2000 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 2000 ANNUAL REPORT OF THE BOARD, PURSUANT TO SECTION 1841(b) OF THE SOCIAL SECURITY ACT, AS AMENDED

LETTER OF TRANSMITTAL

BOARD OF TRUSTEES OF THE
FEDERAL SUPPLEMENTARY MEDICAL INSURANCE TRUST FUND
Washington, D.C., March 30, 2000

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

HONORABLE Albert Gore, Jr.
President of the Senate
Washington, D.C.

GENTLEMEN:

We have the honor of transmitting to you the 2000 Annual Report of the Board of Trustees of the Federal Supplementary Medical Insurance Trust Fund (the 35th such report), in compliance with the provisions of section 1841(b) of the Social Security Act.

Respectfully,

Lawrence H. Summers, *Secretary of the Treasury, and Managing Trustee of the Trust Fund.*

/S/
Alexis M. Herman, *Secretary of Labor, and Trustee.*

/S/
Donna E. Shalala, *Secretary of Health and Human Services, and Trustee.*

/S/
Kenneth S. Apfel, *Commissioner of Social Security, and Trustee.*

/S/
Stephen G. Kellison, *Trustee.*

/S/
Marilyn Moon, *Trustee.*

/S/
Nancy-Ann Min DeParle, 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: Stephen G. Kellison and Marilyn Moon have completed 4-year terms that began July 20, 1995. They have continued serving through the issuance of this report under the provision of the Social Security Act that allows a public representative whose term has expired to continue in the position until the earlier of the time at which a successor takes office or the Board's next annual report is issued.

The Social Security Act requires that the Board report to the Congress annually on the financial and actuarial status of the SMI trust fund. This 2000 report is the 35th to be submitted. 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. The financial adequacy of the SMI program is evaluated for calendar year 2000. The report describes both the near term financial outlook and the longer term 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 2000. The SMI trust fund is adequately financed for calendar year 2000 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 benefits have generally been growing rapidly although rates of growth have moderated in recent years. In fact, the 1999 growth rate was among the lowest ever experienced by the SMI program. Even so, outlays have increased about 38 percent over the past 5 years (30 percent on a per-beneficiary basis). During this period the program grew about 5 percent faster than the economy as a whole, despite efforts to control SMI costs.
- SMI expenditures are expected to continue to grow faster than the economy as a whole. SMI outlays were less than 1 percent of the Gross Domestic Product (GDP) in 1999 and are projected to grow to about 2.4 percent by 2075. This projection is slightly lower than that shown in the 1999 annual report, in part because of slower-than-expected expenditure growth in 1999 but primarily because of faster assumed growth in the GDP.
- SMI trust fund assets decreased by $1.4 billion in 1999. This decrease occurred primarily because most premium and general fund revenues for January 1999 were received in December 1998, resulting in roughly 13 months of income for 1998 rather than the usual 12. Consequently, the SMI trust fund received roughly 11 months of income in 1999, resulting in slightly lower income and the decrease in assets.
- We note with great concern that program costs have generally grown faster than 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 1999:

- SMI covered about 32 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 1999 and by 15.5 percent over the past 10 years.
- SMI benefits amounted to $80.7 billion, about a 6 percent increase over the prior year. Average benefits per SMI enrollee increased by 5.2 percent to $2,178.
- Administrative costs were $1.6 billion or about 2 percent of program expenditures.
- Summary of SMI trust fund operations in 1999 (in billions):

Fund Balance (12/31/98)	$46.2
Income	80.9
Expenditures	82.3
Fund Balance (12/31/99)	44.8
Net Change in Balance	-1.4

- General revenue accounted for about 73 percent of income. Premiums were the second largest source of income, accounting for about 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 56 percent of SMI benefits. Fee-for-service payments to facilities accounted for another 23 percent, and managed care plans accounted for the final 21 percent.

C. 1999 TRUST FUND FINANCIAL OPERATIONS

SMI income in calendar year 1999 was $80.9 billion, and total expenditures were $82.3 billion. The fund balance therefore decreased by a net total of $1.4 billion. As of December 31, 1999 the SMI trust fund had a balance of $44.8 billion.

1. Income

The $80.9 billion in income received by the SMI program last year was derived from the following sources:

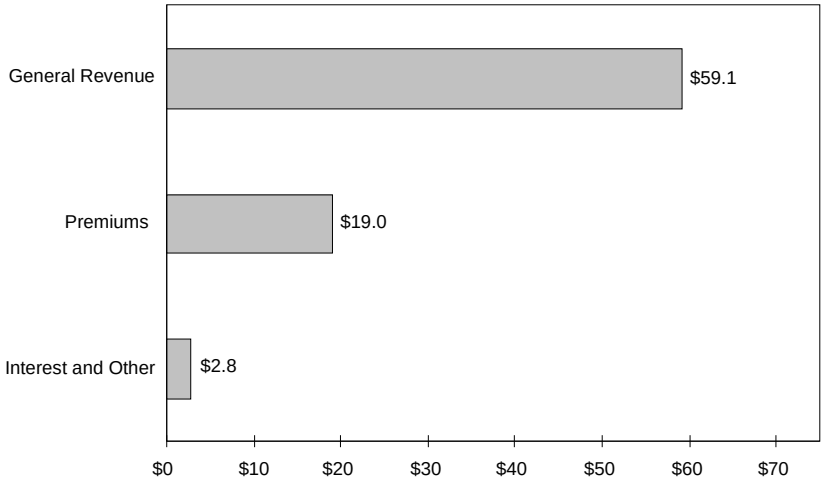
- General revenue. Transfers from the general fund of the Treasury were the largest source of income, accounting for $59.1 billion or about 73 percent of total SMI income in calendar year 1999. The general revenue contribution is determined by means of a statutory formula based on expected cost per beneficiary 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 $19 billion or about 23 percent of calendar year 1999 income. Premium rates are set annually, based on a method specified in the law. In calendar year 1999 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 $2.8 billion or about 4 percent of total SMI income in calendar year 1999.

Income from beneficiary premiums and general revenues was artificially high in 1998 because the majority of such revenues for January 1999 were received in December 1998. Correspondingly, only about 11 months of revenues were received in 1999, bringing trust fund assets back to their normal level at the end of the year.

Figure I.C1.—SMI Income in Calendar Year 1999
[In billions]



2. Expenditures

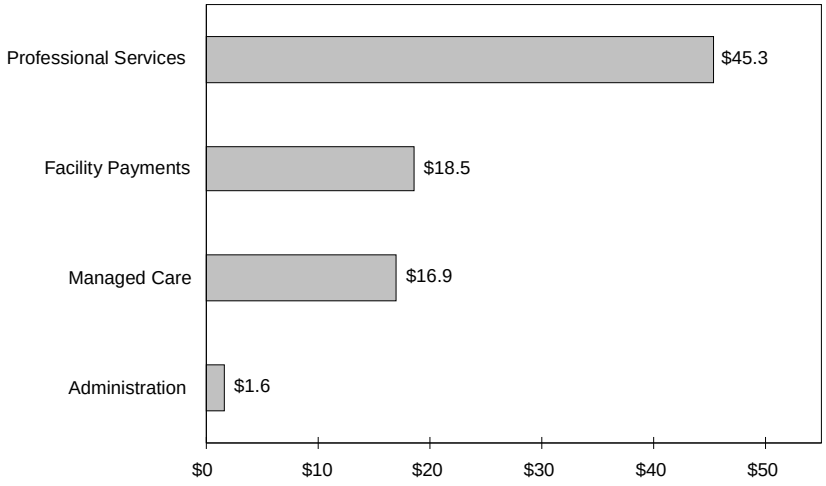
The SMI program spent $82.3 billion last year. The major expenditures consisted of the following:

- Benefit payments. More than 98 percent of SMI outlays in calendar year 1999 were for benefit payments to providers of services and managed care plans. Managed care payments were $16.9 billion, or about 21 percent of all benefit payments. This amount represented an 18-percent increase over the corresponding figure for 1998, reflecting rapid growth in the number of beneficiaries choosing to join managed care plans. Within the fee-for-service sector, $45.3 billion, or 56 percent of total benefits was paid last year for physician and other professional services—the largest type of benefit payment. These payments grew only 2 percent over the previous year, reflecting the net effect of higher per-person costs but fewer beneficiaries receiving care on a fee-for-service basis. Finally, payments to such establishments as outpatient hospital facilities and home health agencies ($18.5 billion), increased about 7 percent from 1998 to 1999 and made up about 23 percent of total SMI benefit outlays in 1999.

- Administrative expenses. Approximately $1.6 billion, or about 2 percent of SMI program outlays during calendar year 1999, 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 1999
[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 the number of beneficiaries enrolled in SMI, among other factors, and interest income to the trust fund will depend on future interest rates.

To take account 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.C of this report presents a new 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 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, allowing better comparisons across time periods.) The assumptions vary, in most cases, from year to year during the first 5 to 30 years before reaching 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
Fertility rate (children per woman)	1.95	2.2	1.7
Life expectancy at birth in 2075 (combined average for men and women, in years)	83.0	79.6	87.3

Other assumptions are specific to the SMI program. These SMI assumptions include rates at which beneficiaries will use particular types of services, the amount of the physician fee update, and the rates at which eligible elderly and disabled persons will enroll in SMI.

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 differences 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 2000

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 2000) 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 2000, 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 lower range and upper range projections. Planned program financing is sufficient to maintain a level of trust fund assets that is adequate to cover a reasonable degree of variation between actual costs and projected costs.

During each of the last few years, SMI expenditures have 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 1999, assets declined slightly due to the timing of receipts; if this timing had been normal, assets would have increased by $4.8 billion.) Accordingly, the financing for 2000 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 2000 to make up the difference. This procedure, which resulted in maintaining the 2000 monthly premium at $45.50 (the same level as in 1999), 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 2000

Table I.E1 shows the estimated operations of the SMI trust fund under the intermediate assumptions during calendar years 1999 through 2009. This table shows that both income and expenditures are estimated to grow at about 8 percent per year for most of the 10-year period. 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 2000 through 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.

