 2030). *Relative measures*, such as the premium relative to average benefits (as shown here), can be more meaningfully compared across time.

Another way to evaluate the implications of rapid growth of the SMI program is to compare the government contributions to the SMI trust fund with total federal income taxes (personal and corporate income taxes). Table II.F3 indicates that SMI general revenues in fiscal year 2000 were equivalent to 5.4 percent of total federal income taxes collected in that year. If such taxes remain at their current level, relative to the national economy, then SMI general revenue financing in 2070 would represent roughly 22 percent of total income taxes, based on the intermediate projections.

**Table II.F3.—SMI General Revenues as a Percent of Personal and Corporate Federal Income Taxes**

| Fiscal year | Percentage of Income Taxes[1] |
|---|---|
| Historical Data: | |
| 1970 | 0.8% |
| 1980 | 2.2 |
| 1990 | 5.9 |
| 2000 | 5.4 |
| Intermediate Estimates: | |
| 2010 | 7.4 |
| 2020 | 9.8 |
| 2030 | 13.2 |
| 2040 | 15.3 |
| 2050 | 16.4 |
| 2060 | 18.8 |
| 2070 | 21.7 |

[1]Future percentages are based on the assumption that federal income taxes would remain the same share of GDP as in 2000.

These examples illustrate the significant impact that SMI expenditure growth has had to date on beneficiaries and the federal budget. Under present law, the projected SMI expenditure increases associated with the cost of providing health care generally, plus the impact of the baby boom's retirement, would continue to exert growing pressure. This outlook reinforces the Trustees' recommendation for development and enactment of further reforms to reduce the rate of growth in SMI expenditures.

## *G. ACTUARIAL METHODOLOGY AND PRINCIPAL ASSUMPTIONS FOR COST ESTIMATES FOR THE SUPPLEMENTARY MEDICAL INSURANCE PROGRAM*

This section describes the basic methodology and assumptions used in the estimates for the SMI program under the intermediate assumptions. In addition, projections of program costs under two alternative sets of assumptions are presented.

### 1. Assumptions

The economic and demographic assumptions underlying the projections shown in this report are consistent with those in the 2001 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds. These assumptions are described more fully in that report.

### 2. Program Cost Projection Methodology

Estimates under the intermediate assumptions are prepared by establishing, for each category of enrollee and for each type of service, the allowed charges or costs incurred per enrollee for a recent year (to serve as a projection base) and then projecting these charges through the estimation period. The per enrollee charges are then converted to reimbursement amounts by subtracting the per enrollee values of the deductible and coinsurance. Aggregate reimbursement amounts are calculated by multiplying the per enrollee reimbursement amounts by the projected enrollment. In order to estimate cash disbursements, an allowance is made for the delay between receipt of, and payment for, service.

#### *a. Projection Base*

To establish a suitable base from which to project the future costs of the program, the incurred payments for services provided must be

reconstructed for the most recent period for which a reliable determination can be made. Therefore, payments to providers must be attributed to dates of service, rather than to payment dates; in addition, the nonrecurring effects of any changes in regulations, legislation, or administration of the program, and of any items affecting only the timing and flow of payments to providers, must be eliminated. As a result, the rates of increase in the incurred cost of the program differ from the increases in cash disbursements.

(1) Carrier Services

Reimbursement amounts for physician services, durable medical equipment (DME), laboratory tests performed in physician offices and independent laboratories, and other services (such as free-standing ambulatory surgical center facility services, ambulance, and supplies) are paid through organizations acting for HCFA. These organizations, referred to as "carriers," determine whether billed services are covered under the program and establish the allowed charges for covered services. A record of the allowed charges, the applicable deductible and coinsurance, and the amount reimbursed after reduction for coinsurance and the deductible is transmitted to HCFA.

The data are tabulated on an incurred basis, as the statute requires. As a check on the validity of the projection base, incurred reimbursement amounts are compared with cash expenditures reported by the carriers through an independent reporting system. In a health care program with continuously increasing incurred reimbursement amounts, cash payments are expected to be slightly lower than incurred expenses (except in the first year of coverage of a service or group of beneficiaries, when the difference should be substantial). These differences between cash and incurred reimbursement amounts occur because of the lag between receipt of, and payment for, services.

(2) Intermediary Services

Reimbursement amounts for institutional services under the SMI program are paid by the same "fiscal intermediaries" that pay for HI services. Institutional services covered under the SMI program are outpatient hospital services, home health agency services, laboratory services performed in hospital outpatient departments, and other services, such as renal dialysis performed in free-standing dialysis facilities, services in outpatient rehabilitation facilities, and services in rural health clinics.

Reimbursements for institutional services occur in two stages. First, bills are submitted to the intermediaries, and interim payments are made on the basis of these bills. The second stage takes place at the close of a provider's accounting period, when a cost report is submitted and lump-sum payments or recoveries are made to correct for the difference between interim payments and final settlement amounts for providing covered services (net of coinsurance and deductible amounts). Tabulations of the bills are prepared by date of service, and the lump-sum settlements, which are reported only on a cash basis, are adjusted (using approximations) to allocate them to the time of service.

(3) Managed Care Services

Managed care plans with contracts to provide health services to Medicare beneficiaries are not reimbursed through carriers or intermediaries but instead are reimbursed directly by HCFA on either a reasonable cost or capitation basis. Comprehensive data on such direct reimbursements are available only on a cash basis. Certain approximations must be made to allocate expenses to the period when services were rendered.

### *b. Fee-for-Service Payments for Aged Enrollees and Disabled Enrollees without End-Stage Renal Disease (ESRD)*

Disabled persons with ESRD have per enrollee costs that are substantially higher and quite different in nature from those of most other disabled persons. Hence, program costs for them have been excluded from the analysis in this section and are contained in a later section. Similarly, costs associated with beneficiaries enrolled in managed care plans are discussed separately.

(1) Carrier Services

(a) Physician Services

Charges for physician services per fee-for-service enrollee are affected by a variety of factors. One factor, the increase in average charge per service, can be identified explicitly. Others can be recognized only by the fact that the increase in the average charge per service does not explain all of the increase in per enrollee charges year to year. Each of these categories will be discussed in turn.

Prior to 1992, bills submitted to the carriers during a specified "fee-screen year" were subject by statute to certain limitations on the level of fees to be allowed by the program for reimbursement purposes. The fee level that was allowed for a particular service by a physician was subject to reduction if it exceeded the median charge that the physician assessed for the same service in a prior base period. This median charge was called the "customary charge." Fees were subject to further reduction if they exceeded the prevailing charges for the locality (defined as the 75th percentile of customary charges for a particular service in a particular locality). Starting July 1, 1975, the rate of increase in prevailing charges was limited further by the application of the Medicare Economic Index (MEI). The customary and prevailing charge limits maintained by the carriers were called "fee screens." Allowed charges were charges after application of the fee screens and were the charges on which reimbursement was based.

Public Law 101-239 provided for the replacement of customary and prevailing charges with fee schedules for physician services, starting in 1992. The fee schedules are based on a resource-based relative value scale. The fee schedule amount is equal to the product of the procedure's relative value, a conversion factor, and a geographic adjustment factor. Payments are based on the lower of the actual charge and the fee schedule amount. Increases in physician fees are based on growth in the MEI, plus a performance adjustment reflecting whether past growth in the volume and intensity of services met specified targets.

Beginning in 1999, the MEI is adjusted to match spending under a sustainable growth rate (SGR) mechanism. Table II.G1 shows the projected MEI increases and performance adjustments for 2002 through 2010. The physician fee updates shown though 2001 are actual values. The net increase in allowed fees shown in column 3 reflects the growth in the MEI, the performance adjustment, and any legislative impacts.

**Table II.G1.—Components of Increases in Total Allowed Charges per Fee-for-Service Enrollee for Carrier Services**

[In percent]

| | Physician fee schedule | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Increase due to price changes | | | | | | | | |
| Calendar year | MEI | MPA[1] | Net increase in allowed fees[2] | Residual factors | Total increase[3] | CPI | DME | Lab | Other carrier |
| Aged: | | | | | | | | | |
| 1996 | 2.0 | -1.2 | 0.8 | -0.1 | 0.7 | 2.8 | 6.1 | -8.0 | 13.7 |
| 1997 | 2.0 | -1.4 | 0.6 | 3.0 | 3.6 | 2.7 | 12.0 | -5.2 | 14.9 |
| 1998 | 2.2 | 1.2 | 2.9 | 2.6 | 5.6 | 2.3 | -1.4 | -9.2 | 10.9 |
| 1999 | 2.3 | 0.0 | 2.7 | 0.7 | 3.4 | 2.3 | 5.5 | -0.3 | 10.8 |
| 2000 | 2.4 | 3.0 | 5.9 | 3.1 | 9.2 | 2.4 | 9.9 | 7.5 | 11.4 |
| 2001 | 2.1 | 3.0 | 6.2 | 1.5 | 7.9 | 2.7 | 11.1 | 1.5 | 9.0 |
| 2002 | 2.2 | 0.9 | 4.6 | 2.0 | 6.7 | 2.9 | 7.0 | 2.3 | 7.7 |
| 2003 | 1.8 | 0.1 | 2.1 | 2.3 | 4.5 | 3.0 | 7.6 | 5.2 | 7.6 |
| 2004 | 1.7 | -0.8 | 1.0 | 2.8 | 3.8 | 3.1 | 7.2 | 5.8 | 7.3 |
| 2005 | 1.6 | -1.6 | 1.1 | 2.7 | 3.8 | 3.2 | 7.3 | 5.9 | 7.4 |
| 2006 | 1.6 | -2.6 | -1.0 | 3.3 | 2.3 | 3.3 | 7.5 | 6.0 | 7.5 |
| 2007 | 1.7 | -2.7 | -1.0 | 3.4 | 2.3 | 3.3 | 7.5 | 6.0 | 7.5 |
| 2008 | 1.7 | -2.6 | -0.9 | 3.3 | 2.4 | 3.3 | 7.5 | 6.0 | 7.5 |
| 2009 | 1.7 | -2.5 | -0.8 | 3.3 | 2.4 | 3.3 | 7.4 | 6.0 | 7.5 |
| 2010 | 1.7 | -2.2 | -0.5 | 3.2 | 2.7 | 3.3 | 7.5 | 6.0 | 7.5 |
| Disabled (excluding ESRD): | | | | | | | | | |
| 1996 | 2.0 | -1.2 | 0.8 | -1.2 | -0.4 | 2.8 | 4.8 | -8.8 | 8.8 |
| 1997 | 2.0 | -1.4 | 0.6 | 1.7 | 2.3 | 2.7 | 15.2 | -5.4 | 8.1 |
| 1998 | 2.2 | 1.2 | 2.9 | 1.9 | 4.9 | 2.3 | 2.0 | -7.0 | 8.9 |
| 1999 | 2.3 | 0.0 | 2.7 | -0.3 | 2.4 | 2.3 | 4.3 | 1.6 | 9.6 |
| 2000 | 2.4 | 3.0 | 5.9 | 2.7 | 8.8 | 2.4 | 8.8 | 5.5 | 9.5 |
| 2001 | 2.1 | 3.0 | 6.2 | 1.5 | 7.8 | 2.7 | 11.2 | 1.5 | 14.2 |
| 2002 | 2.2 | 0.9 | 4.6 | 2.0 | 6.7 | 2.9 | 6.9 | 2.2 | 7.5 |
| 2003 | 1.8 | 0.1 | 2.1 | 2.3 | 4.4 | 3.0 | 7.5 | 5.1 | 7.5 |
| 2004 | 1.7 | -0.8 | 1.0 | 2.7 | 3.7 | 3.1 | 7.2 | 5.7 | 7.2 |
| 2005 | 1.6 | -1.6 | 1.1 | 2.7 | 3.8 | 3.2 | 7.3 | 5.8 | 7.3 |
| 2006 | 1.6 | -2.6 | -1.0 | 3.3 | 2.2 | 3.3 | 7.4 | 5.9 | 7.4 |
| 2007 | 1.7 | -2.7 | -1.0 | 3.3 | 2.3 | 3.3 | 7.4 | 5.9 | 7.4 |
| 2008 | 1.7 | -2.6 | -0.9 | 3.3 | 2.3 | 3.3 | 7.4 | 5.9 | 7.4 |
| 2009 | 1.7 | -2.5 | -0.8 | 3.3 | 2.4 | 3.3 | 7.4 | 5.9 | 7.4 |
| 2010 | 1.7 | -2.2 | -0.5 | 3.2 | 2.6 | 3.3 | 7.4 | 5.9 | 7.4 |

[1]Medicare performance adjustment.
[2]Reflects the growth in the MEI, the performance adjustment, and any legislative impacts.
[3]Equals combined increases in allowed fees and residual factors.

