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# APPENDIX A

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

### 1. ESTIMATES FOR BASIC COVERAGE FOR AGED AND DISABLED (EXCLUDING ESRD) ENROLLEES

#### a. Introduction

Estimates for aged and disabled enrollees--excluding disabled persons with end stage renal disease (ESRD)--for basic SMI coverage, which is defined to be non-catastrophic coverage, are prepared by calculating reasonable charges incurred per enrollee in a recent year (the 12-month period ending June 30, 1987, for this report) and projecting these charges through the estimating 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.

Disabled persons with ESRD have per enrollee costs which are higher and quite different in nature from those of most other disabled persons. Hence, basic program costs for them have been excluded from the analysis in this section and are included in a later section. Also, cost estimates for services covered under the "Medicare Catastrophic Coverage Act of 1988" (Public Law 100-360) are excluded from the analysis in this section and are shown in a later section.

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b. Establishing a Projection Base

(1) Physician Services

Reimbursement amounts for physician services (and smaller amounts for other services such as laboratory tests, durable medical equipment and supplies) are paid through organizations acting for the Health Care Financing Administration, referred to as "carriers." The carriers determine whether billed services are covered under the program and determine the reasonable charges for the services. A record of the amount reimbursed after reduction for coinsurance and the deductible is transmitted to the central office in the form of a "payment record."

Payment records for 0.1 percent of aged beneficiaries and 1.0 percent of disabled beneficiaries are tabulated by date of service, thus providing a data base which is constructed on an incurred basis. Certain minor adjustments are made to the tabulated sample data to correct for biases and random fluctuation inherent in the sampling process. Having the data on an incurred basis 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 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.

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(2) Institutional and Other Services

Reimbursement amounts for institutional services under the SMI program are paid by the same fiscal intermediaries that pay for HI services. The principal institutional services covered under the SMI program are outpatient hospital care services.

Reimbursements for institutional services occur in two stages. Provider bills are submitted to the intermediaries, and interim payments are made on the basis of these bills. The bills are then submitted to the central office, and tabulations for a sample of beneficiaries are prepared in a manner parallel to that for payment records.

At the close of a provider's accounting period, a cost report is submitted, and lump-sum payments or recoveries are made to correct for the difference between interim payments made to the provider and the retroactively determined reasonable cost for providing covered services (net of coinsurance and deductible amounts). However, the cost of laboratory tests in outpatient departments of hospitals is no longer determined on a reasonable-cost basis but on a fee-schedule basis. The amounts of these retroactive settlements are reported on a cash basis, and approximations are necessary to allocate these payments to the time of service.

Group practice plans, which are not reimbursed through carriers, are reimbursed directly by the Health Care Financing Administration on a reasonable cost or on a capitation basis. Comprehensive data on such direct reimbursements are available on a cash basis. Certain approximations must be made to allocate expenses to the period when services were rendered.

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(3) Summary of Historical Data

Table A1 summarizes the incurred reimbursement amounts per enrollee for the various services for each of the 12-month periods ending June 30, through 1987. Also shown are average enrollment figures for these years. In order to analyze the historical trends in prices and use of services, these reimbursement amounts are converted to the reasonable charges or reasonable costs on which reimbursement was based. This process is necessary largely because the fixed deductible becomes a smaller percentage of charges each year and thus causes reimbursement to rise faster than charges or costs. Table A2 shows the reasonable charges or costs per enrollee corresponding to the reimbursement values shown in Table A1.

c. Per Enrollee Increases

(1) Physician Services

Per enrollee charges for physician services are affected by a variety of factors. One factor, 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.

Increases in average charge per service are one of the most important elements creating increasing charges per enrollee. The physician fee component of the CPI provides an estimate of the historical increases in submitted charge per service. Increases in this index are shown in the first column of Table A3.

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Table A1.--INCURRED REIMBURSEMENT AMOUNTS PER ENROLLEE: HISTORICAL

| Year ending June 30, | Average enrollment (millions) | All services | Physician | Outpatient hospital | Home health agency | Group practice prepayment plan | Independent lab |
|---|---|---|---|---|---|---|---|
| Aged: | | | | | | | |
| 1967 | 17.750 | $62.51 | $59.12 | $1.41 | $0.79 | $0.89 | $0.30 |
| 1968 | 18.038 | 80.06 | 74.47 | 2.40 | 1.49 | 1.35 | 0.35 |
| 1969 | 18.833 | 92.91 | 84.87 | 4.20 | 1.91 | 1.53 | 0.40 |
| 1970 | 19.312 | 99.91 | 90.03 | 5.91 | 1.99 | 1.50 | 0.48 |
| 1971 | 19.664 | 106.25 | 95.05 | 7.53 | 1.67 | 1.40 | 0.60 |
| 1972 | 20.043 | 114.22 | 101.63 | 8.55 | 1.60 | 1.66 | 0.78 |
| 1973 | 20.428 | 122.39 | 107.98 | 9.43 | 2.17 | 1.87 | 0.94 |
| 1974 | 20.988 | 134.38 | 117.48 | 11.32 | 2.03 | 2.35 | 1.20 |
| 1975 | 21.504 | 160.26 | 136.28 | 15.45 | 3.83 | 3.06 | 1.64 |
| 1976 | 22.089 | 188.60 | 156.27 | 21.26 | 5.19 | 3.86 | 2.02 |
| 1977 | 22.605 | 221.38 | 179.30 | 28.68 | 6.52 | 4.41 | 2.47 |
| 1978 | 23.133 | 254.19 | 207.05 | 33.38 | 6.82 | 4.02 | 2.92 |
| 1979 | 23.693 | 289.55 | 233.99 | 40.51 | 6.86 | 4.87 | 3.32 |
| 1980 | 24.286 | 343.02 | 277.24 | 47.10 | 7.58 | 7.04 | 4.06 |
| 1981 | 24.826 | 407.45 | 328.14 | 56.75 | 8.04 | 9.13 | 5.39 |
| 1982 | 25.363 | 465.33 | 381.02 | 66.40 | 0.52 | 10.92 | 6.47 |
| 1983 | 25.873 | 559.47 | 456.15 | 81.69 | 0.77 | 13.53 | 7.33 |
| 1984 | 26.433 | 636.34 | 511.98 | 97.23 | 0.99 | 16.85 | 9.29 |
| 1985 | 26.914 | 684.87 | 536.78 | 112.60 | 1.05 | 19.35 | 15.09 |
| 1986 | 27.453 | 785.02 | 596.36 | 135.19 | 1.19 | 31.11 | 21.17 |
| 1987 | 28.077 | 912.03 | 676.60 | 166.86 | 0.98 | 41.70 | 25.89 |
| Disabled (excluding ESRD): | | | | | | | |
| 1974 | 1.638 | 116.64 | 97.58 | 13.88 | 3.45 | 1.08 | 0.65 |
| 1975 | 1.817 | 149.42 | 125.62 | 17.31 | 3.57 | 1.86 | 1.06 |
| 1976 | 2.019 | 178.77 | 148.31 | 21.69 | 5.12 | 2.19 | 1.40 |
| 1977 | 2.231 | 220.45 | 174.81 | 36.44 | 4.79 | 2.41 | 2.00 |
| 1978 | 2.423 | 256.27 | 202.91 | 42.76 | 5.53 | 2.47 | 2.60 |
| 1979 | 2.563 | 301.57 | 240.73 | 50.49 | 5.13 | 2.05 | 3.17 |
| 1980 | 2.642 | 363.35 | 288.42 | 60.70 | 6.09 | 4.31 | 3.83 |
| 1981 | 2.686 | 435.18 | 340.78 | 77.24 | 7.22 | 5.24 | 4.70 |
| 1982 | 2.685 | 517.56 | 395.46 | 109.91 | 0.00 | 6.31 | 5.88 |
| 1983 | 2.628 | 629.36 | 485.77 | 128.70 | 0.00 | 7.58 | 7.31 |
| 1984 | 2.593 | 676.78 | 529.98 | 129.44 | 0.00 | 8.38 | 8.98 |
| 1985 | 2.593 | 708.15 | 553.27 | 131.98 | 0.00 | 9.22 | 13.68 |
| 1986 | 2.629 | 778.92 | 594.44 | 152.80 | 0.00 | 12.51 | 19.17 |
| 1987 | 2.690 | 868.31 | 657.43 | 171.90 | 0.00 | 15.89 | 23.09 |

