

ACTUARIAL STATUS OF THE TRUST FUND

Section 201 (b) of the Social Security Act requires the Board of Trustees to present each year a statement of the actuarial status of the trust fund. In this report the long-range cost estimates presented are the same as those finally developed for the congressional committee concerned with the Social Security Act amendments of 1950. (See Actuarial Cost Estimates for the Old-Age and Survivors Insurance System as Modified by the Social Security Act Amendments of 1950, July 27, 1950, prepared for the use of the Committee on Ways and Means by Robert J. Myers, actuary to the committee.) These estimates are on essentially the same basis as those which had been developed for the previous law based on employment and wage data of 1947. Since then there has been a considerable change in economic conditions and since much additional actuarial and statistical data are available, such as from operating experience and from the 1950 census, completely new long-range cost estimates are now being developed for the new program, and it is anticipated that they will be completed in time for the next report of the Board. In this report, while use is made of the cost estimates prepared in 1950 for the Committee on Ways and Means, there will be considered the general effect of assumptions based on recent experience.

There are a number of basic cost factors which must be continuously recognized in analysis of the costs of this program, and these will be discussed hereafter.

(a) *Population.*—The future trend of the population depends on the size and age distribution of the existing population, on future births and immigration, and on future deaths and emigration. As a basis for making such estimates, there is available a great quantity of census and vital-statistics data. There are various types of error and bias in such data, as has been recognized by the Bureau of the Census in its many comprehensive reports on this subject. For instance, the 1940 census showed about 600,000 more persons aged 65 and over than had been indicated as likely by data in the 1930 census and the deaths and migration between the two censuses. The 1950 census shows about 700,000 more persons age 65 and over than are indicated by a projection of the 1940 census.

Crude birth rates declined for many years until the middle thirties, due in part to the increasing percentages of the female population past the child-bearing ages and in the middle ages where child-bearing is less frequent, and in part to a decline in the age-specific birth rates. However, since 1937 the long decline of the birth rate has been reversed. During the war years quite high rates were reported, the wartime peak having been reached in 1943. Although the birth rate declined somewhat in 1944–45, it remained higher than at any time during the thirties despite the effect of the war in removing from this country many young potential fathers. Beginning in the middle of 1946, the birth rate again rose very rapidly, and for the 12-month period ending June 1947 was higher than at any time since before the beginning of World War I. Thereafter there was some decline and a subsequent rise in 1951, although not quite to the 1947 level.

The increase in birth rates in recent years seems to be largely concentrated in the rates for first, second, and third births. The

increase in first births tends to increase the proportion of the insured population with dependents as well as the number of such dependents. As a result, the cost of survivor benefits is increased despite the counteracting effect of fewer large families; in regard to the latter factor there is only a limited effect upon benefits because aggregate benefits for a family are not increased for children in excess of three where the mother is also receiving benefits.

Immigration had been very heavy prior to 1915 and moderate in the early twenties, but was quite negligible thereafter. Most population forecasts have assumed that no return to high immigration rates may be expected.

As a basis for the cost estimates, two population projections were developed in 1946. These do not reflect the maximum possible range in population which might develop in the future, but rather embody factors which produce either low cost or high cost in regard to old-age and survivors insurance; for example, unfavorable mortality assumptions versus favorable ones. The 12 estimates prepared by the National Resources Planning Board in its report of August 1943, entitled "Estimates of Future Population of the United States, 1940-2000," are useful in indicating the possible range of future population, but it was considered desirable not to use any specific one of these estimates, although following closely their methodology. A revision of this 1943 report starting with a different population base and short-range demographic factors but using in general the same long-range assumptions with respect to future trends in mortality and fertility was released in 1948 by the Bureau of the Census (Forecasts of the Population of the United States, 1945-75). However, the results were not available at the time the cost bases for estimates presented here were developed, and in addition data showing a range in population were needed for a longer period than 30 years.

One reason that the National Resources Planning Board estimates were not used is that these estimates do not reflect war deaths, civilian mortality in 1940-45, and births in 1940-45. The official estimates of the Bureau of the Census for 1945 indicate that births in 1940-45 were about 10 percent higher than the National Resources Planning Board high estimate. Another reason for developing new estimates was to use a somewhat wider range in mortality assumptions (as will be discussed later), and in fertility assumptions (allowing for somewhat higher fertility, as evidenced by the 1940-45 experience).

The population used for the low-cost assumptions is based on high mortality (level into the future at 1939-41 rates) and high fertility (approximately 10 percent above the National Resources Planning Board high rates). On the other hand, the population projection used for the high-cost assumptions is based on low mortality (same as National Resources Planning Board low rates up to age 65, but with greater improvement for the older ages) and medium fertility (same as National Resources Planning Board medium rates). Neither estimate provides for migration, either in or out.

Table 9 indicates the alternative trends of population growth resulting for the total population, for the group aged 20 to 64, and for the group aged 65 and over. The high-cost projection shows a larger aged population than the low-cost projection because of the assumed lower mortality, but a somewhat lower population in age groups under 65 because of the assumed declining fertility which more than offsets the improved mortality. Actual data for 1950 indicate a somewhat

larger population age 65 and over than had been estimated in either projection and also a materially larger population under age 10 (as a result of the high birth rates in the past few years). The new cost estimates, now in preparation, will be based on new population projections using as a starting point the 1950 census data.

