TABLE 7.—*Ratio of the fund at the beginning of the year to disbursements during the year for the Hospital Insurance Trust Fund*

Calendar year	Percent ratio
Historical Data:	
1967	28
1968	25
1969	43
1970	47
1971	54
1972	47
1973	40
1974	69
1975	79
Projection:	
1976	77
1977	65
1978	57

ACTUARIAL STATUS OF THE TRUST FUND

Acting on the recommendation of the 1971 Advisory Counci`, the Board of Trustees has adopted the general principle that the hospital insurance program should be financed in such a way that annual income to the program should be approximately equal to annual outlays of the program plus an amount to maintain a balance in the trust fund approximately equal to one year's expenditures. This principle reflects the view that there is a need for a sizeable fund for the contingency that future income and outgo may differ substantially from projections, but that it is unnecessary and impractical to fully fund the future benefits of workers as they accrue the right to those future benefits.

The projected expenditures under the program, expressed as percentages of taxable payroll, are summarized for selected years over the next 25-year period in table 8. The ratio of expenditures to taxable payroll has increased from 0.95 percent in 1967 to an estimated 1.73 percent in 1975, reflecting both the higher rate of increase in hospital costs than in earnings subject to hospital insurance taxes and the extension of hospital insurance benefits to disabled beneficiaries and persons suffering from chronic renal disease. Further increases in this ratio to 2.26 percent in 1980 and to 4.93 percent in the year 2000 result from the assumed continuation of increases in the cost of institutional health care at a higher rate than increases in taxable earnings (see Appendix A for a description of the methodology and assumptions used in this projection).

The allowances necessary to build the trust fund to the level of a year's disbursements and maintain it at that level, expressed as percentages of taxable payroll, are shown also in table 8. Since the level of the trust fund at the beginning of calendar year 1976 is 77 percent of the projected disbursements during 1976, provision must be made for increasing it to the 100 percent level. This building of the trust fund to the level of a year's disbursements could be accomplished in a single year, in a period of several years, or over the entire 25-year projection period. Because of the many patterns of growth possible, the portion of the allowance necessary to build the trust fund to the level of one years outgo has been spread evenly over the entire 25-year period, for purposes of display in table 8. The remaining portion of the allowance is necessary to maintain the trust fund at that level from year to year.

This latter portion of the allowance will be at a relatively high level in the short run, as a result of the high rate of increase in disbursements projected for this period. In the long run, the magnitude of the trust fund maintenance factor is somewhat smaller.

The adequacy of the financing of the hospital insurance program under current law is measured by comparing on a year to year basis the actual tax rates specified by law with the corresponding total costs of the program, expressed as percentages of taxable payroll. If these two items are exactly equal in each year of the 25-year projection period and all projection assumptions are realized, tax revenues along with interest income will be sufficient to provide for benefit and administrative expenses for insured persons and to gradually build the trust fund to the level of a year's outgo by the end of the period. In practice, however, tax rate schedules generally are designed with rate changes occurring only at several-year intervals, rather than with continual year by year increases to match exactly with projected cost increases. To the extent that small differences between the yearly costs of the program and the corresponding tax rates for short periods of time are offset by subsequent differences in the reverse direction, the financing objectives will be approximately met.

The projected total costs of the program, expressed as percentages of taxable payroll, and the tax rates scheduled under current law are shown in table 8 for selected years over the 25-year period 1976–2000. The total cost of the program, including expenditures plus trust fund building and maintenance, exceeds the tax rate in nearly every year of the projection. In addition, expenditures for benefits and administrative expenses alone exceed the corresponding tax rates for all future years, beginning in the late 1980's. The trust fund as a percent of a year's disbursements is projected to remain relatively level in the range of 55–60 percent through 1980, to increase somewhat during the early 1980's to a level of approximately 75 percent at the beginning of 1985, and to decline thereafter until the trust fund is completely exhausted in the early 1990's.

The actuarial balance of the hospital insurance program is defined to be the excess of the average tax rate for the 25-year valuation period over the average cost of the program, expressed as a percent of taxable payroll, for the same period. The average tax rate for the 25-year period 1976–2000 is 2.75 percent; the average cost of the program is 3.39 percent of taxable payroll, composed of 3.31 percent for program expenditures and 0.08 percent for the building and maintenance of the trust fund. The resulting actuarial balance, as shown in Table 9, is a deficit of 0.64 percent of taxable payroll.

Cost estimates for the hospital insurance program are of necessity based on a number of assumptions. These include (1) the behavior of the economy in general, (2) changes in the level of usage of health care services, (3) increases in the cost of health care, relative to increases in wages and prices in the general economy, and (4) demographic factors. While an accurate prediction of the future is not possible, short and long range estimates can be made, based on reasonable assumptions, which will indicate the trend and general range of future costs.

Since future economic, health care usage and cost, and demographic experience may differ considerably from any single set of assumptions

on which cost estimates are based, projections also have been prepared on the basis of two additional sets of assumptions. The estimated operations of the hospital insurance trust fund during calendar years 1975–80 are summarized in table 10 for all three alternatives, and table 11 compares the actuarial balance among the three. The assumptions underlying alternative II, the intermediate projection, are presented in substantial detail in Appendix A. The assumptions used in preparing alternative projections I and III are also summarized in Appendix A. Alternative II underlies the projections shown in the statement of expected operations of the trust fund through December 31, 1978 of this report.

The three alternative sets of assumptions were selected in order to indicate the general range in which the cost estimates might reasonably be expected to fall. The alternative I assumptions are somewhat more optimistic than those of alternative II, resulting in a stronger trust fund development and a lower average cost over the 25-year period. Conversely, alternative III assumptions are somewhat more pessimistic and result in a weaker trust fund development and a higher average cost. Alternatives I and III provide for a fairly wide range of possible experience, and actual experience reasonably may be expected to fall within the range. However, there can be no assurance that this will be the case, particularly in light of the wide variations in experience that have occurred since the beginning of the program.