Table A2.--INCURRED REASONABLE CHARGES OR COSTS PER ENROLLEE: HISTORICAL

| Year ending June 30, | Average enrollment (millons) | All services | Physician | Outpatient hospital | Home health agency | Group practice prepayment plan | Independent lab |
|---|---|---|---|---|---|---|---|
| Aged: | | | | | | | |
| 1967 | 17.750 | $108.58 | $102.70 | $2.45 | $1.37 | $1.54 | $0.52 |
| 1968 | 18.038 | 128.08 | 119.02 | 3.89 | 2.42 | 2.18 | 0.57 |
| 1969 | 18.833 | 144.18 | 131.22 | 6.77 | 3.08 | 2.47 | 0.64 |
| 1970 | 19.312 | 153.63 | 137.86 | 9.43 | 3.17 | 2.40 | 0.77 |
| 1971 | 19.664 | 162.10 | 144.41 | 11.89 | 2.64 | 2.21 | 0.95 |
| 1972 | 20.043 | 172.75 | 153.15 | 13.32 | 2.49 | 2.58 | 1.21 |
| 1973 | 20.428 | 186.21 | 163.99 | 14.79 | 3.02 | 2.94 | 1.47 |
| 1974 | 20.988 | 204.19 | 178.33 | 17.75 | 2.54 | 3.69 | 1.88 |
| 1975 | 21.504 | 236.59 | 201.27 | 23.51 | 4.66 | 4.66 | 2.49 |
| 1976 | 22.089 | 272.01 | 225.46 | 31.62 | 6.18 | 5.74 | 3.01 |
| 1977 | 22.605 | 313.23 | 253.83 | 41.77 | 7.60 | 6.43 | 3.60 |
| 1978 | 23.133 | 354.26 | 288.64 | 47.86 | 7.82 | 5.76 | 4.18 |
| 1979 | 23.693 | 398.80 | 322.19 | 57.28 | 7.76 | 6.88 | 4.69 |
| 1980 | 24.286 | 465.76 | 376.35 | 65.52 | 8.44 | 9.80 | 5.65 |
| 1981 | 24.826 | 545.32 | 438.85 | 77.76 | 8.81 | 12.51 | 7.39 |
| 1982 | 25.363 | 629.00 | 513.50 | 91.11 | 0.52 | 14.99 | 8.88 |
| 1983 | 25.873 | 754.81 | 614.84 | 110.89 | 0.77 | 18.36 | 9.95 |
| 1984 | 26.433 | 853.07 | 686.15 | 130.77 | 0.99 | 22.66 | 12.50 |
| 1985 | 26.914 | 901.87 | 707.65 | 151.96 | 1.05 | 26.12 | 15.09 |
| 1986 | 27.453 | 1022.36 | 776.94 | 181.33 | 1.19 | 41.73 | 21.17 |
| 1987 | 28.077 | 1176.02 | 871.82 | 221.88 | 0.98 | 55.45 | 25.89 |
| Disabled (excluding ESRD): | | | | | | | |
| 1974 | 1.638 | 171.05 | 143.26 | 20.99 | 4.17 | 1.64 | 0.99 |
| 1975 | 1.817 | 212.07 | 178.40 | 25.25 | 4.17 | 2.71 | 1.54 |
| 1976 | 2.019 | 250.18 | 207.77 | 31.24 | 5.90 | 3.16 | 2.11 |
| 1977 | 2.231 | 303.48 | 240.42 | 51.43 | 5.41 | 3.40 | 2.82 |
| 1978 | 2.423 | 349.58 | 276.50 | 59.80 | 6.19 | 3.45 | 3.64 |
| 1979 | 2.563 | 406.70 | 324.15 | 69.68 | 5.66 | 2.83 | 4.38 |
| 1980 | 2.642 | 484.22 | 383.85 | 82.66 | 6.63 | 5.87 | 5.21 |
| 1981 | 2.686 | 573.54 | 448.39 | 103.98 | 7.78 | 7.06 | 6.33 |
| 1982 | 2.685 | 687.66 | 523.32 | 147.93 | 0.00 | 8.49 | 7.92 |
| 1983 | 2.628 | 835.62 | 643.99 | 171.76 | 0.00 | 10.11 | 9.76 |
| 1984 | 2.593 | 897.68 | 702.43 | 172.16 | 0.00 | 11.15 | 11.94 |
| 1985 | 2.593 | 925.98 | 723.44 | 176.53 | 0.00 | 12.33 | 13.68 |
| 1986 | 2.629 | 1009.14 | 769.73 | 203.57 | 0.00 | 16.67 | 19.17 |
| 1987 | 2.690 | 1116.34 | 844.42 | 227.77 | 0.00 | 21.06 | 23.09 |

