ong-Range Cost
Estimates for Old-Age,
Survivors, and
Disability Insurance
under 1956 Amendments

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This study has been prepared for the use of the staff of the Social Security Administration and for limited circulation to other persons in administration, insurance, and research concerned with the subject treated. It has not been submitted to the Commissioner of Social Security for official approval.

FOREWORD

This Actuarial Study presents detailed cost estimates for the Old-Age, Disability, and Survivors Insurance system as it was following the significant amendments to the Social Security Act made in 1956 (and also taking into account certain minor amendments made in 1957). These cost estimates have, of course, been rendered out-of-date by the recently enacted Social Security Amendments of 1958, which considerably modify the provisions of the system. This Actuarial Study is, nonetheless, released since it is of definite historical value in giving the detailed cost estimates underlying the summarized ones in the 18th Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance Trust Fund and the Federal Disability Insurance Fund (House Document 401, 85th Cong.). Furthermore, the cost estimates for the 1958 Amendments were built up essentially from those contained in this Actuarial Study. It is contemplated that in the near future another Actuarial Study will be prepared paralleling this one but applying to the 1958 Amendments.

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LONG-RANGE COST ESTIMATES FOR OLD-AGE, SURVIVORS,
AND DISABILITY INSURANCE UNDER 1956 AMENDMENTS

A. Introduction

This report is the seventh in a series of Actuarial Studies dealing with the actuarial costs of the Old-Age and Survivors Insurance program, and the first to give detailed actuarial cost estimates for the disability insurance program established by the 1956 Amendments. The estimates given here relate to the program as it was after the significant amendments of 1956.

The first cost estimates for the Old-Age and Survivors Insurance program were developed at the time the legislation was enacted (1939) and were subsequently presented in Actuarial Study No. 14. In the second of this series (developed in 1942 and presented in Actuarial Study No. 17), estimates were made on the basis of a certain amount of actual operations data, as well as more complete demographic data from the 1940 census and the 1935 Family Composition Study.

The third in this series of cost estimates was developed in 1943-44, and published as Actuarial Study No. 19. This differed from the previous study in that not only were there available more experience data, but also a differential average wage between the low-cost and high-cost illustrations was introduced. Because Actuarial Study No. 19 considered the terms "low-cost" and "high-cost" as indicating absolute dollar costs rather than percentage costs relative to payroll, certain difficulties of interpretation and analysis arose. Thus, for both estimates the average cost of the benefits from 1945 to 2000 without interest was 5.6% of payroll which led some to believe erroneously that, although the dollar costs might have a range, the relative costs were fairly closely predictable, a matter of importance in estimating the necessary contribution rates.

The fourth in this series of estimates, Actuarial Study No. 23, was published in 1947 and used more current data on population, wage levels, etc. Two further studies were prepared for and printed by the Committee on Ways and Means, dated July 27, 1950 and July 21, 1952, relating to the 1950 Amendments and 1952 Amendments, respectively.

The cost estimates presented in Actuarial Study No. 36 relate to the 1952 Amendments and correspond to those in the committee print of July 21, 1952, but differ considerably because of the use of the new population projections (Actuarial Study No. 33) and revised cost factors. In order to have appropriate ranges in benefit costs, both as to dollar amounts and relative to payroll, there were developed, in effect, four separate cost illustrations. On the one hand, the low-employment assumptions basis used was somewhat lower than full employment and corresponded roughly on the average to 1940-41 conditions as to proportion of population in covered employment, combined with wage rates prevailing in the same period. On the

other hand, the high-employment assumptions basis was near-full employment (corresponding closely to conditions just before the current recession).

When cost estimates were made for the 1954 legislation as it was being considered by the Congress, only the high-employment assumptions were used because the low-employment assumptions were so much below actual experience. The following discussion will relate only to cost estimates based on high-employment assumptions, but the reader may consult Actuarial Study No. 36 to see the cost effect of somewhat lower employment assumptions.

Following the Conference Committee agreement on the 1954 Amendments, cost estimates were developed in the short time available and were published as a committee print of the Committee on Ways and Means ("Actuarial Cost Estimates for the Old-Age and Survivors Insurance System as Modified By the Social Security Amendments of 1954", Robert J. Myers, August 20, 1954). Subsequently, these cost estimates were carried out on a more complete basis, rather than using certain approximations and short cuts necessary in the rapid development of the original cost estimates. The figures in this more complete cost estimate differed only slightly from the original estimates and were presented in Actuarial Study No. 39.