Per capita physician charges also have increased each year as a result of a number of other factors besides fee increases, including more physician visits per enrollee, the aging of the Medicare population, greater use of specialists and more expensive techniques, and certain administrative actions. The fourth column of table II.G1 shows the increases in charges per enrollee resulting from these residual factors. Because the measurement of increased allowed charges per service is subject to error, this error is included implicitly under residual causes. Based on the increases in table II.G1, table II.G2 shows the estimates of the incurred reimbursement for physician services per fee-for-service enrollee.

**Table II.G2.—Incurred Reimbursement Amounts per Fee-for-Service Enrollee for Carrier Services**

| Calendar year | Fee-for-service enrollment [millions] | Physician fee schedule | DME | Lab | Other carrier |
|---|---|---|---|---|---|
| Aged: | | | | | |
| 1996 | 27.807 | $999.97 | $116.26 | $79.51 | $156.39 |
| 1997 | 27.040 | 1,038.15 | 130.40 | 75.27 | 179.79 |
| 1998 | 26.267 | 1,098.19 | 128.35 | 68.33 | 199.89 |
| 1999 | 25.984 | 1,135.77 | 135.41 | 68.24 | 221.38 |
| 2000 | 26.131 | 1,241.12 | 148.67 | 73.16 | 246.25 |
| 2001 | 26.872 | 1,351.95 | 166.51 | 74.57 | 269.09 |
| 2002 | 26.941 | 1,447.10 | 178.37 | 76.26 | 290.13 |
| 2003 | 27.044 | 1,514.30 | 192.13 | 80.23 | 312.55 |
| 2004 | 27.178 | 1,573.53 | 206.28 | 84.87 | 335.64 |
| 2005 | 27.415 | 1,635.91 | 221.70 | 89.86 | 360.77 |
| 2006 | 27.618 | 1,674.67 | 238.49 | 95.24 | 388.18 |
| 2007 | 27.927 | 1,714.81 | 256.55 | 100.94 | 417.64 |
| 2008 | 28.311 | 1,757.15 | 275.94 | 106.99 | 449.31 |
| 2009 | 28.712 | 1,801.73 | 296.76 | 113.39 | 483.31 |
| 2010 | 29.027 | 1,851.48 | 319.13 | 120.17 | 519.85 |
| Disabled (excluding ESRD): | | | | | |
| 1996 | 3.777 | 834.81 | 153.54 | 60.63 | 137.88 |
| 1997 | 3.831 | 856.51 | 177.38 | 57.40 | 149.03 |
| 1998 | 3.907 | 899.34 | 180.90 | 53.41 | 162.52 |
| 1999 | 4.007 | 922.73 | 188.57 | 54.35 | 179.09 |
| 2000 | 4.123 | 1,005.63 | 205.08 | 57.53 | 196.73 |
| 2001 | 4.320 | 1,091.87 | 229.84 | 58.60 | 223.64 |
| 2002 | 4.448 | 1,168.63 | 246.17 | 59.87 | 240.63 |
| 2003 | 4.567 | 1,222.52 | 265.13 | 62.91 | 259.08 |
| 2004 | 4.696 | 1,270.01 | 284.65 | 66.48 | 278.07 |
| 2005 | 4.840 | 1,319.91 | 305.89 | 70.33 | 298.75 |
| 2006 | 4.978 | 1,350.61 | 329.02 | 74.46 | 321.25 |
| 2007 | 5.110 | 1,382.42 | 353.86 | 78.85 | 345.43 |
| 2008 | 5.233 | 1,415.95 | 380.55 | 83.48 | 371.40 |
| 2009 | 5.359 | 1,451.29 | 409.22 | 88.40 | 399.30 |
| 2010 | 5.483 | 1,490.93 | 440.02 | 93.60 | 429.28 |

(b) DME, Laboratory, and Other Carrier Services

Like physician services prior to 1992, all the non-physician carrier services were at one time reimbursed on a "fee screen" basis (with the exception that the MEI was not applied to their prevailing charges). Over time, special reimbursement rules have been developed for such services. Beginning July 1, 1984, a unique fee schedule was established for laboratory tests performed in physician offices and independent laboratories. However, the laboratory fee schedule does not pertain to such laboratory services as pathology services and blood handling, which are reimbursed based on other fee schedules or other reimbursement mechanisms. In 1987, a fee schedule was established for certain DME items, and in 1989 another fee schedule was developed for additional DME items (prosthetics and orthotics). Similarly, over time other unique fee schedules or reimbursement mechanisms have been established for all other non-physician carrier services.

*Actuarial Analysis*

Table II.G1 shows the increases in the allowed charges per fee-for-service enrollee for DME, laboratory services, and other carrier services. Based on the increases in table II.G1, table II.G2 shows the corresponding estimates of the average incurred reimbursement for these services per fee-for-service enrollee. The fee schedules for each of these expenditure categories are updated by increases in the Consumer Price Index (CPI), together with applicable legislated limits on payment updates. In addition, per capita charges for these expenditure categories have grown as a result of a number of other factors, including increased number of services provided, the aging of the Medicare population, more expensive services, and certain administrative actions. This growth is projected based on recent past trends in growth per enrollee.

(2) Intermediary Services

Originally, all intermediary services were reimbursed on a "reasonable cost" basis. The "reasonable costs" for a particular provider were the provider's aggregate costs associated with SMI beneficiaries. While the provider does not have costs per service, the provider does have a charge for each service. These charges were used to determine any beneficiary deductible or coinsurance liability. The SMI reimbursement would be the difference between the lower of the provider's reasonable costs or aggregate SMI charges and the aggregate amounts collected by the provider for any associated deductible and coinsurance payments.

Over the years, legislation modified this reimbursement mechanism for various types of services. Beginning July 1, 1984, the same laboratory fee schedule established for tests performed in physician offices and independent laboratories also applied to laboratories in hospital outpatient departments, but with slightly higher rates. Subsequent legislation made the two fee schedules identical. The Balanced Budget Act of 1997 (BBA) implemented a prospective payment system (PPS), effective August 1, 2000, for services performed in the outpatient department of a hospital. It also implemented a PPS for home health agency services, which began October 1, 2000.

The historical and projected increases in charges and costs per fee-for-service enrollee for intermediary services are shown in table II.G3. The projected increases shown in this table reflect the impact of the BBA, the provisions of which include the transfer of roughly two-thirds of home health agency services from the HI trust

fund to the SMI trust fund, starting in 1998. All benefit payments for transferred home health agency services are to be paid out of the SMI trust fund beginning January 1998. However, for the 6-year period 1998 through 2003, sums of money will also be transferred from the HI trust fund to the SMI trust fund to phase in the financial impact of the transfer of these services. It should be noted that in table II.G3, and elsewhere in this section with the exception of table II.G8, the estimates for home health agency costs for 1998 through 2003 are the gross amounts associated with the payment of benefits and are not adjusted for the funds transferred from the HI trust fund.

As indicated in table II.G3, expenditures for outpatient hospital services are expected to increase significantly in 2001 due to provisions in the Balanced Budget Refinement Act of 1999 and the Benefits Improvement and Protection Act of 2000 that reduce the beneficiaries' coinsurance payments but maintain the same total payment to the hospital. The result is that Medicare pays a larger portion of the total outpatient hospital costs.

Based on the increases in table II.G3, table II.G4 shows the estimates of the incurred reimbursement for the various intermediary services per fee-for-service enrollee. Each of these expenditure categories is projected on the basis of recent past trends in growth per enrollee, together with applicable legislated limits on payment updates.

**Table II.G3.—Components of Increases in Recognized Charges and Costs per Fee-for-Service Enrollee for Intermediary Services**

[In percent]

| Calendar year | Outpatient hospital | Home health agency[1] | Outpatient lab | Other intermediary |
|---|---|---|---|---|
| Aged: | | | | |
| 1996 | 9.2 | 6.0 | 1.4 | 18.0 |
| 1997 | 8.1 | 1.0 | 5.8 | 10.9 |
| 1998 | -0.5 | 3118.8[2] | 5.0 | -1.5 |
| 1999 | 5.6 | -21.3 | 8.2 | -19.0 |
| 2000 | 5.5 | 0.2 | 5.9 | 16.3 |
| 2001 | 15.2 | 19.8 | 3.9 | 8.6 |
| 2002 | 2.7 | 23.7 | 3.7 | 6.0 |
| 2003 | 7.4 | 5.5 | 5.7 | -13.6 |
| 2004 | 5.8 | 8.8 | 5.8 | 6.3 |
| 2005 | 9.0 | 5.7 | 5.9 | 6.1 |
| 2006 | 8.1 | 5.8 | 6.0 | 6.1 |
| 2007 | 8.0 | 5.4 | 6.0 | 6.1 |
| 2008 | 8.1 | 4.9 | 6.0 | 6.1 |
| 2009 | 8.2 | 4.0 | 6.0 | 5.9 |
| 2010 | 8.2 | 4.4 | 6.0 | 5.9 |
| Disabled (excluding ESRD): | | | | |
| 1996 | 3.2 | — | -7.4 | 20.8 |
| 1997 | 6.2 | — | -2.9 | 16.7 |
| 1998 | -0.6 | —[2] | -0.2 | -23.1 |
| 1999 | 5.0 | -20.8 | 8.7 | -11.3 |
| 2000 | 7.7 | 6.1 | 5.0 | 10.2 |
| 2001 | 14.6 | 20.3 | 3.8 | 11.4 |
| 2002 | 2.8 | 22.2 | 3.6 | 7.0 |
| 2003 | 7.3 | 5.1 | 5.7 | -28.2 |
| 2004 | 5.8 | 8.3 | 5.7 | 7.0 |
| 2005 | 8.8 | 5.3 | 5.8 | 7.0 |
| 2006 | 7.9 | 5.5 | 5.9 | 7.0 |
| 2007 | 7.8 | 5.4 | 5.9 | 7.0 |
| 2008 | 7.9 | 5.3 | 5.9 | 7.0 |
| 2009 | 8.0 | 4.6 | 5.9 | 7.0 |
| 2010 | 8.0 | 4.9 | 5.9 | 7.0 |

[1]From July 1, 1981 to December 31, 1997, home health agency services were almost exclusively provided by the Medicare HI program. However, for those SMI enrollees not entitled to HI, the coverage of these services was provided by the SMI program. During that time, since all SMI disabled enrollees were entitled to HI, their coverage of these services was provided by the HI program.