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Table A3.--COMPONENTS OF INCREASES IN TOTAL RECOGNIZED CHARGES PER ENROLLEE FOR PHYSICIAN SERVICES: HISTORICAL
(In percent)

| Year ending June 30, | Increase due to price changes | | Residual factors | Total increase in recognized charges per enrollee |
|---|---|---|---|---|
| | Increase in physician fee component of CPI | Net increase in reasonable charges | | |
| Aged: | | | | |
| 1967 | 7.6 | | | |
| 1968 | 5.9 | 4.8 | 10.6 | 15.9 |
| 1969 | 6.2 | 3.9 | 6.2 | 10.3 |
| 1970 | 6.7 | 4.7 | 0.4 | 5.1 |
| 1971 | 7.5 | 4.5 | 0.3 | 4.8 |
| 1972 | 5.2 | 3.9 | 2.0 | 6.0 |
| 1973 | 2.6 | 2.0 | 5.0 | 7.1 |
| 1974 | 5.0 | 3.2 | 5.4 | 8.8 |
| 1975 | 12.8 | 8.9 | 3.6 | 12.8 |
| 1976 | 11.4 | 8.2 | 3.5 | 12.0 |
| 1977 | 10.2 | 9.0 | 3.3 | 12.6 |
| 1978 | 8.9 | 9.0 | 4.3 | 13.7 |
| 1979 | 8.6 | 7.8 | 3.6 | 11.7 |
| 1980 | 11.5 | 8.6 | 7.6 | 16.8 |
| 1981 | 11.1 | 7.7 | 8.3 | 16.6 |
| 1982 | 9.9 | 10.8 | 5.6 | 17.0 |
| 1983 | 8.2 | 8.9 | 9.9 | 19.7 |
| 1984 | 7.5 | 7.2 | 4.1 | 11.6 |
| 1985 | 6.0 | 0.8 | 2.3 | 3.1 |
| 1986 | 6.7 | 0.0 | 9.8 | 9.8 |
| 1987 | 7.5 | 4.4 | 7.5 | 12.2 |
| Disabled (excluding ESRD): | | | | |
| 1974 | 5.0 | | | |
| 1975 | 12.8 | 8.9 | 14.3 | 24.5 |
| 1976 | 11.4 | 8.2 | 7.6 | 16.4 |
| 1977 | 10.2 | 9.0 | 6.2 | 15.7 |
| 1978 | 8.9 | 9.0 | 5.5 | 15.0 |
| 1979 | 8.6 | 7.8 | 8.8 | 17.3 |
| 1980 | 11.5 | 8.6 | 9.1 | 18.5 |
| 1981 | 11.1 | 7.7 | 8.4 | 16.7 |
| 1982 | 9.9 | 10.7 | 5.4 | 16.7 |
| 1983 | 8.2 | 8.9 | 13.0 | 23.1 |
| 1984 | 7.5 | 7.2 | 1.7 | 9.0 |
| 1985 | 6.0 | 0.8 | 2.2 | 3.0 |
| 1986 | 6.7 | 0.0 | 6.4 | 6.4 |
| 1987 | 7.5 | 4.4 | 5.1 | 9.7 |

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Bills submitted to the carriers during a specified period, the fee-screen year, are subject by statute to certain limitations on the level of fees to be recognized by the program for reimbursement purposes. Prior to the passage of Public Law 98-369, the fee-screen year was the 12-month period ending June 30. Public Law 98-369 changed the fee-screen year to the 12-month period ending September 30, effective on October 1, 1985, and Public Law 99-272 changed the fee-screen year to a calendar-year basis effective January 1, 1987. The fee level recognized for a particular service by a physician is subject to reduction if it exceeds the median charge that the physician assessed for the same service in the base period. Public Law 98-369 changed the base period from the preceding calendar year to the preceding 12-month period ending March 31, and Public Law 99-272 changed the base period to the preceding 12-month period ending June 30. This median charge is called the "customary charge." Fees are subject to further reduction if they exceed the prevailing charges for the locality. The prevailing charge is defined as the 75th percentile of customary charges for a particular service in a particular locality. Since July 1, 1975, the rate of increase in prevailing charges has been limited further by the application of the MEI. The customary and prevailing charge limits maintained by the carriers are called "fee screens." Reasonable charges are charges after they have been reduced by the fee screens and are the charges on which reimbursement is based.

Certain services included with the physician services are not subject to the same fee-screen reduction process as described above. Effective October 1, 1985, there is an additional screen considered for nonphysician services, supplies, and equipment. After applying the customary and prevailing charge screens, fees are further reduced if they exceed the inflation-indexed charge (IIC). The IIC

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represents the lowest of the reasonable charge screens from the preceding fee-screen year as adjusted by an inflation factor. Effective June 1, 1989 charges for oxygen and oxygen equipment are determined on the basis of a fee schedule updated by an inflation factor. Effective July 1, 1984 charges for laboratory tests performed in physician offices and independent laboratories are determined by fee schedules. These fee schedules are updated at the beginning of the fee-screen year by an inflation adjustment factor.

Since legislation has twice changed the time span of the fee-screen year, and since the two transitional fee-screen years (1985 and 1986) cover 15-month periods, data presented in Tables A1 through A8 will be displayed for the same 12-month basis for all years. This basis will be the 12-month periods ending June 30.

The average reduction in submitted fees has increased almost every year due both to administrative actions and to differentials in the rate of increase in fees between the period in which the fee screens are established and the period in which the screens are applied. The result is that the net increase in per enrollee charges due to price changes (i.e., the increase in fee levels recognized for reimbursement purposes) has been less than the increase in submitted fees. The second column of Table A3 shows this increase in per enrollee charges due to price changes.

Per capita charges also have increased each year as a result of a number of possible factors 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 third column of Table A3 shows the increases in charges per enrollee resulting from these residual causes. Because the measurement of increased recognized charges per service is subject to error, this error is included implicitly under residual causes.

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The last column of Table A3 shows the total increases in charges per enrollee for physician services. It includes the effects of all the items discussed above.

Projected increases in total recognized charges per enrollee are shown in Table A4. It compares with the corresponding historical data shown in Table A3. Column 1 of Table A4 shows the projected increases in the physician fee component of the CPI in each of the years ending June 30, 1988 through June 30, 1992. It represents an estimate of projected increases in the submitted fees disregarding the impact of the maximum allowable actual charges (MAAC). Column 2 shows the projected net increases in reasonable charges, and column 3 shows the increases due to residual causes.

(2) Institutional and Other Services

The historical and projected increases in charges or costs per enrollee for institutional and other services are shown in Table A5. The year-to-year changes in some services have been quite erratic. Because these series provide only a rough indication of future trends in costs, identical series of increase factors are used for Alternative A and Alternative B.

d. Projected Charges and Costs

Table A6 shows projections of per enrollee incurred charges and costs based on the assumptions in Tables A4 and A5. Table A7 shows the total reimbursement amounts per enrollee that result from subtracting the average amounts of copayment per enrollee from the total covered charges in Table A6. The aggregate