Table I.E1.—Estimated Operations of the SMI Trust Fund under Intermediate Assumptions, Calendar Years 1999-2009

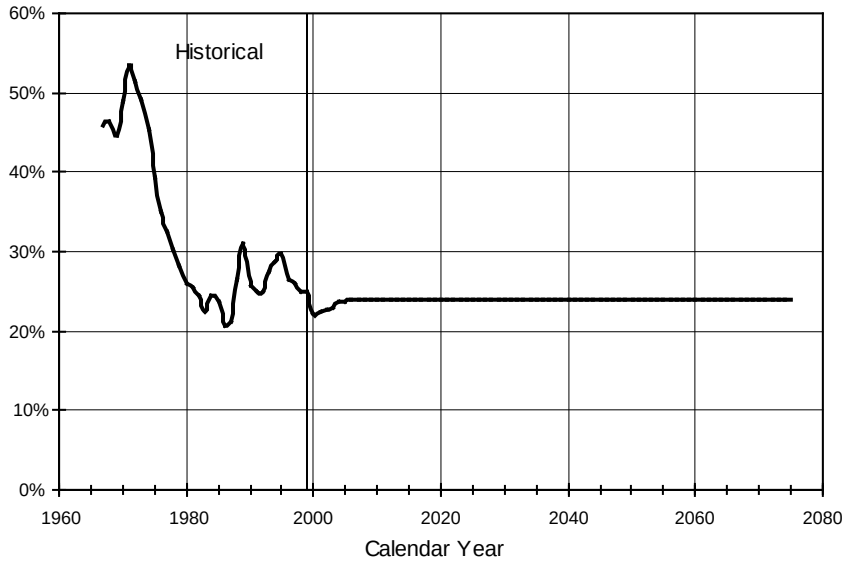
[Dollar amounts in billions]

Calendar year	Total income	Total expenditures	Change in fund	Fund at year end
1999[1]	$80.9	$82.3	-$1.4	$44.8
2000	89.1	92.0	-2.9	41.9
2001	98.5	100.2	-1.7	40.2
2002	108.1	108.9	-0.8	39.4
2003	118.8	118.2	0.5	39.9
2004	126.4	125.9	0.5	40.4
2005	136.6	135.2	1.4	41.8
2006	146.5	145.1	1.4	43.2
2007	157.2	155.6	1.6	44.8
2008	170.2	167.6	2.5	47.3
2009	185.1	180.9	4.2	51.5

[1]Figures for 1999 represent actual experience.

The Balanced Budget Act of 1997 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 Balanced Budget Act 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 Balanced Budget Act result in a net increase in costs.

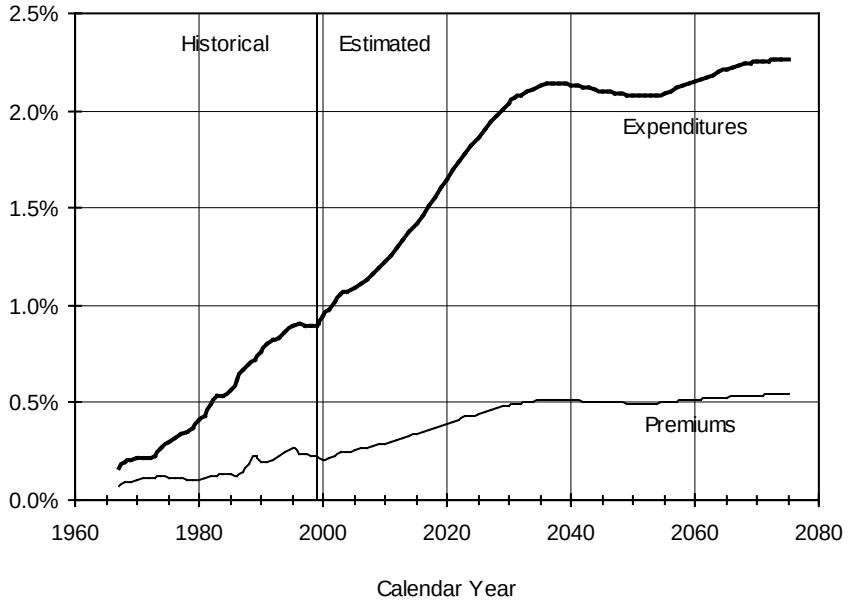
Figure I.E1.—Premium Income as a Percent of SMI Expenditures



The estimated costs shown in this annual report are slightly lower than those in the 1999 annual report. The lower estimates are a result of (1) actual benefit payments for 1999 being lower than the estimates in the 1999 annual report, and (2) the recent experience indicating that rates of growth for some SMI services have slowed from the rates expected in the 1999 annual report. However, in spite of the lower estimates for program costs in the 2000 annual report, costs are expected to continue 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 1999 to about 2.1 percent of GDP within 30 years. Similarly, total Medicare expenditures (for HI and SMI combined) would grow from from about 2.3 percent of GDP in 1999 to over 5 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 over the next decade, and (2) the impact of a large increase in SMI beneficiaries starting in about 2010 as the "baby boom" generation (those born between 1945 and 1965) turns age 65 and begins to receive benefits.

In this intermediate projection, increases in the cost per beneficiary 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 and then to continue at the same rate as GDP per capita for the following 50 years. Therefore, changes in the last 50 years of the period are attributable only to demographic changes in the population. This assumption may seem at odds with historical experience because SMI costs per beneficiary have generally increased faster than GDP per capita since the inception of the program. However, if the historical trend were to continue for another 75 years, it would result in an SMI program so large as a percent of

GDP that it would be implausible given other demands on those resources.

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 1999, 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 10 percent of his or her benefit. Similarly, SMI general revenues in fiscal year 1999 were equivalent to 5.8 percent of the personal and corporate 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 2075 would represent roughly 15 percent of total income taxes.

F. CONCLUSION

The financing established for the SMI program for calendar year 2000 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 lower than in our 1999 report. The improvement is due to slower-than-expected growth in 1999 together with adjustments to assumed future growth trends based on this experience. When expressed as a percentage of GDP, SMI expenditures are projected to be significantly lower than those in the 1999 report, primarily as a result of more robust GDP growth assumed in this year's report.

The resulting improvement in projected SMI expenditures, while welcome, is not sufficiently large to diminish our concern with expenditure growth. 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. The projected increases are initially attributable in part to assumed continuing growth in the volume and intensity of services provided per beneficiary. Starting in 2010, the retirement of the post-World War II baby boom generation will also have a major influence on the growth in program costs. As a result, 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 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 Congress should develop legislative proposals to address the large increases in SMI costs associated with the baby boom's retirement at the same time it addresses 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 1999 REPORT

Since the 1999 Annual Report was transmitted to Congress on March 30, 1999, one law affecting the SMI program in a significant way has been enacted. The Medicare, Medicaid, and SCHIP Balanced Budget Refinement Act (BBRA) of 1999 (as incorporated into Public Law 106-113, the appropriations bill for the District of Columbia for fiscal year 2000, enacted on November 29, 1999) included a number of provisions affecting the SMI program.

As its name implies, the BBRA primarily modified and refined some of the provisions previously enacted in the Balanced Budget Act (BBA) of 1997 (Public Law 105-33). The more important SMI provisions, from an actuarial standpoint, are described in the following paragraphs.

- The BBA required the Secretary of HHS to develop and implement a prospective payment system (PPS) for outpatient hospital services. (It is currently anticipated that the PPS will be implemented July 1, 2000.) The law required that the Secretary determine the aggregate amount payable under the PPS in 1999 (the base period) based on (1) the total amount that would have been paid in the absence of PPS and (2) the total amount of copayments that are estimated to be paid for outpatient services in 1999 under the PPS. This aggregate amount is then used to establish the conversion factor that is used to determine the outpatient fee schedule amounts under the PPS. The BBA specified the coinsurance amounts under the PPS to be 20 percent of the median charges. However, using median rather than mean charges would result in aggregate payments to hospitals being lower than they would be in the absence of the PPS. The BBRA clarified that it was the intent of Congress to have aggregate payments to hospitals be budget-neutral for 1999. Hence, based on the BBRA, the SMI program will make up the difference in hospital payments that occurs when using median charges rather than mean charges in setting coinsurance amounts for the PPS rates.

- The BBA extended through calendar year 1999 two provisions that would have otherwise expired at the end of fiscal year 1998: the 10 percent reduction in payments for hospital outpatient capital, and the 5.8 percent reduction for outpatient services paid on a cost basis. The BBRA extends these reductions beyond 1999, until such time as the outpatient prospective payment system is

implemented. (Again, it is currently anticipated that a PPS will be implemented July 1, 2000.)

- The BBA allowed the Secretary to establish adjustments to the outpatient PPS, when implemented, in a budget-neutral manner, as deemed necessary to ensure equitable payments. The BBRA specifically establishes "transitional corridors" until January 1, 2004, for the PPS to limit losses in payment experienced by individual hospitals under the PPS. A formula is established so that hospitals receive additional payments for outpatient services rendered if the amount they receive under the PPS in relation to their costs is less than their 1996 payment-to-cost ratio. (The 1996 ratio is calculated as if the formula-driven overpayment, which was eliminated by the BBA effective October 1, 1997, had been eliminated in 1996.) These transitional payments are to have no effect on beneficiary copayments and are not subject to the budget neutrality constraint. The BBRA then specifies how to determine the transitional payments.

- The BBA directed that under the outpatient PPS, when implemented, the beneficiary copayments were to be 20 percent of national median charges. It froze these rates until such time that the copayments represent 20 percent of the total fee schedule amount. The BBRA caps beneficiary copayments under the outpatient PPS (when implemented) to the dollar amount of the HI inpatient deductible, with the SMI program paying the difference to the hospital between the limited copayment amount and the otherwise applicable copayment amount.

- Prior to the BBRA, direct medical education payments to teaching hospitals had been based on hospital-specific per-resident amounts, based on inflation-adjusted 1984 costs. There have therefore been wide variations in per-resident payment amounts. The BBRA increases per-resident payment amounts for hospitals below 70 percent of a geographically-adjusted national average to 70 percent of that average. For hospitals above 140 percent of a geographically-adjusted national average, payments will be frozen in fiscal years 2001 and 2002, and increased by the Consumer Price Index minus 2 percentage-points in fiscal years 2003 through 2005. Hospitals with per-resident payment amounts between 70 percent and 140 percent of a geographically- adjusted national average will continue to receive current payment amounts.