TABLE 9.—*Estimated population of the United States in selected years, 1960–2000*

[In millions]

Calendar year	All ages			Ages 20-64			Ages 65 and over		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
Actual data from 1950 census									
1950.....	151	75	76	87	43	44	12.3	5.8	6.5
Projection for low-cost assumptions									
1960.....	159	79	80	89	44	45	14.0	6.5	7.5
1980.....	179	89	90	100	50	50	17.9	7.8	10.1
2000.....	199	99	100	113	57	56	19.0	8.3	10.7
Projection for high-cost assumptions									
1960.....	155	77	78	91	45	46	14.9	7.0	7.9
1980.....	170	85	85	100	50	50	22.8	10.4	12.4
2000.....	173	87	86	102	52	50	28.5	13.3	15.2

(b) *Mortality.*—Mortality rates by age have been improving steadily since the turn of the century for both sexes and for virtually all ages up to age 60, with relatively little change above that age, except for the past decade when there has been significant improvement. The National Resources Committee study of 1938, the National Resources Planning Board study of 1943, and the Bureau of the Census report of 1948, all make assumptions of a future improvement in mortality, as plausibly indicated by past history.

In the low-cost assumptions, as mentioned previously, no improvement in mortality rates at any age is assumed. However, in the high-cost assumptions, considerable improvement is assumed, with even more at the older ages than the most optimistic assumption of the National Resources Planning Board for the ultimate condition, the year 2000. Although both sets of assumptions are arbitrary, they may reasonably bound, for the purposes of this report, the range within which mortality rates will fall. If the range between them seems wide, it should be recalled that no allowance has been made for the effects of such diverse factors as: The application of new discoveries to the prevention of disease and to the impairments caused by disease; the possibilities of increasing the survival of impaired lives for only temporary periods and the effects of future uses of atomic energy.

Mortality rates are of major importance for estimates of future benefits for the aged and of importance also in determining potential deaths among the younger parents which will give rise to widowed mother's and child's survivor benefits and ultimately to aged widow's benefits. Continuous study must be given to this important element, and the new cost estimates now in preparation will be based on revised assumptions.

(c) *Marital and family composition.*—Marital relationships by age have great significance for old-age and survivors insurance costs because the system provides benefits for aged wives and widows (and also for aged dependent husbands and widowers). A woman over 65 cannot draw both the old-age benefit based on her own earnings and a full wife's or widow's benefit based on her husband's earnings. Hence, it is necessary to consider both the marital status of the female-covered workers and also the exits from this group because of marriage. There will be a relatively large cost offset on account of this provision which prohibits duplication of benefits. The experience to date is extremely limited in this respect, since this factor will not be of major importance until some 30 or 40 years hence when the vast bulk of the current female workers, those in their twenties and thirties, have attained the minimum retirement age.

Family composition data indicating the proportion of individuals with children and the average number of children in such cases also have great significance because the system provides benefits for orphaned children and their widowed mothers. The future birth rate has an important role in this connection since it determines not only the total number of children, but also how they are divided up into families. The actual claims experience is valuable as a guide.

There must also be considered the various factors affecting termination of married status, chiefly divorce and mortality. The distribution of ages of husbands and wives also affects the cost illustrations. Various studies have indicated that at almost all ages women have lower mortality rates than men, and that the mortality rates of married persons are lower than those for all persons combined. In the cost-illustrations differential mortality by marital status has been considered in determining costs for the various types of survivor benefits.

TABLE 10.—*Estimated monthly beneficiaries¹ age 65 and over and children of such beneficiaries, in current payment status in selected years, 1960-2000*

[In thousands]					
Calendar year	Old-age beneficiaries ¹	Wives of old-age beneficiaries ²	Children of old-age beneficiaries	Aged widows ⁴	Aged dependent parents
Actual data for December					
1950.....	1,771	508	46	314	15
1951.....	2,278	647	71	384	19
Low-cost estimate					
1960.....	2,727	836	65	1,101	37
1980.....	5,685	1,320	115	2,709	42
2000.....	8,910	1,270	129	3,008	34
High-cost estimate					
1960.....	4,404	1,257	101	1,133	69
1980.....	10,332	2,240	130	2,788	97
2000.....	17,456	2,652	86	3,083	90

¹ Persons qualifying both for old-age benefits and for wife's, widow's, husband's, widower's, or parent's benefits are shown as old-age beneficiaries.

² I. e., retired insured workers.

³ Including dependent husbands and also a small number of wives under age 65 with child beneficiaries in their care.

⁴ Including dependent widowers.

Insurance beneficiaries age 65 and over are composed of a number of different categories. Table 10 shows the various illustrative trends in the number of beneficiaries, distinguishing between old-age beneficiaries (retired workers), wives of old-age beneficiaries, children of beneficiaries, aged widows of deceased insured individuals, and dependent parents of deceased insured workers who left no widow or child under 18.