A history of actuarial cost estimates relating to the 1956 Amendments followed a similar pattern. Cost estimates were developed on an approximate basis in the short time available after agreement was reached by the Conference Committee and were published as a committee print of the Committee on Ways and Means ("Actuarial Cost Estimates for the Old-Age, Survivors, and Disability Insurance System as Modified by Amendments to the Social Security Act in 1956," Robert J. Myers, July 23, 1956). The more refined cost estimates presented here differ from the earlier ones to a greater extent than was the case in 1954 because of the use of revised population projections (Actuarial Study No. 46), the use of somewhat higher earnings assumptions (reflecting approximately 1956 earnings levels, whereas the figures in the committee print assumed earnings at about the level prevailing in 1955), and a considerable number of other changes in basic assumptions and methodology.

Within the high-employment assumptions there are two separate estimates: (1) using "low-cost" factors (i.e. low cost relative to payroll) as to fertility, mortality, retirement rates, etc.; and (2) using "high-cost" factors. As in the previous studies, the terms "low-cost" and "high-cost" apply in the aggregate since in some of the component parts (e.g. child's and mother's benefits) the costs are shown to be higher for "low-cost" than for the "high-cost" factors.

An important element affecting Old-Age, Survivors, and Disability Insurance (OASDI) costs arose through amendments made to the Railroad Retirement Act in 1951. These provide for a coordination of Railroad Retirement compensation and OASDI 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 OASDI system.

Financial interchange provisions are established such that the Old-Age and Survivors Insurance Trust Fund and the Disability Insurance Trust Fund are to be placed in the same financial position as if there never had been a separate Railroad Retirement program, and railroad employment had been covered under OASDI. It is estimated that the net effect of these provisions will be a relatively small net gain to the OASDI 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. The long-range costs developed here are for the operation of the Trust Funds on the basis, as provided in current law, that all railroad employment will be (and beginning with 1937 has been) covered employment. The balance in the fund thus corresponds exactly to the actual situation arising.

B. Basic Assumptions

Throughout the cost estimates the various assumptions have been selected so as to be consistent with the actual operating data and with the other assumptions, and at the same time so as to represent a reasonable range for the element under consideration. As in previous studies, the figures developed do not represent the widest possible range that could reasonably be anticipated, but rather our studied opinions as to a plausible range. For more detailed analysis of items (1), (2), (3), and (4) below see Actuarial Study No. 46. The various basic assumptions are:

(1) Mortality.

The low-cost and high-cost estimates are both based on decreasing rates of mortality to the year 2000 and level thereafter with greater decrease in the high-cost estimate. Assumptions as to mortality declines are based on analysis of recent mortality data by major groups of causes of death. Prior to Actuarial Study No. 36, no decrease in mortality has been assumed for the low-cost estimates.

(2) Birth Rates.

The low-cost estimates assume age-specific birth rates which decline gradually from about 105% of the 1954-55 level in 1955-60 to rates for 2045-50 which produce a gross reproduction rate of 1, while for the high-cost estimates the assumed age-specific birth rates decline from about the 1950-53 level to a gross reproduction rate of 1 in 2005-10 and thereafter.

(3) Migration.

For both the low-cost and high-cost estimates, it was assumed that survivors of net immigrants at the end of each 5-year period would amount to 1.2 million for 1955-60 and 1.0 million for each subsequent 5-year period up to 2005-10.

(4) Population.

The above assumptions as to fertility, mortality, and migration when applied to the existing population yield the basic population projections. At the time this study was begun, there were available estimates of the U.S. population as of July 1, 1955 subdivided by age and sex. These were used as the starting point for the projections.

Table 1 summarizes the two population projections. It will be observed that the population for all ages combined does not show a very wide range as between the low-cost and high-cost assumptions

in the early years, but ultimately the low-cost population is 50% greater than the high-cost. In the high-cost projection there are nearly the same number of aged persons as in the low-cost projection and considerably fewer in the productive ages because of the lower fertility assumed in the former. For the year 2050 those aged 65 and over represent 13.7% of the total population for the low-cost projection as contrasted with 18.8% for the high-cost assumptions. Thus in contrast with 1950, when the corresponding figure was 7.9%, there is a relative increase in the proportion of the aged of about 73% for the low-cost projection and 138% for the high-cost one. In the 100-year period preceding 1950 the actual relative increase was about 225%.