[2]Effective January 1, 1998, the coverage of a majority of home health agency services for those individuals entitled to HI and enrolled in SMI was transferred from the HI program to the SMI program. As a result, as of January 1, 1998, there was a large increase in SMI expenditures for these services for the aged enrollees, and SMI coverage for these services resumed for disabled enrollees.

**Table II.G4.—Incurred Reimbursement Amounts per Fee-for-Service Enrollee for Intermediary Services**

| Calendar year | Fee-for-service enrollment [millions] | Outpatient hospital | Home health agency | Outpatient lab | Other intermediary |
|---|---|---|---|---|---|
| Aged: | | | | | |
| 1996 | 27.807 | $284.72 | $8.76 | $41.10 | $139.68 |
| 1997 | 27.040 | 302.72 | 8.85 | 43.49 | 153.51 |
| 1998 | 26.267 | 275.84 | 284.95 | 45.66 | 148.40 |
| 1999 | 25.984 | 283.65 | 224.33 | 49.42 | 125.78 |
| 2000 | 26.131 | 316.50 | 224.67 | 52.31 | 145.00 |
| 2001 | 26.872 | 422.34 | 269.11 | 54.34 | 157.19 |
| 2002 | 26.941 | 432.91 | 332.95 | 56.34 | 166.74 |
| 2003 | 27.044 | 472.23 | 351.36 | 59.57 | 143.98 |
| 2004 | 27.178 | 513.01 | 382.39 | 63.01 | 153.16 |
| 2005 | 27.415 | 592.98 | 404.08 | 66.70 | 162.62 |
| 2006 | 27.618 | 679.89 | 427.68 | 70.69 | 172.72 |
| 2007 | 27.927 | 744.91 | 450.66 | 74.91 | 183.35 |
| 2008 | 28.311 | 816.57 | 472.53 | 79.38 | 194.61 |
| 2009 | 28.712 | 895.54 | 491.60 | 84.12 | 206.18 |
| 2010 | 29.027 | 981.11 | 513.27 | 89.13 | 218.35 |
| Disabled (excluding ESRD): | | | | | |
| 1996 | 3.777 | 284.01 | 0.00 | 52.78 | 130.00 |
| 1997 | 3.831 | 294.92 | 0.00 | 51.23 | 148.69 |
| 1998 | 3.907 | 276.73 | 187.58 | 51.11 | 108.26 |
| 1999 | 4.007 | 287.18 | 148.60 | 55.54 | 99.97 |
| 2000 | 4.123 | 320.69 | 157.59 | 58.31 | 110.86 |
| 2001 | 4.320 | 425.82 | 189.55 | 60.54 | 123.60 |
| 2002 | 4.448 | 437.32 | 231.61 | 62.72 | 132.49 |
| 2003 | 4.567 | 476.59 | 243.39 | 66.26 | 94.43 |
| 2004 | 4.696 | 517.35 | 263.70 | 70.02 | 101.21 |
| 2005 | 4.840 | 596.16 | 277.76 | 74.07 | 108.48 |
| 2006 | 4.978 | 681.72 | 292.94 | 78.43 | 116.24 |
| 2007 | 5.110 | 746.21 | 308.74 | 83.04 | 124.56 |
| 2008 | 5.233 | 817.18 | 325.22 | 87.93 | 133.45 |
| 2009 | 5.359 | 895.31 | 340.27 | 93.10 | 142.97 |
| 2010 | 5.483 | 980.24 | 356.90 | 98.58 | 153.15 |

### *c. Fee-for-Service Payments for Persons Suffering from ESRD*

Certain persons suffering from ESRD have been eligible to enroll for SMI coverage since July 1973 (under Section 299I of Public Law 92-603). For analytical purposes, enrollees with ESRD who are also eligible as Disability Insurance beneficiaries are included in this section because their per enrollee costs are both higher and different in nature from those of most other disabled persons. Specifically, most of the SMI reimbursements for these persons are for kidney transplants and renal dialysis.

The estimates under the intermediate assumptions reflect the unique payment mechanism through which ESRD services are reimbursed under Medicare. Also, the estimates assume a continued increase in enrollment. The historical and projected enrollment and costs for SMI benefits are shown in table II.G5.

**Table II.G5.—Enrollment and Incurred Reimbursement for End-Stage Renal Disease**

| | Average enrollment [thousands] | | Reimbursement [millions] | |
|---|---|---|---|---|
| Calendar year | Disabled ESRD | ESRD only | Disabled ESRD | ESRD only |
| 1996 | 72 | 80 | $1,444 | $1,471 |
| 1997 | 77 | 82 | 1,558 | 1,522 |
| 1998 | 82 | 84 | 1,546 | 1,442 |
| 1999 | 87 | 87 | 1,588 | 1,475 |
| 2000 | 93 | 89 | 1,616 | 1,631 |
| 2001 | 99 | 92 | 1,832 | 1,800 |
| 2002 | 104 | 95 | 1,986 | 1,919 |
| 2003 | 109 | 99 | 2,157 | 2,059 |
| 2004 | 115 | 103 | 2,343 | 2,209 |
| 2005 | 121 | 106 | 2,557 | 2,382 |
| 2006 | 126 | 110 | 2,778 | 2,558 |
| 2007 | 132 | 114 | 3,001 | 2,737 |
| 2008 | 137 | 117 | 3,234 | 2,928 |
| 2009 | 142 | 121 | 3,477 | 3,130 |
| 2010 | 148 | 125 | 3,747 | 3,342 |

### *d. Managed Care Costs*

Program experience with managed care payments has generally shown a strong upward trend. However, in recent years, there has been a slowdown in the number of Medicare beneficiaries choosing to enroll in managed care plans—and, in 2001, an overall reduction in this number. Capitated plans currently account for approximately 95 percent of all SMI managed care payments. For capitated plans, per capita payment amounts have grown following the same trend as fee-for-service per capita cost growth, based on the formula in the law to calculate managed care capitation amounts. The projection of future per capita amounts follows the requirements of the Balanced Budget Act of 1997 (BBA) as related to the Medicare+Choice capitation amounts, which increase at rates based on the per capita growth for all of Medicare, less specified adjustments in 1998 to 2002. The projected rates are further adjusted by the Benefits Improvement and Protection Act of 2000 (see section II.A for more details). Table II.G6 shows the estimated number of SMI beneficiaries enrolled in a managed care plan and the aggregate incurred reimbursements associated with those enrollees.

**Table II.G6.—Enrollment and Incurred Reimbursement for Managed Care**

| Calendar year | Average enrollment [millions] | Reimbursement [millions] |
|---|---|---|
| 1996 | 4.368 | $8,800 |
| 1997 | 5.414 | 10,746 |
| 1998 | 6.416 | 15,838 |
| 1999 | 6.857 | 17,653 |
| 2000 | 6.856 | 18,398 |
| 2001 | 6.274 | 17,744 |
| 2002 | 6.399 | 18,561 |
| 2003 | 6.536 | 19,829 |
| 2004 | 6.682 | 20,924 |
| 2005 | 6.748 | 21,967 |
| 2006 | 6.912 | 23,107 |
| 2007 | 7.093 | 24,343 |
| 2008 | 7.354 | 26,494 |
| 2009 | 7.620 | 28,825 |
| 2010 | 7.917 | 31,497 |

Growth in managed care enrollment and expenditures was quite large in the early 1980s but slowed in the late 1980s. Then very rapid growth occurred through the mid-1990s. Recently the growth in managed care has slowed to a more moderate level. The projection reflects a significant decrease in 2001, based on plan preliminary enrollment data, followed by slow increases in the next few years as the provisions of the BBA (as subsequently modified) continue to limit growth in capitation rates. Thereafter, Medicare+Choice enrollment is assumed to gradually reaccelerate somewhat.

#### *e. Administrative Expenses*

The ratio of administrative expenses to benefit payments has declined to about 2 percent in recent years and is projected to continue to decline in future years. Projections of administrative costs are based on estimates of changes in average annual wages.

### 3. Summary of Aggregate Reimbursement Amounts on a Cash Basis under the Intermediate Assumptions

Table II.G7 shows aggregate historical and projected reimbursement amounts on a cash basis under the intermediate assumptions, by type of service. The difference between reimbursement amounts on a cash versus incurred basis results from the lag between the time of service and the time of payment. This lag has been gradually decreasing.

**Table II.G7.—Aggregate Reimbursement Amounts on a Cash Basis**

[In millions]

| Calendar year | Carrier | | | | | Intermediary | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Physician fee schedule | DME | Lab | Other | Total | Hospital | Lab | Home health agency | Other | Total | Total FFS | Managed care | Total SMI |
| Historical Data: | | | | | | | | | | | | | |
| 1996 | $31,631 | $3,825 | $2,550 | $5,059 | $43,065 | $8,638 | $1,331 | $242 | $5,749 | $15,960 | $59,025 | $9,558 | $68,584 |
| 1997 | 31,898 | 4,236 | 2,385 | 5,586 | 44,105 | 9,413 | 1,447 | 241 | 6,574 | 17,674 | 61,779 | 10,962 | 72,741 |
| 1998 | 32,447 | 4,040 | 2,087 | 5,940 | 44,514 | 8,762 | 1,486 | 6,394[1] | 6,379 | 23,022[1] | 67,536[1] | 15,338[1] | 82,874 |
| 1999 | 33,340 | 4,293 | 2,077 | 6,453 | 46,163 | 8,771 | 1,599 | 5,788[1] | 5,782 | 21,940[1] | 68,102[1] | 17,702[1] | 85,804 |
| 2000 | 36,984 | 4,693 | 2,251 | 7,389 | 51,317 | 8,394 | 1,638 | 5,821[1] | 6,032 | 21,885[1] | 73,202[1] | 18,358[1] | 91,560 |
| Intermediate Estimates: | | | | | | | | | | | | | |
| 2001 | 41,223 | 5,439 | 2,347 | 8,345 | 57,365 | 13,595 | 1,797 | 7,515[1] | 6,905 | 29,812[1] | 87,177[1] | 17,826[1] | 105,003 |
| 2002 | 44,559 | 5,935 | 2,421 | 9,125 | 62,039 | 13,975 | 1,885 | 9,828[1] | 7,383 | 33,071[1] | 95,110[1] | 18,665[1] | 113,775 |
| 2003 | 47,065 | 6,429 | 2,559 | 9,895 | 65,948 | 14,991 | 2,005 | 10,431[1] | 6,905 | 34,333[1] | 100,281[1] | 19,922[1] | 120,203 |
| 2004 | 49,347 | 6,969 | 2,731 | 10,721 | 69,769 | 16,436 | 2,143 | 11,461 | 7,240 | 37,280 | 107,049 | 21,006 | 128,055 |
| 2005 | 51,895 | 7,587 | 2,927 | 11,664 | 74,073 | 19,068 | 2,298 | 12,242 | 7,751 | 41,359 | 115,432 | 22,063 | 137,495 |
| 2006 | 53,775 | 8,258 | 3,138 | 12,688 | 77,859 | 22,124 | 2,466 | 13,080 | 8,289 | 45,958 | 123,817 | 23,211 | 147,028 |
| 2007 | 55,781 | 9,009 | 3,371 | 13,837 | 81,998 | 24,707 | 2,651 | 13,960 | 8,870 | 50,189 | 132,187 | 24,523 | 156,710 |
| 2008 | 58,031 | 9,845 | 3,630 | 15,121 | 86,627 | 27,503 | 2,856 | 14,895 | 9,501 | 54,756 | 141,382 | 26,689 | 168,071 |
| 2009 | 60,445 | 10,763 | 3,911 | 16,530 | 91,648 | 30,649 | 3,078 | 15,747 | 10,162 | 59,636 | 151,284 | 29,048 | 180,332 |
| 2010 | 62,920 | 11,737 | 4,201 | 18,022 | 96,881 | 34,047 | 3,309 | 16,632 | 10,846 | 64,833 | 161,714 | 31,750 | 193,465 |

[1]Aggregate benefit payments without adjustment for monies transferred from the HI trust fund for home health agency costs, as provided by the Balanced Budget Act of 1997.