Under alternative II, the trust fund as a percent of a year's disbursements is projected to remain relatively level in the range of 55–60 percent through 1980, to increase somewhat during the early 1980's to a level of approximately 75 percent at the beginning of 1985, and to decline thereafter until it is completely exhausted in the early 1990's. Under alternative I, the trust fund is projected to reach nearly 70 percent of a year's disbursements by the beginning of 1980 and to grow steadily over the remainder of the 25-year valuation period, ultimately reaching a level which is well in excess of a year's outgo. Under alternative III, the trust fund as a percent of a year's disbursements is projected to decrease steadily over the next 10 years, with complete exhaustion of the fund in the mid-1980's.

The divergence in experience among the three alternatives is reflected both in the estimated operations of the trust fund and in the 25-year average costs. The variations in the underlying assumptions, as shown in Appendix A, can be characterized as (1) moderate in terms of the magnitude of the differences on a year by year basis and (2) persistent over the duration of the 25-year period. Under alternative II, program costs are projected to grow approximately 5 percent more rapidly than taxable payroll in the short range, gradually declining to an ultimate level of 3 percent more rapidly in the long run. Under alternative I, program costs are projected to grow approximately 3 percent more rapidly than taxable payroll in the short run, gradually declining to an ultimate difference of 1 percent. Similarly, alternative III follows a pattern whereby program costs increase about 7 percent more rapidly than taxable payroll in the early years, gradually declining to an ultimate difference of about 5 percent. Recent experience has indicated that assumptions such as those producing alternative III are not unreasonable. In view of this and because of the wide range of possible experience, the maintenance of a substantial balance in the hospital insurance trust fund is particularly important.

TABLE 8.—COST AND TAX RATES OF THE HOSPITAL INSURANCE PROGRAM, EXPRESSED AS A PERCENT OF TAXABLE PAYROLL

Calendar year	Expenditures under the program [1]	Trust fund building and maintenance [2]	Total cost of the program	Tax rate scheduled in the law
Historical data:				
1967	0.95			
1968	1.03			
1969	1.09			
1970	1.17			
1971	1.30			
1972	1.26			
1973	1.37			
1974	1.50			
1975	1.73			
Projection:				
1976	1.87	0.13	2.00	1.80
1977	1.97	.12	2.09	1.80
1978	2.07	.12	2.19	2.20
1979	2.17	.11	2.28	2.20
1980	2.26	.10	2.36	2.20
1985	2.82	.07	2.89	2.70
1990	3.54	.07	3.61	3.00
1995	4.27	.07	4.34	3.00
2000	4.93	.07	5.00	3.00
Average [3]	3.31	.08	3.39	2.75

[1] Benefits and administrative expenses for insured beneficiaries.
[2] Allowance for building the trust fund balance to the level of a year's outgo and maintaining it at that level.
[3] Average for the 25-yr period 1976–2000.

TABLE 9.—*Actuarial balance of the hospital insurance program expressed as a percent of taxable payroll*

Average contribution rate, scheduled under present law [1] _____ 2.75
Average cost of the program: [1]
    Expenditures, for benefit payments and administrative costs for insured beneficiaries _____ 3.31
    Building and maintaining the trust fund, at the level of 1 year's expenditures _____ 0.08
        Total cost of the program _____ 3.39
Actuarial balance _____ −0.64

[1] Average for the 25-year period 1976–2000.

TABLE 10.—ESTIMATED OPERATIONS OF THE HOSPITAL INSURANCE TRUST FUND DURING CALENDAR YEARS 1975–80, UNDER ALTERNATIVE SETS OF ASSUMPTIONS

[Dollar amounts in billions]

Calendar year	Total income	Total disbursements	Net increase in fund	Fund at end of year	Ratio of fund to disbursements [1] (percent)
Alternative I:					
1975 [2]	$13.0	$11.6	$1.4	$10.5	79
1976	13.6	13.6	0	10.5	77
1977	16.2	16.0	.2	10.7	66
1978	21.2	18.5	2.7	13.4	58
1979	24.1	21.2	2.9	16.3	63
1980	26.7	24.0	2.7	18.9	68
Alternative II:					
1975 [2]	13.0	11.6	1.4	10.5	79
1976	13.6	13.6	0	10.5	77
1977	16.2	16.1	.1	10.6	65
1978	21.0	18.8	2.2	12.9	57
1979	23.6	21.7	1.9	14.8	59
1980	26.0	25.0	1.0	15.8	59
Alternative III:					
1975 [2]	13.0	11.6	1.4	10.5	79
1976	13.6	13.6	0	10.5	77
1977	16.0	16.2	−.1	10.4	65
1978	20.6	19.0	1.6	12.0	55
1979	22.9	22.2	.7	12.7	54
1980	24.9	25.8	−.8	11.9	49

[1] Ratio of the trust fund balance at the beginning of the year to disbursements during the year.
[2] Figures for 1975 represent actual experience.

TABLE 11.—ACTUARIAL BALANCE OF THE HOSPITAL INSURANCE PROGRAM, UNDER ALTERNATIVE SETS OF ASSUMPTIONS

[In percent]

	Alternative I	Alternative II	Alternative III
Average contribution rate, scheduled under present law [1]	2.75	2.75	2.75
Average cost of the program, for expenditures and for trust fund building and maintenance [2]	2.59	3.39	4.39
Actuarial balance	+.16	−.64	−1.64

[1] Average for the 25-yr period 1976–2000.
[2] Average for the 25-yr period 1976–2000, expressed as a percent of taxable payroll.

CONCLUSION

The present financing schedule for the hospital insurance program is not adequate to provide the expenditures anticipated over the entire 25-year valuation period, if the assumptions underlying the estimates prove to be realistic. The tax schedule is sufficient to provide for program expenditures over the next 10 years. However, it is not sufficient, under current assumptions, to provide for any growth in the trust fund—relative to annual disbursements—toward the level of a full year's disbursements recommended by the 1971 Advisory Council. The financing for the last half of the 25-year period is not sufficient even to provide for projected benefits and administrative expenses.

