

Actuarial Cost Estimates for Hospital Insurance Program

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A. Introduction

This Actuarial Study presents the results of detailed and comprehensive cost estimates that have just been completed for the Hospital Insurance system. These estimates--herein termed the 1969 cost estimates (because most of the data used was collected then and most of the calculations were made then)--have been developed after a comprehensive reconsideration of all the basic cost elements involved in this program, taking into account the significant amount of new data available from the operations of the program. The assumptions as to future trends in utilization of services and in unit costs of services have been revised in light of the recent experience and our best estimates of possible future trends.

The results of the cost estimates and the significance thereof on the financing of the program are summarized in Section B. Section C presents detailed data on the cost estimates, for various future calendar years, by type of benefit, and for insured persons and uninsured persons separately; it also shows the estimated future progress of the HI Trust Fund.

Section C also presents information on three alternative financing bases, among many alternatives, that would, according to these new estimates, adequately finance the HI program over the 25-year valuation period considered. Two of the alternatives involve a schedule of increasing contribution rates that serves to develop a gradually increasing trust-fund balance which will approach, although not exceed, the level of 1 year's disbursements. Under the first alternative, it is assumed that the present \$7,800 earnings base remains unchanged in the future. Under the second alternative, it is assumed that the earnings base increases to \$9,000 in 1971 and is adjusted thereafter at 2-year intervals, beginning in 1974, according to changes in the earnings level (as would be done, on an automatic basis, under recommendations made by President Nixon). Under the third alternative, there would be the same assumption as to the earnings base being kept up to date, but instead of a rising contribution schedule, there would be a level rate in the future, after 1970.

Section D makes a comparison of the overall results of the present cost estimates with previous ones, including the preliminary and tentative estimates made last fall. Section E discusses briefly the methodology involved in the new cost estimates, while Section F deals with the assumptions made (particularly importantly, those with regard to future trends in utilization of services and in unit costs of services).

B. Summary

The new long-range actuarial cost estimates for the Hospital Insurance system show a significantly higher benefit cost than the previous estimates, including the preliminary and tentative ones prepared and issued last fall. The short range costs shown by the new estimates on a "cash" basis are slightly different than those as shown in the FY 1971 Budget. In brief, this higher long-range cost arises largely from the assumptions that unit costs of services will continue to increase substantially over the next few years (whereas in the estimates made in 1968 and before, it had been assumed that these rates of increase would drop off sharply in the near future). The actual experience has indicated that there has been no slackening of these rates of increase, and so it is only prudent that any future assumptions in regard thereto should involve much slower declines than had previously been assumed.

Another factor which should be recognized, based on recent experience and likely future developments, is some increase in the utilization of services, especially those involving other than inpatient care. Current indications are that there will be significant increases in utilization of extended care facility services and home health services in the future, as more and more of these services become widely available. Although some people believe that extension of these out-of-hospital services will result in a reduction of in-hospital services, there is no evidence to substantiate that there will be an absolute reduction of in-hospital utilization--although perhaps otherwise there might be more of an increase therein than will actually eventuate.

Considering present law with its prescribed contribution schedule and level \$7,800 earnings base, there are two possible ways to consider the actuarial status of the program. As has been done since the program was enacted in 1965, it can be assumed that the maximum taxable earnings base will remain unchanged for the next 25 years at the present \$7,800--despite the result of the assumption that the general level of earnings will increase steadily during that period (actually rising by 180%--i.e., almost tripling). This approach assumes that the Congress will take no action to prevent a serious relative deterioration in the cash-benefit part of the program over the 25-year period (the indirect effect is

to introduce a safety margin in the cost estimates, which was probably very desirable at the inception of the program, when the various cost elements were not known with any degree of certainty).

Under this approach, the estimated level-cost of the benefit payments and administrative expenses (after taking into consideration the interest earnings of the existing trust fund) is 2.76% of taxable payroll. As against this, the level-equivalent of the contributions is 1.52% of taxable payroll, leaving an actuarial lack of balance of 1.24% of taxable payroll.

It seems very likely that, in the absence of an automatic-adjustment provision for the earnings base, Congress will change the earnings base from time to time in the future as earnings rise. In the past two decades, such increases in the earnings base have closely paralleled the rise in the general earnings level, and it seems reasonable to assume that this will continue in the future. Accordingly, the second way of considering the actuarial status of the HI program is to assume that the earnings base will be adjusted in the future (beginning in 1971 and every second year thereafter) in accordance with the changes in general earnings after 1968--actual changes in 1969 and assumed changes thereafter, with the result being rounded to the nearest multiple of \$600. It is believed that this is the most appropriate and reasonable procedure in examining the actuarial status of the HI program and in recommending any necessary changes in the financing provisions.

In passing, it may be pointed out that the assumption that the earnings base will not change in the 25-year period, despite the assumption that earnings will rise significantly, is not reasonable when considering in conjunction the cash-benefits program. The latter has had the same taxable earnings base as the HI program--and presumably this situation will continue to prevail in the future. If the earnings base were not changed for the cash-benefits program in the next 25 years, despite rising earnings, its nature would be drastically altered, since it would become virtually a flat-benefit plan--and it seems unreasonable to suppose that this would be allowed to occur.

On this basis, the estimated level-cost of the benefit payments and administrative expenses (using the same assumptions as to future trends of benefit costs, and after taking into consideration the interest earnings of the existing trust fund) is 2.04% of taxable payroll. As against this, the level-equivalent of the

contributions is 1.56% of taxable payroll, leaving an actuarial deficit of 0.48% of taxable payroll. Under this approach, the margin of safety in the financing side of the program is eliminated. When this is done, some persons may believe that it is necessary to revise some of what they might consider optimistic assumptions used as to future trends of both utilization rates and unit costs. However, as stated previously, it is believed that the assumption of the earnings base being kept up to date with rising earnings is the most reasonable one for developing the proper financing provisions, and it is also believed that the assumptions used in these cost estimates are the most reasonable that can now be made.

Considering the year-by-year financing situation, the balance in the HI Trust Fund is estimated to remain relatively level during calendar year 1970, but thereafter it will decrease sharply and be exhausted in late 1972 if the earnings base remains at \$7,800 and in early 1973 if the earnings base is adjusted after 1970 in accordance with changes in the earnings level.

In order to place the HI program on a sound financial basis, any of a number of alternative courses of action could be taken. Under the procedure of assuming that the earnings base will be kept up to date, one approach would be merely to increase the combined employer-employee contribution schedule by 0.5% in all future years (so that the rate for 1971-72 would be 1.7%, with gradual increases thereafter until an ultimate rate of 2.3% in 1987 and after). This approach would avoid building up a relatively large trust fund in the early years. Another, and equally reasonable, approach would be to provide for a level combined employer-employee rate of 2.0% in 1971 and after, which would produce close to actuarial balance. The effect of the latter illustrative schedule is examined in detail in a later section insofar as the future progress of the HI Trust Fund thereunder.

Under the assumption that the earnings base will remain at \$7,800 for the next 25 years, sound financing of the HI program would require a considerably higher contribution schedule than that in present law. Such a schedule for the combined employer-employee rate could be as follows if it were desired to avoid building up a relatively large fund in the early years: 1.8% in 1971-73, 2.2% for 1974-77, 2.6% for 1978-81, 3.0% for 1982-85, 3.4% for 1986-89, and 3.8% for 1990 and after.