Although beneficiaries age 65 and over make up the bulk of the prospective recipients under the program, the young survivors, composed of orphaned children and widowed mothers, will receive a considerable amount of benefits. Table 11 lists these two groups separately.

The high-cost assumptions show, as expected, a larger number of aged beneficiaries than the low-cost assumptions (table 12); this is in part because of the lower mortality rates assumed which result in a greater number and proportion of aged persons, and in part because of the higher retirement rates assumed and the greater proportion of the population assumed to be insured as a result of the in-and-out movement between covered and noncovered employment. On the other hand, the lower mortality despite the somewhat higher birth rate, tends to have the opposite effect in regard to young survivors (table 13); a smaller number of child and widowed-mother beneficiaries under the high-cost assumptions than under the low-cost assumptions is indicated.

TABLE 11.—*Estimated younger survivor insurance monthly beneficiaries, in current payment status in selected years, 1960-2000*

[In thousands]

Calendar year	Low-cost estimate		High-cost estimate	
	Orphaned children	Widowed mothers	Orphaned children	Widowed mothers
1960.....	1,135	304	901	320
1980.....	1,446	385	718	280
2000.....	1,714	454	602	255

NOTE.—Actual data for December 1950: 653,000 orphaned children and 169,000 widowed mothers. Actual data for December 1951: 776,000 orphaned children and 204,000 widowed mothers.

(d) *Proportion of time in covered employment prior to qualification for benefits.*—The number of persons who gain protection through becoming either “fully insured” or “currently insured” under old-age and survivors insurance depends upon the volume and pattern of their work in covered employment and upon the amount of taxable earnings from such work. A discussion of the latter factor is presented subsequently under item (g).

Estimates are presented in table 12, showing, for the future the percentages of the population insured by reason of current or previous work experience, subdivided by sex and by age groups above and below 65. The percentages for age 65 and over include old-age beneficiaries. Table 13 relates the old-age beneficiaries actually drawing benefits to the total aged population. It has been assumed in these cost illustrations that all persons eligible to receive old-age benefits based on their own earnings would apply for and receive such benefits even though they might be entitled to larger wife's, widow's, or par-

ents' benefits, which instead they would receive as reduced supplementary amounts. This assumption has been made because it is always to the individual's advantage to receive old-age benefits and reduced supplementary benefits of another category, rather than to receive solely the full benefits of the other category.

In tables 10 to 13 only potential long-range trends have been set down, without recognition of the cyclical or periodic irregularities. Bearing this in mind, certain trends may be observed in these illustrative tables of number of beneficiaries.

TABLE 12.—*Estimated proportion of the population insured under old-age and survivors insurance in selected years, 1960-2000*

[In percent]

Calendar year	Low-cost estimate		High-cost estimate	
	Ages 20-64	Ages 65 and over ¹	Ages 20-64	Ages 65 and over ¹
	Men			
1960.....	72	56	82	64
1980.....	77	73	87	83
2000.....	78	81	89	90
	Women ²			
1960.....	31	10	39	14
1980.....	44	20	52	27
2000.....	50	39	59	47

¹ Including old-age beneficiaries.

² Excludes wives and widows of fully insured men except such wives and widows who are insured on the basis of their own employment.

TABLE 13.—*Estimated proportion of population aged 65 and over receiving old-age benefits,¹ 1960-2000*

[In percent]

Calendar year	Low-cost estimate		High-cost estimate	
	Men	Women	Men	Women
1960.....	34	7	50	12
1980.....	52	16	69	25
2000.....	61	36	79	46

¹ Old-age beneficiaries are retired insured workers. Women qualified both for old-age and for wife's, widow's, or parent's benefits are considered as old-age beneficiaries.

(1) An over-all uptrend in beneficiaries under all types of old-age benefits—except in the relatively minor category of dependent parents;

(2) After 1960, a relatively small increase under some assumptions and a decline in others in the number of orphan-child and widowed-mother beneficiaries;

(3) The relatively small, and increasingly smaller, proportion that younger survivor benefits are of all benefits;

(4) A relatively rapid advance in the percent of insured persons aged 65 and over (including those drawing benefits) as compared with the rise in the percent insured at ages 20 to 64; and

(5) A rapid rise in the percent of aged men drawing old-age benefits up to 1980, and a slowing down of the increase in the following 20 years.

(e) *Remarriage rates.*—Remarriage of “young widows” is an important cost factor because mother’s insurance benefits terminate thereupon, as do also rights to deferred widow’s benefits at age 65. The greatest possible duration of benefits occurs among the younger widows, who can receive benefits for many years as mothers of young children and later as aged widows. These, however, are also the women with the greatest chance of remarriage. Among the older mothers with fewer prospective years of benefit receipt (their youngest child being nearer age 18), the probability of remarriage is lower.

Remarriage rates vary both by the age of the widow and the duration of widowhood. This factor produces a tangible reduction in the volume of “life insurance” afforded by the program when such “life insurance” is interpreted as the present value, in case of the worker’s death, of prospective benefit payments to his surviving dependents. It is estimated that at the end of 1951 the program provided about \$200 billion of “life insurance” protection for survivors.