## 4. Projections under Alternative Assumptions

Cash disbursements (benefit payments and administrative expenses less monies transferred from the HI trust fund for home health agency costs) for the low cost and high cost alternatives were developed by examining the incurred and cash disbursements under the intermediate assumptions. Beginning in the middle of calendar year 2000, the low cost and high cost incurred benefits for the following 4 quarters reflect some variation in the incurred benefits under the intermediate assumptions for that period. Thereafter, the low cost and high cost alternatives contain assumptions that result in incurred benefits increasing, relative to GDP, 2 percent less rapidly and 2 percent more rapidly, respectively, than the results under the intermediate assumptions.[1] The low cost and high cost cash benefits reflect the same relationship to the cash benefits under the intermediate assumptions as the respective incurred benefits do to the incurred benefits under the intermediate assumptions. Administrative expenses under the low cost and the high cost alternatives are projected on the basis of their respective wage series growth. Based on the above methodology, cash disbursements as a percentage of the GDP were calculated for all three sets of assumptions and are displayed in table II.G8.

**Table II.G8.—SMI Cash Disbursements as a Percent of the Gross Domestic Product for Calendar Years 2000–2010[1]**

| | | Alternatives | |
|---|---|---|---|
| Calendar year | Intermediate assumptions | Low Cost | High Cost |
| 2000 | 0.91 | 0.91 | 0.91 |
| 2001 | 0.99 | 0.97 | 1.01 |
| 2002 | 1.03 | 0.98 | 1.08 |
| 2003 | 1.04 | 0.98 | 1.09 |
| 2004 | 1.06 | 0.98 | 1.17 |
| 2005 | 1.08 | 0.98 | 1.20 |
| 2006 | 1.10 | 0.97 | 1.22 |
| 2007 | 1.11 | 0.97 | 1.27 |
| 2008 | 1.13 | 0.97 | 1.33 |
| 2009 | 1.16 | 0.97 | 1.38 |
| 2010 | 1.18 | 0.97 | 1.44 |

[1]Disbursements are the sum of benefit payments and administrative expenses.

[1]This assumption is modified somewhat for the high cost alternative to avoid anomalous results during the two assumed economic recessions in the short-range projection period.

# III. APPENDICES

## *A. LONG-RANGE ESTIMATES OF MEDICARE INCURRED DISBURSEMENTS AS A PERCENTAGE OF GROSS DOMESTIC PRODUCT*

Expressing Medicare incurred disbursements as a percentage of the gross domestic product (GDP) gives a relative measure of the size of the Medicare program compared to the general economy. The projection of this measure affords the public an idea of the relative financial resources that will be necessary to pay for Medicare services.

Table III.A1 shows estimated incurred disbursements for the HI and SMI programs under the intermediate assumptions expressed as a percentage of GDP, for selected years over the period 2000-2075. These incurred disbursements assume no change in current law. The 75-year projection period fully allows for the presentation of future contingencies that may reasonably be expected to occur, such as the impact of a large increase in enrollees that will take place after the next 10 years. This increase in the number of beneficiaries will occur because the relatively large number of persons born during the period between the end of World War II and the mid-1960s (known as the baby boom) will reach retirement age and begin to receive benefits.

**Table III.A1.—HI and SMI Incurred Disbursements as a Percent of Gross Domestic Product[1]**

| | Disbursements as a percent of GDP | | |
|---|---|---|---|
| Calendar year | HI | SMI | Total |
| 2000 | 1.32 | 0.92 | 2.24 |
| 2001 | 1.35 | 1.00 | 2.34 |
| 2002 | 1.33 | 1.03 | 2.36 |
| 2003 | 1.30 | 1.05 | 2.35 |
| 2004 | 1.31 | 1.07 | 2.38 |
| 2005 | 1.32 | 1.09 | 2.41 |
| 2006 | 1.32 | 1.11 | 2.43 |
| 2007 | 1.33 | 1.12 | 2.45 |
| 2008 | 1.35 | 1.14 | 2.49 |
| 2009 | 1.37 | 1.16 | 2.53 |
| 2010 | 1.39 | 1.19 | 2.57 |
| 2015 | 1.53 | 1.36 | 2.89 |
| 2020 | 1.73 | 1.61 | 3.34 |
| 2025 | 2.00 | 1.90 | 3.90 |
| 2030 | 2.32 | 2.18 | 4.51 |
| 2035 | 2.63 | 2.39 | 5.03 |
| 2040 | 2.89 | 2.52 | 5.41 |
| 2045 | 3.11 | 2.61 | 5.72 |
| 2050 | 3.30 | 2.71 | 6.01 |
| 2055 | 3.49 | 2.87 | 6.36 |
| 2060 | 3.73 | 3.10 | 6.83 |
| 2065 | 4.03 | 3.35 | 7.38 |
| 2070 | 4.35 | 3.59 | 7.94 |
| 2075 | 4.69 | 3.80 | 8.49 |

[1]Disbursements are the sum of benefit payments and administrative expenses.

For both HI and SMI, program costs beyond the first 25-year projection period are based on the assumption that per beneficiary expenditures will increase at the same rate as per capita GDP plus 1 percentage point. The associated aggregate disbursements are then represented as a percentage of GDP. Based on these assumptions, incurred Medicare disbursements as a percent of GDP are projected to increase rapidly, from 2.24 percent in 2000 to 5.03 percent in 2035 and then to 8.49 percent in 2075. After 2035, both HI and SMI disbursements as a percent of GDP are expected to increase steadily, with HI outpacing SMI slightly as the population ages, since HI benefits are more age-sensitive than are those for SMI.

The projected expenditures of the HI and SMI programs that are shown in this report as a percentage of GDP are substantially higher after 2030 than are the corresponding projections from the 2000 annual report. The difference is primarily attributable to a change in the long-term projection assumptions. While the 2000 annual report assumed that demographically adjusted per beneficiary SMI expenditures grew at the same rate as per capita GDP and that the demographically adjusted per beneficiary long-term expenditure increases for HI were the same as the per capita wage increases, the long-term projected expenditures in this report assume growth of 1 percent above per capita GDP growth for both HI and SMI. This change in long-range growth rates was adopted based on the recommendation of the 2000 Medicare Technical Review Panel, an independent, expert panel of actuaries and economists convened by the Board of Trustees to review the assumptions and methods underlying the Medicare financial projections.

The past and projected amounts of Medicare revenues as a percent of GDP are shown in table III.A2. This information is displayed for selected future years based on the intermediate assumptions. Interest income is excluded since, under present law, it would not be a significant part of program financing in the long range. Over the next 15 years, such Medicare revenues are estimated to slightly exceed program expenditures, reflecting the automatic financing of SMI plus the expected excess of HI tax income over expenditures. Thereafter, however, overall expenditures are projected to exceed aggregate revenues. Again, the growing difference arises from the projected imbalance between HI tax income and expenditures. Throughout this period, SMI revenues would continue to approximately match SMI expenditures, due to the annual adjustment of program financing.

*Percentage of GDP*

**Table III.A2.—Medicare Sources of Income and Expenditures as a Percent of Gross Domestic Product**

| Calendar year | Payroll taxes | Tax on benefits | Premiums[1] | General revenue | Total income[2] | Total expenditures |
|---|---|---|---|---|---|---|
| Historical Data: | | | | | | |
| 1970 | 0.5 | — | 0.1 | 0.2 | 0.8 | 0.7 |
| 1980 | 0.9 | — | 0.1 | 0.3 | 1.3 | 1.3 |
| 1990 | 1.2 | — | 0.2 | 0.6 | 2.0 | 1.9 |
| 2000 | 1.5 | 0.1 | 0.2 | 0.7 | 2.4 | 2.2 |
| Intermediate Estimates: | | | | | | |
| 2010 | 1.4 | 0.1 | 0.3 | 0.9 | 2.7 | 2.6 |
| 2020 | 1.4 | 0.1 | 0.4 | 1.2 | 3.1 | 3.3 |
| 2030 | 1.4 | 0.2 | 0.6 | 1.6 | 3.7 | 4.5 |
| 2040 | 1.3 | 0.2 | 0.6 | 1.9 | 4.0 | 5.4 |
| 2050 | 1.3 | 0.2 | 0.7 | 2.0 | 4.2 | 6.0 |
| 2060 | 1.3 | 0.2 | 0.8 | 2.3 | 4.6 | 6.8 |
| 2070 | 1.3 | 0.2 | 0.9 | 2.7 | 5.1 | 7.9 |

[1]Includes both HI and SMI premium revenues.
[2]Excludes interest earnings on invested HI and SMI trust fund assets.

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

As shown in table III.A2, payroll tax revenues increased rapidly as a percentage of GDP in the past, as a result of increases in the tax rate and maximum taxable earnings base (eliminated in 1994). In the future, however, payroll taxes are not projected to grow faster than GDP primarily because no further increases in the tax rate are scheduled in present law. Since wages, salaries, and self-employment income are expected to decline gradually as a share of total compensation, with faster growth in fringe benefits making up the difference, payroll taxes as a percent of GDP are expected to decrease slightly over time, from 1.5 percent in 2000 to 1.3 percent in 2070. HI revenue from income taxes on Social Security benefits would increase as a share of GDP, from 0.1 percent in 2000 to 0.2 percent in 2070, as additional beneficiaries become subject to such taxes.

By comparison, growth in SMI premiums and general fund transfers is expected to continue to outpace GDP growth and HI payroll tax growth in the future. This occurs primarily because, under present law, SMI revenue increases at the same rate as expenditures whereas HI revenue does not. Based on these assumptions, premiums as a percent of GDP are expected to grow from 0.3 percent in 2000 to 0.9 percent in 2070. Likewise, the projected general revenues as a percent of GDP grow from 0.7 percent in 2000 to 2.7 percent in 2070. Thus, as the HI sources of revenue become increasingly inadequate to cover HI costs, SMI revenues would represent an increasing share of total Medicare revenues.

## *B. AVERAGE MEDICARE EXPENDITURES PER BENEFICIARY*

Table III.B1 shows historical average per beneficiary expenditures for the HI and SMI programs, as well as projected costs for calendar years 2001 through 2010 under the intermediate assumptions.

For both HI and SMI, costs increased very rapidly in the early years when Medicare was still a new program and as a result of the rapid inflation of the 1970s and early 1980s. In addition, the cost-based reimbursement mechanisms in place provided relatively little incentive for efficiency in the provision of health care. Growth in average HI expenditures moderated dramatically following the introduction of the inpatient hospital prospective payment system in fiscal year 1984 but accelerated again in the late 1980s and early 1990s due to rapid growth in skilled nursing and home health expenditures. During this same period, SMI average costs generally continued to increase at relatively fast rates but slowed somewhat in the early 1990s with the implementation of physician fee reform legislation.

Expenditure growth moderated again during the late 1990s due to the effects of further legislation, including the Balanced Budget Act of 1997 (BBA), and efforts to control fraud and abuse. In addition, historically low levels of general and medical inflation helped reduce Medicare payment updates. HI per beneficiary costs actually decreased in 1998, 1999, and 2000, in part because of such BBA mandates as a reduction in payment updates to providers and a shift in home health benefits from HI to SMI, and because of a decline in utilization of services.