If the earnings-base provision were changed so as to be on an automatic-adjustment basis, the effect on the actuarial status of the HI program would, of course, be the same as when considering the results under the assumption of the earnings base being kept up to date with the general earnings level. Naturally, any differences between the automatic-adjustment procedure and the assumptions as to how the earnings base would be kept up to date would produce slightly different results.

One such approach is the recommendations made by President Nixon that the earnings base be increased to \$9,000 in 1971 and that the earnings base should be automatically adjusted thereafter, beginning in 1974 and every subsequent second year, in accordance with changes in the general earnings level.

It may be noted that the financing basis described above differs from the one proposed by President Nixon last fall. Under the President's proposal, there was a level 1.8% contribution rate for 1971 and after, whereas under the basis developed on the assumption that the earnings base will be kept up to date, a level rate of 2.0% is necessary in order to take into account the higher cost shown by the current estimates as against the preliminary and tentative ones on which the President's recommendations were made.

C. Results of Cost Estimates

This Section presents the detailed results of the new cost estimates for the Hospital Insurance system. First, the estimates are given on an incurred basis for both the insured and uninsured groups, both under the present financing basis and under several possible alternative bases. Then, short-range estimates on a "cash" basis are presented.

Year-by-Year Estimates on Incurred Basis for Insured Persons

Detailed year-by-year estimates of disbursements, by type, on an incurred basis for insured persons are presented in Table 1a. By "incurred" means allocating the benefit payments and administrative expenses to the period when the services were rendered that gave rise to the outgo. Such analysis on an incurred basis is more meaningful than a cash-basis analysis. However, in a later subsection, the progress of the HI Trust Fund is presented on a cash basis for the first few years beyond 1969.

The estimated total disbursements with respect to insured persons, on an incurred basis, rises from \$5.3 billion in CY 1970 to about double this amount in CY 1975--\$11.0 billion--which results from the assumed rapid increase in the unit costs of medical services, the assumed higher utilization rates, and the increase in the insured population, and to \$37.8 billion in CY 1995. The vast majority of the benefit outgo is represented by inpatient hospital benefits--the proportion being 90% in CY 1970, decreasing slowly in subsequent years, to 86% in CY 1995. Extended care facility benefits account for 8% of total benefits in CY 1970 and for 11% in CY 1995, while the corresponding figures for home health benefits are 1½% for CY 1970 and 3% for CY 1995. Administrative expenses represent 2.4% of benefit disbursements in CY 1970 and 1.6% in CY 1995.

Table 1b shows the various categories of disbursements for insured persons as percentages of taxable payroll for selected future years. The taxable payroll is developed on two bases--(1) the present \$7,800 base being effective in all future years and (2) an earnings base of \$7,800 in 1968-70 that is adjusted in 1971 and every 2 years thereafter to keep it up to date with changes in the general earnings level (being rounded to the nearest \$600), the result of which is \$9,000 for 1971-72.

Table 1a

ESTIMATED HI BENEFITS AND ADMINISTRATIVE EXPENSES
FOR VARIOUS FUTURE YEARS, INSURED PERSONS
(in millions)

<u>Calendar Year</u>	<u>Type of Benefit</u>			<u>Total</u>	<u>Admin- istrative Expenses</u>	<u>Grand Total</u>
	<u>Inpatient Hospital</u>	<u>Extended Care Facility</u>	<u>Home Health</u>			
1970	\$4,706	\$433	\$76	\$5,215	\$125	\$5,340
1971	5,586	559	106	6,251	136	6,387
1972	6,501	710	145	7,356	147	7,503
1973	7,457	865	190	8,512	159	8,671
1974	8,430	1,024	237	9,691	171	9,862
1975	9,348	1,168	285	10,801	183	10,984
1980	13,471	1,733	450	15,654	252	15,906
1985	18,234	2,347	605	21,186	341	21,527
1990	24,511	3,154	807	28,472	455	28,927
1995	32,044	4,121	1,037	37,202	585	37,787

Note: The above figures are on an incurred basis, not on a cash-outgo basis (for the latter, see Table 4).

Table 1b

ESTIMATED COST OF HI BENEFITS AND ADMINISTRATIVE EXPENSES
AS PERCENTAGE OF EFFECTIVE TAXABLE PAYROLL FOR VARIOUS
FUTURE YEARS, INSURED PERSONS

Calendar Year	Type of Benefit			Total	Admin- istrative Expenses	Total Cost
	Inpatient Hospital	Extended Care Facility	Home Health			
Based on Level \$7,800 Earnings Base						
1970	1.14%	.10%	.02%	1.26%	.03%	1.29%
1971	1.28	.13	.02	1.44	.03	1.47
1972	1.43	.16	.03	1.61	.03	1.65
1973	1.57	.18	.04	1.79	.03	1.82
1974	1.70	.21	.05	1.95	.03	1.99
1975	1.81	.23	.06	2.09	.04	2.13
1980	2.19	.28	.07	2.54	.04	2.59
1985	2.56	.33	.08	2.97	.05	3.02
1990	2.99	.38	.10	3.47	.06	3.53
1995	3.35	.43	.11	3.89	.06	3.95
Level-Cost ^{a/}	2.37	.30	.07	2.74	.05	2.79
Based on \$7,800 Earnings Base in 1970, with Earnings Base Kept Up to Date With Increases in Earnings Thereafter						
1970	1.14%	.10%	.02%	1.26%	.03%	1.29%
1971	1.21	.12	.02	1.35	.03	1.38
1972	1.33	.15	.03	1.51	.03	1.54
1973	1.39	.16	.04	1.59	.03	1.62
1974	1.51	.18	.04	1.73	.03	1.76
1975	1.56	.19	.05	1.80	.03	1.83
1980	1.68	.22	.06	1.96	.03	1.99
1985	1.74	.23	.06	2.03	.03	2.07
1990	1.82	.24	.06	2.12	.03	2.15
1995	1.80	.23	.06	2.09	.03	2.12
Level-Cost ^{a/}	1.75	.22	.06	2.03	.03	2.06

^{a/} Level-cost for period 1970-94, with provision for trust-fund balance at end of period equal to outgo for next year. Based on interest rate of 5%.

Note: The above figures are on an incurred basis, not a cash-outgo basis.

Also shown in Table 1b are the estimated level-costs of the various disbursement items. By "level-cost" is meant the constant employer-employee tax rate that, together with a tax on the self-employed at 50% of such combined rate, would exactly finance the future outgo over the 25-year valuation period and would develop a balance in the trust fund at the end of the period equal to the outgo for the next year; account is taken of interest earnings of the trust-fund balance (in this instance, by assuming an interest rate of 5% per annum).

The total level-cost of the benefits and administrative expenses is 2.79% of taxable payroll under the assumption of a level \$7,800 earnings base in all future years. The corresponding level-cost for the rising-earnings-base assumption is 2.06% of taxable payroll.

Actuarial Balance of HI Program

In order, to determine the actuarial balance of the program, there must be taken into account the equivalent value of the existing trust fund on the valuation date and the future interest earnings thereof. Such value is .03% of taxable payroll for a level \$7,800 earnings base and .02% of taxable payroll for the rising earnings base.

Thus, the net level-cost of the HI program is 2.76% of taxable payroll for a level \$7,800 earnings base and 2.04% for the rising earnings base. As against this, the contribution schedule in present law has a level-equivalent of 1.52% of taxable payroll for a level \$7,800 earnings base and 1.56% of taxable payroll for the rising earnings base.