(f) *Employment of beneficiaries.*—Since monthly benefits for all categories of beneficiaries are, in effect, suspended in any month in which the beneficiary is under age 75 and earns more than \$50 in covered employment, assumptions as to the employment of beneficiaries rank high in importance among the various cost elements. As of December 1951, about 68 percent of those age 65 and over who were fully insured were actually receiving benefits. This proportion is influenced to some extent by the apparently abnormal work opportunities for the aged now prevailing. In the future this proportion will probably increase somewhat, if for no other reason than the aging of the insured population.

Then, too, a large demand for labor draws into employment and away from benefit receipt many widowed mothers and older children. There is assumed to be more employment of beneficiaries, and thus savings in cost, in the low-cost assumptions than in the high-cost ones.

(g) *Income in covered employment.*—One of the most striking changes in earned income on record has taken place since 1940. Not only have there been further rises in the hourly rate of earnings since the end of the war, but also there has tended to be relatively little unemployment, including partial unemployment, so that most workers have had a full workweek.

The resulting changes in earnings give workers relatively more chance of obtaining credit for quarters of coverage (at \$50 per quarter) than had been the case in the prewar years, and as a result produces an increase in number of persons with insured status and in the average wage used for benefit computations. This increase is assumed to be more or less permanent.

Assumptions as to future covered earnings are essential in developing illustrative actuarial projections. The trend of earnings in the past has been unquestionably of an upward character. Average reported earnings derived from old-age and survivors insurance records were much lower in the early years of the system than they are currently. The increase which has occurred is indicated in table 14.

The cost assumptions used for the estimates made at the time of congressional consideration of the 1950 amendments involve average annual creditable earnings throughout the period up to the year 2000 of \$2,550 for men working in four quarters of a year and, correspondingly, \$1,625 for women. For both men and women the average earnings used for three-quarter workers is about 50 percent of that for four-quarter workers (i. e., at a lower rate per quarter), while the corresponding proportions for two and one-quarter workers are about 20 and 10 percent, respectively. As used here, the reference to four-quarter workers, three-quarter workers, etc., relates only to the status in a particular year; the estimates allow for the fact that over the course of a working lifetime an individual would be in covered employment all four quarters of some years, three quarters of other years, etc. (and, in fact, not in covered employment at all in some years). These ratios of the part-time average covered wage to the four-quarter average parallel very closely the actual ratios observed in the old-age and survivors insurance wage data.

The four-quarter earnings assumptions may be compared with the actual experience for such workers in the past years as shown by the last two columns of table 14 but allowance must be made for the change in maximum wage base. The earnings assumptions are on about the level prevailing in 1947 and are, on the whole, about 10-15 percent below the experience in 1950 (and probably about 20-25 percent below what the experience will show for 1951). This seems to indicate a need for revision of the basic earnings assumptions which were made when the postwar trend was not at all clear.

In determining the number of covered persons, percentages by age were developed through analysis of wage data for the previous coverage modified by census and other data in regard to the newly covered groups. The level of employment assumed was roughly that of 1947, which is somewhat below that currently prevailing. It was assumed that in the future the proportion of women who would be in covered employment would gradually rise for each age group, since in recent years they have been participating more and more in the covered labor force.

Because the coverage of the system excludes several large categories of employment (all long-service railroad employment, considerable portions of agricultural, domestic, nonprofit, and public employment, and agricultural and most professional self-employment), there is a flow of workers between covered and noncovered employments in addition to that between covered employment and unemployment. The restricted coverage necessarily will result in large numbers of workers who have not had sufficient contact with the program to establish or maintain the insured status necessary for benefit qualification. The extent of contact is a function both of stability of covered jobs and of age; older persons are somewhat more settled in their work than younger persons.

TABLE 14.—Average earnings credits of workers under old-age and survivors insurance by year, 1937-50

Calendar year	Workers with any earnings in year			Workers with earnings in all 4 calendar quarters		
	Total	Male	Female	Total	Male	Female
Actual, for \$3,000 maximum earnings base						
1937.....	\$809	\$1,037	\$539	(1)	(1)	(1)
1938.....	832	958	507	\$1,211	\$1,359	\$783
1939.....	881	1,014	536	1,247	1,400	800
1940.....	926	1,070	553	1,305	1,465	831
1941.....	1,014	1,188	574	1,466	1,646	910
1942.....	1,127	1,364	609	1,703	1,939	1,047
1943.....	1,289	1,580	788	1,913	2,205	1,271
1944.....	1,369	1,681	887	1,996	2,301	1,402
1945.....	1,328	1,591	895	1,982	2,293	1,384
1946.....	1,394	1,635	929	2,031	2,269	1,480
1947.....	1,571	1,831	1,044	2,173	2,393	1,611
1948.....	1,677	1,939	1,138	2,281	2,493	1,733
1949 ¹	1,697	1,953	1,169	2,287	2,493	1,750
1950 ²	1,769	2,024	1,231	2,350	2,558	1,811
Estimate, for \$3,600 maximum earnings base						
1950 ²	\$1,894	\$2,197	\$1,257	\$2,540	\$2,800	\$1,860
1951 ²	2,025	(1)	(1)	(1)	(1)	(1)

¹ Data not available.