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Table A4.--COMPONENTS OF INCREASES IN TOTAL RECOGNIZED CHARGES PER ENROLLEE FOR PHYSICIAN SERVICES: PROJECTED
(In percent)

| Year ending June 30, | Increase due to price changes | | Residual factors | Total increase in recognized charges per enrollee |
|---|---|---|---|---|
| | Increase in physician fee component of CPI | Net increase in reasonable charges | | |
| **Alternative A:** | | | | |
| **Aged:** | | | | |
| 1988 | 7.2 | 4.3 | 6.2 | 10.8 |
| 1989 | 7.3 | 2.5 | 5.2 | 7.8 |
| 1990 | 7.6 | 3.2 | 6.6 | 10.0 |
| 1991 | 5.6 | 4.3 | 6.5 | 11.1 |
| 1992 | 6.2 | 5.2 | 5.7 | 11.2 |
| **Disabled (excluding ESRD):** | | | | |
| 1988 | 7.2 | 4.3 | 6.0 | 10.6 |
| 1989 | 7.3 | 2.5 | 4.4 | 7.0 |
| 1990 | 7.6 | 3.2 | 6.8 | 10.2 |
| 1991 | 5.6 | 4.3 | 7.1 | 11.7 |
| 1992 | 6.2 | 5.2 | 6.1 | 11.6 |
| **Alternative B:** | | | | |
| **Aged:** | | | | |
| 1988 | 7.2 | 4.3 | 6.2 | 10.8 |
| 1989 | 7.6 | 2.5 | 5.2 | 7.8 |
| 1990 | 8.5 | 3.3 | 6.6 | 10.1 |
| 1991 | 6.7 | 4.6 | 6.5 | 11.4 |
| 1992 | 7.6 | 5.7 | 5.7 | 11.7 |
| **Disabled (excluding ESRD):** | | | | |
| 1988 | 7.2 | 4.3 | 6.0 | 10.6 |
| 1989 | 7.6 | 2.5 | 4.4 | 7.0 |
| 1990 | 8.5 | 3.3 | 6.8 | 10.3 |
| 1991 | 6.7 | 4.6 | 7.1 | 12.0 |
| 1992 | 7.6 | 5.7 | 6.1 | 12.1 |

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Table A5.--INCREASES IN RECOGNIZED CHARGES AND COSTS PER ENROLLEE FOR INSTITUTIONAL AND OTHER SERVICES
(In percent)

| Year ending June 30, | Outpatient hospital | Home health agency | Group practice prepayment plan | Independent lab |
|---|---|---|---|---|
| Aged: | | | | |
| Historical: | | | | |
| 1968 | 58.8 | 76.6 | 41.6 | 9.6 |
| 1969 | 74.0 | 27.3 | 13.3 | 12.3 |
| 1970 | 39.3 | 2.9 | -2.8 | 20.3 |
| 1971 | 26.1 | -16.7 | -7.9 | 23.4 |
| 1972 | 12.0 | -5.7 | 16.7 | 27.4 |
| 1973 | 11.0 | 21.3 | 14.0 | 21.5 |
| 1974 | 20.0 | -15.9 | 25.5 | 27.9 |
| 1975 | 32.5 | 83.5 | 26.3 | 32.4 |
| 1976 | 34.5 | 32.6 | 23.2 | 20.9 |
| 1977 | 32.1 | 23.0 | 12.0 | 19.6 |
| 1978 | 14.6 | 2.9 | -10.4 | 16.1 |
| 1979 | 19.7 | -0.8 | 19.4 | 12.2 |
| 1980 | 14.4 | 8.8 | 42.4 | 20.5 |
| 1981 | 18.7 | 4.4 | 27.7 | 30.8 |
| 1982 | 17.2 | -94.1 | 19.8 | 20.2 |
| 1983 | 21.7 | 48.1 | 22.5 | 12.0 |
| 1984 | 17.9 | 28.6 | 23.4 | 25.6 |
| 1985 | 16.2 | 6.1 | 15.3 | 20.7 |
| 1986 | 19.3 | 13.3 | 59.8 | 40.3 |
| 1987 | 22.4 | -17.6 | 32.9 | 22.3 |
| Projected: | | | | |
| 1988 | 12.3 | 26.4 | 46.1 | 27.8 |
| 1989 | 7.9 | 7.5 | 15.1 | 9.4 |
| 1990 | 17.5 | 7.5 | 21.2 | 21.3 |
| 1991 | 18.2 | 7.5 | 21.2 | 21.1 |
| 1992 | 17.3 | 7.5 | 20.2 | 18.9 |
| Disabled (excluding ESRD): | | | | |
| Historical: | | | | |
| 1975 | 20.3 | 0.0 | 65.2 | 55.6 |
| 1976 | 23.7 | 41.5 | 16.6 | 37.0 |
| 1977 | 64.6 | -8.3 | 7.6 | 33.6 |
| 1978 | 16.3 | 14.4 | 1.5 | 29.1 |
| 1979 | 16.5 | -8.6 | -18.0 | 20.3 |
| 1980 | 18.6 | 17.1 | 107.4 | 18.9 |
| 1981 | 25.8 | 17.3 | 20.3 | 21.5 |
| 1982 | 42.3 | 0.0 | 20.3 | 25.1 |
| 1983 | 16.1 | 0.0 | 19.1 | 23.2 |
| 1984 | 0.2 | 0.0 | 10.3 | 22.3 |
| 1985 | 2.5 | 0.0 | 10.6 | 14.6 |
| 1986 | 15.3 | 0.0 | 35.2 | 40.1 |
| 1987 | 11.9 | 0.0 | 26.3 | 20.4 |
| Projected: | | | | |
| 1988 | 22.2 | 0.0 | 39.4 | 28.4 |
| 1989 | 7.0 | 0.0 | 13.0 | 8.3 |
| 1990 | 16.1 | 0.0 | 17.8 | 23.8 |
| 1991 | 16.6 | 0.0 | 14.6 | 23.8 |
| 1992 | 16.0 | 0.0 | 14.9 | 19.0 |

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Table A6.--INCURRED REASONABLE CHARGES OR COSTS PER ENROLLEE: PROJECTED

| Year ending June 30, | All services | Physician | Outpatient hospital | Home health agency | Group practice prepayment plan | Independent lab |
|---|---|---|---|---|---|---|
| Alternative A: | | | | | | |
| Aged: | | | | | | |
| 1988 | $1,330.05 | $ 965.65 | $249.09 | $1.24 | $ 80.99 | $33.08 |
| 1989 | 1,441.00 | 1,041.58 | 268.68 | 1.33 | 93.21 | 36.20 |
| 1990 | 1,620.43 | 1,146.56 | 315.78 | 1.43 | 112.89 | 43.77 |
| 1991 | 1,838.67 | 1,274.39 | 373.16 | 1.54 | 136.80 | 52.78 |
| 1992 | 2,082.59 | 1,416.63 | 437.74 | 1.66 | 164.40 | 62.16 |
| Disabled (excluding ESRD): | | | | | | |
| 1988 | 1,270.40 | 933.12 | 278.26 | 0.00 | 29.37 | 29.65 |
| 1989 | 1,362.01 | 999.07 | 297.66 | 0.00 | 33.18 | 32.10 |
| 1990 | 1,525.20 | 1,101.29 | 345.44 | 0.00 | 39.08 | 39.39 |
| 1991 | 1,725.93 | 1,230.32 | 402.67 | 0.00 | 44.77 | 48.17 |
| 1992 | 1,949.37 | 1,373.33 | 467.07 | 0.00 | 51.43 | 57.54 |
| Alternative B: | | | | | | |
| Aged: | | | | | | |
| 1988 | 1,330.05 | 965.65 | 249.09 | 1.24 | 80.99 | 33.08 |
| 1989 | 1,441.00 | 1,041.58 | 268.68 | 1.33 | 93.21 | 36.20 |
| 1990 | 1,621.38 | 1,147.35 | 315.77 | 1.43 | 112.93 | 43.90 |
| 1991 | 1,843.25 | 1,278.55 | 373.16 | 1.54 | 136.83 | 53.17 |
| 1992 | 2,095.24 | 1,428.17 | 437.77 | 1.66 | 164.41 | 63.23 |
| Disabled (excluding ESRD): | | | | | | |
| 1988 | 1,270.40 | 933.12 | 278.26 | 0.00 | 29.37 | 29.65 |
| 1989 | 1,362.01 | 999.07 | 297.66 | 0.00 | 33.18 | 32.10 |
| 1990 | 1,526.40 | 1,102.15 | 345.43 | 0.00 | 39.08 | 39.74 |
| 1991 | 1,731.56 | 1,234.51 | 403.08 | 0.00 | 44.77 | 49.20 |
| 1992 | 1,962.27 | 1,384.87 | 467.42 | 0.00 | 51.43 | 58.55 |