Accordingly, the actuarial balance of the present HI program is -1.24% of taxable payroll under the basis of assuming that the earnings base remains at \$7,800 for the next 25 years, and it is -0.48% of taxable payroll under the basis of assuming that the earnings base is kept up to date with increasing earnings.

The lack of actuarial balance, under the basis of assuming that the earnings base will remain at \$7,800 for the next 25 years, could be remedied by increasing the combined employer-employee contribution rates now scheduled by $1\frac{1}{4}\%$ for all future years (with a corresponding increase of $\frac{5}{8}\%$ for the self-employed). Such procedure, which would yield a rate of 2.45% for 1971-72, increasing to 3.05% for 1987 and after, would build up a somewhat large trust-fund balance in the early years.

Instead, a graded increase over the present schedule could be adopted that would provide adequate financing both in the short run and over the long range. One such schedule, as to the combined employer-employee rate would be 1.8% for 1971-73, 2.2% for 1974-77, 2.6% for 1978-81, 3.0% for 1982-85, 3.4% for 1986-89, and 3.8% for 1990 and after. This schedule has a level-equivalent of 2.73% of taxable payroll, so that thereunder the actuarial balance is -.03% of taxable payroll, or quite close to exact balance.

The lack of actuarial balance, under the basis of assuming that the earnings base will be kept up to date with the general earnings level, could be remedied by increasing the combined employer-employee contribution rates now scheduled by $\frac{1}{2}\%$ for all future years (with a corresponding increase of $\frac{1}{4}\%$ for the self-employed). Such procedure would yield a rate of 1.7% for 1971-72, increasing to 2.3% for 1987 and after; this schedule has a level-equivalent of 2.05% of taxable payroll, so that thereunder the actuarial balance is +.01% of taxable payroll. Another alternative would be to increase the combined employer-employee contribution rate to 2.0% in 1971 and then hold it level thereafter; this schedule has a level-equivalent of 1.98% of taxable payroll, so that thereunder the actuarial balance is -.06% of taxable payroll, or close to exact balance.

Year-by-Year Estimates on Incurred Basis for Uninsured Persons

Detailed year-by-year estimates of disbursements, by type, on an incurred basis for uninsured persons are shown in Table 2. The estimated total disbursements are \$630 million for 1970. Thereafter, they increase slowly to a peak of about \$705 million for 1973 and 1974, and then decline slowly, until by 1995 such outgo is virtually negligible. This trend is the result of several counteracting factors. Those tending to produce an increasing trend are (1) increasing utilization of services over time, (2) increasing unit costs of services over time, and (3) advancing average age of the closed group involved (thus producing higher utilization rates). Only one factor--the decreasing size of this closed group, due to mortality--tends to produce a decreasing trend of disbursements, but in the long run, this of course is predominant.

It will be remembered that the costs for the uninsured are met by the General Fund of the Treasury, and so they have no effect on the payroll-tax financing basis of the HI program as it relates to insured persons only.

Table 2

ESTIMATED HI BENEFITS AND ADMINISTRATIVE EXPENSES FOR
 VARIOUS FUTURE YEARS, UNINSURED PERSONS
 (in millions)

Calendar Year	Type of Benefit				Admin- istrative Expenses	Grand Total
	Inpatient Hospital	Extended Care Facility	Home Health	Total		
1970	\$519	\$76	\$10	\$605	\$15	\$620
1971	544	87	12	643	14	657
1972	563	98	14	675	14	689
1973	570	105	17	692	13	705
1974	565	109	18	692	12	704
1975	547	109	20	676	12	688
1980	390	79	15	484	8	492
1985	223	45	8	276	4	280
1990	92	19	3	114	2	116
1995	24	5	1	30	1	31

Note: The above figures are on an incurred basis, not on a cash-outgo basis (for the latter see Table 4).

Progress of Trust Fund on Incurred Basis, Present Law

Table 3 shows the estimated progress of the HI Trust Fund under present law (assuming that the present \$7,800 earnings base remains unchanged), on an incurred basis. According to this estimate, outgo exceeds income for every year after 1969. As a result, the trust fund is shown as being exhausted in mid-1972. Thereafter, the excess of outgo over income increases steadily, both in dollars and relative to income; by 1995, the excess of outgo over income is about \$14 billion per year, or about 95% of the income (i.e. outgo is almost double the income).

Progress of Trust Fund on Cash Basis, Present Law

The estimated progress of the HI Trust Fund under present law, on a cash basis (assuming that the present \$7,800 earnings base remains unchanged), is shown in Table 4 (on a fiscal-year basis). It should be noted that the assets of the HI Trust Fund at the end of FY 1969 are shown as being about \$42 million higher than is shown in the Budget Document for FY 1971; this is explained by the fact that the latter does not include as an asset \$41.5 million invested in debentures of the Federal National Mortgage Association (which matured in December 1969). As is also indicated by the data on an incurred basis, the trust fund is shown as being exhausted in about the middle of calendar year 1972.

It should be noted that some of the income and outgo items for FY 1970 and FY 1971 shown in Table 4 differ slightly from the corresponding figures in the FY 1971 Budget. Thus, benefit payments as shown here are \$50 million lower for FY 1970 and \$75 million lower for FY 1971, while contribution income shown here is \$14 million lower. As a result, interest income shown here is slightly higher in FY 1970 and FY 1971 (note also that, here, interest included in the payments from the General Fund with respect to the costs for the uninsured is included with interest receipts, whereas in the Budget Document this is not done). These changes have been made as a result of utilizing data which were not available at the time the estimates were made for the FY 1971 Budget.

Progress of Trust Fund on Incurred Basis, Alternative Financing Methods

Table 5 shows the progress of the HI Trust Fund under a possible alternative contribution schedule which, under the present \$7,800 earnings base remains unchanged in the future, provides adequate financing, according to the current cost estimates. Tables 6a and 6b give similar data for two alternative contribution schedules under the basis that the earnings base will be adjusted in the future, every 2 years according to changes in the general earnings level.

ESTIMATED PROGRESS OF HI TRUST FUND UNDER PRESENT FINANCING
PROVISIONS, INCURRED BASIS
(in millions)

<u>Calendar Year</u>	<u>Contributions^{a/}</u>	<u>Government Payment for Uninsured^{b/}</u>	<u>Benefit Payments</u>	<u>Administrative Expenses</u>	<u>Interest on Fund^{c/}</u>	<u>Net Income</u>	<u>Fund at End of Year</u>
1970	\$4,973	\$618	\$5,820	\$140	\$139	- \$230	\$2,183
1971	5,231	656	6,894	150	101	-1,056	1,127
1972	5,482	685	8,031	161	8	-2,017	<u>d/</u>
1973	6,202	701	9,204	172	<u>d/</u>	-2,473	<u>d/</u>
1974	6,461	701	10,383	183	<u>d/</u>	-3,404	<u>d/</u>
1975	6,718	688	11,477	195	<u>d/</u>	-4,266	<u>d/</u>
1980	9,855	490	16,138	260	<u>d/</u>	-6,053	<u>d/</u>
1985	11,405	282	21,462	345	<u>d/</u>	-10,120	<u>d/</u>
1990	14,765	116	28,586	457	<u>d/</u>	-14,162	<u>d/</u>
1994	16,700	45	35,500	560	<u>d/</u>	-19,315	<u>d/</u>

Note: Fund balance at beginning of 1970 is \$2,413 million. See text for derivation of this figure from cash-basis data.