² Preliminary.

The development of the prospective cost of the program using the various elements discussed furnishes reasonable illustrations of future beneficiaries and costs. Though neither the lowest nor the highest conceivable, the values derived are well within the outside boundaries of possibility. Experience to date is limited, the payment of monthly benefits having begun only in 1940, and these benefits were revised drastically in 1950. As payments got under way, the limitations of coverage and the insured-status requirement excluded large numbers of potential beneficiaries. Payments were further delayed by the lag with which any new program commences. In recent years, as the lag has lessened, payments among those eligible to receive them have been limited by postponements in the claiming of benefits occasioned by the war and immediate postwar conditions. The long-range cost estimates look beyond these various limitations and furnish some indication of the trend in the costs of the old-age and survivors insurance program.

It is to be noted that in addition to the assumptions already discussed, the long-range cost illustrations include assumptions relating to retirement rates, interest rate, and various miscellaneous administrative factors. Since the earlier cost estimates were developed, sufficient actual experience under the operation of the program is available to permit the introduction of various modifications to allow for such factors as the minimum and maximum provisions as to benefits, and the provision that the lump-sum death payment in certain instances, may not exceed the actual burial expenses. Also taken into account are such miscellaneous factors as differential retirement rates by marital status and the effect on the size of survivor benefits of lowered earning capacity during last illness.

An important element affecting old-age and survivors insurance costs arose through amendments made to the Railroad Retirement Act in 1951, which extend the 1946 amendments and provide for a coordination of railroad-retirement compensation and old-age and survivors insurance covered earnings in determining not only survivor benefits but also retirement benefits for those with less than 10 years of railroad service. In fact, all future survivor and retirement cases involving less than 10 years of railroad service are to be paid by the old-age and survivors insurance system, and there are financial interchange provisions established such that the old-age and survivors insurance trust fund is to be placed in the same financial position as if there never had been a separate railroad retirement program. It is estimated that the net effect of these provisions will be a relatively small net gain to the old-age and survivors insurance system since the reimbursements from the railroad retirement system will be somewhat larger than the net additional benefits paid on the basis of railroad earnings. In the long-range costs developed here it is assumed that there will be such a small net effect that this coordination provision does not have to be taken into account for cost purposes here. Even if it were desirable to consider this element, there are not sufficient available data for making any reasonable long-run estimates at this time.

Table 15 summarizes the previous discussion by showing illustrative numbers of beneficiaries. The category "younger survivors" comprises orphaned children and their widowed mothers. Widows, widowers, and parents aged 65 and over are included under the old-age category, as are also spouses and dependent children of old-age beneficiaries.

TABLE 15.—*Estimated old-age and survivors insurance beneficiaries in current payment status as of middle of selected years, 1960-2000*

[In thousands]

Calendar year	Low-cost estimate			High-cost estimate		
	Aged beneficiaries ¹	Younger survivors	Lump sum ²	Aged beneficiaries ¹	Younger survivors	Lump sum ²
1960.....	4,800	1,450	690	7,000	1,200	630
1980.....	9,900	1,850	1,090	15,600	1,000	1,000
2000.....	13,400	2,150	1,470	23,400	850	1,470

¹ Including children of old-age beneficiaries and wives under age 65 having such children in their care.

² Number of deaths resulting in lump-sum payments during the year.

NOTE.—Actual data for December 1951: 3,399,000 aged beneficiaries and 980,000 younger survivors. Actual data for 1951: about 415,000 deaths resulting in lump-sum payments.

The long-range cost estimates of income and outgo are presented in table 16. In addition to the figures for the low-cost and high-cost estimates, there have been developed intermediate cost estimates which are merely an average of the low-cost and high-cost estimates and are not intended to represent "most probable" figures. Rather, they have been set down as a convenient and readily available single set of figures to be used for comparative purposes.

Furthermore, since Congress adopted the principle of establishing in the law a contribution schedule designed to make the system self-supporting, it was necessary to select a single set of estimates as the basis for this contribution schedule. The intermediate estimate

was used for this purpose. Quite obviously any specific schedule may require modification in the light of experience, but the establishment of the schedule in the law does make clear the congressional intent that the system be self-supporting. Further, exact self-support cannot be obtained from a specific set of integral or rounded fractional rates, but rather this principle of self-support was aimed at as closely as possible by the Congress when it developed the tax schedule in the law.