The trust fund balance at the beginning of 1976 is 77 percent of the projected disbursements for 1976, somewhat below the level of a full year's disbursements. The ratio of fund to disbursements is projected to drop slightly during the next 5 years and then to return to a level of approximately 75 percent during the early 1980's. After 1985, the trust fund is projected to decline steadily, until it is completely exhausted in the early 1990's.

The Board recommends that the financing of the hospital insurance program be strengthened to remove the average 25-year deficit of 0.64 percent of taxable payroll. Most of the increased financing is required after 1985.

APPENDICES

The basic methodology and assumptions used in the estimates for the hospital insurance program are described in this appendix. In addition, sensitivity testing of program costs under alternative sets of assumptions is presented.

A. PROGRAM COSTS

The principal steps involved in projecting the future costs of the hospital insurance program are (1) establishing the present cost of services provided to beneficiaries, by type of service, to serve as a projection base; (2) projecting increases in the cost of inpatient hospital services covered under the program; (3) projecting increases in the cost of skilled nursing facility and home health agency services covered under the program; and (4) projecting increases in administrative costs. The major emphasis will be directed toward the cost of inpatient hospital services, which accounts for approximately 95 percent of benefit expenditures.

1. Projection Base

The hospital insurance program is obligated, by law, to reimburse institutional providers for the actual reasonable cost of providing covered services to beneficiaries. In order to establish a suitable base from which to project the future costs of the program, the incurred cost of services provided must be reconstructed for the most recent period of time for which a reliable determination can be made. To do this, payments to providers must be attributed to the dates of service, rather than to payment dates. In addition, the nonrecurring effects of any changes in regulations 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 shown in Tables 5 and 6.

The actual reasonable costs of covered services to beneficiaries are determined on the basis of provider cost reports. Payments to a provider initially are made on an "interim" basis; to adjust interim payments to the level of retroactively determined costs, a series of payments or recoveries is effected through the course of cost settlement with the provider. The net amounts paid to date to providers in the form of cost settlements are known; however, the incomplete data available do not permit a precise determination of the exact amounts incurred during specific periods of time. Due to the time required to obtain cost reports from providers, to verify these reports, and to perform audits (where appropriate), final settlements have lagged behind the liability for such payments by as much as several years for some providers. Hence, the final cost of the program has not been completely determined for the most recent years of the program, and some degree of uncertainty remains even for the early years.

Additional problems are posed by changes in administrative or reimbursement policy which have a substantial effect on either the amount or incidence of payment. The extent and timing of the incorporation of such changes into interim payment rates and cost settlement amounts cannot be determined precisely.

Allocating the various payments to the proper incurred period—using incomplete data and estimates of the impact of administrative actions—presents difficult problems, the solution of which can be only approximate. Under the cirumstances, the best that can be expected is that the actual incurred cost of the program for a recent period can be estimated within a few percent. This increases the error of projection directly, by incorporating any error in estimating the base year into all future years.

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2. Hospital Costs

The hospital insurance program reimburses participating hospitals for the actual reasonable cost of providing covered services to beneficiaries. Because of its cost reimbursement nature, the program, in essence, pays for the share of aggregate inpatient hospital costs which are allocated to beneficiaries. Hence, for analysis and projection purposes, trends in program costs can be separated conceptually into (a) increases in aggregate expenditures by hospitals for all patients in producing services of the types covered by the program and (b) changes in the share of these expenditures that are for hospital insurance beneficiaries and hence will be paid by the hospital insurance program.

Increases in aggregate inpatient hospital costs can be analyzed into three broad categories:

(a) *Economic factors.*—The increase in unit costs that would result if hospitals' input cost increases (wage increases for hospital employees and price increases for goods and services purchased by hospitals) were the same as those for the general economy;

(b) *Volume of services.*—The increase in total output of units of service (as measured by hospital admissions); and

(c) *Unit input intensity.*—The increase in total costs due to increased labor and non-labor input intensity (wage and price increases for hospital inputs which are more rapid than for workers and products in the general economy plus increases in the number of hospital employees and amount of supplies and equipment used to produce a unit of service).

It has been possible to isolate some of these elements and to identify their roles in previous hospital cost increases. Table A1 shows the values of the principal components of the increases for historical periods for which data are available and the projected trends used in the estimates.

TABLE A1.—COMPONENTS OF HISTORICAL AND PROJECTED INCREASES IN HOSPITAL COSTS[1]

[In percent]

Calendar year	Economic factors			Volume of services[2]		Unit input intensity[2]				Aggregate inpatient hospital costs[4]	HI share		HI inpatient hospital costs
	Average wages	CPI	Weighted average[3]	Total population	Admission incidence	Wage level	Employee intensity	Nonlabor intensity	Weighted average[3]		Proportion of population	Other sources	
Historical data:													
1956–65	3.7	1.6	3.0	1.6	1.7	1.0	2.0	5.3	4.1	10.4			
1966	5.5	3.0	4.6	1.1	.5	—4.7	8.2	8.4	5.5	11.7			
1967	5.7	2.8	4.7	1.1	—.7	3.4	6.2	18.4	13.5	18.6			
1968	6.4	4.2	5.7	1.0	.1	3.3	4.4	11.6	9.7	16.5	0.6	7.5	24.6
1969	6.6	5.4	6.5	1.0	2.6	2.7	3.5	9.9	8.3	18.4	.5	—3.7	15.2
1970	5.3	5.9	6.0	1.1	2.4	4.5	1.3	8.3	7.3	16.8	.5	—5.3	12.0
1971	5.4	4.3	5.2	1.0	2.0	4.6	—.1	6.1	5.5	13.7	.6	—.3	14.0
1972	6.9	3.3	5.5	.9	1.2	1.2	.2	11.3	5.9	13.5	.7	—4.5	9.7
1973	6.3	6.2	6.5	.7	2.4	—1.6	.0	3.1	.5	10.1	5.3	—.9	14.5
1974	7.0	11.0	9.2	.7	3.0	—1.2	2.3	2.0	1.6	14.5	6.0	3.4	23.9
Projection:													
1975	6.8	9.1	8.3	.7	1.0	2.5	2.8	8.0	6.9	16.9	2.2	6.4	25.5
1976	7.7	6.3	7.4	.7	1.5	3.1	1.5	7.5	6.3	15.9	1.5	1.6	19.0
1977	8.5	6.0	7.7	.7	1.5	2.3	1.5	7.5	5.9	15.8	1.4	.2	17.4
1978	9.4	6.0	8.1	.7	1.5	1.0	1.5	7.0	4.9	15.2	1.3	.1	16.6
1979	8.5	5.5	7.4	.7	1.5	1.4	1.5	7.0	5.1	14.7	1.2	—.2	15.7
1980	7.7	5.0	6.7	.7	1.5	1.7	1.5	7.0	5.2	14.1	1.2	—.3	15.0
1985	5.8	4.0	5.0	.7	.9	.7	1.5	5.5	4.0	10.6	1.3	—.3	11.6
1990	5.8	4.0	5.0	.6	.3	.7	1.5	5.5	4.0	9.9	.9	—.2	10.6
1995	5.8	4.0	5.0	.5	.3	.2	1.0	5.5	3.6	9.4	.5	—.2	9.7
2000	5.8	4.0	5.0	.4	.4	.2	1.0	5.5	3.6	9.4	.3	—.1	9.6