- a/ Includes payment from General Fund for military service wage credits.
b/ Cost for benefit payments and accompanying administrative expenses for uninsured persons for each fiscal year is assumed to be paid to the trust fund in the middle of the fiscal year (i.e., at the end of the corresponding calendar year).
c/ Over the long range, a 5% rate is assumed, with a somewhat higher rate in the early years.
d/ Fund exhausted in 1972.

Table 4

ESTIMATED PROGRESS OF HI TRUST FUND UNDER PRESENT FINANCING
PROVISIONS, CASH BASIS, BY FISCAL YEAR
(in millions)

<u>Fiscal Year</u>	<u>Contributions^{a/}</u>	<u>Government Payment for Uninsured^{b/}</u>	<u>Benefit Payments</u>	<u>Administrative Expenses</u>	<u>Interest on Fund</u>	<u>Net Income</u>	<u>Fund at End of Year</u>
1969	\$4,499	\$730	\$4,654	\$104	\$115	\$586	\$2,017
1970	4,832	609	5,175	147	139	258	2,275
1971	5,079	859	6,250	136	149	- 299	1,976
1972	5,300	673	7,360	156	74	-1,469	507
1973	5,751	697	8,510	167	<u>c/</u>	-2,229	<u>c/</u>

a/ Includes payment from General Fund for military service wage credits.

b/ Cost for benefit payments and accompanying administrative expenses for uninsured persons for each fiscal year is assumed to be paid to the trust fund in the middle of the fiscal year (i.e., at the end of the corresponding calendar year).

c/ Fund exhausted in FY 1973.

ESTIMATED PROGRESS OF HI TRUST FUND UNDER POSSIBLE
FINANCING PROVISIONS OF REVISED CONTRIBUTION SCHEDULE^{a/}
AND LEVEL \$7,800 EARNINGS BASE, INCURRED BASIS
(in millions)

<u>Calendar Year</u>	<u>Contributions^{b/}</u>	<u>Government Payment for Uninsured^{c/}</u>	<u>Benefit Payments</u>	<u>Administrative Expenses</u>	<u>Interest on Fund^{d/}</u>	<u>Net Income</u>	<u>Fund at End of Year</u>
1970	\$4,973	\$618	\$5,820	\$140	\$139	- \$230	\$2,183
1971	7,840	656	6,894	150	182	1,634	3,817
1972	8,217	685	8,031	161	254	964	4,781
1973	8,583	701	9,204	172	284	192	4,973
1974	10,927	701	10,383	183	325	1,387	6,360
1975	11,362	688	11,477	195	380	758	7,118
1980	16,007	490	16,138	260	478	577	9,545
1985	21,376	282	21,462	345	697	548	14,559
1990	31,159	116	28,586	457	1,125	3,357	24,748
1994	35,243	45	35,500	560	1,528	756	31,711

Note: Fund balance at beginning of 1970 is \$2,413 million. See text for derivation of this figure from cash-basis data.

- ^{a/} Combined employer-employee contribution schedule would be 1.2% for 1970, 1.8% for 1971-73, 2.2% for 1974-77, 2.6% for 1978-81, 3.0% for 1982-85, 3.4% for 1986-89, and 3.8% for 1990 and after.
- ^{b/} Includes payment from General Fund for military service wage credits.
- ^{c/} Cost for benefit payments and accompanying administrative expenses for uninsured persons for each fiscal year is assumed to be paid to the trust fund in the middle of the fiscal year (i.e., at the end of the corresponding calendar year).
- ^{d/} Over the long range, a 5% rate is assumed, with a somewhat higher rate in the early years.

Table 6a

ESTIMATED PROGRESS OF HI TRUST FUND UNDER POSSIBLE FINANCING PROVISIONS OF REVISED CONTRIBUTION SCHEDULE, UNDER BASIS OF EARNINGS BASE BEING KEPT UP TO DATE WITH INCREASES IN EARNINGS^{a/}, INCURRED BASIS (in millions)

<u>Calendar Year</u>	<u>Contributions^{b/}</u>	<u>Government Payment for Uninsured^{c/}</u>	<u>Benefit Payments</u>	<u>Administrative Expenses</u>	<u>Interest on Fund^{d/}</u>	<u>Net Income</u>	<u>Fund at End of Year</u>
1970	\$4,973	\$618	\$5,820	\$140	\$139	-\$230	\$2,183
1971	9,252	656	6,894	150	226	3,090	5,273
1972	9,728	685	8,031	161	389	2,610	7,883
1973	10,721	701	9,204	172	534	2,580	10,463
1974	11,224	701	10,383	183	657	2,016	12,479
1975	11,997	688	11,477	195	753	1,766	14,245
1980	15,978	490	16,138	260	1,024	1,094	20,371
1985	20,860	282	21,462	345	1,109	444	22,955
1990	26,812	116	28,586	457	1,029	-1,086	20,552
1994	32,249	45	35,500	560	749	-3,017	13,842

Note: Fund balance at beginning of 1970 is \$2,413 million. See text for derivation of this figure from cash-basis data.

- a/ Maximum taxable earnings base would be \$7,800 in 1970, \$9,000 in 1971-72, \$10,200 in 1973-74, \$10,800 in 1975-76, \$12,000 in 1977-78, increasing ultimately to \$22,200 in 1993-94. Combined employer-employee contribution schedule would be 1.2% for 1970, and 2.0% for 1971 and after.
- b/ Includes payment from General Fund for military service wage credits.
- c/ Cost for benefit payments and accompanying administrative expenses for uninsured persons for each fiscal year is assumed to be paid to the trust fund in the middle of the fiscal year (i.e., at the end of the corresponding calendar year).
- d/ Over the long range, a 5% rate is assumed, with a somewhat higher rate in the early years.

Table

ESTIMATED PROGRESS OF HI TRUST FUND UNDER POSSIBLE FINANCING PROVISIONS OF REVISED CONTRIBUTION SCHEDULE, UNDER BASIS OF EARNINGS BASE BEING KEPT UP TO DATE WITH INCREASES IN EARNINGS^{a/}, INCURRED BASIS (in millions)

<u>Calendar Year</u>	<u>Contributions^{b/}</u>	<u>Government Payment for Uninsured^{c/}</u>	<u>Benefit Payments</u>	<u>Administrative Expenses</u>	<u>Interest on Fund^{d/}</u>	<u>Net Income</u>	<u>Fund at End of Year</u>
1970	\$4,973	\$618	\$5,820	\$140	\$139	-\$230	\$2,183
1971	7,866	656	6,894	150	183	1,661	3,844
1972	8,270	685	8,031	161	258	1,021	4,865
1973	9,650	701	9,204	172	321	1,296	6,161
1974	10,103	701	10,383	183	371	609	6,770
1975	10,799	688	11,477	195	387	202	6,972
1980	16,776	490	16,138	260	403	1,271	8,437
1985	21,903	282	21,462	345	608	986	12,955
1990	30,833	116	28,586	457	1,179	3,085	25,713
1994	38,235	45	35,500	560	1,930	4,150	41,648

Note: Fund balance at beginning of 1970 is \$2,413 million. See text for derivation of this figure from cash-basis data.