(5) Employment.

In developing bases for estimating both payrolls and insured populations, it is necessary to have the proportion of the total population who are in covered employment in a given year by age and sex. Valuable guides toward developing assumed ratios exist in the form of the actual earnings data for recent years, and labor force data published by the Bureau of the Census. As mentioned previously, the high-employment assumptions are supposed to correspond to nearly full employment. In addition it is hypothesized that in the future women will continue to occupy a greater place in the covered labor force.

Table 2a shows the assumed ratio of persons with earnings credits in the year to total population for quinquennial age groups from 15 to 60 for three illustrative years (there are no changes after the year 2000). Table 2b shows corresponding figures for persons aged 60 and over. For the latter group, there are given low-cost and high-cost figures as representing the range due to possible variations in retirement rates. Under high-employment assumptions the favorable employment opportunities, combined with good health and a philosophy of desiring to continue at work, might result in a considerable postponement; conversely, the increasing availability of supplementary old-age benefits from private pension plans might hasten retirement even under high-employment conditions.

Likewise, in developing estimates of covered payroll and insured populations, it is necessary to subdivide persons with covered earnings in a year into 4-quarter workers and those with covered earnings in less than 4 quarters of the year. Since the self-employed are credited with either 4 quarters of coverage or none in any calendar year, they are included among 4-quarter workers. The actual operating data furnish certain current information as to such distributions. The assumed percentages, which are the same for both estimates and all future years, are shown in Table 3.

(6) Credited Wages for 4-Quarter Workers.

Four-quarter male employees are assumed to have average annual credited earnings of \$3420 while other male workers are assumed to have average annual earnings of \$970. For women the corresponding figures are \$2430 and \$620. As in previous studies, no age differential in earnings for 4-quarter workers is used because the relatively small variations existing for the vast majority of employees (those between ages 25 and 65) do not warrant the additional computation.

The above earnings are assumed to be level into the future. In a subsequent section, the use of an increasing earnings assumption will be discussed.

(7) Credited Payroll.

By applying the previous assumptions as to covered employment and earnings to the population projections, there are obtained the total number of persons with credited earnings in various years and the aggregate amount of such earnings. The resulting data for selected years are shown in Table 4, along with the developed average credits for persons with any earnings in the year. The number of persons with earnings in the year is somewhat lower for the high-cost assumptions than for the low-cost ones. This results from the fact mentioned previously, namely that under the low-cost assumptions there is assumed higher fertility which produces eventually a greater number of persons in the productive ages.

(8) Insured Population.

From the most recent actual data on insured workers, the assumptions as to the proportions of the population in covered employment and the proportions of 4-quarter workers, there may be developed by diagonal projection and general reasoning the assumed proportions of the total population who are insured. As used hereafter the term "insured" includes both "fully insured" and "currently insured only". Below age 65, currently insured status gives eligibility for most of the benefits that fully insured status does. Moreover, at ages 65 and over, the category "currently insured only" is and will be relatively small.

Although only a single set of assumptions was made as to covered employment at most ages, a range is necessary in the proportions insured, representing the cumulative effect of employment, because of the uncertainty involved in the extent of year by year progression of covered employment as between individuals. Table 5 shows for three selected years the resulting ratios of insured persons to total population. The lower figure of the range in each case applies to the low-cost estimate, while the higher figure is used in the high-cost estimate. A constant figure is reached at all ages by 2015 for males

and 2050 for females. The percentages of insured women in the middle age groups are somewhat higher currently than they are expected to be in the next few decades because of the liberal short-range eligibility provisions introduced by the 1950, 1954, and 1956 Amendments. These percentages are expected to rise again in the more distant future, as more women become permanently insured through acquiring 40 quarters of coverage.

By applying the assumed proportions insured to the total population projections, there are obtained the estimated insured populations shown in Table 6. Although the insured population for all ages combined roughly doubles in the next half century, the insured population aged 65 and over roughly quadruples in the high-cost estimate, with the increase being greater for females than for males.

(9) Marital Status.

Assumptions as to marital status are necessary in estimating the costs of the various supplementary and survivor benefits. The various assumptions both for men and women are based on census data and material from the 1940-55 claims. The proportion married in the future is adjusted upward at the older ages to allow for the effect of assumed improved mortality (resulting in fewer early broken marriages); the adjustment in the high-cost estimate is greater. Assumptions as to relative ages of husband and wife are based on census data.

(10) Remarriage Rates.