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Table A7.--INCURRED REIMBURSEMENT AMOUNTS: PROJECTED

| Year ending June 30, | Average enrollment (millions) | Reimbursement amounts | |
|---|---|---|---|
| | | Per enrollee | Aggregate (millions) |
| **Alternative A:** | | | |
| **Aged:** | | | |
| 1988 | 28.471 | $1,037.30 | $29,533 |
| 1989 | 29.187 | 1,127.87 | 32,919 |
| 1990 | 29.736 | 1,274.78 | 37,907 |
| 1991 | 30.249 | 1,453.47 | 43,966 |
| 1992 | 30.749 | 1,653.03 | 50,829 |
| **Disabled (excluding ESRD):** | | | |
| 1988 | 2.732 | 993.41 | 2,714 |
| 1989 | 2.800 | 1,068.57 | 2,992 |
| 1990 | 2.865 | 1,202.09 | 3,444 |
| 1991 | 2.923 | 1,366.75 | 3,995 |
| 1992 | 2.985 | 1,550.08 | 4,627 |
| **Alternative B:** | | | |
| **Aged:** | | | |
| 1988 | 28.471 | 1,037.30 | 29,533 |
| 1989 | 29.187 | 1,127.87 | 32,919 |
| 1990 | 29.736 | 1,275.59 | 37,931 |
| 1991 | 30.249 | 1,457.27 | 44,081 |
| 1992 | 30.749 | 1,663.60 | 51,154 |
| **Disabled (excluding ESRD):** | | | |
| 1988 | 2.732 | 993.41 | 2,714 |
| 1989 | 2.800 | 1,068.57 | 2,992 |
| 1990 | 2.865 | 1,203.14 | 3,447 |
| 1991 | 2.923 | 1,371.54 | 4,009 |
| 1992 | 2.985 | 1,560.80 | 4,659 |

reimbursement amounts shown are derived by multiplying average enrollment by average reimbursement per enrollee.

## 2. ESTIMATES FOR BASIC COVERAGE FOR PERSONS SUFFERING FROM END STAGE RENAL DISEASE

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 suffering from 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.

The estimates assume that per capita charges for SMI ESRD services under Medicare will increase at an average of 2.8 percent per year during the projected period (July 1, 1987 through June 30, 1992). The estimates also assume a continued increase in enrollment. The historical and projected enrollment and costs for basic SMI benefits are shown in Table A8.

## 3. ESTIMATES FOR CATASTROPHIC COVERAGE

Beginning January 1990, SMI enrollees are covered by certain new services, as defined in the "Medicare Catastrophic Coverage Act of 1988" (Public Law 100-360). These catastrophic benefits are analyzed and projected separately from the basic SMI benefits.

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**Table A8.--INCURRED REIMBURSEMENT AMOUNTS FOR END STAGE RENAL DISEASE**

| Year ending June 30, | Average Enrollment (thousands) | | Reimbursement (millions) | |
|---|---|---|---|---|
| | Disabled ESRD | ESRD Only | Disabled ESRD | ESRD Only |
| 1974 | 4 | 8 | $40 | $96 |
| 1975 | 7 | 11 | 68 | 144 |
| 1976 | 11 | 13 | 101 | 190 |
| 1977 | 14 | 15 | 137 | 229 |
| 1978 | 16 | 16 | 173 | 273 |
| 1979 | 18 | 20 | 216 | 322 |
| 1980 | 19 | 25 | 240 | 408 |
| 1981 | 22 | 28 | 300 | 470 |
| 1982 | 24 | 30 | 394 | 475 |
| 1983 | 25 | 34 | 450 | 491 |
| 1984 | 28 | 37 | 456 | 398 |
| 1985 | 30 | 39 | 445 | 388 |
| 1986 | 32 | 43 | 446 | 404 |
| 1987 | 34 | 47 | 477 | 442 |
| 1988 | 35 | 51 | 529 | 507 |
| 1989 | 37 | 52 | 566 | 526 |
| 1990 | 37 | 53 | 572 | 554 |
| 1992 | 39 | 57 | 641 | 645 |

Table A9 shows projected reimbursement, on a cash basis, for the various SMI catastrophic benefits. The estimates for the catastrophic limit were developed based on the charge distribution for basic benefits incurred by SMI enrollees. Estimates for mammography screening were based on the age/sex distribution of SMI enrollees, the frequencies of the screenings allowed by law, and the reimbursement limitations allowed by law. The estimates for respite care were developed based on research studies of individuals who have limitations in 2 or more activities of daily living, estimates of the percentage of those individuals living with a primary caregiver, estimates of the percentage of individuals meeting either the outpatient prescription drug deductible or the catastrophic out-of-pocket limit, and estimates of the reimbursement per visit. At this time, the provision covering home intravenous drug therapy services is not estimable.

## 4. SUMMARY OF AGGREGATE REIMBURSEMENT AMOUNTS ON A CASH BASIS

Table A10 shows aggregate historical and projected reimbursement amounts on a cash basis, by type of beneficiary. The difference between reimbursement amounts on a cash basis and incurred reimbursement amounts results from the lag between the time of service and the time of payment.

## 5. ADMINISTRATIVE EXPENSES

The ratio of administrative expenses to benefit payments has been under 5 percent in recent years and is projected to decline in future years. Projections of administrative costs are based on estimates of changes in average annual wages.