- The BBA required development and implementation of a prospective payment system for home health services, effective for cost reporting periods beginning on or after October 1, 1999. It also required a 15 percent reduction in home health payment limits, with or without the implementation of a prospective payment system. (Congress realized it might not be possible to develop and implement the system by October 1, 1999. Indeed, such a system was not in place by that date.) An emergency appropriations act prior to BBRA delayed the 15 percent reduction until October 1, 2000, with or without the implementation of a prospective payment system. The BBRA delays the 15 percent reduction further, until one year after implementation of a prospective payment system; requires the Secretary of HHS to report within 6 months of implementation on the need for the 15 percent or other reduction; and eliminates the 15 percent reduction if a prospective payment system is not implemented at all. (It is currently anticipated that a prospective payment system will be implemented October 1, 2000.)

- The BBA established a Sustainable Growth Rate (SGR) mechanism, to balance the need to control total Medicare spending with the need to ensure adequate payment for physicians' services. However, the formula provided by the BBA resulted in wide, unintended fluctuations in payments to physicians from year to year. The BBRA stabilizes the formula used for updating physician payment rates, and moves the SGR target for total physician spending, which is used to adjust inflation updates, from a fiscal year to a calendar year basis, beginning with 2000. It also modifies the calculation of the update adjustment factor, and provides for special adjustments for 2001 through 2005.

- Prior to the BBA, there were two annual per-beneficiary limits of $900 each for physical therapy and occupational therapy furnished by independent practitioners of therapy. The BBA established broader limits, covering all outpatient SMI therapy services, except those furnished in hospital outpatient departments. Specifically, the BBA established a $1500 per-beneficiary annual cap for all outpatient physical therapy and speech pathology services, and a $1500 per-beneficiary annual cap for all outpatient occupational therapy services. The BBA also required the Secretary of HHS to report to Congress by January 1, 2001, recommending a revised policy for therapy services based on classification of individuals by diagnostic category and prior use of services, in place of dollar limitations. The BBRA suspends the annual payment limits imposed by the BBA for calendar years

2000 and 2001. During this suspension, the Secretary is to conduct focused medical reviews of therapy claims. The BBA also adds requirements to the Secretary's report that are to be made by January 1, 2001.

- Prior to the BBRA, composite rates of reimbursement for dialysis services for end-stage renal disease patients were $126 for hospital-based providers and $122 for freestanding facilities. The rate did not increase each year. For services furnished in calendar year 2000, the BBRA increases the composite rates by 1.2 percent over the rates for calendar year 1999, and increases the composite rates for services furnished in calendar year 2001 by 1.2 percent over the rates for calendar year 2000.

- Prior to the BBRA, SMI paid for the lab test component of Pap smears under the clinical laboratory fee schedule. There was no minimum payment amount. The BBRA establishes a minimum payment amount of $14.60 for tests furnished in calendar year 2000, with updates to that amount for subsequent years.

- Prior to the BBRA, SMI covered drugs used to provide immunosuppressive therapy for 36 months following a Medicare-covered organ transplant. The BBRA increases the number of months of coverage by 8 months, from 36 to 44 months, for calendar year 2000, for individuals who exhaust their 36 months of coverage during that year. For individuals who exhaust their 36 months of coverage during calendar year 2001, at least 8 more months will be covered. (The Secretary of HHS must specify what the increase, if any, beyond 8 months will be.) For beneficiaries who exhaust the 36-month period in calendar years 2002, 2003, and 2004, the number of additional covered months may be more or less than 8. Again, the Secretary must specify what the increase will be for each of these years. The Secretary must determine the additional months in such a way that the estimated cost of these months is no more than $150 million.

- Prior to January 1, 2000, Medicare+Choice payments were adjusted using only demographic factors. The BBA required implementation of a new risk adjustment method, based on health status, effective January 1, 2000, and the Secretary of HHS announced a five-year transition to the new method. The payments were to be based on a blend of the old and new methods, with the new method accounting for 10, 30, 55, 80, and 100 percent of the blend for calendar years 2000 through 2004, respectively. The BBRA changes the transition schedule by

providing that the new method shall account for 10 percent of the blend in 2000 and 2001 and no more than 20 percent of the blend in 2002.

- The BBRA provides for an increase in the National per capita Medicare+Choice growth percentage for fiscal year 2002, by reducing the update factor for the year by 0.3 percentage-points, rather than the previously scheduled 0.5 percentage-points.

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 SMI Trust Fund was established on July 30, 1965, as a separate account in the United States 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 under age 65, 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 year 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 65. The premium rates for fiscal year 1974 and 1975 still were 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 for 1992 through 1995 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 are 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 determining 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, in addition to the monthly premium rate, two other monthly rates were established: 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. (The contingency margin 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 are shown in section III.B.

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

	Standard monthly premium rate	Monthly actuarial rate		Premium rates as a percent of program cost	
		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

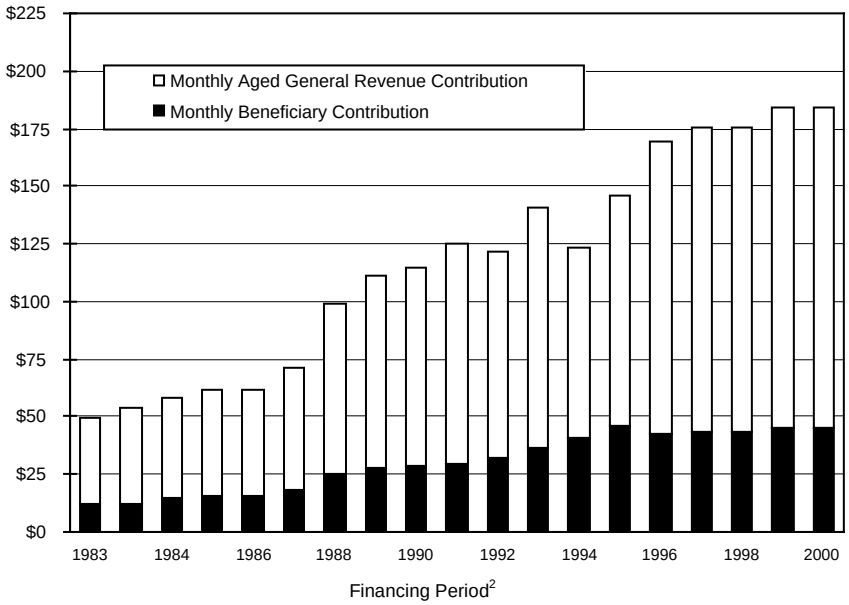
Table II.B1.—Standard Monthly Premium Rates, Actuarial Rates, and Premium Rates as a Percent of Program Cost

	Standard monthly premium rate	Monthly actuarial rate		Premium rates as a percent of program cost	
		Enrollees aged 65 and over	Disabled enrollees under age 65	Enrollees aged 65 and over	Disabled enrollees under age 65
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

[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 which 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.

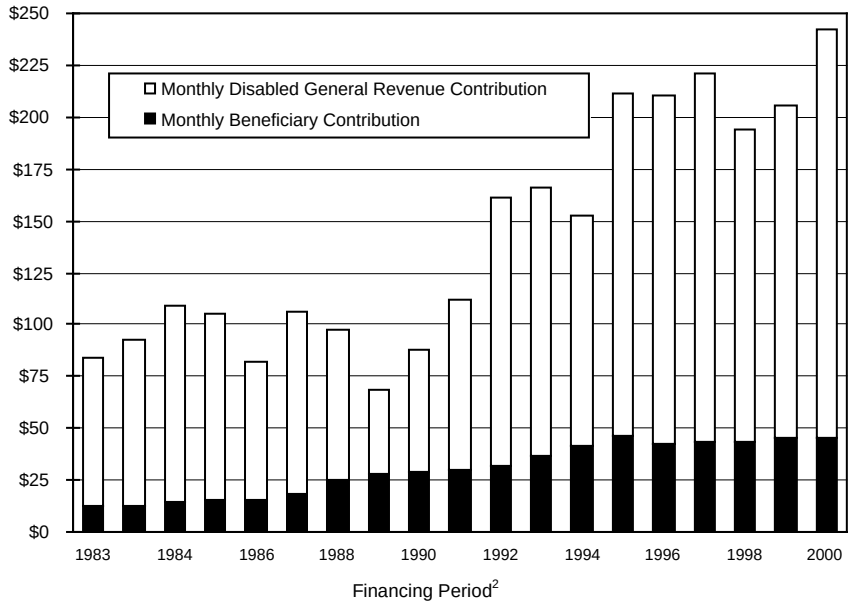
Figures II.B1 and II.B2 are graphic representations of the monthly per capita financing rates, for financing periods since 1982, for enrollees aged 65 and over and for disabled individuals under age 65, respectively. The graphs show the portion of the financing contributed by the beneficiaries and by 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 by 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 such 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 assets of the trust fund presented in this report. This is because the value of fixed capital assets does not represent funds available for benefit or administrative expenditures and, therefore, is not considered in assessing the actuarial status of the funds.

That portion of the trust fund which 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 such 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 which are not due or callable until after the expiration of 4 years from the end of such 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 1999

A statement of the revenue and disbursements of the Federal SMI Trust Fund in fiscal year 1999 and of the assets of the fund 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 1999
[In thousands]

Total assets of the trust fund, beginning of period		$40,888,781
Revenue:		
Premiums from enrollees:		
Enrollees aged 65 and over	$17,722,102	
Disabled enrollees under age 65	2,437,606	
Total premiums		20,159,708
Transfers from general fund of the Treasury:		
Government contributions:		
Enrollees aged 65 and over	53,653,245	
Disabled enrollees under age 65	8,531,651	
Total Government contributions		62,184,896
Other		7,204
Interest:		
Interest on investments	2,924,681	
Interest on amounts of interfund transfers[1]	1,366	
Total Interest		2,926,047
Total revenue		85,277,854
Disbursements:		
Gross benefit payments		79,045,715
Recoveries from fraud and abuse control activities[2]		-37,600
Net benefit payments		79,008,115
Administrative expenses:		
Treasury administration expenses	183	
Salaries and expenses, HCFA[3]	1,067,709	
Salaries and expenses, Office of the Secretary, HHS	4,760	
Salaries and expenses, SSA	430,261	
Medicare Payment Advisory Commission	2,806	
Railroad Retirement administrative expenses	4,213	
Office of Personnel Management expenses	19	
Total administrative expenses		1,509,951
Total disbursements		80,518,065
Net addition to the trust fund		4,759,789
Total assets of the trust fund, end of period		45,648,570

[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]Represents postpayment recoveries from medical reviews. Prepayment savings from coding corrections and medical reviews were an additional $3,071.9 million.
[3]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 $40,889 million on September 30, 1998. During fiscal year 1999, total revenue amounted to $85,278 million, and total disbursements were $80,518 million.