Widow's benefits terminate on remarriage, and widows of insured workers who were under age 62 at the death of their husbands are eligible for widow's benefits only when they attain that age without having remarried. Thus the remarriage rates assumed have a significant effect on the estimates of the cost of widow's benefits. In the cost estimates presented here, these were based on an aggregate remarriage table derived from the experience of widows receiving mother's benefits between 1948 and 1954. Remarriage rates vary by duration of widowhood as well as by age, but data in the form needed for constructing a select table were not available at the time these cost estimates were prepared. Select remarriage rates based on OASDI experience of mother's benefits are now in preparation.

(11) Child's and Mother's Benefits.

Projected numbers of survivor child beneficiaries were obtained from projections of the population under age 18 by estimating the proportion of such children in each future quinquennial

year who will be orphans of insured workers. The method used for estimating benefit payments to child survivors and their mothers involves the implicit assumption that the distribution of family patterns reflected in recent claims statistics, and current re-marriage rates of mothers, will continue to prevail in the future. Mother beneficiaries were obtained by multiplying the child beneficiaries by a factor which is a little greater than the current ratio in the high-cost estimate and a little less in the low-cost estimate.

(12) Parent's Benefits.

This relatively minor category is difficult to estimate. As more and more of the aged become eligible for old-age, wife's or widow's benefits, the number eligible for parent's benefits will be relatively less. Because of the relative unimportance of this category, its size has been roughly estimated by assuming that the number of parent beneficiaries will bear a constant ratio to the number of aged persons not eligible for any other OASDI benefit.

(13) Proportion of Potential Beneficiaries at Work.

For the various beneficiary categories a considerable saving in disbursements occurs because individuals otherwise eligible are engaged in substantial employment. In some instances benefits are withheld, while in other cases the potential beneficiary never files (notably in the case of mother's benefits in families where there are sufficient children to obtain a maximum or near-maximum benefit anyhow).

The effect of employment in reducing benefit costs is most important in connection with old-age benefits and wife's benefits. Table 7 shows the percentages of aged insured workers receiving old-age benefits in selected years, and Table 8 shows similar percentages for a few of these years by separate age groups. The increase in these percentages is due primarily to a larger proportion of persons not currently in covered employment but insured on the basis of earnings in the past. It was assumed that all eligible aged widows and all children receive benefits and that no wives lose benefits because of their own work (wives who have larger benefits based on their own earnings record than wife's benefits are not shown as receiving wife's benefits, and it is this category that is most likely to be working beyond the minimum retirement age). Implicitly it was assumed that the percentage of eligible mothers who receive benefits remains at the present level.

(14) Alternative Receipt of Benefits.

An important cost element several decades hence, although not very important currently, is the provision that women may not receive full old-age benefits in their own right and full wife's, widow's, or parent's benefits (also applicable to men in respect to the corresponding benefits). In effect, in such cases the larger of the two benefits is payable. As a practical matter, it is to the advantage of the individual to claim the full primary benefit and to obtain the other benefit as a supplement since the latter may be suspended for a number of reasons not applicable to the former (namely employment of the spouse, divorce, remarriage, etc.). For this reason it has been assumed in these cost estimates that all women eligible for old-age benefits file for them even though qualified for another larger benefit. It is assumed they receive the excess of such benefits over their old-age benefits as a supplement.

The number of women qualified for both old-age benefits and wife's or widow's benefits has been estimated by assuming that the probability of a wife or widow being eligible for benefits on the basis of her own earnings as well as on the basis of her husband's earnings is the same as the probability of a woman of that same marital status in the total aged population being an old-age beneficiary. For instance, for a certain year if the married female old-age beneficiaries represent 25% of the married aged female population, then it is assumed that 25% of the aged wives of male old-age beneficiaries (in current payment status) are old-age beneficiaries, or in other words that 75% of such wives are not old-age beneficiaries in their own right but solely wife beneficiaries. Then, based on claims data, with certain modifications to allow for changes in future distributions, estimates have been made as to the proportions of the cases in which the female old-age benefit would be smaller than the widow's benefit or the wife's benefit, as the case may be, and for such cases what the average excess over the primary benefit would be.

(15) Average Benefits.