[1] Percent increase in year indicated over previous year.

[2] Based on data from the American Hospital Association through 1974.

[3] Weighted average of the individual components, with adjustments for the effects of compounding: The weightings are based on the proportions of aggregate inpatient hospital costs which are for payroll and for nonpayroll expenses. The adjustments for the effects of compounding are necessary to compensate for the fact that the various components actually are multiplicative, rather than additive as illustrated in this table.

[4] Includes hospital costs for all patients.

Increases in economic factors can be divided into those for payroll and those for nonpayroll expenditures. Slightly more than half of hospital costs are for direct payroll expenses. This proportion has declined over the years, and a modest continuation in the decline is projected. The weighted averages of the economic factors in Table A1 reflect these year by year proportions. Increases in average wages remained relatively uniform in the period 1966–71, ranging from 5½ to 6½ percent per year; slightly higher rates, varying between 6 and 7 percent, occurred during 1972–75. Changes in the CPI rose from a rate of nearly 3 percent per year in 1966 to slightly more than 6 percent in 1974 and was followed by a 9 percent increase in 1975. The increases in both average wages and CPI beyond 1975 are based on assumptions used in projecting experience under the OASDI program.

Volume of services increases are separated into a part due to population growth and a part due to changes in the average number of admissions per capita. The population projection used in this report is based on assumptions used in projecting experience under the OASDI program. Admission incidence rates increased on average 1.7 percent during the 10-year pre-Medicare period 1956–65; the trend since then has been relatively consistent, with most recent years exhibiting increases in excess of 2 percent per year. A continuation of this basic trend is projected for the next 5 years, with a gradual tapering thereafter.

Unit input intensity changes can be analyzed and projected in terms of payroll and nonpayroll components in a manner similar to that for economic factors. The payroll component can be further divided between unit input intensity increases related to wage level increases for hospital employees and to employee intensity increases.

For several years preceding the beginning of the hospital insurance program, average hospital wages and salaries (as reported by the American Hospital Association) increased at a rate of about one percent per year more rapidly than the rate of increase in earnings in OASDI-covered employment. During the 1967–71 period, this differential ranged between 3 and 4½ percent. Several factors contributing to this sizable differential can be identified, including (a) the fact that hospital employees historically have earned less than similarly skilled workers in other industries; (b) the growth in third party reimbursement of hospitals—through Medicare, Medicaid, and comprehensive private plans—is likely to have weakened hospital resistance to wage demands; (c) increased proportions of highly trained and more highly paid personnel; and (d) an increased degree of labor organization and activity. The wage increase differential was substantially decreased during the period 1972–74 when hospital costs were subject to the Economic Stabilization Program.

Over the short term, a differential level generally consistent with experience over the last 10 years (excluding years subject to Economic Stabilization Program controls) is assumed. Especially high wage increases might well be expected in the immediate future, reflecting a readjustment for the relatively low increases during 1972–74. Eventually the majority of this difference should disappear, when hospital workers' wages are at least comparable to those for similarly skilled personnel in other industries and when the proportion of highly trained personnel grows relatively large. The projection assumes a modest continuation of the wage level intensity factor over the long run, based on the fact that the hospital industry is a highly technological one and one with limited restraints on costs due to the high degree of third party reimbursement.

The number of hospital employees has increased somewhat more rapidly than the number of admissions over the past 20 years. Increases in employee intensity averaged 2 percent per year during the 10 years preceding Medicare. The early years of the program were marked by a substantial surge in employees per admission, followed by a period of virtually no change during the imposition of Economic Stabilization Program controls. Many of the same factors which have impacted on hospital wage level differentials can be identified also as contributing factors to the increase in employee intensity; in addition, the increased number and complexity of services provided within a given admission have been significant factors. The projection assumes, in general, a continuation of the pre-Medicare trend, dampened slightly to reflect a lower rate of industry growth than during the earlier period.

Non-labor unit input intensity is a composite of several heterogeneous components. These include (a) price increases for goods and services that hospitals purchase which do not parallel increases in the CPI, (b) increases in volume of medical and other supplies purchased and used per admission, and (c) increases in medical equipment and other capital assets employed in the provision of a hospital admission. Due to a lack of data, the non-labor intensity factor cannot be separated into its component parts and must be treated as a residual. Historically, this

factor has increased at a high rate and in an erratic fashion. Increases during the 1956–65 period averaged nearly 5½ percent; these were followed by an irregular series of increases during the period 1966–71 ranging between 6 and 18 percent. The second and third years of the controlled period 1972–74 produced increases of only 2 to 3 percent, substantially below even the increases for the 10-year pre-Medicare period. The projection assumes a gradual tapering of the non-labor intensity factor, from a level consistent with experience during recent years (excluding years subject to Economic Stabilization Program controls) to a level consistent with experience during the decade preceding Medicare.