- a/ Maximum taxable earnings base would be \$7,800 in 1970, \$9,000 in 1971-72, \$10,200 in 1973-74, \$10,800 in 1975-76, \$12,000 in 1977-78, increasing ultimately to \$22,200 in 1993-94. Combined employer-employee contribution schedule would be 1.2% for 1970, 1.7% for 1971-72, 1.8% for 1973-75, 1.9% for 1976-79, 2.1% for 1980-86, and 2.3% for 1987 and after.
- b/ Includes payment from General Fund for military service wage credits.
- c/ Cost for benefit payments and accompanying administrative expenses for uninsured persons for each fiscal year is assumed to be paid to the trust fund in the middle of the fiscal year (i.e., at the end of the corresponding calendar year).
- d/ Over the long range, a 5% rate is assumed, with a somewhat higher rate in the early years.

In both instances, the HI Trust Fund builds up gradually, showing small increases in most years. Throughout, the trust-fund balance is somewhat less than the outgo for the next year, although approaching such amount at the close of the period. (The fact that, in Table 6a, the balance at the end of 1994 is lower than the "goal" of 1 year's outgo results from the actuarial balance being slightly negative, as indicated previously.)

Progress of Trust Fund on Cash Basis, Alternative Financing Methods

Table 7 gives the estimated progress of the HI Trust Fund, on a cash basis, by fiscal years, under the modified financing basis of a \$9,000 earnings base and a 1.8% combined employer-employee contribution rate (and .9% for the self-employed), beginning in calendar year 1971. This basis has been proposed, for the short range, by President Nixon in the Budget for FY 1971. Under this financing basis, the trust-fund balance develops satisfactorily through FY 1971, in contrast with the difficulties that are estimated to arise under present law (see Table 4).

Table 7

ESTIMATED PROGRESS OF HI TRUST FUND UNDER POSSIBLE FINANCING
 PROVISIONS OF REVISED CONTRIBUTION SCHEDULE^{a/} AND
 \$9,000 EARNINGS BASE AFTER 1970, CASH BASIS, BY FISCAL YEAR
 (in millions)

<u>Fiscal Year</u>	<u>Contributions^{b/}</u>	<u>Government Payment for Uninsured^{c/}</u>	<u>Benefit Payments</u>	<u>Admin-istrative Expenses</u>	<u>Interest on Fund</u>	<u>Net Income</u>	<u>Fund at End of Year</u>
1969	\$4,449	\$730	\$4,654	\$104	\$115	\$586	\$2,017
1970	4,832	609	5,175	147	139	258	2,275
1971	6,267	859	6,250	136	186	926	3,201

- a/ Combined employer-employee schedule would be 1.2% for 1970 and 1.8% thereafter.
- b/ Includes payment from General Fund for military service wage credits.
- c/ Cost for benefit payments and accompanying administrative expenses for uninsured persons for each fiscal year is assumed to be paid to the trust fund in the middle of the fiscal year (i.e., at the end of the corresponding calendar year).

D. Comparison with Previous Cost Estimates

This Section presents comparisons of the present cost estimates (termed the 1969 ones) of the Hospital Insurance program with two earlier cost estimates. The analysis is confined primarily to the differences in the estimated level-costs, but some analysis is presented in regard to the year-by-year projections. It should be noted that all estimates before the 1969 ones were based exclusively on the assumption that the earnings base would remain at \$7,800 for the next 25 years.

Reconciliation with 1968 Cost Estimate

The 1968 HI actuarial cost estimates showed a level-cost of 1.79% of taxable payroll. The 1969 cost estimates show a level-cost of 2.76% of taxable payroll under a maximum taxable earnings base of \$7,800. The reconciliation of the differences is shown below:

<u>Item</u>	<u>Level-Cost</u>
Level-cost of program, 1968 cost estimate	1.79%
Effect of assuming more rapid increase in hospital costs	+ .55%
Effect of introducing the element of long-term increasing trend in hospital utilization	+ .31
Effect of changing the hospital reimbursement formula	- .03
Net effect of assuming higher ECF costs and lower ECF utilization	.00
Assumed higher utilization of home health benefits	+ .04
Assumed higher level of administrative costs	+ .02
Effect of later valuation date	+ .11
Effect of increasing the discount rate in calculating present values	- .03
Level-cost of program, 1969 cost estimate	2.76%

Hospital costs have been increasing more rapidly than as previously assumed (in 1968), and the rate of increase gives no indication that it will drop off sharply in the near future. The actual experience for 1968 was 5% higher than the 1968 HI cost estimates had assumed. The 1969 HI cost estimates use the assumption that the annual rate of increase has peaked in 1969, and that it will decline gradually, rather than sharply as previously assumed in the 1968 HI cost estimates. The cumulative effect of (a) reflecting the actual experience for 1968 and (b) the gradual drop-off in the rate of increase has, considering this element alone, raised the level-cost of inpatient hospital benefits by 39%.

Previously, it was assumed that the age-sex specific hospital utilization rates would remain constant in future years. However, data from the HI program and other national statistics have convinced us that there is a long-term increasing trend in hospital utilization, when considered by age and sex. Consequently, the latest actuarial cost estimates have assumed that there is an overall long-term increase in hospital utilization rates. This new assumption has increased the level-cost of inpatient hospital benefits (after considering the effect of the assumed higher hospital costs) by 17%.

An important change in the provider reimbursement formula was made in 1969. The 2% factor (1½% for proprietary institutions) for unidentifiable costs was eliminated, and the formula was changed to allow for nursing-cost differential between aged and non-aged patients. These changes have a net effect of reducing the level-cost of the HI program by about 1%.

Extended care facility costs have risen more rapidly than was previously assumed in 1968. On the other hand, the utilization rate of ECF benefits is lower than previously assumed. Most likely, the latter resulted from the administrative actions taken by the Social Security Administration to prevent the use of ECF benefits for patients who do not require continuing care of an ECF level, even though they may remain (or wish to remain) in such an institution. These two factors combined with the effect of higher taxable payroll produce no change in the level-cost of ECF benefits.

The utilization rates of home health benefits are increasing much more rapidly than previously assumed. This trend can be explained by the fact that a greater number of

agencies are in operation and that there is a greater public awareness and use of these services. This trend will most likely continue, due to the efforts of Federal and State governments (i.e., creating more facilities, as well as there being greater publicity and effort to make the public more aware of the availability of these services and of the desirability of using them). The much higher assumed utilization rates have increased the level-cost of home health benefits more than two-fold (although, even then, such benefits represent only 3% of total benefit costs).

The 1968 HI cost estimate based its assumptions for administrative expenses on the budgeted expenditures in fiscal year 1969. There has been a 30% increase in budgeted administrative costs from FY 1969 to FY 1970. The latest actuarial cost estimates reflect this increase.

The valuation date has an impact on the level-cost of the HI program. When the valuation date is one year later, the resulting level-cost is somewhat higher, because, in essence, a year of high benefit cost (relative to taxable payroll) that is 25 years hence is substituted for a year of low benefit cost (the benefit cost of the year preceding the new valuation date). This effect is significantly greater when the level-cost is computed on the basis of a static taxable payroll (i.e., a fixed earnings base) than when it is computed on the basis of a dynamic taxable payroll (i.e., an earnings base that is automatically adjusted with changes in earnings).