**Table A9.-- AGGREGATE REIMBURSEMENT AMOUNTS FOR CATASTROPHIC BENEFITS ON A CASH BASIS (In millions)**

| Fiscal year | Catastrophic limit | Mammography | Respite care | Total |
|---|---|---|---|---|
| Projected: | | | | |
| Alternative A: | | | | |
| 1989 | $ 0 | $ 0 | $ 0 | $ 0 |
| 1990 | 1,030 | 160 | 20 | 1,210 |
| 1991 | 2,650 | 280 | 140 | 3,070 |
| Alternative B: | | | | |
| 1989 | 0 | 0 | 0 | 0 |
| 1990 | 1,030 | 160 | 20 | 1,210 |
| 1991 | 2,660 | 290 | 140 | 3,090 |

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**Table A10.--AGGREGATE REIMBURSEMENT AMOUNTS ON A CASH BASIS (In millions)**

| Fiscal Year 1/ | Aged | Disabled (excluding ESRD) | Disabled ESRD and ESRD only | Total |
|---|---|---|---|---|
| Historical: | | | | |
| 1967 | $ 664 | | | $ 664 |
| 1968 | 1,390 | | | 1,390 |
| 1969 | 1,645 | | | 1,645 |
| 1970 | 1,979 | | | 1,979 |
| 1971 | 2,035 | | | 2,035 |
| 1972 | 2,255 | | | 2,255 |
| 1973 | 2,391 | | | 2,391 |
| 1974 | 2,537 | $198 | $139 | 2,874 |
| 1975 | 3,289 | 265 | 211 | 3,765 |
| 1976 | 4,037 | 347 | 288 | 4,672 |
| T.Q. | 1,078 | 111 | 80 | 1,269 |
| 1977 | 5,005 | 502 | 360 | 5,867 |
| 1978 | 5,785 | 625 | 442 | 6,852 |
| 1979 | 6,929 | 792 | 538 | 8,259 |
| 1980 | 8,485 | 994 | 665 | 10,144 |
| 1981 | 10,362 | 1,194 | 789 | 12,345 |
| 1982 | 12,404 | 1,468 | 934 | 14,806 |
| 1983 | 14,783 | 1,725 | 979 | 17,487 |
| 1984 | 16,803 | 1,794 | 876 | 19,473 |
| 1985 | 19,080 | 1,886 | 842 | 21,808 |
| 1986 | 22,070 | 2,179 | 920 | 25,169 |
| 1987 | 26,353 | 2,587 | 997 | 29,937 |
| 1988 | 29,797 | 2,823 | 1,062 | 33,682 |
| Projected: | | | | |
| Alternative A: | | | | |
| 1989 | 33,285 | 3,028 | 1,083 | 37,396 |
| 1990 2/ | 39,747 | 3,596 | 1,242 | 44,585 |
| 1991 | 47,575 | 4,284 | 1,368 | 53,227 |
| Alternative B: | | | | |
| 1989 | 33,290 | 3,029 | 1,083 | 37,402 |
| 1990 2/ | 39,787 | 3,601 | 1,243 | 44,631 |
| 1991 | 47,742 | 4,301 | 1,369 | 53,412 |

1/ For 1967 through 1976, fiscal years cover the interval from July 1 through June 30; the three month interval from July 1, 1976, through September 30, 1976, is labeled "T.Q.," the transition quarter; fiscal years 1977-1991 cover the interval from October 1 through September 30.

2/ Beginning January 1, 1990, the reimbursement amounts include the SMI reimbursement for benefits added by the "Medicare Catastrophic Coverage Act of 1988" (Public Law 100-360).

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## APPENDIX B

Statement of Actuarial Assumptions and Bases Employed in Determining the Monthly Actuarial Rates and the Standard Monthly Premium Rate for the Supplementary Medical Insurance Program Beginning January 1989*

1. Actuarial Status of the Supplementary Medical Insurance Trust Fund

Under the law, the starting point for determining the monthly premium is the amount that would be necessary to finance the SMI program on an incurred basis, i.e., the amount of income that would be sufficient to pay for services furnished during that year (including associated administrative costs) even though payment for some of these services will not be made until after the close of the year. The portion of income required to cover benefits not paid until after the close of the calendar year is added to the trust fund and used when needed.

Because the rates are established prospectively, they are subject to projection error. Additionally, legislation enacted after the financing has been established, but effective for the period for which the financing has been set, may affect program costs. As a result, the income to the program may not equal incurred costs. Therefore, trust fund assets should be maintained at a level that is adequate to cover a moderate degree of variation between actual and projected costs in addition to the amount of incurred but unpaid expense. Table 1 summarizes the estimated actuarial status of the trust fund as of the end of the financing period for 1987 through 1988.

* This statement appeared in the Federal Register of September 30, 1988. Projections shown in this statement differ from the projections shown in the rest of the report because of changes in assumptions since the rates were announced.

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TABLE 1—ESTIMATED ACTUARIAL STATUS OF THE SMI TRUST FUND AS OF THE END OF THE FINANCING PERIODS, JANUARY 1, 1987—DECEMBER 31, 1988
(In Millions of Dollars)

| Financing Period Ending | Assets | Liabilities | Assets Less Liabilities |
|---|---|---|---|
| December 31, 1987 | *$ 8,394 | $5,126 | $3,268 |
| December 31, 1988 | 7,484 | 6,131 | 1,353 |

2. Monthly Actuarial Rate for Enrollees Age 65 and Older

The monthly actuarial rate is one-half of the monthly projected cost of benefits and administrative expenses for each enrollee age 65 and older, adjusted to allow for interest earnings on assets in the trust fund and a contingency margin. The contingency margin is an amount appropriate to provide for a moderate degree of variation between actual and projected costs and to amortize unfunded liabilities.

The monthly actuarial rate for enrollees age 65 and older for calendar year 1989 was determined by projecting per-enrollee cost for the 12-month periods ending June 30, 1989 and June 30, 1990 by type of service. Although the actuarial rates are now applicable for calendar years, projections of per-enrollee costs were determined on a July to June period, consistent with the July 1 annual fee screen update used for benefits before the passage of

* Section 706 of Title VII of the Social Security Act modified the provisions for the delivery of Social Security benefit checks when the regularly designated delivery day falls on a Saturday, Sunday, or legal public holiday. Delivery of benefit checks normally due January 1988 occurred on December 31, 1987. Consequently, the SMI premiums withheld from the checks ($692 million) and the general revenue matching contributions ($2,178 million) were added to the SMI trust fund on December 31, 1987.

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section 2306(b) of Pub. L. 98-369. The values for the 12-month period ending June 30, 1986 were established from program data. Subsequent periods were projected using a combination of program data and data from external sources. The projection factors used are shown in Table 2. Those per-enrollee values are then adjusted to apply to a calendar year period. The projected values for financing periods from January 1, 1986, through December 31, 1988, are shown in Table 3.

The projected monthly rate required to pay for one-half of the total of benefits and administrative costs for enrollees age 65 and over for calendar year 1989 is $54.05. The monthly actuarial rate of $55.80 provides an adjustment of -$0.68 for interest earnings and $2.43 for a contingency margin. Based on current estimates, it appears that with respect to enrollees age 65 and over the assets are not sufficient to cover the amount of incurred but unpaid expenses and to provide for a moderate degree of variation between actual and projected costs. Thus, a positive contingency margin is needed to build assets toward a more appropriate level.