Aggregate inpatient hospital cost increases—reflecting the composite of economic factors, volume of services, and unit input intensity—have exhibited a very rapid rate and irregular pattern of increases. Although the pre-Medicare period produced an average rate of increase of approximately 10½ percent, typical rates in subsequent years have tended to vary between 13 and 18 percent.

Changes in the program's share of aggregate hospital costs result from (a) changes in the proportion of the population covered, including changes due to legislation; (b) changes in the relative number and value of services received by beneficiaries; and (c) the effect of administrative actions defining the services eligible for reimbursement and affecting the level of program payments. Historical and projected changes in the hospital insurance program's share of aggregate inpatient hospital costs appear in table A1, with changes in the proportion of the population covered netted from the other sources. As indicated in the table, the share of hospital costs allocated to beneficiaries has fluctuated somewhat in recent years.

The increases experienced in the proportion of the population covered reflect the more rapid rate of increase in the number of persons age 65 and over than in the total population of the United States and, beginning in mid-1973, coverage of certain disabled beneficiaries and persons with chronic renal disease. Increases in the proportion of the population covered are projected to continue, reflecting a continuation of the demographic shift into categories of the population which are eligible for hospital insurance protection.

Other sources which contribute to changes in the program's share of hospital costs include changes in the relative number and value of services received by beneficiaries and the effect of administrative actions defining covered services and affecting payment levels. Data are not available which would enable a quantitative separation between the two components for historical years. The projection assumes, over the long range, changes in these other sources only due to the effects of demographic shifts on the relative number of services received by beneficiaries compared with the number of services received by persons not covered under the program. Increases in the average age of beneficiaries and of persons not covered lead to higher expected levels of usage of hospital services by both groups, the net effect of which is reflected as changes in other sources.

Regulations promulgated under the Economic Stabilization Program restricted several of the components of hospital cost increases. The Social Security Administration adopted a policy of withholding reimbursements which reflected increases in costs of more than 9 percent per year (adjusted for volume) for accounting periods beginning after the announcement of controls in August 1971, unless the hospital obtained certification of compliance from the Internal Revenue Service.

This reimbursement policy establishing presumptive compliance levels had a substantial impact on reimbursable hospital cost increases: during 1972 and 1973, program cost increases (excluding the effects of new beneficiary groups) were at a substantially lower rate than in previous years. Data for 1974 and preliminary indications for 1975, however, show a strong reversal in the pattern of cost increases for services covered under the hospital insurance program relative to aggregate inpatient hospital cost increases. These share increases reflect both (a) a significant increase in relative number of services used by beneficiaries and (b) a readjustment of reimbursement levels under the program, from the restricted levels under the presumptive compliance limits to levels reflecting actual costs attributable to beneficiaries. A very modest continuation in the effect of these influences is projected for 1976, representing a leveling and stabilizing of these temporary factors.

3. Skilled Nursing Facility and Home Health Agency Costs

Historical experience with the number of days of care covered in skilled nursing facilities under the hospital insurance program has been characterized by wide swings. The number of covered days dropped very sharply in 1970 and continued to decline through 1972. This was the result of strict enforcement of regulations

separating skilled nursing from custodial care. Because of the small fraction of nursing home care covered under the program, this reduction primarily reflected the determination that Medicare was not liable for payment rather than reduced usage of services.

The 1972 amendments extended benefits to persons who require skilled rehabilitative services regardless of their need for skilled nursing services (the former prerequisite for benefits). This change has resulted in significant increases in services covered in 1973 (the first effective year of the provision) and in 1974. Some continuation of this pattern is assumed for the next 5 years, with only modest increases projected thereafter.

Increases in the average cost per day in skilled nursing facilities under the program are caused principally by increasing payroll costs for nurses and other skilled labor required. Projected rates of increase are assumed to be comparable to the increases in general wages throughout the 25-year projection period. The resulting increases in the cost of skilled nursing facility services are shown in Table A2.

Program experience with home health agency costs has shown a generally upward trend. The number of days of care has fluctuated somewhat from year to year, with very sharp increases appearing in the last two years. Relatively large increases are assumed for the next two years, followed by a projected pattern of increases similar to that for skilled nursing facilities. Cost per service is assumed to increase at a rate comparable to increases in general wages. The resulting home health agency cost increases are shown in table A2.

TABLE A2.—RELATIONSHIP BETWEEN INCREASES IN TOTAL HI PROGRAM COSTS AND INCREASES IN TAXABLE PAYROLL[1]

[In percent]

Calendar year	HI benefit costs[2]				HI adminis- trative costs[2]	Total HI program costs[2]	HI taxable payroll	Ratio of costs to payroll
	Inpatient hospital[3]	Skilled nursing facility	Home health agency	Weighted average				
1976	19.9	18.6	34.2	20.0	33.3	20.3	11.7	7.7
1977	18.2	17.7	27.5	18.3	8.0	18.0	12.0	5.4
1978	17.2	17.3	19.2	17.2	9.1	17.0	11.1	5.3
1979	16.2	16.5	16.8	16.2	8.6	16.1	10.9	4.7
1980	15.5	15.8	14.9	15.5	7.7	15.4	10.5	4.4
1985	11.8	8.0	8.0	11.7	7.5	11.6	6.9	4.4
1990	10.7	7.5	7.5	10.6	7.0	10.6	6.4	3.9
1995	9.7	7.0	7.0	9.6	6.5	9.6	6.4	3.0
2000	9.6	6.8	6.8	9.5	6.0	9.5	6.4	2.9

[1] Percent increase in year indicated over previous year.
[2] Costs attributable to insured beneficiaries only. Benefits and administrative costs for noninsured persons are financed through general revenue transfers and premium payments rather than through payroll taxes.
[3] This column differs slightly from the last column of table A1, since table A1 includes all persons eligible for HI protection while this table excludes noninsured persons.