**Table III.B1.—HI and SMI Average Per Beneficiary Costs**

| | Average per beneficiary costs | | | Annual percent change[1] | | |
|---|---|---|---|---|---|---|
| Calendar year | HI | SMI | Total | HI | SMI | Total |
| Historical Data: | | | | | | |
| 1970 | $254.87 | $101.30 | $356.18 | 13.4% | 14.8% | 13.8% |
| 1975 | 462.20 | 179.96 | 642.16 | 12.6 | 12.2 | 12.5 |
| 1980 | 894.61 | 389.87 | 1,284.49 | 14.1 | 16.7 | 14.9 |
| 1985 | 1,549.39 | 768.25 | 2,317.65 | 11.6 | 14.5 | 12.5 |
| 1990 | 1,957.21 | 1,303.98 | 3,261.19 | 4.8 | 11.2 | 7.1 |
| 1991 | 2,069.38 | 1,426.15 | 3,495.53 | 5.7 | 9.4 | 7.2 |
| 1992 | 2,379.21 | 1,454.85 | 3,834.05 | 15.0 | 2.0 | 9.7 |
| 1993 | 2,597.59 | 1,562.77 | 4,160.37 | 9.2 | 7.4 | 8.5 |
| 1994 | 2,819.83 | 1,669.87 | 4,489.70 | 8.6 | 6.9 | 7.9 |
| 1995 | 3,035.96 | 1,822.98 | 4,858.94 | 7.7 | 9.2 | 8.2 |
| 1996 | 3,407.25 | 1,900.01 | 5,307.26 | 12.2 | 4.2 | 9.2 |
| 1997 | 3,611.49 | 1,996.37 | 5,607.86 | 6.0 | 5.1 | 5.7 |
| 1998 | 3,483.39 | 2,071.09 | 5,554.48 | -3.5 | 3.7 | -1.0 |
| 1999 | 3,317.41 | 2,180.41 | 5,497.83 | -4.8 | 5.3 | -1.0 |
| 2000 | 3,271.96 | 2,383.71 | 5,655.67 | -1.4 | 9.3 | 2.9 |
| Intermediate Estimates: | | | | | | |
| 2001 | 3,521.69 | 2,706.49 | 6,228.18 | 7.6 | 13.5 | 10.1 |
| 2002 | 3,672.03 | 2,945.09 | 6,617.13 | 4.3 | 8.8 | 6.2 |
| 2003 | 3,712.47 | 3,120.31 | 6,832.78 | 1.1 | 5.9 | 3.3 |
| 2004 | 3,863.79 | 3,304.73 | 7,168.52 | 4.1 | 5.9 | 4.9 |
| 2005 | 4,036.95 | 3,506.76 | 7,543.71 | 4.5 | 6.1 | 5.2 |
| 2006 | 4,218.13 | 3,701.66 | 7,919.79 | 4.5 | 5.6 | 5.0 |
| 2007 | 4,392.74 | 3,883.45 | 8,276.19 | 4.1 | 4.9 | 4.5 |
| 2008 | 4,582.73 | 4,086.15 | 8,668.89 | 4.3 | 5.2 | 4.7 |
| 2009 | 4,783.15 | 4,300.69 | 9,083.84 | 4.4 | 5.3 | 4.8 |
| 2010 | 5,001.45 | 4,532.94 | 9,534.39 | 4.6 | 5.4 | 5.0 |

[1]Percent changes for 1970 represent the average annual increases from 1967 (the first full year of trust fund operations) through 1970. Similarly, percent changes shown for 1975, 1980, 1985, and 1990 represent the average annual increase over the 5-year period ending in the indicated year.

On average, annual increases in per beneficiary costs have been greater for SMI than for HI during the previous 3 decades—by approximately 1.1 percent, 4.7 percent, and 1.0 percent per year in the 1970s, 1980s, and 1990s, respectively. This trend is expected to continue through 2010, with the 10-year average annual increase projected to be 2.3 percent greater for SMI than for HI. It is anticipated that SMI per beneficiary costs will increase significantly in 2001 as a result of the Medicare, Medicaid, and SCHIP Benefits Improvement and Protection Act of 2000. In subsequent years, however, the large growth in the 1970s and 1980s is not expected to recur for either HI or SMI, due to more moderate inflation rates and the conversion of Medicare's remaining cost-based reimbursement mechanisms to prospective payment systems as part of the BBA.

## *C. MEDICARE COST SHARING AND PREMIUM AMOUNTS*

HI beneficiaries who use covered services may be subject to deductible and coinsurance requirements. A beneficiary is responsible for an inpatient hospital deductible amount, which is deducted from the amount payable by the HI program to the hospital, for inpatient hospital services furnished in a spell of illness. When a beneficiary receives such services for more than 60 days during a spell of illness, he or she is responsible for a coinsurance amount equal to one-fourth of the inpatient hospital deductible for each of days 61-90 in the hospital. After 90 days in a spell of illness, each individual has 60 lifetime reserve days of coverage, the coinsurance amount for which is equal to one-half of the inpatient hospital deductible. A beneficiary is responsible for a coinsurance amount equal to one-eighth of the inpatient hospital deductible for each of days 21-100 of skilled nursing facility services furnished during a spell of illness.

Most persons aged 65 and older and many disabled individuals under age 65 are insured for HI benefits without payment of any premium. The Social Security Act provides that certain aged and disabled persons who are not insured may voluntarily enroll, subject to the payment of a monthly premium. In addition, since 1994, voluntary enrollees may qualify for a reduced premium if they have at least 30 quarters of covered employment.

Under SMI, all enrollees must pay a monthly premium. Most SMI services are subject to an annual deductible and coinsurance. The annual deductible and the coinsurance percentage (percent of costs that the enrollee must pay) are set by statute. The coinsurance percentage has remained at 20 percent since the inception of the program.

Table III.C1 shows the historical levels of HI and SMI deductibles, HI coinsurance, and HI and SMI premiums, as well as projected values for future years based on the intermediate set of assumptions used in estimating the operations of the trust funds. Certain anomalies in these values resulted from specific program features in particular years (for example, the effect of the Medicare Catastrophic Coverage Act of 1988 on 1989 values). The amounts of the HI and SMI premiums and the HI deductibles and coinsurance are required to be announced in the Federal Register in September of each year for the upcoming year. The values listed in the table for future years are estimates, and actual amounts are likely to be somewhat different as experience emerges.

**Table III.C1.—Medicare Cost Sharing and Premium Amounts**

| | HI | | | | | | SMI | |
|---|---|---|---|---|---|---|---|---|
| | | Inpatient coinsurance[1] | | | | | | |
| Year | Inpatient hospital deductible[1] | Days 61-90 | Lifetime reserve days | SNF coinsurance days[1] | Monthly premium Standard[2] | Monthly premium Reduced[1] | Monthly premium[2] | Annual deductible[1] |
| Historical Data: | | | | | | | | |
| 1967 | $40 | $10 | — | $5.00 | — | — | $3.00 | $50 |
| 1968 | 40 | 10 | $20 | 5.00 | — | — | 4.00 | 50 |
| 1969 | 44 | 11 | 22 | 5.50 | — | — | 4.00 | 50 |
| 1970 | 52 | 13 | 26 | 6.50 | — | — | 4.00 | 50 |
| 1971 | 60 | 15 | 30 | 7.50 | — | — | 5.30 | 50 |
| 1972 | 68 | 17 | 34 | 8.50 | — | — | 5.60 | 50 |
| 1973 | 72 | 18 | 36 | 9.00 | $33 | — | 5.80 | 60 |
| 1974 | 84 | 21 | 42 | 10.50 | 36 | — | 6.30 | 60 |
| 1975 | 92 | 23 | 46 | 11.50 | 40 | — | 6.70 | 60 |
| 1976 | 104 | 26 | 52 | 13.00 | 45 | — | 6.70 | 60 |
| 1977 | 124 | 31 | 62 | 15.50 | 54 | — | 7.20 | 60 |
| 1978 | 144 | 36 | 72 | 18.00 | 63 | — | 7.70 | 60 |
| 1979 | 160 | 40 | 80 | 20.00 | 69 | — | 8.20 | 60 |
| 1980 | 180 | 45 | 90 | 22.50 | 78 | — | 8.70 | 60 |
| 1981 | 204 | 51 | 102 | 25.50 | 89 | — | 9.60 | 60 |
| 1982 | 260 | 65 | 130 | 32.50 | 113 | — | 11.00 | 75 |
| 1983 | 304 | 76 | 152 | 38.00 | 113 | — | 12.20 | 75 |
| 1984 | 356 | 89 | 178 | 44.50 | 155 | — | 14.60 | 75 |
| 1985 | 400 | 100 | 200 | 50.00 | 174 | — | 15.50 | 75 |
| 1986 | 492 | 123 | 246 | 61.50 | 214 | — | 15.50 | 75 |
| 1987 | 520 | 130 | 260 | 65.00 | 226 | — | 17.90 | 75 |
| 1988 | 540 | 135 | 270 | 67.50 | 234 | — | 24.80 | 75 |
| 1989[3] | 560 | — | — | 25.50 | 156 | — | 31.90 | 75 |
| 1990 | 592 | 148 | 296 | 74.00 | 175 | — | 28.60 | 75 |
| 1991 | 628 | 157 | 314 | 78.50 | 177 | — | 29.90 | 100 |
| 1992 | 652 | 163 | 326 | 81.50 | 192 | — | 31.80 | 100 |
| 1993 | 676 | 169 | 338 | 84.50 | 221 | — | 36.60 | 100 |
| 1994 | 696 | 174 | 348 | 87.00 | 245 | $184 | 41.10 | 100 |
| 1995 | 716 | 179 | 358 | 89.50 | 261 | 183 | 46.10 | 100 |
| 1996 | 736 | 184 | 368 | 92.00 | 289 | 188 | 42.50 | 100 |
| 1997 | 760 | 190 | 380 | 95.00 | 311 | 187 | 43.80 | 100 |
| 1998 | 764 | 191 | 382 | 95.50 | 309 | 170 | 43.80 | 100 |
| 1999 | 768 | 192 | 384 | 96.00 | 309 | 170 | 45.50 | 100 |
| 2000 | 776 | 194 | 388 | 97.00 | 301 | 166 | 45.50 | 100 |
| 2001 | 792 | 198 | 396 | 99.00 | 300 | 165 | 50.00 | 100 |
| Intermediate Estimates: | | | | | | | | |
| 2002 | 812 | 203 | 406 | 101.50 | 314 | 173 | 58.50 | 100 |
| 2003 | 844 | 211 | 422 | 105.50 | 318 | 175 | 63.30 | 100 |
| 2004 | 884 | 221 | 442 | 110.50 | 333 | 183 | 68.00 | 100 |
| 2005 | 928 | 232 | 464 | 116.00 | 348 | 191 | 72.30 | 100 |
| 2006 | 976 | 244 | 488 | 122.00 | 363 | 200 | 76.30 | 100 |
| 2007 | 1,024 | 256 | 512 | 128.00 | 378 | 208 | 79.90 | 100 |
| 2008 | 1,076 | 269 | 538 | 134.50 | 394 | 217 | 84.80 | 100 |
| 2009 | 1,132 | 283 | 566 | 141.50 | 411 | 226 | 89.50 | 100 |
| 2010 | 1,188 | 297 | 594 | 148.50 | 430 | 237 | 94.40 | 100 |

[1]Amounts shown are effective for calendar years.
[2]Amounts shown for 1967-1982 are for the 12-month periods ending June 30; amounts shown for 1983 are for the period July 1, 1982 through December 31, 1983; amounts shown for 1984 and later are for calendar years.
[3]Anomalies in the 1989 values are due to the Medicare Catastrophic Coverage Act of 1988. Most of the provisions of the Act were repealed the following year.