An appropriate level for assets depends on numerous factors. The most important of these factors are: (1) the difference from prior years in the actual performance of the program and estimates made at the time financing was established and (2) the expected relationship between incurred and cash expenditures. Ongoing analysis is made of the former as the trends in the differences vary over time.

TABLE 2—PROJECTION FACTORS [1]
12-MONTH PERIODS ENDING JUNE 30 OF 1986-1990
(In percent)

| 12-month period ending June 30 | Physicians' services | | Outpatient hospital services | Home health agency services [4] | Group practice prepayment plans | Independent lab services |
|---|---|---|---|---|---|---|
| | Fees [2] | Residual [3] | | | | |
| Aged: | | | | | | |
| 1986 | 0.0 | 9.9 | 19.9 | 13.3 | 60.7 | 40.5 |
| 1987 | 4.8 | 8.8 | 22.9 | -3.6 | 33.6 | 23.8 |
| 1988 | 3.6 | 6.3 | 19.2 | 10.6 | 50.4 | 19.7 |
| 1989 | 2.8 | 5.9 | 15.7 | 11.7 | 25.0 | 13.6 |
| 1990 | 3.4 | 5.5 | 18.6 | 10.1 | 19.8 | 20.2 |
| Disabled: | | | | | | |
| 1986 | 0.0 | 6.2 | 16.0 | 0.0 | 36.0 | 40.4 |
| 1987 | 4.8 | 7.4 | 11.5 | 0.0 | 37.1 | 22.5 |
| 1988 | 3.6 | 6.1 | 9.8 | 0.0 | 45.1 | 16.2 |
| 1989 | 2.8 | 5.8 | 4.9 | 0.0 | 19.7 | 13.8 |
| 1990 | 3.4 | 5.6 | 9.6 | 0.0 | 15.6 | 20.1 |

1/ All values are per enrollee.
2/ As recognized for payment under the program.
3/ Increase in the number of services received per enrollee and greater relative use of more expensive services.
4/ Since July 1, 1981, home health agency services have been almost exclusively provided by the Medicare hospital insurance (HI) program. However, for those SMI enrollees not entitled to HI, the coverage of these services is provided by the SMI program. Since all SMI disabled enrollees are entitled to HI, their coverage of these services is provided by the HI program.

TABLE 3 — DERIVATION OF MONTHLY ACTUARIAL RATE FOR ENROLLEES AGE 65 AND OVER
FINANCING PERIODS ENDING DECEMBER 31, 1986 THROUGH DECEMBER 31, 1989

| | Financing Periods | | | |
|---|---|---|---|---|
| | CY 1986 | CY 1987 | CY 1988 | CY 1989 |
| Covered services (at level recognized): | | | | |
| Physicians' reasonable charges | $34.70 | $38.85 | $42.54 | $46.36 |
| Outpatient hospital and other institutions | 8.46 | 10.22 | 11.99 | 14.06 |
| Home health agencies | 0.05 | 0.05 | 0.06 | 0.06 |
| Group practice prepayment plans | 2.05 | 2.93 | 3.96 | 4.84 |
| Independent lab | 0.99 | 1.20 | 1.40 | 1.64 |
| Total services | $46.25 | $53.25 | $59.95 | $66.96 |
| Cost-Sharing: | | | | |
| Deductible | -2.66 | -2.69 | -2.71 | -2.72 |
| Coinsurance | -7.87 | -9.11 | -10.34 | -11.60 |
| Total benefits | $35.72 | $41.45 | $46.90 | $52.64 |
| Administrative expenses | 1.33 | 1.32 | 1.36 | 1.41 |
| Incurred expenditures | $37.05 | $42.77 | $48.26 | $54.05 |
| Value of interest | -0.92 | -0.42 | -0.23 | -0.68 |
| Contingency margin for projection error and to amortize the surplus or deficit | -5.13 | -6.55 | 1.57 | 2.43 |
| Monthly actuarial rate | $31.00 | $35.80 | $49.60 | $55.80 |

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3. Monthly Actuarial Rate for Disabled Enrollees

Disabled enrollees are those persons enrolled in SMI because of entitlement (before age 65) to disabiltiy benefits for more than 24 months or because of entitlement to Medicare under the end-stage renal disease program. Projected monthly costs for disabled enrollees (other than those suffering from end-stage renal disease) are prepared in a fashion exactly parallel to projection for the aged, using appropriate actuarial assumptions (see Table 2). Costs for the end-stage renal disease program are projected differently because of the complex demographic problems involved. The combined results for all disabled enrollees are shown in Table 4.

The projected monthly rate required to pay for one-half of the total of benefits and administrative costs for disabled enrollees for calendar year 1989 is $63.13. The monthly actuarial rate of $34.30 provides an adjustment of -$7.26 for interest earnings and -$21.57 for a contingency margin. Based on current estimates, it appears that the disabled assets are more than sufficient to cover the amount of disabled incurred but unpaid expenses and to provide for a moderate degree of variation between actual and projected costs. Thus, a negative contingency margin is needed to reduce disabled assets to more appropriate levels.

4. Sensitivity Testing

Several factors contribute to uncertainty about future trends in medical care costs. In view of this, it seems appropriate to test the adequacy of the rates announced here using alternative assumptions. The most unpredictable factors that contribute significantly to future costs are outpatient hospital costs,

TABLE 4 — DERIVATION OF MONTHLY ACTUARIAL RATE FOR DISABLED ENROLLEES
FINANCING PERIODS ENDING DECEMBER 31, 1986 THROUGH DECEMBER 31, 1989

| | Financing Periods | | | |
|---|---|---|---|---|
| | CY 1986 | CY 1987 | CY 1988 | CY 1989 |
| Covered services (at level recognized): | | | | |
| Physicians' reasonable charges | $37.73 | $42.24 | $46.24 | $50.28 |
| Outpatient hospital and other institutions | 21.07 | 22.46 | 23.46 | 24.33 |
| Home health agencies | 0.00 | 0.00 | 0.00 | 0.00 |
| Group practice prepayment plans | 0.79 | 1.12 | 1.46 | 1.71 |
| Independent lab | 1.06 | 1.26 | 1.45 | 1.66 |
| Total services | $60.65 | $67.08 | $72.61 | $77.98 |
| Cost-Sharing: | | | | |
| Deductible | -2.49 | -2.51 | -2.52 | -2.53 |
| Coinsurance | -10.86 | -12.01 | -13.02 | -13.98 |
| Total benefits | $47.30 | $52.56 | $57.07 | $61.47 |
| Administrative expenses | 1.77 | 1.68 | 1.66 | 1.66 |
| Incurred expenditures | $49.07 | $54.24 | $58.73 | $63.13 |
| Value of interest | -8.06 | -8.83 | -9.82 | -7.26 |
| Contingency margin for projection error and to amortize the surplus or deficit | -0.21 | 7.59 | -0.31 | -21.57 |
| Monthly actuarial rate | $40.80 | $53.00 | $48.60 | $34.30 |


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physician residual (as defined in Table 2), and increases in physician fees as constrained by the program's reasonable charge screens and economic index. Two alternative sets of assumptions and the results of those assumptions are shown in Table 5. One set represents increases that are lower and is, therefore, more optimistic than the current estimate. The other set represents increases that are higher and is, therefore, more pessimistic than the current version. The values for the alternative assumptions were determined from a study on the average historical variation between actual and projected increases in the respective increase factors. All assumptions not shown in Table 5 are the same as in Table 2.