4. Administrative Expenses

The costs of administering the hospital insurance program have remained relatively small, in comparison with benefit amounts, throughout the history of the program. The ratio of administrative expenses to benefit payments has generally fallen within the range of 2½ to 3 percent. The short range projections of administrative costs are based on estimates of workloads and approved budgets for intermediaries and the Social Security Administration. In the long range, administrative cost increases are based on an increasing volume of services covered, primarily due to population growth, and on assumed unit cost increases of 5 percent per year (¾ percent less than the increase in general wages).

B. FINANCING

In order to analyze costs and to evaluate the financing of a payroll tax supported program, program costs must be compared on a year by year basis with the taxable payroll which supports these costs. Since the vast majority of total program costs relates to insured beneficiaries and since general revenue appropriations and premium payments are available to support the smaller uninsured segments, the remainder of this report will focus on the financing for insured beneficiaries.

1. *Taxable Payroll*

Taxable payroll increases can be separated into a part due to wage increases in covered employment and a part due to increases in the number of covered workers. The taxable payroll projection used in this report is based on assumptions used in projecting experience under the OASDI program; increases in taxable payroll are shown in table A2. The average wage increase component of this projection is the same as that shown in table A1.

2. *Relationship Between Program Costs and Taxable Payroll*

The single most meaningful measure of program cost increases, with reference to the financing of the system, is the relationship between program cost increases and taxable payroll increases. If the rates of increase in both series are the same, a level tax rate over time will be adequate to support the program. However, to the extent that program costs increase more rapidly than taxable payroll, a schedule of increasing tax rates will be required to finance the system over time. table A2 shows the resulting increases in program costs relative to taxable payroll over the 25-year projection period. These relative increases are projected to be in excess of 5 percent during the 1976–78 period, with gradual reductions thereafter to an ultimate level of approximately 3 percent per year. The result of these increases over the duration of the projection period is the series of expenditure ratios shown in table A3, which increase from 1.87 percent of taxable payroll in 1976 to 4.93 percent in the year 2000.

C. SENSITIVITY TESTING OF COSTS UNDER ALTERNATIVE ASSUMPTIONS

Over the past 20 years, aggregate inpatient hospital costs for all patients have increased substantially faster than increases in average wages and prices in the general economy. As indicated in table A1, the 10-year period preceding Medicare was characterized by an average 10.4 percent increase in hospital costs, nearly 7½ percent higher than the increases attributable to economic factors in the general economy. The 1965–70 period experienced substantially higher increases in total hospital costs, averaging nearly 16½ percent. Of this increase, general economic factors accounted for only 5½ percent; the remaining 11 percent reflected increases in the volume of services provided and in unit input intensity. Even during the 1972–73 period of Economic Stabilization Program controls, hospital costs increased at an average rate of nearly 12 percent, almost 6 percent higher than the amount attributable to increases in average wages and in the CPI. Preliminary indications for the fully decontrolled year 1975 show an average hospital cost increase of nearly 17 percent, of which 8½ percent is in excess of increases in general economic factors.

The sustained, high rates of hospital cost increases in the past raise serious questions concerning future cost increases which might be anticipated. Under conventional economic wisdom, the hospital industry would not be expected to sustain growth relative to the general economy, of the order of magnitude experienced during the last 20 years, indefinitely into the future. However, the growth pattern has persisted for a long period of time and shows no indication of subsiding. The most reasonable pattern of cost increase assumptions for the future, then, would fall between the two extremes of (1) an indefinite continuation of the past levels of excess of hospital cost increases over general economic factors and (2) a decline in the near term to hospital cost increase levels approaching those for the economy as a whole.

In view of the uncertainty of future cost trends, projected costs for the hospital insurance program have been prepared under three alternative sets of assumptions. A summary of the assumptions and results is shown in table A3. The set of assumptions labelled "Alternative II" forms the basis for the detailed discussion of hospital cost trends and resulting program costs presented throughout this report. It represents an intermediate set of cost increase assumptions, compared with the lower cost and more otpimistic alternative I and the higher cost and more pessimistic alternative III. Increases in the economic factors (average wages and CPI) for the three alternatives are consistent with those underlying the OASDI report.

As noted earlier, the single most meaningful measure of hospital insurance program cost increases, with reference to the financing of the system, is the relationship between program cost increases and taxable payroll increases. The extent to which program cost increases exceed increases in taxable payroll will determine how steeply tax rates must increase to finance the system over time.

Under alternative II, program costs in the short run are projected to increase approximately 5 percent faster than increases in taxable payroll, gradually decreasing to an ultimate difference of 3 percent. Program expenditures, which are currently about 2 percent of taxable payroll, increase to a level of nearly 5 percent by the year 2000 under alternative II assumptions. Hence, if all of the projection assumptions are realized over time, hospital insurance tax rates by the end of the 25-year period will have to be substantially higher than those provided in the present financing schedule (3 percent of taxable payroll, for 1986 and later).

Alternatives I and III contain assumptions which result in program costs increasing, relative to taxable payroll increases, 2 percent less and 2 percent more rapidly, respectively, than the results under alternative II.