TABLE 16.—Illustrations of benefit payments, contribution income, and size of the old-age and survivors insurance trust fund in selected years, 1960–2000

Calendar year	Benefit payments (in billions)	Contribution income (in billions)	Trust fund at end of year (in billions)	Benefits as percent of payroll
Actual data ¹				
1950.....	\$0.96	\$2.67	\$13.7	1.1
1951.....	1.89	3.36	15.5	1.5
Low-cost estimate				
1960.....	\$3.2	\$5.4	\$32	2.8
1970.....	5.0	7.8	64	4.0
1980.....	6.6	8.5	103	4.9
1990.....	8.1	9.0	138	5.7
2000.....	8.8	9.6	175	5.8
Level premium in perpetuity ²				4.8
High-cost estimate				
1960.....	\$4.3	\$5.4	\$25	3.7
1970.....	6.7	7.9	40	5.3
1980.....	9.3	8.3	48	7.1
1990.....	12.1	8.4	29	9.0
2000.....	13.7	8.5	(³)	10.2
Level premium in perpetuity ²				7.5
Intermediate cost estimate ⁴				
1960.....	\$3.8	\$5.4	\$29	3.3
1970.....	5.9	7.9	52	4.7
1980.....	8.0	8.4	75	6.0
1990.....	10.1	8.7	83	7.3
2000.....	11.3	9.1	78	7.9
Level premium in perpetuity ²				6.1

¹ Based on Daily Statement of the U. S. Treasury. For 1950 benefit payments were those of previous law for 9 months, and contribution income was that of previous law for entire year.

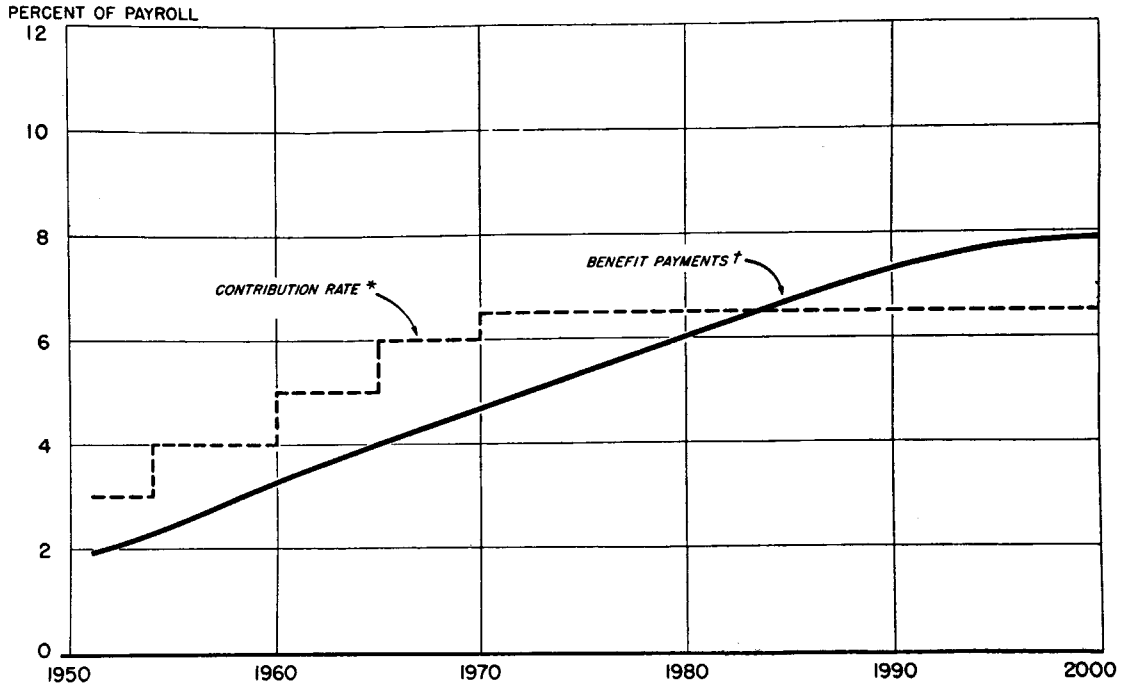
² Level premium contribution rate (based on 2 percent interest) for benefit payments after 1950 and into perpetuity, not taking into account the accumulated funds at the end of 1950 or administrative expenses.

³ Fund exhausted in 1997.

⁴ Based on an average of the dollar costs under the low-cost and high-cost estimates.

Chart 1 shows the year-by-year cost of the benefit payments relative to payroll (i. e., total taxable earnings under the system) according to the intermediate cost estimate, along with the applicable contribution rates. Table 16 shows the steady rise in benefit payments under the widely different sets of conditions discussed earlier in this section, and demonstrates the larger increases, relatively and in absolute quantities, which would occur even after 1980, particularly under the high-cost assumptions.

CHART 1
COST OF 1950 AMENDMENTS



*COMBINED RATE FOR EMPLOYEE AND EMPLOYER. SELF-EMPLOYED PAY THREE-FOURTHS OF THIS RATE.
 †AVERAGE OF LOW AND HIGH COST ESTIMATES. THIS IS NOT NECESSARILY THE "MOST PROBABLE" ESTIMATE.

Because of the nature of the assumptions, the chart shows only smooth curves and hence does not show the irregularities and periodic cyclical variations which may develop. These irregularities are expected to be far more pronounced in the curves pertaining to contributions than in those representing benefits, because the dollar amount of the benefit roll, after the system is well established, will contain a large proportion of fixed payments to permanently retired persons. However, the payroll of covered workers from which the contribution income is derived is quite sensitive to current fluctuations, through increases or decreases in job opportunities, changes in the length of the workweek, and changes in unit rates of pay. Thus, the chart indicates more smoothness of income and disbursements, especially the former, and more stability in the percentage relationship of the two than actually is likely to occur. In fact, for demographic reasons alone, as discussed earlier in this section, it is unlikely that the system would even eventually level out to a completely fixed relationship between contributions and benefits.