An estimate was made of the average career wage of insured workers who retire far enough in the future so that the 1956 earnings level and the ultimate percentages of the population in covered employment will have been in effect throughout their working life. The effect of the dropout and disability freeze was taken into account. Because of the weighted nature of the benefit formula the ultimate average primary insurance amount (PIA) is a little less than the figure obtained by substituting the average earnings in the PIA formula. These averages are as follows:

	Low Cost		High Cost	
	<u>Average Career Earnings</u>	<u>Average Annual PIA</u>	<u>Average Career Earnings</u>	<u>Average Annual PIA</u>
Males	\$3280	\$1106	\$3199	\$1088
Females	1481	695	1328	663

The high-cost figures are slightly lower because the relatively larger number of insured workers in the high-cost estimate must have a smaller average amount of coverage. In obtaining the ultimate average benefits from the average PIA, the reductions in benefits because of the family maximum and because of early retirement (between 62 and 65) of wives and female workers have been taken into account. Average benefits are graded from presently prevailing figures into the ultimate ones.

(16) Administrative Expenses.

After study of the various elements involved, it is believed desirable to base the assumed administrative cost on two factors-- the number of persons having any covered employment in a given year and the number of monthly beneficiaries. The estimated administrative expenses for a given year were obtained from the following relationships:

Low-cost estimate--\$5 per monthly beneficiary plus \$1.10 per covered person;

High-cost estimate--\$5.40 per monthly beneficiary plus \$1.30 per covered person,

except that in 1960 the low-cost figures are \$5.20 and \$1.20. The high-cost formula reproduces the actual administrative expenses in 1957, and a relative decrease in administrative expenses is likely in the future.

(17) Contributions.

The previous discussion as to earnings and payroll dealt solely with credited earnings which are used in determining benefits. However, the effective payroll on which contributions are based is slightly higher because of the provision that wages earned in a year in excess of \$4200 when from several employers (with no more than \$4200 from any one employer) are subject to contributions but are not credited towards benefits. In such cases the employee contributions for wages in excess of \$4200 are refundable, but those from the employers are not. Study of recent actual data indicates that the taxable payroll in respect to employees is about 2.4%

greater than their credited payroll. The credited payroll of the self-employed, who pay $1\frac{1}{2}$ times the employee rate, is assumed to remain at the current level of about 12% of the total credited payroll. Allowance is also made for the fact that part of the contributions of a given year (all contributions in respect to self-employment) are based on the earnings of the preceding year.

(18) Disability Incidence and Termination Rates.

Estimates of the future cost of the Disability Insurance program have been based on the same general assumptions as were used in the estimates prepared at the time of the 1956 Amendments, as there are not yet sufficient data available from the actual operation of the program to suggest with any degree of certainty what changes should be made in these assumptions.

In the high-cost estimates, disability incidence rates for men are based on the so-called 165% modification of Class 3 rates (which includes increasingly higher percentages for ages above 45); this 165% modification corresponds roughly to life insurance company experience during the early 1930's. Incidence rates assumed for women are 100% higher than for men. Termination rates are Class 3 rates (relatively high--to be consistent with the high incidence rates assumed).

For the low-cost estimates, disability incidence rates for men have been taken at 25% of those used in the high-cost estimates, or in other words, about 45% of the Class 3 rates. Incidence rates assumed for women are 50% higher than for men. Termination rates are based on German social security experience for 1924-27, which is the best available experience as to relatively low disability termination rates, which are to be anticipated in conjunction with low incidence rates.

The incidence rates actually used for both estimates are 10% below the above rates because, unlike the general definition in insurance company policies, disability is not presumed to be total and of expected long-continued duration after 6 months' duration, but rather permanence must be proved at that time.

It will be noted that the low-cost estimate includes low incidence rates (which, taken by themselves, produce low costs) and also low termination rates (which, taken by themselves, produce higher costs, but which are considered to be necessary since with low incidence rates there would tend to be low termination rates because there would be few recoveries). On the other hand, the high-cost estimate contains high incidence rates that are somewhat offset by high termination rates.

It is believed that these cost estimates for the monthly disability benefits are as good an indication of such costs as

is now possible. Nevertheless, it is recognized that in a new field such as this, more valid estimates are possible only after operating experience has developed from the program being in effect for several years. Disability incidence and termination rates can vary widely--much more so than the mortality rates which underlie retirement and survivor benefit cost calculations.

The present cost estimates make allowance for the savings due to offset of workmen's compensation benefits and other Federal disability benefits (other than veterans' service-connected benefits) against the social security disability benefits. This is a significant factor in the next 30 years (but less so thereafter when veterans' non-service-connected disability benefits will cease to be of importance for persons under age 65).