TABLE A3.—SUMMARY OF ALTERNATIVE COST PROJECTIONS FOR THE HI PROGRAM [1]

[In percent]

| Calendar year | Increases in aggregate inpatient hospital costs [2] | | | | Relationship between costs and payroll | | | Expenditures as a percent of taxable payroll |
	Average wages	CPI	Volume and intensity	Total	Program costs [3]	Taxable payroll	Ratio of costs to payroll	
Alternative I:								
1976	7.7	6.3	8.5	15.9	20.3	11.7	7.7	1.87
1977	8.5	6.0	7.5	15.3	17.5	12.0	4.9	1.96
1978	9.6	5.5	6.1	14.0	15.8	12.0	3.4	2.02
1979	9.1	5.0	6.1	13.5	14.9	11.9	2.7	2.08
1980	8.1	4.0	6.1	12.6	13.9	11.2	2.4	2.12
1985	5.3	3.0	3.7	7.9	8.9	6.3	2.4	2.40
1990	5.3	3.0	3.0	7.2	7.9	5.9	1.9	2.71
1995	5.3	3.0	2.5	6.7	7.0	5.9	1.0	2.95
2000	5.3	3.0	2.5	6.7	6.9	5.9	0.9	3.08
Alternative II:								
1976	7.7	6.3	8.5	15.9	20.3	11.7	7.7	1.87
1977	8.5	6.0	8.1	15.8	18.0	12.0	5.4	1.97
1978	9.4	6.0	7.1	15.2	17.0	11.1	5.3	2.07
1979	8.5	5.5	7.3	14.7	16.1	10.9	4.7	2.17
1980	7.7	5.0	7.4	14.1	15.4	10.5	4.4	2.26
1985	5.8	4.0	5.6	10.6	11.6	6.9	4.4	2.82
1990	5.8	4.0	4.9	9.9	10.6	6.4	3.9	3.54
1995	5.8	4.0	4.4	9.4	9.6	6.4	3.0	4.27
2000	5.8	4.0	4.4	9.4	9.5	6.4	2.9	4.93
Alternative III:								
1976	7.7	6.3	8.5	15.9	20.3	11.7	7.7	1.87
1977	8.0	6.0	8.9	16.4	18.5	10.7	7.0	2.00
1978	8.9	6.5	8.1	16.2	18.0	10.3	7.0	2.14
1979	7.9	6.0	8.4	15.7	17.0	9.7	6.7	2.28
1980	7.4	5.5	8.3	15.1	16.6	9.6	6.4	2.42
1985	6.3	5.0	7.4	13.3	14.3	7.4	6.4	3.26
1990	6.3	5.0	6.7	12.5	13.2	6.9	5.9	4.47
1995	6.3	5.0	6.2	12.0	12.2	6.9	5.0	5.91
2000	6.3	5.0	6.2	12.0	12.1	6.9	4.9	7.52

[1] Percent increase in year indicated over previous year.
[2] Includes hospital costs for all patients.
[3] Includes costs attributable to insured beneficiaries only.

Under alternative I, program costs ultimately increase 1 percent more rapidly than increases in taxable payroll. By the year 2000, program expenditures under this alternative would be slightly greater than 3 percent of taxable payroll. Hence, hospital insurance tax rates required by the end of the valuation period would be close to those currently scheduled. Under alternative III, program costs ultimately increase 5 percent more rapidly than increases in taxable payroll. The result of this differential is a level of program expenditures in the year 2000 which is 7½ percent of taxable payroll, 4½ percent higher than the 3 percent tax rate currently scheduled.

APPENDIX B.—DETERMINATION AND ANNOUNCEMENT OF THE 1976 INPATIENT HOSPITAL DEDUCTIBLE [1]

Pursuant to authority contained in section 1813(b)(2) of the Social Security Act (42 U.S.C. 1395e(b)(2)), as amended, I hereby determine and announce that the dollar amount which shall be applicable for the inpatient hospital deductible, for purposes of section 1813(a) of the Act, as amended, shall be $104 in the case of any spell of illness beginning during 1976.

The announced increase in the inpatient deductible will also result in proportionate changes in the other cost-sharing amounts under the hospital insurance program. Thus, for spells of illness beginning in 1976, the daily coinsurance for the 61st through the 90th days of hospitalization (one-fourth of the inpatient hospital deductible) shall be $26; the daily coinsurance for the lifetime reserve days (one-half of the inpatient hospital deductible) shall be $52; and the daily coinsurance for the 21st through the 100th days of extended care services (one-eighth of the inpatient hospital deductible) shall be $13.

The new inpatient hospital deductible represents a 13 percent increase over the current deductible. It is important for me to point out that this increase is due in large measure to the continued inflation in the health care industry. Since the expiration of the Economic Stabilization Program controls in April 1974, hospital costs have been increasing 50 percent faster than the overall cost-of-living.

There follows a statement of the actuarial bases employed in arriving at the amount of $104 for the inpatient hospital deductible for the calendar year 1976.

The law provides that, for spells of illness beginning in calendar years after 1968, the inpatient hospital deductible shall be equal to $40 multiplied by the ratio of (1) the current average per diem rate for inpatient hospital services for the calendar year preceding the year in which the promulgation is made (in this case, 1974) to (2) the current average per diem rate for such services for 1966. The law further provides that, if the amount so determined is not an even multiple of $4, it shall be rounded to the nearest multiple of $4. Further, it is provided that the current average per diem rates referred to shall be determined by the Secretary of Health, Education, and Welfare from the best available information as to the amounts paid under the program for inpatient hospital services furnished during the year by hospitals who are qualified to participate in the program, and for whom there is an agreement to do so, for individuals who are entitled to benefits as a result of insured status under the Old-Age, Survivors, and Disability Insurance program or the Railroad Retirement program.

The data available to make the necessary computations of the current average per diem rates for calendar years 1966 and 1974 are derived from individual inpatient hospital bills that are recorded on a 100 percent basis in the records of the program. These records show, for each bill, the number of inpatient days of care, the interim reimbursement amount, and the interim cost (the sum of interim reimbursement, deductible, and coinsurance).

Each individual bill is assigned both an initial month and a terminal month, as determined from the first day covered by the bill and the last day so covered. Insofar as the initial month and the terminal month fall in the same calendar year, no problems of classification occur.

Two tabulations are prepared, one summarizing the bills with each assigned to the year in which the period it covers begins, and the other summarizing the same bills with each assigned to the year in which the period it covers ends. The true value with respect to the costs for a given year on an accurate accrual basis should fall between the amount of total costs shown for bills beginning in that year and the amount shown for bills ending in that year.