In the low-cost estimate, contribution income exceeds benefit disbursements in all years over the next half century; accordingly, the trust fund builds up quite rapidly and even some 50 years hence is growing at a rate of \$4 billion per year (and at that time is about \$175 billion in magnitude). On the other hand, under the high-cost estimate, the benefit disbursements exceed contribution income after 1975, and the trust fund after building up a maximum of nearly \$50 billion shortly before 1980 decreases thereafter until being exhausted shortly before the year 2000.

These results are consistent and reasonable since the system on an intermediate cost estimate is intended to be approximately self-supporting. Accordingly, a low-cost estimate should show that the system is more than self-supporting and a high-cost estimate should show that a deficiency will arise in later years. In actual practice under the financing basis established by the Congress, the tax schedule undoubtedly would be adjusted in future years so that neither of the developments of the trust fund under the low-cost and the high-cost estimates shown in table 16 would ever eventuate. Thus, if actual experience followed the low-cost estimate, the contribution rates would probably be adjusted downward, or perhaps would not be increased as scheduled. On the other hand, if the experience followed the high-cost estimate, the contribution rates would have to be raised above those scheduled. At any rate, considering the high-cost estimate, it appears likely that under any reasonable circumstances, there will be ample funds for several decades even under relatively unfavorable experience.

According to the intermediate cost estimate, contribution income exceeds benefit disbursements until some time after 1980. Accordingly, the trust fund grows steadily, reaching a maximum of \$83 billion in 1990, and then declines slowly. This decrease indicates that the tax schedule in the law is not quite self-supporting according to this intermediate cost estimate, but it is sufficiently close for all practical purposes considering the uncertainties and variations inherent in the cost estimates.

Previously, it was mentioned that current earnings levels are about 20-25 percent in excess of those used in the cost estimates. While this factor will be taken into account in the new cost estimates now

being prepared, its general effect may be briefly considered here. Because of the weighted nature of the benefit formula, as explained hereafter, an increase in the earnings assumption raises the estimates of absolute dollar amounts of contribution income more than benefit disbursements. Accordingly, under these circumstances, the cost of the program relative to payroll is decreased. If the assumed earnings level were 20–25 percent higher, this would result in a reduction in cost of between one-half and three-fourths of 1 percent of payroll on a level premium basis according to the intermediate-cost estimate. On the basis of such a lower cost, the system would be shown to be well more than self-supporting under the intermediate cost estimate, rather than being not quite self-supporting, as indicated in table 16.

The interest assumption used in determining level premium costs has generally been taken to be 2 percent since that was a reasonable rate 5 years ago when the basic cost assumptions were developed. Since then the trend of interest rates has been upward, and the average rate on investments of the trust fund is currently about $2\frac{1}{4}$ percent. Using this interest rate would decrease the level premium cost in the intermediate estimate by about 0.15 percent of payroll. Accordingly, if this factor alone were changed, the system would be shown to be just about self-supporting on the intermediate-cost estimate.

Another factor mentioned earlier, but not used in the actuarial projections, is the trend, exhibited in the past, of an irregular but upward movement in earnings, both on a dollar basis and in the form of real wages. If this secular trend continues, then—other things being equal—the curves of benefits and contributions would both be more steeply ascending than shown. The upward changes in the contribution curves, however, would be far more accentuated than would be such change in the benefit curves. There are several reasons for this, the important one being that the benefit increase would be dampened because—

(1) The benefits are determined by the average monthly wage up to the maximum of \$300; 50 percent is applied to the first \$100 thereof and 15 percent to that part above \$100. As average earnings increase and as more persons approach or reach the \$300 maximum, a larger portion of such earnings falls in that bracket of the benefit formula to which the 15-percent rather than the 50-percent rate applies. Thus benefits are smaller in relation to earnings, and consequently in relation to contributions.

(2) Any year's contributions are substantially based on the covered earnings of that year, while any year's benefits in force are based on weighted composite earnings of all previous years in which the insured persons on whose account the benefits are paid worked in covered employment, thus including—in far-distant future years—earnings of as much as 60, 70, or more years previously.

Under the assumptions of a 1-percent compound annual rate of increase in earnings over the 1947 level, and of a static benefit formula unchanging from the present provisions, benefit disbursements in the year 2000 would be only about 10 percent higher than under a level-earnings assumption (as in table 14 and chart 1). At the same time, contributions would be increased by about 30 percent under the high-employment assumptions. On this basis, the relationship between benefits and taxable earnings for the year 2000 would be as follows:

	Rising earnings	Level earnings
Low-cost assumptions	Percent 4.7	Percent 5.8
High-cost assumptions	8.3	10.2

Thus, the cost of benefits relative to contributions in a year half a century hence would be about 20 percent lower under an increasing earnings, static benefit formula assumption than under a level-earnings assumption. Under such an assumption, the cost expressed as a level premium into perpetuity, taking into account discounting at 2-percent interest, would show a range of from 4½ to 6½ percent of taxable earnings, as contrasted with the range of from 5 to 7½ percent as shown in table 14. Quite obviously, if the increase assumed had been 2 percent rather than 1 percent—which some economists feel would be a rather conservative assumption over the long-range future—the differences indicated above would be almost doubled. If the current interest rate of 2¼ percent were used instead of 2 percent the above figures would be slightly lower, as indicated previously.