Under a graded-contribution-rate schedule, a partially offsetting element when the valuation date is advanced one year is that the valuation of the level-equivalent of the contribution schedule will yield a slightly higher result, because then one year of the lower initial contribution rate is disregarded, and one year more of the higher ultimate contribution rate is considered (in turn, this is partially offset by the higher level-equivalent value of the fund on hand if it grows during the year preceding the new valuation date). This, however, will not be fully counterbalancing, because the program cost is rising much more rapidly than taxable payroll increases over the same period of time. As a result, the level-cost over a particular period of time is lower than if it were measured over a longer period. Thus, a contribution schedule which is adequate for a certain period will not be

adequate for a longer period. Again, it should be kept in mind that this effect will be less under conditions of a dynamic taxable payroll than under a static taxable payroll.

A discount rate of 4½% was used to calculate the level-costs and the level-equivalents of contributions in the 1968 cost estimates. To reflect the higher current interest levels, a discount rate of 5% was used in the 1969 HI cost estimates. This factor decreases the level-cost by about 1%.

Reconciliation with 1969 Preliminary Cost Estimate

Preliminary cost estimates for the HI program were prepared in the Fall of 1969. These cost estimates took into consideration certain data available at that time from the operations of the HI program. The estimates were contained in a memorandum from Robert J. Myers to Commissioner Robert M. Ball, dated September 25, 1969 and entitled "Summary Results of New Cost Estimates for Present OASDI and HI Systems and for President's Proposal", which was publicly released.

It was recognized at that time that hospitalization costs were much higher than previously assumed. Also, the rate of increase of such costs was not dropping off as much as assumed previously. The data also showed that utilization of ECF benefits was at a much lower level, probably due to the previously-mentioned administrative actions taken. These experiences were taken into account in the 1969 preliminary actuarial cost estimates, which showed a level-cost of 2.30% of taxable payroll (after incorporating the effect of the proposed changes in the provider-reimbursement formula). The detailed final 1969 actuarial cost estimates presented in this report show a level-cost of 2.76% of taxable payroll. The reconciliation of the differences is shown below:

<u>Item</u>	<u>Level-Cost</u>
Level-cost of program, 1969 preliminary cost estimates	2.30%
More rapid increase in ECF costs than previously assumed	+ .11%

Much higher utilization rate of home health benefits than previously assumed	+ .04
Higher administrative costs	+ .02
Later valuation date	+ .11
Lower increases in taxable earnings than previously assumed	+ .06
Update of age-sex-specific hospital utilization rates	+ .06
Differences due to approximations used in preliminary cost estimates	+ .06
Level-cost of program, 1969 final cost estimates	2.76%

The preliminary cost estimates did not change the assumptions as to the rate of increase in ECF costs. The 1968 HI cost estimates had assumed a 12% increase in ECF costs in 1968. The actual experience showed a 20% increase. Modifying the assumptions to reflect this experience and the future trend resulted in an increase of about 4% in the estimated level-cost of the HI program.

When the preliminary cost estimates were prepared, the latest data on the utilization rate of home health services were not yet available. The latest tabulations show a very rapid increase in the utilization of such services (33% per year for insured persons). The 1968 HI cost estimates allowed only a 10-15% increase per year in the utilization rate during the initial years, and this assumption was not changed in the 1969 preliminary cost estimates. The 1969 final cost estimates modified these assumptions to allow for the higher increase in utilization of home health services, as shown by the experience of the program.

The 1969 preliminary cost estimates were prepared with a valuation date of January 1, 1969. The 1969 final cost estimates are based on a valuation date of January 1, 1970. This 1-year later valuation date has an impact on the level-cost, as indicated in the foregoing table.

When the preliminary cost estimates were being prepared, the economic conditions were such that there was a

more optimistic outlook for wage increases and lower unemployment rates. Subsequently, efforts by the present administration to combat the rapid inflation altered this outlook. The 1969 final cost estimates reflect the latest economic forecast as to future wage increases and unemployment rates.

Comparison of Year-By-Year Projections

Table 8 compares the year-by-year projections from the 1969 final HI cost estimates with the 1968 cost estimates (as presented in the 1969 HI Trustees Report, House Doc. No. 91-45) as to (1) outgo for benefit payments and administrative expenses for insured persons and (2) contribution income.

The estimated contribution income was about 6-8% higher in the 1969 estimates than in the 1968 estimates, due to the assumption that earnings would increase somewhat more rapidly in the future. The estimated outgo was about 30% higher for the first 5 years (1970-74) and about 65% higher for the entire 25-year valuation period; the differential increases as the period considered is lengthened, because of the much higher assumptions as to unit costs and utilization in future years having a compounding effect.

When the excess of outgo over income is considered, the differentials resulting are much larger--about 4½ to 6 times--which is the natural result to be expected when one is considering "residuals".

Table 8

COMPARISON OF ESTIMATED CONTRIBUTION INCOME AND TOTAL OUTGO FOR
INSURED PERSONS FOR HOSPITAL INSURANCE SYSTEM FOR
SELECTED PERIODS FOR 1968 AND 1969 ESTIMATES
(Dollar figures in billions)

<u>Calendar-Year Period</u>	<u>1968 Estimate</u>	<u>1969 Estimate^{a/}</u>	<u>Ratio of 1969 Estimate to 1968 Estimate</u>
Contribution Income			
1970-74	\$27.1	\$28.4	1.05
1970-79	63.2	66.7	1.06
1970-84	111.9	119.1	1.06
1970-89	171.6	184.1	1.07
1970-94	242.7	262.7	1.08
Total Outgo			
1970-74	\$28.7	\$37.8	1.32
1970-79	70.1	102.9	1.47
1970-84	125.1	193.7	1.55
1970-89	197.4	316.1	1.60
1970-94	291.6	478.5	1.64
Excess of Total Outgo over Contribution Income			
1970-74	\$1.6	\$9.4	5.88
1970-79	6.8	36.2	5.32
1970-84	13.2	74.6	5.65
1970-89	25.8	132.0	5.12
1970-94	48.9	215.8	4.41

^{a/} Contribution income shown here is from the cost estimate which assumes that the earnings base will remain at \$7,800. If the assumption is made that the earnings base will be kept up to date after 1968 with changes in the general earnings level, then the data would have been as follows:

	<u>1970-74</u>	<u>1970-79</u>	<u>1970-84</u>	<u>1970-89</u>	<u>1970-94</u>
Contribution Income	\$30.6	\$77.2	\$148.2	\$248.3	\$384.2
Excess of Outgo Over Income	7.2	25.7	45.5	67.8	94.3

E. Methodology

When the Hospital Insurance program was being enacted in 1965, a certain procedure for developing the cost estimates and determining the actuarial balance of the program was established by the Congress, after considering different possible approaches recommended by actuaries. Such procedure has continued to be followed and will be described in this Section.

The long-term actuarial cost estimates for the HI program are made over a future period of 25 years. It is believed that a 25-year projection period for this program is as far ahead as should be considered, because of the uncertainty as to future institutional care practices and as to changes in the costs of these institutional services. On the other hand, the program is a long-term social insurance program; thus, it is necessary to look ahead for a period in the future to have some idea as to the rising costs that can possibly ensue, even with the uncertainties stated above.

The actuarial balance is determined by first calculating the present value of the estimated future benefit payments and administrative expenses over the next 25 years, plus the discounted value of estimated outgo in the 26th year. Then, the level-cost of the disbursements is calculated by dividing the present value of the total cost by the present value of the estimated future taxable payroll for the 25-year period. This is compared to the level-equivalent of the estimated future contributions and the level-equivalent value of the existing trust fund. The level-equivalent of the estimated future contributions is calculated by taking the present value of the estimated contributions over the next 25 years as a percentage of the present value of the estimated future taxable payroll for the same period. The estimates covering a 25-year future period can, therefore, indicate the extent to which the cost will increase and whether the scheduled tax rates are adequate to maintain the system on an actuarially-sound basis over this period.