Total assets thus increased $4,760 million during the year to $45,649 million on September 30, 1999.

Of the total revenue, $20,160 million represented premium payments by (or on behalf of) aged and disabled enrollees, an increase of 3.8 percent over the amount of $19,427 million for the preceding year. This increase resulted primarily from the growth of the number of persons enrolled in the SMI program, and the increase in the SMI premium from $43.80 in 1998 to $45.50 in 1999.

Contributions received from the general fund of the treasury amounted to $62,185 million, which accounted for 72.9 percent of total revenue. The remaining $2,933 million of revenue consisted almost entirely of interest on the investments of the trust fund.

Of the $80,518 million in total disbursements, $79,008 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 made up of $79,046 million of gross benefit payments less $38 million of recoveries from fraud and abuse control activities.

The remaining $1,510 million of disbursements was for administrative expenses. Administrative expenses 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 1999 with the estimates presented in the 1998 and 1999 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 1999 were slightly lower than estimated in the 1999 annual report, and significantly lower than in the 1998 report. The latter result occurred in part as a result of lower increases in allowed fees due to lower general and medical inflation.

In addition, actual benefit payments reflected lower increases in the volume and intensity of services used than had been estimated.

Table II.C2.—Comparison of Actual and Estimated Operations of the SMI Trust Fund, Fiscal Year 1999

[Dollar amounts in millions]

Item	Actual amount	Comparison of actual experience with estimates for fiscal year 1999 published in-			
		1999 report		1998 report	
		Estimated amount[1]	Actual as percentage of estimate	Estimated amount[1]	Actual as percentage of estimate
Premiums from enrollees	$20,160	$19,947	101	$20,548	98
Government contributions	62,185	61,879	101	63,431	98
Benefit payments	79,008	81,691	97	84,878	93

[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 1998 and 1999. The assets of the fund at the end of 1998 totaled $40,889 million, consisting of $39,502 million in the form of obligations of the U.S. Government, and an undisbursed balance of $1,387 million. The assets of the trust fund at the end of 1999 totaled $45,649 million, consisting of $26,528 million in the form of obligations of the U.S. Government and an undisbursed balance of $19,120 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. This was a result of accounting errors involving the crediting and debiting of amounts to the SMI trust fund during the last 6 months of 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 corrected in early October 1999, when the excess undisbursed balance was

properly invested in interest-bearing Treasury securities. Restoration of the lost SMI interest earnings is currently being pursued.

Table II.C3.—Assets of the SMI Trust Fund at the End of Fiscal Years 1998 and 1999[1]

	September 30, 1998	September 30, 1999
Investments in public-debt obligations sold only to this fund (special issues):		
Certificates of Indebtedness:		
5.375-percent, 1999	$1,845,192,000.00	——
5.750-percent, 1999	1,580,765,000.00	——
Bonds:		
5.875-percent, 2000-2003	1,196,468,000.00	——
5.875-percent, 2004-2013	5,218,641,000.00	$5,218,641,000.00
6.000-percent, 2014	——	581,313,000.00
6.250-percent, 2003	230,256,000.00	——
6.250-percent, 2004-2008	2,444,388,000.00	2,444,388,000.00
6.875-percent, 1999-2002	2,270,436,000.00	——
6.875-percent, 2003-2012	6,768,347,000.00	6,768,347,000.00
7.000-percent, 1999-2003	4,980,450,000.00	——
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, 2003-2005	2,974,299,000.00	2,663,964,000.00
Total investments in public-debt obligations	39,501,583,000.00	26,528,282,000.00
Undisbursed balance[2]	1,387,198,024.56	19,120,287,986.87
Total assets	40,888,781,024.56	45,648,569,986.87

[1]The assets 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, 1999 was 5.9 percent. As noted previously, SMI interest earnings in fiscal year 1999 were reduced as a result of accounting errors. In the absence of these errors, the effective interest rate for the SMI trust fund would have been somewhat greater. 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 1999 was 6.0 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.F 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, 2000, it has been assumed that financing for future periods will be set according to the statutory provisions described in section II.B. In addition, benefit expenditure estimates assume 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 2009. 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 and 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 1970-2009

[In millions]

	Income				Disbursements			
Fiscal year[1]	Premium from enrollees	Government contributions[2]	Interest and other income[3]	Total income	Benefit payments	Adminis-trative expenses	Total disburse-ments	Balance at end of year[4]
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
Intermediate Estimates:								
2000	20,405	65,209	3,054	88,667	89,571[7]	1,510	91,081	43,235
2001	22,102	71,015	3,048	96,166	96,043[7]	1,696	97,738	41,663
2002	24,389	78,322	2,976	105,687	102,855[7]	1,753	104,608	42,742
2003	26,909	86,262	2,917	116,088	114,036[7]	1,827	115,863	42,967
2004	29,347	92,268	2,898	124,513	122,053[7]	1,903	123,956	43,524
2005	31,863	99,291	2,916	134,070	133,145	1,981	135,126	42,469
2006	34,319	106,725	2,969	144,013	137,601	2,063	139,665	46,818
2007	36,865	114,591	3,056	154,512	150,385	2,150	152,535	48,795
2008	39,716	124,009	3,192	166,918	161,939	2,242	164,180	51,533
2009	42,885	135,079	3,396	181,360	174,789	2,336	177,125	55,767

[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 which 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 1970-2009

[In millions]

	Income				Disbursements			
Calendar year	Premium from enrollees	Government contributions[1]	Interest and other income[2]	Total income	Benefit payments	Adminis-trative expenses	Total disburse-ments	Balance at end of year[3]
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
Intermediate Estimates:								
2000	20,462	65,539	3,125	89,126	90,293[7]	1,697	91,990	41,924
2001	22,649	72,841	3,023	98,512	98,418[7]	1,771	100,189	40,247
2002	24,969	80,150	2,960	108,078	107,065[7]	1,846	108,911	39,414
2003	27,555	88,300	2,903	118,758	116,327[7]	1,921	118,249	39,924
2004	29,945	93,590	2,896	126,431	123,939	2,000	125,939	40,417
2005	32,503	101,191	2,923	136,617	133,162	2,084	135,246	41,787
2006	34,925	108,569	2,985	146,479	142,893	2,172	145,065	43,201
2007	37,511	116,598	3,080	157,190	153,336	2,265	155,601	44,789
2008	40,451	126,480	3,230	170,161	165,278	2,360	167,638	47,312
2009	43,696	137,946	3,451	185,093	178,420	2,462	180,882	51,523

[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, 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, 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.

Table II.D2 indicates an unusually large increase in SMI trust fund assets during calendar year 1998, followed by a significant decrease. This apparent anomaly results from a special provision governing the timing of Social Security benefit checks. In particular, benefits for the month of December were delivered on December 31, 1998 instead of their regularly scheduled delivery date of January 3, 1999.[1] Consequently, the SMI premiums withheld from the checks ($1,512 million) and the associated general revenue contributions ($4,711 million) were added to the fund on December 31, 1998, causing the unusual pattern of asset growth and decline described above. Correcting for this abnormality, the adjusted fund balance would be $40.0 billion at the end of calendar year 1998.

The 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 well above levels considered adequate for contingency reserve purposes. As a result, the fund is estimated to decrease during 2000 to an estimated $41.9 billion by the end of the year, and then to decrease to $39.4 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 2006 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 1999, program benefits grew 6 percent on an aggregate basis, grew 5.2 percent on a per capita basis, and remained at 0.87 percent of GDP. These rates of growth are among the lowest ever experienced by the SMI program. For 2000, the program is expected to grow 10.8 percent on an aggregate basis, to grow 9.6 percent on a per capita basis, and to increase from 0.87 to 0.91 percent of GDP. These larger increases are due primarily to the provisions included in the Balanced Budget Act of 1997, including the transfer of additional home health care costs from the HI program to SMI. To a lesser degree, SMI growth in 2000 is also affected by the provisions of the BBRA (see section II.A).

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[1]When the scheduled payment date falls on a weekend or holiday, payment is advanced to the next earlier business day, which in this instance was Thursday, December 31, 1998.