Table 5 indicates that, under the assumptions used in preparing this report, the monthly actuarial rates will result in an excess of assets over liabilities of $1,507 million by the end of December 1989. This amounts to 3.1 percent of the estimated total incurred expenditures for the following year. Assumptions which are somewhat more pessimistic (and, therefore, test the adequacy of the assets to accommodate projection errors) produce a deficit of $5,565 million by the end of December 1989, which amounts to 10.2 percent of the estimated total incurred expenditures for the following year. Under these more pessimistic assumptions, assets will be insufficient to cover outstanding liabilities. However, the cash balances in the Trust Fund should remain positive, allowing claims to be paid. Under fairly optimistic assumptions, the monthly actuarial rates will result in a surplus of $8,116 million by the end of December 1989, which amounts to 18.5 percent of the estimated total incurred expenditures for the following year.

Table 5.—ACTUARIAL STATUS OF THE SMI TRUST FUND UNDER THREE SETS OF ASSUMPTIONS FOR FINANCING PERIODS THROUGH DECEMBER 31, 1989

| | This projection | | | Low cost projection | | | High cost projection | | |
|---|---|---|---|---|---|---|---|---|---|
| | 12-month period ending June 30, | | | 12-month period ending June 30, | | | 12-month period ending June 30, | | |
| | 1988 | 1989 | 1990 | 1988 | 1989 | 1990 | 1988 | 1989 | 1990 |
| **Projection factors (in percent):** | | | | | | | | | |
| Physician fees 1/ | | | | | | | | | |
| Aged | 3.6 | 2.8 | 3.4 | 3.3 | 2.0 | 2.2 | 3.8 | 3.5 | 4.5 |
| Disabled | 3.6 | 2.8 | 3.4 | 3.3 | 2.0 | 2.2 | 3.8 | 3.5 | 4.5 |
| Utilization of physician services 2/ | | | | | | | | | |
| Aged | 6.3 | 5.9 | 5.5 | 4.5 | 4.2 | 2.3 | 8.2 | 7.5 | 8.6 |
| Disabled | 6.1 | 5.8 | 5.6 | 2.0 | 1.2 | 0.7 | 10.3 | 10.3 | 10.6 |
| Outpatient hospital services per enrollee | | | | | | | | | |
| Aged | 19.2 | 15.7 | 18.6 | 13.8 | 7.3 | 11.2 | 24.6 | 24.1 | 26.0 |
| Disabled | 9.8 | 4.9 | 9.6 | 5.3 | -7.6 | -4.6 | 14.4 | 17.4 | 23.7 |
| | As of December 31, | | | As of December 31, | | | As of December 31, | | |
| | 1987 | 1988 | 1989 | 1987 | 1988 | 1989 | 1987 | 1988 | 1989 |
| **Actuarial status (in millions):** | | | | | | | | | |
| Assets | 3/ $8,394 | $7,484 | $8,515 | 3/ $8,394 | $9,166 | $13,758 | 3/ $8,394 | $5,724 | $2,879 |
| Liabilities | 5,126 | 6,131 | 7,008 | 4,254 | 5,061 | 5,642 | 6,008 | 7,225 | 8,444 |
| Assets less liabilities | 3/ $3,268 | $1,353 | $1,507 | 3/ $4,140 | $4,105 | $8,116 | 3/ $2,386 | -$1,501 | -$5,565 |
| Ratio of assets less liabilities to expenditures (in percent) 4/ | 3/ 8.7 | 3.2 | 3.1 | 3/ 11.7 | 10.5 | 18.5 | 3/ 6.1 | -3.2 | -10.2 |

1/ As recognized for payment under the program.
2/ Increase in the number of services received per enrollee and greater relative use of more expensive services.
3/ Section 708 of Title VII of the Social Security Act modified the provisions for the delivery of Social Security benefit checks when the regularly designated delivery day falls on a Saturday, Sunday, or legal public holiday. Delivery of benefit checks normally due January 1988 occurred on December 31, 1987. Consequently, the SMI premiums withheld from the checks ($692 million) and the general revenue matching contributions ($2,178 million) were added to the SMI trust fund on December 31, 1987.
4/ Ratio of assets less liabilities at the end of the year to total incurred expenditures during the following year, expressed as a percent.


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5. Standard Premium Rate

For calendar years 1984 through 1989, section 1939(e) of the Act provides that the standard monthly premium rate for both aged and disabled enrollees shall be 50 percent of the monthly actuarial rate for enrollees age 65 and older. Therefore, the standard monthly premium rate for both aged and disabled enrollees for calendar year 1989 is $27.90, which is 50 percent of the monthly actuarial rate for enrollees aged 65 and over for this period ($55.80).

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## APPENDIX C

### Catastrophic Coverage Premium*

On July 1, 1988, Congress enacted Pub. L. 100-360, the Medicare Catastrophic Coverage Act of 1988. It provides protection to Medicare beneficiaries whose Medicare expenses exceeded certain limits. To pay for this additional coverage for Part B, the law provides for new premiums beneficiaries will pay in addition to the current SMI premium. This notice addresses only the catastrophic coverage monthly premium for 1989. (Under Pub. L. 100-360, benefit changes occur on a phased-in basis over several years, beginning in 1990. Other new premiums and changes to the Part B premiums for subsequent years will be discussed in subsequent notices.)

As required by section 1839(g)(1)(A) of the Act, the catastrophic coverage premium for calendar year 1989 is $4.00. There are two exceptions to this amount, as required by section 1839(g)(4) and (5), respectively:

1. The monthly catastrophic coverage premium for calendar year 1989 is $1.30 for residents of Puerto Rico and $2.10 for residents of other U.S. territories and commonwealths; and

2. There is no catastrophic coverage premium for 1989 for individuals enrolled in Part B only (their new premium begins in 1990).

* This statement appeared in the Federal Register of September 30, 1988.

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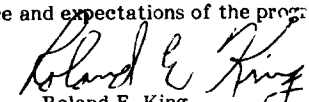
## APPENDIX D

## STATEMENT OF ACTUARIAL OPINION

It is my opinion that (1) the methodology used herein is based upon sound principles of actuarial practice and (2) all the assumptions used and the resulting cost estimates are in the aggregate reasonable for the purpose of evaluating the actuarial and financial status of the Federal Supplementary Medical Insurance Trust Fund, taking into account the experience and expectations of the program.



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