The assumption of steadily rising earnings in conjunction with an unamended benefit formula has an important bearing in the consideration of the long-range cost of the program. With such an assumption, the future rise in earnings would seem to offer significant financial help in the financing of benefits because contributions at a fixed percentage rate would increase steadily relative to benefit disbursements; but the benefits paid to beneficiaries would steadily diminish in relation to current earnings levels. In such a case, offsetting this apparent savings in cost, it is likely that from the long-range point of view the present benefit formula would not be maintained; rather revisions would probably be adopted by Congress (perhaps with some delay) which would make average benefits as adequate relative to the then-existing earnings level as average benefits under the present formula are in relation to the level prevailing about the time that the 1950 amendments were enacted.

In revising the benefit schedule to conform with the altered earnings level, the changed cost and contribution picture would have to be considered. This is especially so as to changes resulting from the fact that benefits would be based on earnings prevailing at the time of such change and thereafter, while the accumulated reserve at that time would have developed from contributions on the lower earnings prevailing during the past and thus would not play as important a role in financing the program as would have been the case if the earnings level had not changed. Accordingly, because of the diminution of the value of the existing reserve toward financing the program, the level premium cost of the program would be increased if the benefit level were adjusted in exact proportion with the increase in the earnings level. For small rates of increase in the earnings level the increase in cost may be counterbalanced by the time lag which would undoubtedly occur between the rise in earnings level and the amendment of the benefit provisions.

In addition to excluding the assumption of increasing wages in the future, the detailed cost estimates given have avoided dealing with various other important secular trends with diverse effects on costs

which cannot now be adequately extrapolated into the future. One illustration is the lengthening of the period of childhood or preparation for work. Another possibility is a drastic change in the average age of retirement, either to a considerably lower effective age so that practically all persons would retire at the minimum age of 65, or conversely to a higher effective age under circumstances of greatly improved health conditions combined with good employment opportunities, such that few would retire before age 70 or even 75.

SUMMARY AND CONCLUSIONS

The Social Security Act Amendments of 1950 were adopted by Congress and went into operation during the fiscal year reviewed by this report. As stated in its eleventh annual report, the Board of Trustees believes that these amendments are an important advance in social security protection.

Although the new amendments were in effect only part of the year, they materially affected the fund's income and disbursements in fiscal year 1951. During fiscal year 1952, the first full year of operation of the expanded program, benefit disbursements are expected to be about \$2.0 billion, or about 2.7 times the amount in fiscal year 1950. In the last of the five fiscal years ahead, annual payments are expected to total between \$3.0 and \$3.3 billion. The trend in benefit payments will be upward throughout the remainder of the century; by 1970 benefit disbursements are expected to increase to 2½ to 3½ times their level in fiscal year 1952.

Despite the large increase in benefit disbursements, contributions paid by employers, employees, and self-employed persons in each of the five fiscal years immediately ahead are expected to continue to be wholly sufficient to meet the disbursements of the old-age and survivors insurance program in each of these years.

The income of the fund from contributions was much larger in fiscal year 1951 than in fiscal year 1950 for a number of reasons: the increased contribution rate that went into effect on January 1, 1950; the broader coverage of the program beginning January 1, 1951; the increase in the maximum taxable earnings from \$3,000 to \$3,600; and the rise in economic activity and wage levels.

During the past several years, average earnings in covered employment have increased substantially, largely because of increased wage rates. The Board can see no prospect of a permanent drop in wage rates from existing levels. Certainly, the long-time trend of both real wages and money wages has been upward. On the other hand, in terms of goods and services, the real level of benefits established by the 1950 amendments has already been lowered by the recent price trends.

The military as well as the economic aspects of the defense program to which the Nation is committed have far-reaching implications for the old-age and survivors insurance program; some of them are immediately apparent while others relate to the long-run financing of the program and are more difficult to assess. For example, the transfer of large numbers of persons from civilian employment to the armed services again raises the question as to the extent and type of old-age and survivors insurance protection to be provided to veterans and how such protection should be financed. The benefits provided to

survivors of World War II veterans under the 1946 amendments were financed by special appropriations and not charged to the trust fund. The 1950 amendments, which provided additional benefits for World War II veterans, charged to the trust fund not only these additional benefits but also those payable under the 1946 amendments. In any consideration of legislative proposals to provide similar benefits for members of the Armed Forces called into service on account of the present emergency, Congress will need to consider again whether the costs of these benefits are a proper charge against the trust fund or whether they should be met by funds specially appropriated for this purpose.

The preparedness program has had, and for many years to come will continue to have, economic repercussions that will be reflected in the income and disbursements of the old-age and survivors insurance trust fund. Further study is needed to appraise the significance of these developments in relation to the financial aspects of the program. In such a study, emphasis should be placed on the relationships over the years between the income and disbursements of the fund.