The Federal Register notice announcing the HI deductible and coinsurance amounts for 2001 included an estimate of the aggregate cost to HI beneficiaries for the changes in the deductible and coinsurance amounts from 2000 to 2001. At that time, it was estimated that in 2001 there will be about 8.6 million inpatient deductibles paid at $792 each, about 2.1 million inpatient days subject to coinsurance at $198 per day (for hospital days 61 through 90), about 1.0 million lifetime reserve days subject to coinsurance at $396 per day, and about 30.1 million extended care days subject to coinsurance at $99 per day. Similarly, it was estimated that in 2000 there were about 8.4 million deductibles paid at $776 each, about 2.1 million days subject to coinsurance at $194 per day (for hospital days 61 through 90), about 1.0 million lifetime reserve days subject to coinsurance at $388 per day, and about 28.6 million extended care days subject to coinsurance at $97 per day. Therefore, the total increase in cost to beneficiaries was estimated to be about $480 million (rounded to the nearest $10 million), due to (1) the increase in the inpatient deductible and coinsurance amounts, and (2) the change in the number of deductibles and daily coinsurance amounts paid.

## *D. SUPPLEMENTARY ASSESSMENT OF UNCERTAINTY IN SMI COST PROJECTIONS*

This appendix presents an additional way to help assess the uncertainty of SMI cost projections. It is intended to supplement the traditional methods of examining such uncertainty and to illustrate the potential value of new techniques. The analysis offered here uses statistical methods to help quantify the range and likelihood of future SMI costs and trust fund assets and should be viewed as a tentative application of the new techniques to the SMI financial projections, subject to refinement over time as more data become available.

### 1. Background

Financial projections, including those for Medicare, are necessarily uncertain because the future is unknown and unknowable. Medicare projections depend on numerous assumptions, as outlined in sections I.D and II.G of this report. Variations between *actual* future cost factors (for example, growth in the utilization of medical services) and the corresponding *assumptions* will almost always cause future costs to vary from the estimate.

Uncertainty in Medicare costs is traditionally illustrated by using three alternative sets of assumptions (intermediate, high cost, and low cost). The high cost alternative assumes a faster growth rate in SMI expenditures in every year. Similarly, the low cost alternative assumes slower growth rates in all years. These growth differentials are set deterministically, to illustrate the impact on SMI costs of sustained faster or slower growth that could reasonably be expected to occur. Using the traditional methodology alone, it is not possible to quantify the probability of either outcome or the likelihood of a future result outside of the range defined by the high cost and low cost alternatives.

From time to time, expert panels of actuaries and economists convene to review the assumptions and methodology underlying the Medicare and Social Security Trustees Reports. Each of the past four expert panels has recommended consideration of alternative analytical techniques to supplement the current methodology for assessing the uncertainty in cost projections and to add insight into the potential range of future variation. The 1991 Advisory Council Technical Panel report on Social Security recommended the "development of methods to quantify the uncertainty of short- and long-range forecasts, both for particular assumptions and projections." Similarly, the 1994-95

Advisory Council Technical Panel report recommended that "stochastic analysis should be used to examine more explicitly the probabilities of alternative projections." The 1999 Social Security Advisory Board Technical Panel agreed, stating that they "follow previous panels in strongly recommending efforts toward stochastic modeling or similar techniques that are better able to capture the interrelationships among assumptions." They added, "what we seek is a method of displaying to policy makers and the public just how uncertain is some average cost outcome or date of exhaustion of the Trust Funds, and what are the probabilities that events will be close to or far away from that result." The 2000 Medicare Technical Review Panel on the Trustees Reports recommended the continued use of stochastic methods for Medicare and noted that "although stochastic modeling is complicated, it can result in enhanced insight into the uncertainty associated with health care cost projections."

The projections shown in this appendix represent the preliminary application of such techniques to the short-range cost projections for the SMI program. Last year's SMI report was the first to apply these techniques to the SMI projections

## 2. Methodology

For health care cost projections, the most critical assumption is generally the rate of increase in average per beneficiary medical costs.[2] In the past there have been wide variations in such growth rates for the SMI program. The statistical methods employed here (also referred to as "stochastic" projection techniques) measure past variation in per beneficiary growth rates relative to the average and assume that similar variation will occur in the future, relative to the intermediate growth rate assumptions for the short-range projection period.

Past variations in benefit expenditure growth rates are examined separately by service type (for example, physician, hospital, and home health) and by eligibility category (aged, disabled, or end-stage renal disease), using data from the first quarter of 1991 through the second quarter of 2000. For each future year, these variations are combined statistically to develop a measure of variation in total SMI benefit

[2]Such cost increases reflect changes in (1) the prices of specific medical services, (2) the utilization of services, and (3) the average complexity or "intensity" of services.

expenditures per beneficiary.[3] Individual 10-year projection scenarios are generated by randomly selecting each year's per beneficiary SMI cost increase from a frequency distribution of increases based on past variation and the intermediate growth rate assumption for the given year.[4] Two thousand short-range scenarios are generated and benefit expenditures are projected for each individual scenario. A distribution of the resulting cost projections is calculated and used to assess the possible variation in future expenditure levels and trust fund operations.

The stochastic approach provides several potential benefits to supplement the traditional projections. This method provides an estimated probability of occurrence for various possible outcomes, rather than just an illustrative outcome. For example, the likelihood that SMI expenditures would exceed a specified level within 10 years can be estimated using stochastic techniques. Similarly, the likelihood of an abrupt decline in SMI trust fund assets can be evaluated using these techniques, as illustrated in the next section of this appendix.

The projections shown in this appendix should be considered only as a preliminary attempt to augment the traditional projections that are made for SMI. The method presented, like any projection model, is only a tool; it can provide useful—but limited—information regarding an unknowable future. Stochastic techniques can improve our understanding of possible future developments but cannot "guarantee" any specific outcome. In particular:

- The stochastic techniques used here rely heavily on past experience. The future may differ from the past in fundamental ways that generally cannot be anticipated or reflected in a statistical model. For example, the past experience underlying the statistical model is drawn from years that precede implementation of the SMI outpatient hospital prospective payment system (which started August 2000). The range of future variation in outpatient hospital expenditures (and total SMI costs) may therefore differ from what is reflected in the model.

[3]For this calculation, variation in each service category is weighted by the expected level of benefit expenditures per beneficiary for that category for the year. The calculation also reflects the "covariances" among the different categories—for example, the probability that a faster-than-average increase in physician expenditures would be associated with an above-average increase in spending for diagnostic laboratory tests, outpatient hospital procedures, and other services.

[4]These future increases are assumed to be normally distributed, based on the near-normality of past increases about their average.

- Actual SMI payment operations are very complex. The stochastic model used is a simplification of real-world relationships and may not be sufficiently sophisticated to match future behavior. Many possible models could be used; the one employed here may not be the best model possible (if there indeed is a unique "best" model).

- The model is based on the underlying data. A limited number of years of data are available, and the data can be subject to problems, such as measurement errors or inconsistent definitions over time. Any such problems would, of course, affect the model.

- Potential variations in costs due to factors other than growth in per beneficiary expenditures are not considered. For example, longer life expectancies or variations in net immigration could affect the total number of SMI beneficiaries and therefore total program expenditures.

- Finally, the methodology described here models future expenditure uncertainty on the assumption that the intermediate assumptions produce the most likely future year-by-year cost increases. Actual future growth rates could, on average, differ from these assumptions.

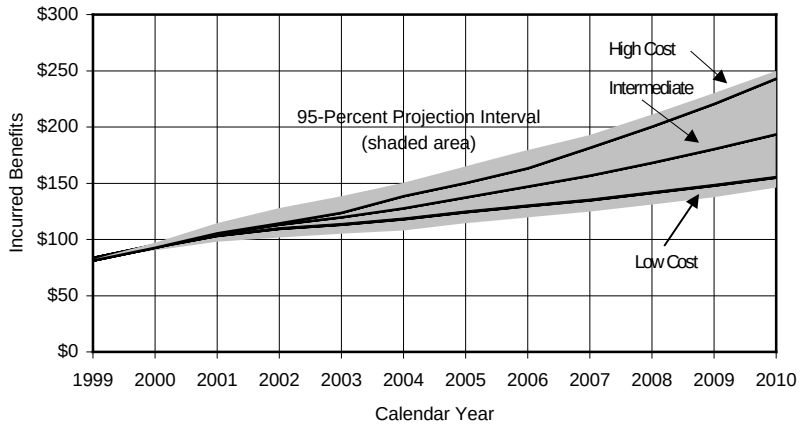
For these reasons, the stochastic projections shown in this appendix should be viewed cautiously and used with awareness of their limitations.[5] Many refinements to the methodology are possible. For example, the assumed average future cost increases could be allowed to differ from the increases of the intermediate assumptions. Also, separate cost increases could be generated by type of service rather than in aggregate. Other factors, such as the demographic assumptions, could be allowed to vary rather than just the per beneficiary SMI cost increases.

[5]Many of these limitations also apply to the traditional projection methods used in the annual Trustees Reports and, indeed, to virtually any estimation technique. Different methods have different relative advantages and disadvantages. Use of multiple techniques has the potential to improve our overall understanding of possible future developments.

### 3. Results

The shaded region in figure III.D1 illustrates the range within which future SMI benefit expenditures are estimated to occur 95 percent of the time, based on the stochastic projections. In other words, actual future expenditures in a given year would be expected to exceed the upper bound only 2.5 percent of the time or to fall below the lower bound 2.5 percent of the time.[6]

**Figure III.D1.—95-Percent Projection Interval for SMI Incurred Benefits**
[In billions]




For comparison, the benefit levels projected under the intermediate, high cost, and low cost alternatives are also shown in figure III.D1. With both projection methodologies, the range of benefits widens as the projections move further into the future, reflecting increasing uncertainty. The high cost alternative is initially well below the upper bound for the 95-percent stochastic projection interval but nearly reaches the upper bound by the end of the 10-year projection period. Similarly, the low cost alternative exceeds the lower bound for the 95-percent interval initially but nearly reaches the boundary in 2010. The intermediate estimate is similar to the 50$^{th}$ percentile of the stochastic distribution, as one would anticipate because the stochastic analysis is tied to the intermediate assumptions as the expected case.

[6]These estimated probabilities apply to a given projection year and not to all years simultaneously. Based on the stochastic model, the probability of costs exceeding the upper 95-percent limit in all 10 years would be substantially smaller than 2.5 percent.

The levels of SMI benefits corresponding to various percentiles from the stochastic benefit distribution are shown in table III.D1. The percentiles represent the estimated probabilities that actual future SMI expenditures in a given year would be less than or equal to the expenditure amount shown. For example, the stochastic projections suggest a 5-percent probability that expenditures would be $152.7 billion or less in 2010. Similarly, there is an estimated 50-50 probability that expenditures in 2010 would be lower—or higher—than the 50th-percentile projection of $192.1 billion (also known as the median projection).