The actuarial balance of the system only considers the costs of insured persons who are covered by the HI program. Costs for uninsured persons covered under the program are borne by the General Fund of the Treasury.

The cost estimate for the HI program assumes that earnings in covered employment will rise in the future. This is a different approach from the assumptions used in the cost estimates for the Old-Age, Survivors, and Disability Insurance system. Under the latter program, a level-earnings assumption is used, because the benefit structure of the present law is assumed to remain unchanged in the future and it can be said to be based on the current general level of earnings. Such an assumption is the equivalent of assuming that, with rising earnings in the future, the "actuarial gain" to the system therefrom will be needed--and will be used--to keep the benefit level up to date with changes in the general price level.

The reason for using the rising-earnings assumption for the cost estimate for the HI program is that service-type benefits are provided and that it is assumed that the cost of institutional services will increase in the future. One major cause for these increases is due to the trend of wages. Since this trend is reflected in the benefit costs, then it is only realistic to take it into account also in the assumptions as to earnings in covered employment.

The cost estimate for the HI program under the present financing provisions assumes that the maximum taxable earnings base will remain at \$7,800 for the next 25 years, as provided under existing law. If the Congress continues to increase the earnings base in the future when earning levels rise (as it has done in the past), then such increase in the maximum taxable earnings base would generate additional contribution income, but no additional benefit liability (unlike the situation for the cash-benefits program). As indicated previously, a cost estimate has been prepared under the alternative assumption that the earnings base will increase in the future to keep up to date with increases in earnings, which seems the most reasonable basis for determining the financing provisions.

The HI program has four major cost components: namely, the benefit costs related to hospitalization, extended care facilities, and home health services, and the administrative expenses of operating the program.

The admission rates and average length of stay per benefit period for hospitals and extended care facilities vary by age and sex, as does also the utilization of home health visits. Data have shown that the utilization rates of hospitals, extended care facilities, and home health services also vary

by geographical location. In light of the foregoing discussion, it would be desirable to estimate the benefit cost by using age-sex-locality specific utilization rates. However, this type of statistics is not now available from the operations of the HI program. From the Actuarial Sample (0.1% sample of claim payments processed by the Social Security Administration), age-sex specific hospital utilization rates were tabulated and used in these actuarial cost estimates. It is assumed that utilization rates of extended care facilities will vary by age in the same relative manner as the hospital utilization rates by age. An aggregate utilization rate of home health services (visits per capita per year) is used, since age-sex specific utilization rates are not available.

There were some preliminary data which indicated that the cost per day for hospitals, as well as for extended care facilities, varies by the age of the patient. The average cost per day decreases as the patient's age increases. However, detailed tabulations were not available when this actuarial cost estimate was prepared; consequently, aggregate average reimbursement costs per day were used for hospitals and extended care facilities.

It should be noted that the average daily costs used in these cost estimates are the average reimbursement amounts, and not the average daily total costs for the services (which include both the reimbursements from the HI program and the cost-sharing payments made by the beneficiaries). This procedure, including the projection of the average costs into the future, is proper because the cost-sharing provisions are on a dynamic basis (i.e., related to hospital-cost trends).

In brief, the benefit costs for any future year are obtained by summing the costs for all age-sex groups. For any particular age-sex group, the benefit cost is the product of: (1) the number of protected persons in such group; (2) the utilization rate (the average number of days of care per person per year--or, in the case of home health services, the average number of visits per person per year); and (3) the average daily reimbursement rate (or, in the case of home health services, the average cost per visit).

The progress of the HI Trust Fund is shown on both an incurred and a cash basis. The balance in the fund at the end of CY 1969 on an incurred basis is calculated as follows (in millions):

Cash balance, December 31, 1969	\$2,505
Claims incurred, but not paid (either in process of being paid or not reported yet)	- 480
Contributions on earnings in 1969, but not yet collected	+ 450
Amount due from Railroad Retirement system for contributions accrued in 1969	+ 34
Amount reimbursed from General Fund of the Treasury for uninsured persons, but not yet disbursed	<u>- 96</u>
Fund balance (incurred basis), December 31, 1969	\$2,413

F. Assumptions Used in the 1969 HI Cost Estimates

This Section explains the basic assumptions used in the 1969 final cost estimates as to the future trends of unit costs and rates of utilization of medical services provided under the HI program.

(1) Assumptions as to Hospitalization Costs Per Day

The data on the 1968 interim reimbursements to hospitals from the HI program are virtually complete. After making adjustments for the possible difference between the interim reimbursement rates and the final audited costs, the experience shows that, for 1968, the average daily reimbursement is about \$48.55 for insured persons and \$42.86 for uninsured persons. The average daily reimbursement excludes the amounts paid by the beneficiaries under the cost-sharing provisions. These provisions reduce the average daily cost of hospitalization by approximately 6.3% for insured persons and 7.0% for uninsured persons.

Table 9 summarizes the assumptions used for future increases in the average daily reimbursement amounts to hospitals. It is assumed that the annual rate of increase in hospital costs has peaked in 1969 and that it will gradually decrease thereafter and finally will merge with the annual rate of increase in general wages by 1978. Thereafter, both are assumed to have the same annual increases.

(2) Assumptions as to Hospital Utilization Rates

The experience from the HI program has shown that there seems to be a long-term increasing trend in hospital utilization rates. This is corroborated by other national statistics, which have observed that there have been such trends over the past three decades.

The hospital utilization assumptions are based on the hypothesis that the current practices in this field will not change drastically in the near future. The assumption is made that the annual rate of increase in the utilization of hospital services will gradually decrease over the next decade. After 1978, the hospital utilization rates by age and sex are assumed to remain unchanged.

Table 9

ASSUMPTIONS AS TO FUTURE INCREASES IN COST ELEMENTS

<u>Calendar Year</u>	<u>Inpatient Hospital</u>		<u>Extended Care Facility</u>	
	<u>Utilization Rates^{a/}</u>	<u>Average Daily Reimbursement</u>	<u>Utilization Rates^{a/}</u>	<u>Average Daily Reimbursement</u>
Initial Values for Insured Persons				
1968	3.89 ^{b/}	\$48.55	.95	\$16.98
Initial Values for Uninsured Persons				
1968	4.78 ^{b/}	\$42.86	1.76	\$15.71
Percentage Increase Over Previous Year				
1969	2%	15%	0%	17%
1970	2	14	8	16
1971	2	13	10	14
1972	1½	11½	10	12
1973	1½	10	8	10
1974	1½	8½	6	8½
1975	1	7	4	7
1976	1	6	3	6
1977	½	5	2	5
1978	½	4	0	4
1979	0	4	0	4
1980	0	4	0	4

a/ Average number of days of care per year per capita.

b/ Excluding the effect of the flu epidemic in 1968.

Note: See text for definition of terms and analysis of assumptions.

Table 9 shows the assumptions which were used in the 1969 final cost estimates. The hospital utilization rates are based on the actual experience in 1968. The aggregate hospital utilization rate in 1968 for the insured population was 3.89 days per person per year and 4.78 days for uninsured persons. The utilization rates for males and females were derived separately. For each sex, the utilization rate for each quinquennial age group was established up to age 85. The population aged 85 and over is considered as one group.