Table II.D3.—Growth in Total Benefits under the SMI Program (Cash Basis) through December 31, 2009

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	768.26	14.5	0.55
1990	42,468	10.9	1,305.12	9.2	0.74
1991	47,336	11.5	1,426.91	9.3	0.79
1992	49,260	4.1	1,454.85	2.0	0.78
1993	53,979	9.6	1,562.65	7.4	0.81
1994	58,618	8.6	1,669.87	6.9	0.83
1995	64,972	10.8	1,822.95	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	2,071.61	3.8	0.87
1999	80,724[1]	6.0	2,178.48	5.2	0.87
Intermediate Estimates:					
2000	89,467[1]	10.8	2,387.28	9.6	0.91
2001	98,270[1]	9.8	2,598.10	8.8	0.95
2002	106,936[1]	8.8	2,800.92	7.8	0.99
2003	116,250[1]	8.7	3,012.21	7.5	1.03
2004	123,862	6.5	3,171.74	5.3	1.04
2005	133,085	7.4	3,365.74	6.1	1.06
2006	142,808	7.3	3,562.38	5.8	1.08
2007	153,255	7.3	3,760.34	5.6	1.11
2008	165,197	7.8	3,974.39	5.7	1.13
2009	178,325	7.9	4,206.75	5.8	1.16

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

The estimated expenditures in the 2000 annual report are slightly lower than those in the 1999 annual report. The lower estimates are a result of (1) actual benefit payments for 1999 that were lower than the estimates in the 1999 annual report, (2) the recent experience indicating that "residual" rates of growth for some SMI services (reflecting utilization and intensity growth) have slowed from those expected in the 1999 annual report, and (3) slightly lower assumed rates of medical inflation for the future. However, in spite of the lower expenditure estimates and more robust GDP growth assumptions in the 2000 annual report, program expenditures 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 on the basis of two alternative sets of assumptions: low cost and high cost. The estimated operations of the SMI trust fund during 1999-2009 are summarized in table II.D4 for all three alternatives. The assumptions underlying the intermediate assumptions are presented in substantial detail in section II.F. 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 (Cash Basis) under Alternative Sets of Assumptions, Calendar Years 1999-2009

[In billions]

Calendar year	Premiums from enrollees	Other income[1]	Total income	Total disbursements	Balance in fund at end of year
Intermediate:					
1999[2]	$19.0[3]	$61.9[3]	$80.9	$82.3[4]	$44.8
2000	20.5[3]	68.6[3]	89.1	92.0[4]	41.9
2001	22.6	75.9	98.5	100.2[4]	40.2
2002	25.0	83.1	108.1	108.9[4]	39.4
2003	27.6	91.2	118.8	118.2[4]	39.9
2004	29.9	96.5	126.4	125.9[4]	40.4
2005	32.5	104.1	136.6	135.2	41.8
2006	34.9	111.6	146.5	145.1	43.2
2007	37.5	119.7	157.2	155.6	44.8
2008	40.5	129.7	170.2	167.6	47.3
2009	43.7	141.4	185.1	180.9	51.5
Low Cost:					
1999[2]	19.0[3]	61.9[3]	80.9	82.3[4]	44.8
2000	20.5[3]	68.7[3]	89.2	90.4[4]	43.6
2001	21.7	73.0	94.7	96.4[4]	42.0
2002	23.3	78.2	101.5	102.4[4]	41.1
2003	25.2	84.1	109.3	108.8[4]	41.5
2004	26.9	86.8	113.7	113.3[4]	41.9
2005	28.5	91.6	120.1	118.9	43.1
2006	29.9	96.0	125.9	124.6	44.4
2007	31.3	100.7	132.0	130.6	45.7
2008	33.0	105.9	138.9	137.4	47.2
2009	34.8	111.5	146.3	144.7	48.8
High Cost:					
1999[2]	$19.0[3]	$61.9[3]	$80.9	$82.3[4]	$44.8
2000	20.4[3]	68.6[3]	89.1	92.6[4]	41.3
2001	23.2	77.7	100.9	102.5[4]	39.6
2002	26.0	86.3	112.3	113.2[4]	38.8
2003	29.9	98.6	128.5	127.8[4]	39.4
2004	33.6	108.0	141.6	141.1[4]	39.9
2005	36.7	117.3	154.0	152.5	41.4
2006	40.5	131.5	172.0	168.0	45.3
2007	45.7	146.2	191.9	186.6	50.6
2008	50.7	161.3	212.1	206.3	56.3
2009	56.2	178.6	234.8	228.1	62.9

[1]Other income contains government contributions and interest.
[2]Figures for 1999 represent actual experience.
[3]See footnote 6 of table II.D.2.
[4]Disbursements include benefit payments and administrative expenses less monies transferred from the HI trust fund for home health agency costs, as provided for by Public Law 105-33.

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 reasonably might 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 new, supplementary assessment of the possible range of SMI expenditures is shown in section III.C, 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 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:

- First, 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 2009 both income and disbursements would be around 21 percent lower than projected under the intermediate assumptions. The corresponding amounts under the high cost assumptions would both be around 27 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.

- Second, 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 1999-2075. These estimated incurred disbursements are for benefit

payments and administrative expenses combined, unlike the values in table II.D3 which only express 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 reasonably may be expected to occur, such as the impact of a large increase in enrollees after the turn of the century. This increase will occur because the relatively large number of persons born during the period between the end of World War II and the mid-1960's (known as the "baby boom") will reach retirement age and begin to receive benefits.

As described in more detail in section II.F, 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 and then to continue at the same rate as GDP per capita in the last 50 years. Therefore, changes in the last 50 years of the period are attributable only to demographic changes in the population. Based on these assumptions, incurred SMI disbursements as a percentage of GDP would increase rapidly from 0.89 percent in 1999 to 2.22 percent in 2035, decrease slightly to 2.17 percent in 2050, and then would increase to 2.36 percent in 2075. Given the historical experience of SMI costs per enrollee generally increasing faster than GDP per capita, this long-range growth assumption may be considered optimistic. However, assuming a continuation of the historical trend for another 75 years would result in an SMI program so large as a percent of GDP that it would be implausible given other demands on those resources.

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
1999	0.89
2000	0.94
2001	0.98
2002	1.02
2003	1.06
2004	1.07
2005	1.09
2006	1.11
2007	1.13
2008	1.16
2009	1.19
2010	1.22
2015	1.47
2020	1.72
2025	1.95
2030	2.13
2035	2.22
2040	2.22
2045	2.19
2050	2.17
2055	2.18
2060	2.24
2065	2.31
2070	2.35
2075	2.36

[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 close of the period. The portion of income required to cover those benefits not paid until after the close of the year is added to the trust fund. Thus, the assets 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. As a result, the income to the program may not be equal to incurred costs; therefore, trust fund assets should be maintained at a level which 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 as of the end of the period that have not yet been paid. 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 to 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 these factors 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. Ongoing analysis is made of the former as trends in the differences vary over time. In addition, beginning this year, the traditional tests of asset adequacy have been augmented by a supplementary assessment of uncertainty using statistical methods, as shown in section III.C of this report.

2. Incurred Experience of the Supplementary Medical Insurance Program

The tests of financial adequacy for the SMI program 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, 2000

[In millions]

	Income				Disbursements			
Financing period	Premium from enrollees	Government contribu-tions	Interest and other income	Total income	Benefit payments	Adminis-trative expenses	Total disburse-ments	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	59,116	1,620	60,736	-5,129
1995	19,717	45,743	1,739	67,199	64,927	1,607	66,534	665
1996	18,763	58,068	1,885	78,716	68,872	1,807	70,679	8,037
1997	19,289	60,169	2,466	81,924	72,948	1,367	74,315	7,609
1998	19,421	59,357	2,711	81,489	76,427[2]	1,438	77,865	3,624
1999	20,479	63,806	2,841	87,126	80,761[2]	1,603	82,364	4,762
Intermediate Estimates:								
2000	20,462	65,539	3,125	89,126	90,671[2]	1,697	92,368	-3,242

[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, 2000

[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	24,236[2]	0	24,236[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	4,342	-195	4,147	15,275	0.23
1995	13,130	6,893[3]	20,023	4,298	-215	4,083	15,940	0.23
1996	28,332	0	28,332	4,572	-218	4,354	23,978	0.32
1997	36,132	0	36,132	4,762	-219	4,543	31,588	0.41
1998	46,212[4]	0	46,212[4]	5,065	-286	11,002[4]	35,210	0.43
1999	44,787	0	44,787	5,102	-286	4,816	39,971	0.43
Intermediate Estimates:								
2000	41,923	0	41,923	5,479	-286	5,193	36,729	0.36

[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, 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, 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 to 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 1999, the SMI reserve ratio was 43 percent, or well in excess of normal requirements.

Program financing has been established through December 31, 2000. The financing for calendar year 2000 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 2000 incurred income is expected to be less than incurred disbursements by $3,242 million, as shown in table II.E1, and the excess of assets over liabilities is expected to decrease from $39,971 million at the end of December 1999 to $36,729 million at the end of December 2000, under the intermediate assumptions, as shown in table II.E2. This excess as a percent of incurred expenditures for the following year is expected to decrease from 43 percent as of December 31, 1999 to 36 percent as of December 31, 2000.

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.C of this report describes the statistical methodology in more detail and also extends the analysis through 2009.

This sensitivity analysis differs from the low cost and high cost projections discussed in the section II.D. This analysis examines the variation in the projection factors in the period for which the financing has been established (2000 for this report). The low cost and high cost projections illustrate the financial impact of slower or faster growth trends throughout the short-range and long-range projection periods.

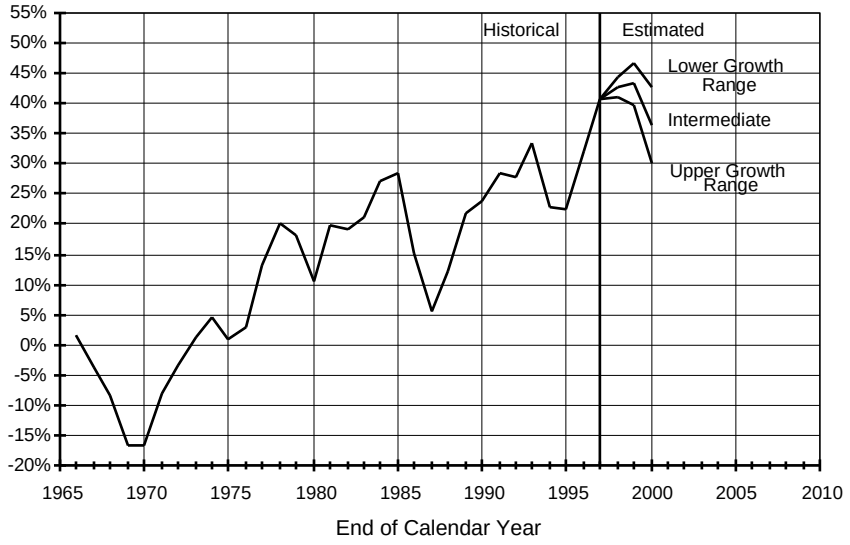
Table II.E3 indicates that, under the lower growth range scenario, trust fund assets would exceed liabilities at the end of December 2000 by a wide margin, equivalent to 42.8 percent of the following year's incurred expenditures. If this lower growth range scenario were actually to materialize, then 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 2000, dropping to a level of 30.0 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 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, 2000

As of December 31,	1998	1999	2000
Intermediate Scenario:			
Assets	$46,212	$44,787	$41,923
Liabilities	11,002	4,816	5,193
Assets Less Liabilities	$35,210	$39,971	$36,729
Ratio (in percent)[1]	42.7	43.3	36.3
Upper Range Scenario:			
Actuarial Status (in millions):			
Assets	$46,212	$44,787	$44,510
Liabilities	11,002	4,501	4,902
Assets Less Liabilities	$35,210	$40,285	$39,608
Ratio (in percent)[1]	44.4	46.7	42.8
Low Range Scenario:			
Actuarial Status (in millions):			
Assets	$46,212	$44,787	$38,967
Liabilities	11,002	5,167	5,525
Assets Less Liabilities	$35,210	$39,619	$33,442
Ratio (in percent)[1]	41.0	39.9	30.0

[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 1999



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

F. 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. The methodology and data sources underlying the SMI projections were substantially modified and enhanced, beginning with the projections in the 1999 annual report. Consequently, the discussion in this section and the data and estimates shown differ from the corresponding material in the 1998 and prior reports.