**Table III.D1.—Estimated Incurred SMI Benefit Expenditures, by Percentile of Projection Distribution**

[In billions]

| | Percentiles | | | | |
|---|---|---|---|---|---|
| Calendar year | 2.5 | 5.0 | 50.0 | 95.0 | 97.5 |
| 2000 | $90.4 | $91.0 | $93.9 | $96.7 | $97.2 |
| 2001 | 98.0 | 99.1 | 105.8 | 113.0 | 114.4 |
| 2002 | 101.7 | 103.7 | 113.9 | 125.2 | 127.9 |
| 2003 | 105.1 | 107.2 | 120.6 | 135.2 | 138.5 |
| 2004 | 108.0 | 111.9 | 128.4 | 147.0 | 150.5 |
| 2005 | 114.6 | 118.4 | 137.7 | 161.8 | 165.0 |
| 2006 | 119.7 | 124.8 | 146.5 | 174.1 | 179.4 |
| 2007 | 124.7 | 130.0 | 156.5 | 187.2 | 192.8 |
| 2008 | 130.9 | 136.6 | 167.6 | 204.2 | 211.1 |
| 2009 | 137.5 | 144.1 | 179.2 | 221.5 | 230.1 |
| 2010 | 146.1 | 152.7 | 192.1 | 239.8 | 249.9 |

Note: Intermediate estimates are similar to the 50th-percentile benefits. See section II.G for specific expenditure projections under the intermediate assumptions.

Table III.D2 presents the stochastic percentiles that correspond to the traditional intermediate, high, and low cost projections. For example, based on the stochastic model, the estimated probability that SMI expenditures in 2003 would be less than the low cost projection is 22.2 percent. Similarly, the estimated probability that costs would be at or below the high cost projection in 2006 is 85.6 percent.

As noted before, these probabilities are *estimated*, based on the statistical methods described in the previous section, and are subject to the various limitations inherent in such methods. Accordingly, the estimates provide a reasonable guide to possible outcomes but could be invalidated by unanticipated changes.

**Table III.D2.—Percentiles of SMI Benefit Expenditure Distribution Corresponding to Low, Intermediate, and High Cost Estimates**

| Calendar year | Low Cost | Intermediate | High Cost |
|---|---|---|---|
| 2000 | 49.8 % | 49.5% | 47.2% |
| 2001 | 36.5 | 52.2 | 57.5 |
| 2002 | 29.1 | 52.0 | 58.7 |
| 2003 | 22.2 | 51.5 | 68.2 |
| 2004 | 18.7 | 51.7 | 84.9 |
| 2005 | 15.2 | 53.0 | 83.8 |
| 2006 | 12.9 | 53.7 | 85.6 |
| 2007 | 11.3 | 52.5 | 91.9 |
| 2008 | 9.6 | 53.8 | 93.7 |
| 2009 | 8.0 | 53.9 | 95.1 |
| 2010 | 6.6 | 53.9 | 96.3 |

The comparison of projection results in figure III.D1 and table III.D2 indicates that the 95-percent stochastic projection range is initially somewhat broader than the range defined by the high and low cost alternatives. Toward the end of the 10-year projection period, however, the two ranges are very similar. This result illustrates the different nature of the two projection methodologies. The high and low cost alternatives assume expenditure increases of roughly 2 percent higher or lower, respectively, than the intermediate assumption in every year.[7] In contrast, SMI growth rates under the stochastic projection can vary randomly by as much as 7 percentage points higher or lower than the intermediate assumption for a specific year. Thus, the stochastic projections suggest that the uncertainty of future SMI expenditures is somewhat greater over the next few years than illustrated by the traditional alternative projections. Over longer periods, however, the probability diminishes that SMI costs would increase 2 percent faster (or slower) than the intermediate assumption in *every* year. The stochastic model estimates that, by the end of the 10-year period, the likelihood of costs exceeding the high cost projection is small (3.7 percent) and that the probability of falling below the low cost alternative is also small (6.6 percent).

The statistical methodology described in this appendix can also be used to help assess the adequacy of program financing and assets for the SMI trust fund. As noted elsewhere in this report, the SMI program is considered to be automatically in financial balance because premium and general revenue financing levels are reestablished annually to match expected expenditures for the following year. Thus, in contrast to the OASDI and HI programs, where financing can be changed only through legislation, the SMI program should always be adequately financed so long as premiums and general revenue levels are accurately set and an adequate trust

[7]A more detailed description of the high and low cost assumptions is given in section II.G.

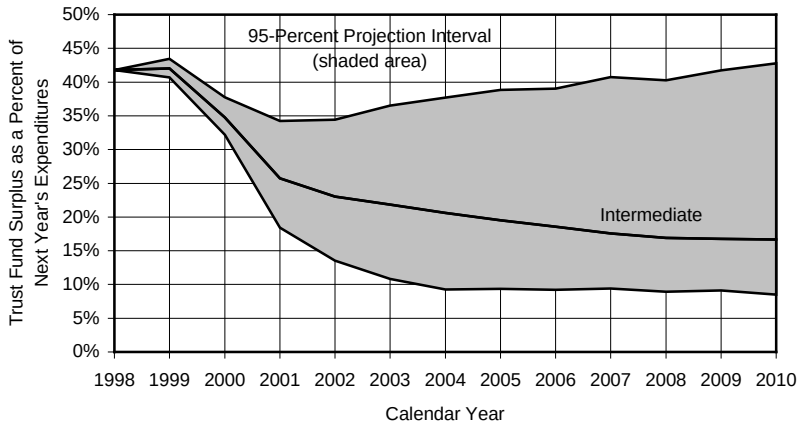
fund balance is maintained. In this regard, the stochastic methods used in this appendix can help determine if an unexpected major change in SMI expenditure levels is likely and whether such a change could jeopardize asset adequacy prior to the next premium determination. This assessment can be used to evaluate the sufficiency of existing procedures for setting premiums and the adequacy of traditional trust fund reserve targets.

The assets of the SMI trust fund should be sufficient at any time to cover the costs of covered services that have been performed but not yet reimbursed (referred to as "incurred but unpaid" claims). In addition, assets should be sufficient to prevent fund depletion in the event of unexpectedly high expenditures. The adequacy of the SMI trust fund for these purposes is generally measured by comparing the fund's assets minus liabilities (for the incurred but unpaid claims) with program expenditures for the following year, as described in more detail in section II.E. Premium rates and matching general fund transfers are set each year based on estimates of the following 2 years' expenditures.[8] The sensitivity of the asset reserve ratio to above- or below-average expenditure growth over the 2 years can be evaluated using the stochastic projections.

The estimated financial status of the SMI trust fund, based on the stochastic projections, is shown in figure III.D2. This graph displays the 95-percent projection interval for the ratio of trust fund assets less liabilities at the end of a year to the following year's expenditures. The results show a reasonable range of surplus values over the 10-year period, reflecting the annual redetermination of SMI premiums and general revenue financing. If expenditure levels begin to drift away from expectations, financing is adjusted for the following year, thereby minimizing the degree to which fund assets would depart from desired levels. The figure also illustrates an intentional gradual movement from the current financial status, with net assets in excess of levels considered sufficient for a contingency reserve, toward the desired reserve level of approximately 15 to 20 percent of the following year's expenditures.

[8]Expenditures in the following year determine the level of assets and liabilities at the end of that year; expenditures in the second year are used in the denominator of the trust fund reserve ratio and thus affect the level of this ratio.

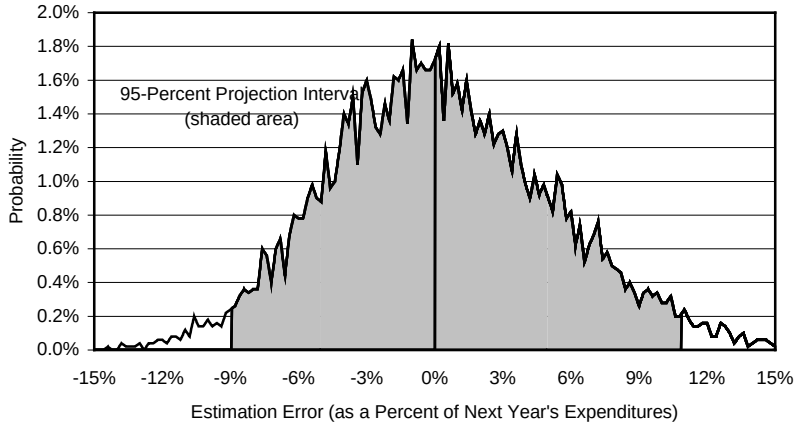
**Figure III.D2.—95-Percent Projection Interval for Financing Status of SMI Trust Fund**




The stochastic projections shown in figure III.D2 suggest that the target reserve level and annual redetermination of SMI financing should be sufficient to prevent the assets of the SMI trust fund from falling below acceptable levels. The lower bound of the 95-percent range remains in the vicinity of 10 percent. Thus, with a target fund ratio of 15 to 20 percent, faster-than-expected expenditure growth appears unlikely to result in actual levels below 10 percent. The supplementary assessment of uncertainty, based on the statistical approach shown in this appendix, supports the existing standards for ensuring fund solvency.

As noted previously, the financing for the SMI program is set for a future year based on projections of benefit expenditures. For example, the monthly premium and corresponding general fund transfers for 2001 were set in 2000 based on projections of benefit expenditures for 2001 and 2002. In practice, however, the actual benefit levels are likely to differ from those expected when the financing is determined. Although a specific reserve asset level is anticipated, the subsequent actual level will invariably differ. Figure III.D3 shows an estimated frequency distribution for such disparities, to assess their magnitude and likelihood. The estimation error for a given year is defined as the net surplus ratio at the end of the year, based on the stochastic projection, minus the expected surplus ratio at the time that financing is established. The frequency distribution shows the probabilities of various differences from the expected trust fund status.

**Figure III.D3.—Frequency Distribution of Estimation Errors for SMI Trust Fund Surplus Ratio (Stochastic "Actual" minus Estimated Surplus as a Percent of Next Year's Expenditures)**




The stochastic analysis suggests that, on average, 95 percent of the estimation errors would be expected to fall between about −9 percent and 11 percent. The largest adverse differences generated by the stochastic projections were in the vicinity of −14 percent. These results are also consistent with the traditional reserve level target of 15 to 20 percent.

## 4. Summary

The stochastic approach presented in this appendix is intended to supplement the traditional projection methods used to evaluate the financial status of the SMI program. The approach can help quantify the uncertainty of future SMI cost projections but is preliminary and subject to further refinement. The results suggest that the range of variation defined by the traditional high and low cost alternatives is initially somewhat narrower than the range determined by the tentative application of stochastic modeling but about the same at the end of the 10-year projection period. The projections support the view that future SMI costs could vary substantially from the intermediate projection, due to variations in future annual cost increases. The statistical analysis also reinforces the conclusion that the current methods of establishing SMI premiums and general revenue financing should prevent depletion of the trust fund, even under conditions of sustained adverse cost experience.

## *E. GLOSSARY*

**Actuarial rates.** One half of the expected monthly cost of the SMI program for each aged enrollee (for the aged actuarial rate) and one half of the expected monthly cost for each disabled enrollee (for the disabled actuarial rate) for the duration the rate is in effect.

**Actuarial status.** A measure of the adequacy of the financing as determined by the difference between assets and liabilities at the end of the periods for which financing was established.

**Administrative expenses.** Expenses incurred by the Department of HHS and the Department of the Treasury in administering the SMI program and the provisions of the Internal Revenue Code relating to the collection of contributions. Such administrative expenses, which are paid from the SMI trust fund, include expenditures for contractors to determine costs of, and make payments to, providers, as well as salaries and expenses of HCFA.

**Aged enrollee.** An individual, aged 65 or over, who is enrolled in the SMI program.

**Allowed charge.** Individual charge determined by a carrier for a covered SMI medical service or supply.

**Amortization.** Process of the gradual retirement of an outstanding debt by making periodic payments to the trust fund.

**Assets.** Treasury notes and bonds guaranteed by the federal government, and cash held by the trust funds for investment purposes.