The current average per diem rate for inpatient hospital services for calendar year 1966, on the basis described, is $37.92, while the corresponding figure for calendar year 1974 is $97.93. It may be noted that these averages are based on about 30 million days of hospitalization in 1966 (last 6 months of the year) and 80 million days of hospitalization in 1974. Accordingly the ratio of the 1974 rate to the 1966 rate is 2.583.

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[1] This statement was published in the Federal Register for October 1, 1975 (Vol. 40, No. 191, pp. 45216–45217).

In order to accurately reflect the change in the average per diem hospital cost under the program, the average interim cost (as shown in the tabulations) must be adjusted for the effect of final cost settlements made with each provider of services after the end of its fiscal year to adjust the reimbursement to that provider from the amount paid during that year on an interim basis to the actual cost of providing covered services to beneficiaries. To the extent that the ratio of final cost to interim cost is different in the current year than it was in 1966, the increase in average interim per diem costs will not coincide with the increase in actual cost that has occurred. The best data available indicates that this adjustment does not change the ratio shown above by enough to result in a different deductible for 1976. The values shown in this report do not reflect this adjustment for final cost settlements. When the ratio of 2.583 is multiplied by $40 it produces an amount of $103.32, which must be rounded to $104. Accordingly, the inpatient hospital deductible for spells of illness beginning during calendar year 1976 is $104.

Dated September 29, 1975.

DAVID MATHEWS, *Secretary.*

APPENDIX C.—DETERMINATION AND ANNOUNCEMENT OF THE HOSPITAL INSURANCE PREMIUM RATE FOR THE UNINSURED AGED FOR THE 12-MONTH PERIOD BEGINNING JULY 1, 1976 [1]

Pursuant to authority contained in section 1818(d)(2) of the Social Security Act (42 U.S.C. 1395i-2(d)(2)), I hereby determine and promulgate that the monthly hospital insurance premium, applicable for the 12-month period commencing July 1, 1976, is $45.

Section 1818 of the Social Security Act, added by section 202 of the Social Security Amendments of 1972 (Pub. L. 92–603), provides for voluntary enrollment in the hospital insurance program (Part A of Medicare) by certain uninsured persons 65 and older who are otherwise ineligible. Section 1818(d)(2) of the Act requires the Secretary to determine and promulgate, during the final quarter of 1975, the dollar amount which will be the monthly Part A premium for voluntary enrollment, for months occurring in the 12-month period beginning July 1, 1976. As required by statute, this amount must be $33 times the ratio of (1) the 1976 inpatient hospital deductible to (2) the 1973 inpatient hospital deductible, rounded to the nearest multiple of $1, or if midway between multiples of $1, to the next higher multiple of $1.

Under section 1813(b)(2) of the Act, the 1976 inpatient hospital deductible was determined to be $104. The 1973 deductible was actuarially determined to be $76. However, the 1973 deductible was actually promulgated to be only $72 to comply with a ruling of the Cost of Living Council. This has created some ambiguity in the use of the statutory formula for calculating the premium. The premiums for fiscal years 1975 and 1976 were both calculated using the actuarially determined deductible of $76 since this appeared to most closely satisfy the intent of the law. Similarly, the premium for the twelve month period ending June 30, 1977 has been calculated using the $76 deductible for 1973. Thus the monthly hospital insurance premium is $33 × (104/76) = $45.16 which is rounded to $45.

The purpose of the premium formula is to adjust the original $33 premium for changes in the cost of providing hospital care. The ratio of the inpatient hospital deductibles does this approximately, since the deductible as calculated under section 1813(b)(2), is based on the average daily cost of providing hospital care under the hospital insurance program. However, the deductible is calculated (by law) from data reflecting program experience in an earlier year. The increase in the 1976 deductible (and thus the increase in the premium now being promulgated) results from the increase in hospital per diem costs in calendar year 1974 over 1973. In addition, the premium calculation fails to adjust for changes in the hospital utilization rate and in changes in non-hospital costs under the program. For these reasons, the premium can only be a rough approximation to actual per capita program costs.

In particular, the $45 premium rate is not expected to be adequate to pay for the estimated cost of enrollees in the year ending June 30, 1977. The table below compares the premium rates charged with the estimated cost per enrollee (assuming that the average cost per premium paying enrollee is the same as the average cost for insured aged enrollees). The table also shows, year-by-year, the difference between premium charged and cost per enrollee and the accumulated value of the excess or deficit. Finally, the table shows the actuarially adjusted rate that would be necessary to pay the current year's cost and the accumulated surplus or deficit from prior years. For the year ending June 30, 1977, it is estimated that the cost per enrollee will be $51.50 and that a deficit of $4.10 per enrollee will be carried forward from previous years. Therefore, a rate of $55.60 would be required to place the premium paying enrollee group on a fully self-supporting basis by June 30, 1977.

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[1] This statement was published in the Federal Register for December 24, 1975 (Vol. 40, No. 248, p. 59472).

COMPARISON OF PROMULGATED PREMIUM RATES WITH THE ACTUARIALLY ADJUSTED RATE

Year ending June 30	Promulgated premium rate	Estimated cost per enrollee in the year	Premium less cost	Accumulated value of col. (4) for prior years [1]	Actuarially adjusted rate, col. (3) minus col. (5)
(1)	(2)	(3)	(4)	(5)	(6)
1974	$33	$30.50	+$2.50		$30.50
1975	36	37.40	−1.40	+$2.10	35.30
1976	40	44.60	−4.60	+.60	44.00
1977	45	51.50	−6.50	−4.10	55.60

[1] For a given year, this value is the sum of the differences shown in col. (4) for all preceding years, accumulated with interest and changes in size of enrollment.

The deficit in the premium rate must be temporarily, at least, made up from other sources of income to the Part A trust fund. If the voluntary enrollment program is to be self-supporting in the long run, some future premium rates will have to be greater than actual per capita costs in order to pay off the deficit projected for June 30, 1977. This could occur, for example, if the rate of increase in hospital costs were to decline sufficiently between the year used in calculating the premium and the year that the premium was to be effective.

Dated December 18, 1975.

MARJORIE LYNCH,
Acting Secretary.

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