1. Assumptions

The economic and demographic assumptions underlying the projections shown in this report are consistent with those in the 2000 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds. These assumptions are described in more detail in that report.

2. Program Cost Projection Methodology

Estimates under the intermediate assumptions are prepared by establishing the allowed charges or costs incurred per enrollee, for each category of enrollee and for each type of service, 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 service and payment therefor.

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. To do this, 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, referred to as "carriers." The carriers determine whether billed services are covered under the program and determine 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 is tabulated on an incurred basis. This is necessary to meet the statutory requirement that the program be financed on this basis. 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 services and payment therefor.

(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 occurs 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 which 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 included 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 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. For the 4-year period from 1992 to 1995, the fee schedule amounts were adjusted to reflect the prevailing charges in each fee screen area, to phase in the new payment system. 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.

As a result of the Balanced Budget Act of 1997, beginning in 1999, the MEI is adjusted to match spending under a sustainable growth rate (SGR) mechanism. It should be noted that the SGR process enacted as part of the Balanced Budget Act of 1997 contained technical deficiencies that caused unstable performance adjustments for physician fee updates in 1999 and 2000. This problem was corrected as part of the Medicare, Medicaid, and SCHIP Balanced Budget Refinement Act of 1999 (see section II.A). These corrections permit a more reliable estimation of SMI expenditures for physician services than was previously possible.

Table II.F1 shows the projected MEI increases and performance adjustments for 2001 through 2009. The physician fee updates shown though 2000 are actual values. The net increase in allowed fees shown in column 3 reflects the growth in the MEI, the performance adjustment, as well as any legislative impacts.

Table II.F1.—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:									
1997	2.0	-1.4	0.6	3.0	3.6	2.7	12.0	-5.4	15.0
1998	2.2	1.2	3.5	1.0	4.6	2.3	-2.7	-10.7	10.1
1999	2.3	0.0	3.0	0.3	3.3	2.3	3.9	0.5	6.3
2000	2.4	3.0	6.9	1.2	8.3	2.5	6.7	1.7	8.0
2001	1.7	0.5	1.9	1.7	3.7	3.0	6.2	1.9	7.5
2002	2.0	0.1	1.9	2.3	4.3	3.0	4.9	3.3	6.9
2003	1.8	-1.1	0.5	3.0	3.5	3.1	7.3	5.8	7.4
2004	1.9	-2.1	-0.4	3.3	2.8	3.2	7.4	5.9	7.5
2005	1.9	-2.6	0.0	3.2	3.2	3.3	7.5	6.1	7.7
2006	2.0	-2.6	-0.7	3.4	2.7	3.3	7.5	6.0	7.6
2007	2.0	-3.4	-1.5	3.6	2.1	3.3	7.5	6.0	7.6
2008	2.0	-2.8	-0.9	3.4	2.5	3.3	7.5	6.0	7.6
2009	2.1	-2.3	-0.2	3.3	3.0	3.3	7.5	6.0	7.6
Disabled (excluding ESRD):									
1997	2.0	-1.4	0.6	2.0	2.6	2.7	14.5	-3.2	11.4
1998	2.2	1.2	3.5	0.3	3.8	2.3	1.3	-9.3	7.6
1999	2.3	0.0	3.0	-2.0	0.9	2.3	1.2	-0.9	4.3
2000	2.4	3.0	6.9	1.3	8.3	2.5	6.6	1.6	7.8
2001	1.7	0.5	1.9	1.8	3.7	3.0	6.1	1.8	7.3
2002	2.0	0.1	1.9	2.3	4.3	3.0	4.8	3.1	6.7
2003	1.8	-1.1	0.5	2.9	3.4	3.1	7.2	5.7	7.2
2004	1.9	-2.1	-0.4	3.2	2.8	3.2	7.3	5.8	7.3
2005	1.9	-2.6	0.0	3.1	3.1	3.3	7.4	5.9	7.4
2006	2.0	-2.6	-0.7	3.3	2.6	3.3	7.4	5.9	7.4
2007	2.0	-3.4	-1.5	3.6	2.0	3.3	7.4	5.9	7.4
2008	2.0	-2.8	-0.9	3.4	2.5	3.3	7.4	5.9	7.4
2009	2.1	-2.3	-0.2	3.2	3.0	3.3	7.4	5.9	7.4

[1]Medicare performance adjustment.
[2]Reflects the growth in the MEI, the performance adjustment, as well as 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 enrollment, greater use of specialists and more expensive techniques, and certain administrative actions. The fourth column of table II.F1 shows the increases in charges per enrollee resulting from these residual causes. 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.F1, table II.F2 shows the estimates of the incurred reimbursement for physician services per fee-for-service enrollee.

Table II.F2.—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	$999.91	$116.17	$79.45	$156.40
1997	27.040	1,037.76	130.30	75.11	179.90
1998	26.256	1,087.71	126.71	66.94	198.47
1999	26.025	1,123.82	131.76	67.27	210.46
2000	26.009	1,223.00	140.77	68.40	227.75
2001	25.774	1,270.52	149.68	69.71	245.14
2002	25.579	1,327.49	157.12	71.99	262.45
2003	25.457	1,376.05	168.81	76.20	282.19
2004	25.407	1,417.14	181.54	80.74	303.76
2005	25.395	1,464.86	195.42	85.66	327.35
2006	25.429	1,506.44	210.31	90.83	352.55
2007	25.590	1,539.58	226.29	96.29	379.57
2008	25.891	1,580.53	243.47	102.08	408.61
2009	26.229	1,630.31	261.92	108.21	439.84
Disabled (excluding ESRD):					
1996	3.929	798.42	151.44	61.02	126.49
1997	3.990	822.18	173.72	59.13	140.95
1998	4.075	854.33	175.92	53.40	151.11
1999	4.173	862.31	178.32	53.01	158.51
2000	4.288	938.56	190.44	53.85	171.16
2001	4.395	975.23	202.40	54.81	183.91
2002	4.506	1,018.75	212.33	56.54	196.37
2003	4.628	1,054.83	228.02	59.77	210.75
2004	4.759	1,085.05	245.07	63.25	226.38
2005	4.894	1,120.13	263.64	66.99	243.39
2006	5.029	1,150.73	283.59	70.96	261.68
2007	5.164	1,175.02	305.03	75.15	281.32
2008	5.296	1,205.45	328.08	79.60	302.44
2009	5.426	1,242.63	352.85	84.31	325.12

(b) DME, Laboratory, and Other Carrier Services

At one time, all the non-physician carrier services were reimbursed on a "fee screen" basis similar to physician services prior to 1992 (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 all laboratory services, such as pathology services and blood handling. These services 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.

Table II.F1 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.F1, table II.F2 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, such as increased number of services provided, the aging of the Medicare enrollment, 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 implemented a prospective payment system for services performed in the outpatient department of a hospital, which is expected to begin July 1, 2000. It also implemented a prospective payment system for home health agency services, which is expected to begin 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.F3. The projected increases shown in table II.F3 reflect the impact of the provisions in the Balanced Budget Act of 1997. These 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 those home health agency services being transferred 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.F3, and elsewhere in this section with the exception of table II.F8, 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.F3, expenditures for home health care declined substantially in 1999. This decrease was primarily the result of reduced utilization of services, but the reasons for the lower utilization are not yet known.

Based on the increases in table II.F3, table II.F4 shows the estimates of the incurred reimbursement for the various intermediary services per fee-for-service enrollee. Each of these expenditure categories is projected based on recent past trends in growth per enrollee, together with applicable legislated limits on payment updates.