Table 10 shows the age-sex-specific hospital utilization rates for 1968, which were used as the base points. Since the average age of the insured population will increase in the future, the aggregate rate will also increase over the long-range future, even without the assumption that there is a long-term increasing trend in the utilization rates.

(3) Assumptions as to Cost Per Day of Extended Care Facilities

In 1968, the average reimbursement amount per day to extended care facilities from the HI program was \$16.98 for insured persons and \$15.71 for uninsured persons (as in the case of hospitalization costs, after taking into account the cost-sharing payments made by the beneficiaries). This average daily reimbursement amount is 20% higher than in 1967. The projected increases for future years are based on this actual experience. It is assumed that the annual rate of increase peaked in 1968 and that it will decrease gradually thereafter and will merge with the annual rate of increase in general wages by 1978; thereafter, both will have the same annual increases. Table 9 shows the assumptions used as to the future annual rates of increase in the average daily reimbursement amounts for extended care facilities.

(4) Assumptions as to Utilization Rates of Extended Care Facilities

The utilization rates of extended care facilities have remained relatively level in 1967-69. This experience emerged in spite of the fact that the total number of facilities and beds certified under the HI program had increased. The most likely explanation might be that the administrative actions taken by the Social Security Administration to prevent the use

Table 10

1968 AGE-SPECIFIC UTILIZATION RATES,
INSURED AND UNINSURED PERSONS

<u>Attained Age</u>	<u>Inpatient Hospital Utilization Rates^{a/}</u>		<u>Extended Care Facility Utilization Rates^{a/}</u>	
	<u>Insured</u>	<u>Uninsured</u>	<u>Insured</u>	<u>Uninsured</u>
Men				
65-69	2.77	2.54	.65	1.16
70-74	3.77	3.92	.90	1.46
75-79	4.81	5.30	1.16	1.76
80-84	5.87	6.60	1.42	2.03
85 and Over	6.90	8.00	1.68	2.32
Women				
65-69	2.64	3.42	.65	1.16
70-74	3.71	4.02	.90	1.46
75-79	4.84	4.70	1.16	1.76
80-84	5.95	5.30	1.42	2.03
85 and Over	7.10	5.95	1.68	2.32

^{a/} Average number of days of care per year per capita.

of extended care facility benefits for patients who do not require continuing care of an ECF level are offsetting the increases in utilization due to medical reasons.

It is assumed that utilization rates will be stabilized at the 1969 level, except for increasing in proportion to the number of additional new beds available. The average number of extended care facility beds per capita of population aged 65 and over was calculated for the 7 states which had the highest number of beds per capita in July 1969. The assumption was made that the average number of beds per capita for the entire United States will reach this level in 1977 and that the utilization rates of extended care facilities will increase in proportion to the beds available up through 1977 and then will remain level thereafter (see Table 9).

Utilization rates of extended care facilities by age and sex were not available when these cost estimates were prepared. It is assumed that these utilization rates will vary by age in the same relative manner as the hospital utilization rates. No differences in utilization rates by sex were introduced, because the differences by sex in the hospital utilization rates were small. Table 10 shows the utilization rates of extended care facilities used in these cost estimates as of 1968.

Assumptions as to Home Health Services

The unit cost of home health services is based on the actual experience from the HI program in 1968, when the average reimbursement amount per visit was \$9.75 with virtually no difference as between insured and uninsured persons. The annual rate of increase in cost per visit has been about 10%. It is assumed that this rate of increase will decline gradually and will merge with the annual rate of increase in general wages by 1978 (see Table 11).

The utilization rates of home health services have increased sharply since the HI program began. This trend can be explained by the facts that a greater number of home health agencies are in operation and that there is greater public awareness and use of these facilities. This trend will most likely continue, due to the efforts of Federal and State governments in promoting the expansion of these services, as well as the efforts to make the public more aware of the availability of these services and of the desirability of using them. Table 10 shows the assumptions used in these cost estimates as to future trends in the utilization rates of home health services.

Table 11

ASSUMPTIONS AS TO FUTURE INCREASES IN COST ELEMENTS,
HOME HEALTH SERVICE BENEFITS

Calendar Year	Insured		Uninsured	
	Utilization Rate ^{a/}	Average Reimbursement Per Visit	Utilization Rate ^{a/}	Average Reimbursement Per Visit
Initial Values				
1968	.20	\$9.75	.26	\$9.75
Percentage Increase Over Previous Year				
1969	33%	10%	30%	10%
1970	30	10	30	10
1971	26	9	27	9
1972	22	8	24	8
1973	18	8	20	8
1974	14	7	16	7
1975	10	7	12	7
1976	6	6	8	6
1977	4	5	6	5
1978	2	4	4	4
1979	0	4	0	4
1980	0	4	0	4

^{a/} Average number of visits per year per capita.

Note: See text for definition of terms and analysis of assumptions.

(6) Administrative Expenses

The administrative expenses per capita in connection with the HI program, including those of fiscal intermediaries, were calculated on the basis of the budgeted administrative expenses for FY 1970. This cost per capita was projected to increase in the future at the same rate of increase as general wages (see Table 12).

(7) Interest Rate

A discount rate of 5% is used in determining the level-costs of the benefit payments and administrative expenses and the level-equivalent of the contributions. However, in developing the progress of the trust fund, higher rates are used in the first few years--namely, 6.25% in 1970, gradually declining to a level of 5% by 1983 and thereafter.

(8) Assumptions as to Future Increases in Earnings in Covered Employment

The increase in average earnings in covered employment has been about 6-7% per year since 1967. It is assumed that the annual rate of increase will decline gradually in the future, to an ultimate rate of 4% by 1976.

Under present law, the maximum taxable earnings base is \$7,800 and will remain level in the future. When average earnings rise, only a portion of the increases will be taxable, because some of the increases will be for workers whose annual earnings are above the \$7,800 maximum. However, if the maximum taxable earnings base is dynamic (i.e., automatically adjusted in accordance with increases in general earnings), then the taxable payroll will rise in close relationship to the increase in general earnings.

Table 12 shows the assumptions used as to future increases in the average total earnings and the corresponding increases in average taxable earnings under a static \$7,800 earnings base and under a dynamic earnings base.

Table 12

PROJECTION OF WAGE INCREASES IN
COVERED EMPLOYMENT

Calendar Year	Percentage Increase Over Previous Year		
	Average Total Earnings	Average Earnings Under a Static \$7,800 Maximum Taxable Earnings Base	Average Earnings Under a Dynamic Earnings Base ^{a/}
1969	6.6%	4.1%	4.1%
1970	5.9	3.5	3.5
1971	5.4	3.1	9.2
1972	5.0	2.8	3.0
1973	4.6	2.5	2.7
1974	4.3	2.2	7.8
1975	4.1	2.1	2.5
1976	4.0	2.0	6.9
1977	4.0	1.9	2.5
1978	4.0	1.9	6.4
1979	4.0	1.9	2.5
1980	4.0	1.8	6.0

a/ Maximum taxable earnings base would be \$7,800 in 1970, \$9,000 in 1971-73, with automatic adjustment thereafter in accordance with past changes in the earnings level.

Note: The increases in "Average Total Earnings" are assumed. The increases in average covered earnings are derived from the assumed increases in total earnings, taking into account the effect of the applicable taxable earnings base.