**Assumptions.** Values relating to future trends in certain key factors that affect the balance in the trust funds. Demographic assumptions include fertility, mortality, net immigration, marriage, divorce, retirement patterns, disability incidence and termination rates, and changes in the labor force. Economic assumptions include unemployment, average earnings, inflation, interest rates, and productivity. Three sets of economic assumptions are presented in the Trustees Report:

(1) The low cost alternative, with relatively rapid economic growth, low inflation, and favorable (from the standpoint of program financing) demographic conditions;

(2) The intermediate assumptions, which represent the Trustees' best estimates of likely future economic and demographic conditions; and
(3) The high cost alternative, with slow economic growth, more rapid inflation, and financially disadvantageous demographic conditions.

**Average market yield.** A computation that is made on all marketable interest-bearing obligations of the United States. It is computed on the basis of market quotations as of the end of the calendar month immediately preceding the date of such issue.

**Baby boom.** The period from the end of World War II through the mid-1960s marked by unusually high birth rates.

**Beneficiary.** A person enrolled in the SMI program. See also "Aged enrollee" and "Disabled enrollee."

**Benefit payments.** The amounts disbursed for covered services after the deductible and coinsurance amounts have been deducted.

**Board of Trustees.** A Board established by the Social Security Act to oversee the financial operations of the Federal Supplementary Medical Insurance Trust Fund. The Board is composed of six members, four of whom serve automatically by virtue of their positions in the federal government: the Secretary of the Treasury, who is the Managing Trustee; the Secretary of Labor; the Secretary of HHS; and the Commissioner of Social Security. The other two members are appointed by the President and confirmed by the Senate to serve as public representatives. John L. Palmer and Thomas R. Saving began serving their 4-year terms on October 28, 2000. The Administrator of HCFA serves as Secretary of the Board of Trustees.

**Bond.** A certificate of ownership of a specified portion of a debt due by the federal government to holders, bearing a fixed rate of interest.

**Carrier.** A private or public organization under contract to HCFA to administer the SMI benefits under Medicare. Also referred to as "contractors," these organizations determine coverage and benefit amounts payable and make payments to physicians, suppliers, and beneficiaries.

**Cash basis.** The costs of the service when payment was made rather than when the service was performed.

**Certificate of indebtedness.** A short-term certificate of ownership (12 months or less) of a specified portion of a debt due by the federal government to individual holders, bearing a fixed rate of interest.

**Coinsurance.** Portion of the SMI costs paid by the beneficiary after meeting the annual deductible.

**Consumer Price Index (CPI).** A measure of the average change in prices over time in a fixed group of goods and services. In this report, all references to the CPI relate to the CPI for Urban Wage Earners and Clerical Workers (CPI-W).

**Contingency.** Funds included in the trust fund to serve as a cushion in case actual expenditures are higher than those projected at the time financing was established. Since the financing is set prospectively, actual experience may be different from the estimates used in setting the financing.

**Contingency margin.** An amount included in the actuarial rates to provide for changes in the contingency level in the trust fund. Positive margins increase the contingency level, and negative margins decrease it.

**Covered services.** Services for which SMI pays, as defined and limited by statute. Covered services include most physician services, care in outpatient departments of hospitals, diagnostic tests, DME, ambulance services, and other health services that are not covered by the HI program.

**Deductible.** The annual amount payable by the beneficiary for covered services before Medicare makes reimbursement.

**Demographic assumptions.** See "Assumptions."

**Disability.** For Social Security purposes, the inability to engage in substantial gainful activity by reason of any medically determinable physical or mental impairment that can be expected to result in death or to last for a continuous period of not less than 12 months. Special rules apply for workers aged 55 or older whose disability is based on blindness. The law generally requires that a person be disabled continuously for 5 months before he or she can qualify for a disabled-worker cash benefit. An additional 24 months is necessary to qualify under Medicare.

**Disabled enrollee.** An individual under age 65 who has been entitled to disability benefits under Title II of the Social Security Act or the Railroad Retirement System for at least 2 years and who is enrolled in the SMI program.

**Durable medical equipment (DME).** Items such as iron lungs, oxygen tents, hospital beds, wheelchairs, and seat lift mechanisms that are used in the patient's home and are either purchased or rented.

**Economic assumptions.** See "Assumptions."

**Economic stabilization program.** A legislative program during the early 1970s that limited price increases.

**End-stage renal disease (ESRD).** Permanent kidney failure.

**Fee-screen year.** A specified period of time in which SMI-recognized fees pertain. The fee-screen year period has changed over the history of the program.

**Fiscal year.** The accounting year of the U.S. Government. Since 1976, each fiscal year has begun October 1 of the prior calendar year and ended the following September 30. For example, fiscal year 2001 began October 1, 2000 and will end September 30, 2001.

**Frequency distribution.** An exhaustive list of possible outcomes for a variable, and the associated probability of each outcome. The sum of the probabilities of all possible outcomes from a frequency distribution is 100 percent.

**General fund of the Treasury.** Funds held by the Treasury of the United States, other than revenue collected for a specific trust fund (such as SMI) and maintained in a separate account for that purpose. The majority of this fund is derived from individual and business income taxes.

**General revenue.** Income to the SMI trust fund from the general fund of the Treasury.

**Gross Domestic Product (GDP).** The total dollar value of all goods and services produced in a year in the United States, regardless of who supplies the labor or property.

**High cost alternative.** See "Assumptions."

**Home health agency (HHA).** A public agency or private organization that is primarily engaged in providing the following services in the home: skilled nursing services, other therapeutic services (such as physical, occupational, or speech therapy), and home health aide services.

**Hospital Insurance (HI).** The Medicare program that covers specified inpatient hospital services, posthospital skilled nursing, home health services, and hospice care for aged and disabled individuals who meet the eligibility requirements. Also known as Medicare Part A.

**Incurred basis.** The costs based on when the service was performed rather than when the payment was made.

**Independent laboratory.** A free-standing clinical laboratory meeting conditions for participation in the Medicare program and billing through a carrier.

**Interest.** A payment for the use of money during a specified period.

**Intermediary.** A private or public organization that is under contract to HCFA to determine costs of, and make payments to, providers for HI and certain SMI services.

**Intermediate assumptions.** See "Assumptions."

**Low cost alternative.** See "Assumptions."

**Managed care.** Includes Health Maintenance Organizations (HMO), Competitive Medical Plans (CMP), and other plans that provide health services on a prepayment basis, which is based either on cost or risk, depending on the type of contract they have with Medicare. See also "Medicare+Choice."

**Medicare.** A nationwide, federally administered health insurance program authorized in 1965 to cover the cost of hospitalization, medical care, and some related services for most people over age 65. In 1972, coverage was extended to people receiving Social Security Disability Insurance payments for 2 years, and people with ESRD. Medicare consists of two separate but coordinated programs: Part A (hospital insurance, HI) and Part B (supplementary medical insurance, SMI). Almost all persons who are aged 65 or over or disabled and who are entitled to HI are eligible to enroll in the SMI program on a voluntary basis by paying a monthly premium. Health

insurance protection is available to Medicare beneficiaries without regard to income.

**Medicare Economic Index (MEI).** An index often used in the calculation of the increases in the prevailing charge levels that help to determine allowed charges for physician services. In 1992 and later, this index is considered in connection with the update factor for the physician fee schedule.

**Medicare Payment Advisory Commission (MedPAC)**. A commission established by Congress in the Balanced Budget Act of 1997 to replace the Prospective Payment Assessment Commission and the Physician Payment Review Commission. MedPAC is directed to provide the Congress with advice and recommendations on policies affecting the Medicare program.

**Medicare+Choice.** An expanded set of options, established by the Balanced Budget Act of 1997, for the delivery of health care under Medicare. Most Medicare beneficiaries can choose to receive benefits through the original fee-for-service program or through one of the following Medicare+Choice plans: (1) coordinated care plans (such as health maintenance organizations, provider sponsored organizations, and preferred provider organizations); (2) Medical Savings Account (MSA)/High Deductible plans (through a demonstration available to up to 390,000 beneficiaries); or (3) private fee-for-service plans.

**Old-Age, Survivors, and Disability Insurance (OASDI).** The Social Security programs that pay for (1) monthly cash benefits to retired-worker (old-age) beneficiaries, their spouses and children, and survivors of deceased insured workers (OASI); and (2) monthly cash benefits to disabled-worker beneficiaries and their spouses and children, and for providing rehabilitation services to the disabled (DI).

**Outpatient hospital.** Part of the hospital providing services covered by SMI, including services in an emergency room or outpatient clinic, ambulatory surgical procedures, medical supplies such as splints, laboratory tests billed by the hospital, etc.

**Part A.** The Medicare Hospital Insurance program.

**Part B.** The Medicare Supplementary Medical Insurance program.

**Percentile.** A number that corresponds to one of the equal divisions of the range of a variable in a given sample and that characterizes a

value of the variable as not exceeded by a specified percentage of all the values in the sample. For example, a score higher that 97 percent of those attained is said to be in the 97th percentile.

**Prospective payment system (PPS)**. A method of reimbursement in which Medicare payment is made based on a predetermined, fixed amount. The payment amount for a particular service is derived based on the classification system of that service (for example, DRGs for inpatient hospital services).

**Provider.** Any organization, institution, or individual who provides health care services to the Medicare beneficiaries. Physicians, ambulatory surgical centers, and outpatient clinics are some of the providers of services covered under Medicare Part B.

**Residual factors.** Factors other than price, including volume of services, intensity of services, and age/sex changes.

**Resource-based relative value scale (RBRVS).** A scale of national uniform relative values for all physicians' services. The relative value of each service must be the sum of relative value units representing physicians' work, practice expenses net of malpractice expenses, and the cost of professional liability insurance.

**Social Security Act.** Public Law 74-271, enacted on August 14, 1935, with subsequent amendments. The Social Security Act consists of 20 titles, four of which have been repealed. The HI and SMI programs are authorized by Title XVIII of the Social Security Act.

**Special public-debt obligation.** Securities of the U.S. Government issued exclusively to the OASI, DI, HI, and SMI trust funds and other federal trust funds. Section 1841(a) of the Social Security Act provides that the public-debt obligations issued for purchase by the SMI trust fund 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 every June 30, so that the amounts maturing in each of the next 15 years are approximately equal. Special public-debt obligations are redeemable at par at any time.

**Supplementary Medical Insurance (SMI).** The Medicare program that pays for a portion of the costs of physicians' services, outpatient hospital services, and other related medical and health services for

voluntarily insured aged and disabled individuals. Also known as Part B.

**SMI premium.** Monthly premium paid by those individuals who have enrolled in the voluntary SMI program.

**Sustainable growth rate**. A system for establishing goals for the rate of growth in expenditures for physicians' services.

**Stochastic model.** An analysis involving a random variable. For example, a stochastic model may include a frequency distribution for one assumption. From the frequency distribution, possible outcomes for the assumption are selected randomly for use in an illustration.

**Term insurance.** A type of insurance that is in force for a specified period of time.

**Trust fund.** Separate accounts in the U.S. Treasury, mandated by Congress, whose assets may be used only for a specified purpose. For the SMI trust fund, monies not withdrawn for current benefit payments and administrative expenses are invested in interest-bearing federal securities, as required by law; the interest earned is also deposited in the trust fund.

## *F. STATEMENT OF ACTUARIAL OPINION*

It is my opinion that (1) the techniques and methodology used herein to evaluate the financial status of the Federal Supplementary Medical Insurance Trust Fund are based upon sound principles of actuarial practice and are generally accepted within the actuarial profession; and (2) the assumptions used and the resulting actuarial estimates are, individually and in the aggregate, reasonable for the purpose of evaluating the financial status of the trust fund, taking into consideration the past experience and future expectations for the population, the economy, and the program.

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