Table II.F3.—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:				
1997	7.9	2.3	8.2	13.2
1998	-0.3	4,301.4[2]	2.1	-5.8
1999	1.8	-16.9	11.4	-13.5
2000	7.3	10.6	6.3	18.3
2001	8.3	17.6	5.2	13.3
2002	6.7	20.9	4.0	0.6
2003	7.7	16.8	5.8	7.6
2004	6.1	12.4	6.0	7.8
2005	9.4	8.1	6.1	7.9
2006	8.5	8.0	6.0	7.1
2007	8.6	7.4	6.0	6.8
2008	8.6	6.5	6.0	6.6
2009	8.7	5.5	6.0	6.6
Disabled (excluding ESRD):				
1997	6.8	0.0	4.1	24.9
1998	-1.9	[2]	-3.1	-4.4
1999	4.6	-19.5	6.6	-8.8
2000	7.2	7.9	6.2	15.0
2001	8.1	16.2	5.0	5.7
2002	6.7	19.5	3.8	-9.9
2003	7.7	15.7	5.7	8.0
2004	6.2	11.6	5.8	8.0
2005	9.3	7.4	5.9	8.0
2006	8.4	7.5	5.9	8.0

Table II.F3.—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
2007	8.5	7.5	5.9	8.0
2008	8.5	7.2	5.9	8.0
2009	8.6	6.3	5.9	8.0

[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.F4.—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	$286.67	$9.46	$40.17	$140.07
1997	27.040	304.16	9.68	43.47	157.79
1998	26.256	278.69	249.12	44.36	143.94
1999	26.025	281.57	206.99	49.40	129.07
2000	26.009	322.87	229.02	52.52	153.01
2001	25.774	381.13	269.34	55.23	173.77
2002	25.579	410.62	325.63	57.43	175.20
2003	25.457	448.68	380.34	60.79	188.58
2004	25.407	478.27	427.59	64.42	203.42
2005	25.395	535.29	462.08	68.35	219.71
2006	25.429	593.65	499.16	72.48	235.44
2007	25.590	658.48	536.22	76.84	251.39
2008	25.891	729.42	571.27	81.45	268.11
2009	26.229	808.10	602.80	86.35	285.97
Disabled (excluding ESRD):					
1996	3.929	320.01	0.00	53.30	129.87
1997	3.990	335.89	0.00	55.47	159.98
1998	4.075	307.99	183.82	53.73	149.74
1999	4.173	316.31	147.93	57.28	139.11
2000	4.288	367.00	159.55	60.83	159.74
2001	4.395	427.40	185.34	63.87	168.89
2002	4.506	460.27	221.56	66.32	151.84
2003	4.628	502.22	256.26	70.08	164.18
2004	4.759	535.63	285.91	74.13	177.50
2005	4.894	597.53	307.05	78.49	191.89
2006	5.029	660.87	330.09	83.11	207.44
2007	5.164	731.10	354.72	88.00	224.23
2008	5.296	807.94	380.12	93.18	242.36
2009	5.426	893.06	404.00	98.66	261.95

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, those 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 is 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.F5.

Table II.F5.—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	$1,522	$1,558
1997	77	83	1,530	1,622
1998	83	86	1,521	1,476
1999	88	90	1,603	1,584
2000	92	95	1,950	1,929
2001	97	99	2,345	2,323
2002	101	103	2,669	2,647
2003	105	108	2,879	2,855
2004	110	112	3,095	3,068
2005	114	116	3,343	3,299
2006	119	120	3,609	3,513
2007	125	123	3,908	3,736
2008	131	127	4,228	3,978
2009	136	130	4,563	4,238

d. Managed Care Costs

Program experience with managed care payments has generally shown a strong upward trend in recent years, reflecting rapid increases in the number of Medicare beneficiaries choosing to enroll in managed care plans. Enrollment has increased most rapidly in the capitated plans which currently account for approximately 95 percent of all SMI managed care payments. For capitated plans, per capita amounts have grown following the same trend as fee-for-service per capita 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 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. Table II.F6 shows the estimated number of Part B beneficiaries enrolled in a managed care plan and the aggregate incurred reimbursements associated with those enrollees.

Table II.F6.—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	15,593
1999	6.857	17,674
2000	7.179	19,328
2001	7.655	21,023
2002	8.094	23,251
2003	8.508	25,387
2004	8.886	26,588
2005	9.252	29,337
2006	9.630	32,237
2007	10.002	35,259
2008	10.379	38,591
2009	10.735	42,165

The increases in managed care were quite large in the early 1980's but slowed in the late 1980's. Then very rapid growth occurred through the mid 1990's. Recently the growth in managed care has slowed to a more moderate level. The projection of these increases assumes continued moderate enrollment growth in the next few years as additional Medicare+Choice plans become available and the enrollment process becomes more straightforward and then more modest increases based on growth in Medicare total enrollment after that.

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.F7 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. Over time this lag has been decreasing.

Table II.F7.—Aggregate Reimbursement Amounts on a Cash Basis

[In millions]

	Carrier					Intermediary							
Calendar year	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	3,826	2,550	5,059	43,065	8,691	1,311	262	5,711	15,975	59,040	9,558	68,598
1997	31,901	4,237	2,386	5,582	44,105	9,455	1,447	261	6,527	17,690	61,795	10,962	72,757
1998	32,456	4,033	2,088	5,937	44,514	8,844	1,476	6,210[1]	6,334	22,865[1]	67,379[1]	15,338[1]	82,717
1999	32,973	4,119	2,027	6,205	45,324	8,920	1,691	6,373[1]	6,018	23,002[1]	68,327[1]	17,950[1]	86,276
Intermediate Estimates:													
2000	35,946	4,359	2,119	6,624	49,048	9,797	1,704	6,152[1]	6,832	24,485[1]	73,533[1]	19,461[1]	92,994
2001	37,358	4,625	2,149	7,107	51,239	11,653	1,793	7,479[1]	7,989	28,913[1]	80,153[1]	21,200[1]	101,352
2002	38,879	4,853	2,210	7,594	53,536	12,530	1,867	9,042[1]	8,562	32,001[1]	85,537[1]	23,421[1]	108,958
2003	40,312	5,207	2,333	8,159	56,011	13,671	1,975	10,590[1]	9,103	35,339[1]	91,350[1]	25,487[1]	116,838
2004	41,622	5,620	2,477	8,801	58,520	14,669	2,103	12,005	9,770	38,548	97,068	26,794	123,862
2005	43,156	6,081	2,637	9,520	61,394	16,380	2,245	12,998	10,506	42,130	103,524	29,561	133,085
2006	44,614	6,586	2,811	10,305	64,316	18,290	2,398	14,090	11,243	46,021	110,337	32,471	142,808
2007	46,023	7,159	3,007	11,197	67,386	20,474	2,570	15,269	12,041	50,353	117,739	35,515	153,255
2008	47,863	7,814	3,231	12,220	71,129	22,996	2,765	16,521	12,924	55,206	126,334	38,862	165,197
2009	50,084	8,538	3,477	13,354	75,453	25,865	2,978	17,698	13,878	60,419	135,872	42,453	178,325

[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 1999, 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 which 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.[2] 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 based on 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.F8.

Table II.F8.—SMI Cash Disbursements as a Percent of the Gross Domestic Product for Calendar Years 1999-2009[1]

		Alternatives	
Calendar year	Intermediate assumptions	Low Cost	High Cost
1999	0.89	0.89	0.89
2000	0.94	0.92	0.96
2001	0.97	0.93	1.03
2002	1.01	0.95	1.06
2003	1.04	0.96	1.11
2004	1.06	0.96	1.20
2005	1.08	0.96	1.21
2006	1.10	0.96	1.25
2007	1.12	0.96	1.31
2008	1.15	0.96	1.37
2009	1.18	0.97	1.43

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

[2]This assumption is modified somewhat for the high cost alternative to avoid anomalous results during the 2 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 1999-2075. These incurred disbursements assume no change in current law for any specific program legislation or for any comprehensive health care reform. The 75-year projection period fully allows for the presentation of future contingencies that reasonably may be expected to occur, such as the impact of the large increase in enrollees that will occur after the turn of the century. 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-1960's (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		
	HI	SMI	Total
1999	1.40	0.89	2.29
2000	1.39	0.94	2.33
2001	1.38	0.98	2.37
2002	1.39	1.02	2.40
2003	1.39	1.06	2.45
2004	1.41	1.07	2.47
2005	1.43	1.09	2.52
2006	1.45	1.11	2.56
2007	1.47	1.13	2.61
2008	1.49	1.16	2.66
2009	1.51	1.19	2.70
2010	1.53	1.22	2.75
2015	1.63	1.47	3.09
2020	1.78	1.72	3.50
2025	2.00	1.95	3.95
2030	2.23	2.13	4.36
2035	2.42	2.22	4.64
2040	2.54	2.22	4.76
2045	2.60	2.19	4.80
2050	2.63	2.17	4.79
2055	2.65	2.18	4.83
2060	2.69	2.24	4.93

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

	Disbursements as a percent of GDP		
	HI	SMI	Total
2065	2.76	2.31	5.07
2070	2.84	2.35	5.19
2075	2.92	2.36	5.28

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

For HI, program costs beyond the first 25-year projection period are based on the assumption that costs per unit of service will increase at the same rate as average hourly earnings. The associated aggregate disbursements are then represented as a percentage of GDP. For SMI, increases in the costs per enrollee during the initial 25-year period are assumed to gradually decline in the last 12 years to the same rate as GDP per capita and then to continue at the same rate as GDP per capita in the last 50 years.

Based on these assumptions, incurred Medicare disbursements as a percent of GDP are projected to increase rapidly from 2.29 percent in 1999 to 4.64 percent in 2035 and then to increase gradually to 5.28 percent in 2075. After 2035, while Medicare disbursements as a percent of GDP increase more slowly, the HI percentage grows steadily while the SMI percentage decreases slightly through 2050 and then increases again through 2075.

The projected expenditures of the HI and SMI programs shown in this report as a percentage of GDP are somewhat lower than the corresponding projections from the 1999 annual report. The difference is primarily attributable to the faster GDP growth projected in this report, rather than reductions in the projected levels of HI and SMI expenditures in nominal dollar amounts. For both HI and SMI, projected expenditures levels are somewhat higher than shown in the 1999 report, but the increase is less pronounced than the increase in projected GDP, resulting in lower costs as a percentage of GDP.

B. 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 these days 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 age 65 and older and many disabled individuals under age 65 are insured for Medicare Hospital Insurance 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 are subject to 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.B1 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.B1.—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
Intermediate Estimates:								
2001	788	197	394	98.50	303	167	49.90	100
2002	800	200	400	100.00	315	173	54.50	100
2003	828	207	414	103.50	329	181	59.50	100
2004	860	215	430	107.50	344	189	63.90	100
2005	896	224	448	112.00	364	200	68.50	100
2006	936	234	468	117.00	383	211	72.60	100
2007	976	244	488	122.00	402	221	76.70	100
2008	1,020	255	510	127.50	420	231	81.10	100
2009	1,064	266	532	133.00	438	241	85.90	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 2000 included an estimate of the aggregate cost to HI beneficiaries for the changes in the deductible and coinsurance amounts from 1999 to 2000. At that time, it was estimated that in 2000 there will be about 8.6 million inpatient deductibles paid at $776 each, about 2.2 million inpatient 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 31.7 million extended care days subject to coinsurance at $97 per day. Similarly, it was estimated that in 1999 there were about 8.5 million deductibles paid at $768 each, about 2.2 million days subject to coinsurance at $192 per day (for hospital days 61 through 90), about 1.0 million lifetime reserve days subject to coinsurance at $384 per day, and about 29.9 million extended care days subject to coinsurance at $96 per day. Therefore, the total increase in cost to beneficiaries was estimated to be about $360 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.

C. 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.F 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 judgmentally, 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 three 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 projections shown in this appendix represent the preliminary application of such techniques to the short-range cost projections for the SMI program.

2. Methodology

For health care cost projections, the most critical assumption is generally the rate of increase in average per-beneficiary medical costs.[3] 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 1999. For each future year, these variations are combined statistically to develop a measure of variation in total SMI benefit

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

expenditures per beneficiary.[4] 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.[5] 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 is scheduled for July 2000). The range of future variation in

[4]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.

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

outpatient hospital expenditures (and total SMI costs) may therefore differ from what is reflected in the model.

- 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.

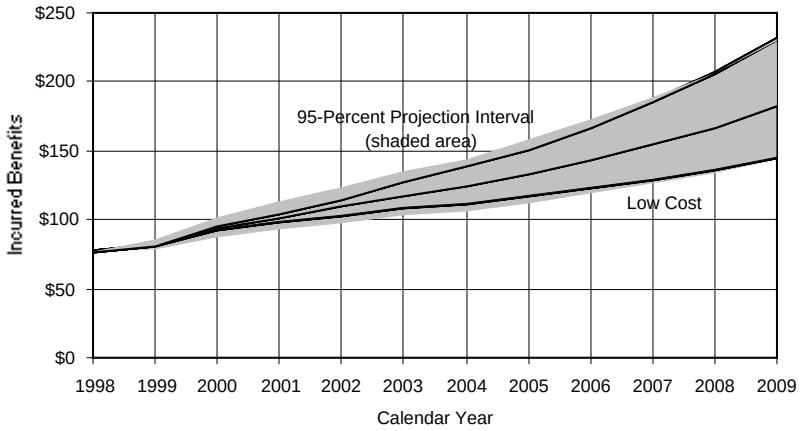
For these reasons, the stochastic projections shown in this appendix should be viewed cautiously and used with awareness of their limitations.[6] Many refinements to the methodology are possible. For example, the assumed average future cost increases could be allowed to differ from the increases of the 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.

[6]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.C1 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.[7]

Figure III.C1.—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.C1. 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 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 reaches the boundary in 2009. The intermediate estimate is virtually identical to the 50th percentile of the stochastic distribution, as one would anticipate because the stochastic analysis is tied to the intermediate assumptions as the expected case.

[7]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.C1. 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 $147.1 billion or less in 2009. Similarly, there is an estimated 50-50 probability that expenditures in 2009 would be lower—or higher—than the 50th percentile projection of $179.8 billion (also known as the median projection).

Table III.C1.—Estimated Incurred SMI Benefit Expenditures, by Percentile of Projection Distribution

(In billions)

Calendar year	Percentiles				
	2.5	5.0	50.0	95.0	97.5
1999	$78.6	$79.0	$81.8	$84.7	$85.3
2000	87.8	88.8	94.7	100.5	101.7
2001	92.8	94.4	102.4	111.1	113.1
2002	97.8	99.5	110.0	121.6	124.0
2003	103.2	104.9	118.1	132.5	135.3
2004	106.6	109.4	124.5	141.4	144.6
2005	112.2	115.8	133.9	154.3	159.0
2006	119.4	122.8	143.6	167.4	172.5
2007	126.1	130.3	154.7	183.2	188.5
2008	133.8	139.5	166.4	199.2	206.5

Note: Intermediate estimates are almost identical to the 50th percentile benefits. See section II.F for specific expenditure projections under the intermediate assumptions.

Table III.C2 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 2002 would be less than the low cost projection is 16.4 percent. Similarly, the estimated probability that costs would be at or below the high cost projection in 2005 is 92.4 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.C2.—Percentiles of SMI Benefit Expenditure Distribution Corresponding to Low, Intermediate, and High Cost Estimates

Calendar year	Low Cost	Intermediate	High Cost
1999	51.3%	50.5%	49.9%
2000	32.1	47.6	56.1
2001	24.1	50.2	68.6
2002	16.4	49.6	72.8
2003	11.8	49.9	87.5
2004	8.6	51.2	93.4
2005	7.3	51.6	92.4
2006	5.7	51.6	94.9
2007	4.5	50.5	96.2
2008	3.4	50.6	97.3
2009	3.0	50.6	97.7

The comparison of projection results in figure III.C1 and table III.C2 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.[8] 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 (about 2 percent) and that the probability of falling below the low cost alternative is also small (3 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 only be changed through legislation, the SMI program should always be adequately financed so long as premiums

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

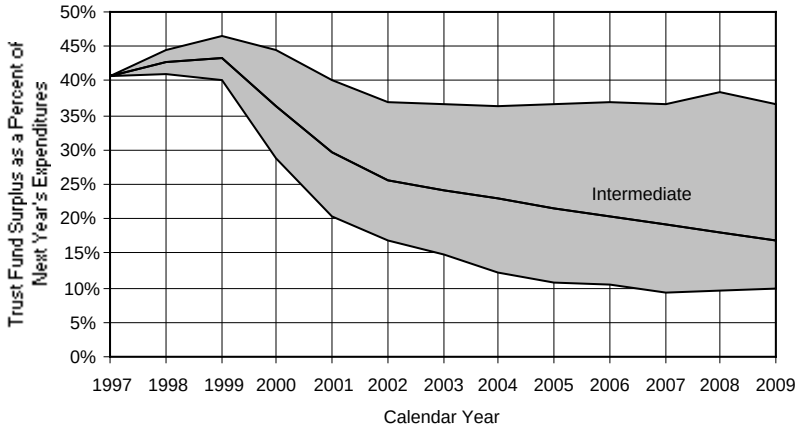
and general revenue levels are accurately set and an adequate trust fund balance is maintained. In this regard, the stochastic methods used in this appendix can help determine the likelihood of an unexpected major change in SMI expenditure levels and whether such a change could jeopardize asset adequacy 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) to 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.[9] 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.C2. 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.

[9]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.

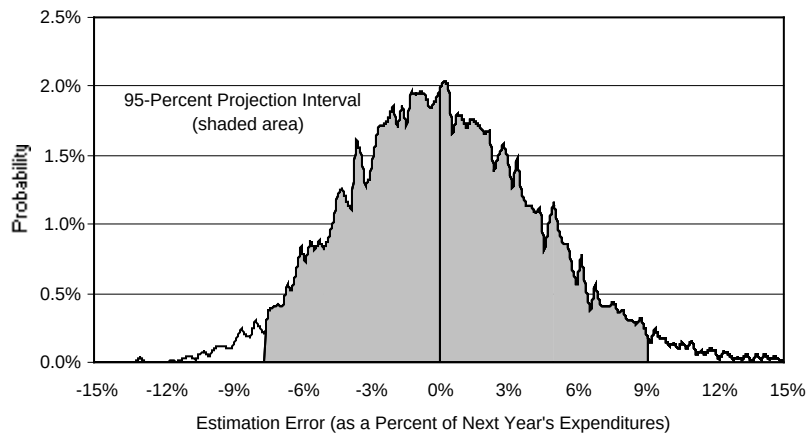
Figure III.C2.—95-Percent Projection Interval for Financing Status of SMI Trust Fund



The stochastic projections shown in figure III.C2 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 2000 were set in 1999 based on projections of benefit expenditures for 2000 and 2001. 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.C3 shows an estimated frequency distribution for such differences, 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.C3.—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 −7.5 percent and 9 percent. The largest adverse differences generated by the stochastic projections were in the vicinity of −13 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 new 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.

D. GLOSSARY

Actuarial rates. One half 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.

Advisory Council on Social Security. Prior to the enactment of the Social Security Independence and Program Improvements Act of 1994 (Public Law 103-296) on August 15, 1994, the Social Security Act required the appointment of an Advisory Council every 4 years to study and review the financial status of the OASDI and Medicare programs. The most recent Advisory Council was appointed on June 9, 1994, and its report on the financial status of the OASDI program was submitted on January 6, 1997. Under the provisions of Public Law 103-296, this is the last Advisory Council to be appointed.

Aged enrollee. An individual, age 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 which 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 represent the Trustees best estimates of likely future economic and demographic conditions.
(3) The high cost alternative with slow economic growth, more rapid inflation, and financially disadvantageous demographic conditions.

Average market yield. A computation which 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 SMI 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. Stephen G. Kellison and Marilyn Moon began their services as Public Trustees on July 20, 1995, and complete their terms with the issuance of this report. 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 at the point payment was made rather than when the service was performed.

Certificate of indebtedness. A short-term certificate of ownership of 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 than 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 are provided for most physician services, care in outpatient departments of hospitals, diagnostic tests, DME, ambulance services, and other health services which 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 age 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 which 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.

Feescreen 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 United States Government. Since 1976, each fiscal year has begun on October 1 of the prior calendar year and ended the following September 30. For example, fiscal year 2000 began October 1, 1999 and will end September 30, 2000.

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. A public agency or private organization which is primarily engaged in providing skilled nursing services, other therapeutic services, such as physical, occupational, or speech therapy, and home health aide services, in the home.

Hospital Insurance (HI). The Medicare program which 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 laboratories. 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, 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 either based 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 aged 65 or over or disabled 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+Choice. An expanded set of options for the delivery of health care under Medicare established by the Balanced Budget Act of 1997. 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.

Medicare Economic Index (MEI). An index which is 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.

Old-Age, Survivors, and Disability Insurance (OASDI). The Social Security programs which pay for (1) monthly cash benefits to retired-worker (old-age) beneficiaries and their spouses and children and to 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.

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 which include 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 physician work, practice expenses net of malpractice expenses, and the cost of professional liability insurance.

Social Security Act. Public Law 74-271, enacted August 14, 1935 with subsequent amendments. The Social Security Act consists of 20 titles, of which four 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 United States 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 each 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 which pays for a portion of the costs of physician's 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 which is in force for a specified period of time.

Trust fund. Separate accounts in the United States Treasury mandated by Congress whose assets may only be used 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.

E. 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 experience and expectations of the program.

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