C. Results of Cost Estimates under Level Earnings Assumption

Table 9 shows the estimated aged monthly beneficiaries (including females 62-64 in 1956 and after) in current payment status and also the actual data for 1950-54 (without any allowance for the effect of the railroad retirement "coverage"--see page 2). During the next 40 years such beneficiaries are shown to increase from the present level of more than 9 million to a range of from 26 to 34 million. At that time, male old-age beneficiaries (retired workers) are shown to make up about 35-40% of the total, female old-age beneficiaries about 35%, wife beneficiaries not eligible for old-age benefits about 10%, widow beneficiaries not eligible for old-age benefits about 10-15%, and parent beneficiaries less than .1%. The percentage of female old-age beneficiaries increases from 22% in 1957 to over 40% in 2050.

In Tables 9-12 projected numbers of beneficiaries in current payment status are based on the assumption that in the future all claims for benefits will be filed and adjudicated promptly. Currently, the benefit payments in each month include substantial amounts of retroactive payments to beneficiaries to whom awards were made subsequent to the month of entitlement to benefits. Thus, current data as to the number of beneficiaries in current payment status in a given month understate the number of persons who will eventually receive benefits for that month. In this respect Tables 9-12 differ from Tables 7 and 8, in which projected numbers of beneficiaries have not been adjusted to allow for prompt filing and adjudication of claims.

Table 10 relates the estimated total aged monthly beneficiaries as shown in Table 9 to the total aged population by sex. Whereas at the present time 59% of all aged men and 46% of all aged women are actually drawing benefits, eventually this proportion is shown to range from 75 to 90% for men and 85 to 90% for women. The proportion is higher for men than for women now, and lower ultimately, for the following reasons:

(a) Since many women do not work during the entire period from the younger ages to retirement age, but rather often only at the younger ages, currently relatively fewer women qualify on the basis of their own earnings.

(b) Currently many widows are not receiving benefits because their husbands died some years ago before the OASI system was inaugurated (or before some types of employment were covered).

(c) In the ultimate condition, the lower retirement rates of men workers as contrasted with female workers and widow beneficiaries will be controlling.

Table 11 shows for various future years the estimated monthly beneficiaries under retirement age in current payment status, as well as the actual data for 1950-57 (again, without allowance for the railroad retirement "coverage"). All categories show a decided increase in future years except mother and child survivor beneficiaries under the high-cost assumptions; these categories remain relatively level after 1960 due to the lower fertility and mortality assumptions, which mean fewer survivor children created. Table 11 also gives the estimated number of lump-sum death payments, which for both estimates increase steadily as the insured population grows and becomes older on the average.

Table 12 shows the estimated possible amount of overlapping for female beneficiaries as between old-age benefits and wife's or widow's benefits. In the early years there are not many cases of such overlapping since relatively few of the current married, older women worked sufficiently in covered employment to become insured for old-age benefits. However, in later years many aged married women will possess insured status for old-age benefits on account of employment at the younger ages, either before or shortly after marriage. Likewise, eventually many widows will qualify for old-age benefits by reason of employment while single or after the death of their husbands.

Ultimately about 25 to 35% of the female old-age beneficiaries (as in Table 9) are estimated to be also qualified for wife's benefits. However, since the wife's benefit is only 50% of the husband's old-age benefit, in only about $\frac{1}{3}$ of such cases is the wife's benefit estimated to be larger than her old-age benefit.

Ultimately about 40 to 45% of the female old-age beneficiaries are estimated as also qualified for widow's benefits. Since the widow's benefit is 75% of the husband's old-age benefit, a relatively large proportion of such women (somewhat more than $\frac{1}{2}$) have a widow's benefit larger than their old-age benefit. It should be emphasized again that these figures are particularly subject to fluctuations and uncertainty.

Table 13 gives the estimated average annual benefits in current payment status for old-age beneficiaries and their dependents. Also shown are the average additional wife's benefits payable for those women who receive a full old-age benefit which is smaller than the full wife's benefit otherwise payable. The averages tend to be slightly higher under the low-cost assumptions than under the high-cost assumptions because the latter assume a greater proportion insured; thus spreading the total covered wages among more persons results in lower average benefits. The average old-age benefits for males gradually rise as the effect of lower earnings levels prior to 1956 diminishes. Average old-age benefits for females decrease slowly, because of an increasing proportion of females of retirement age who are insured by virtue of having had 40 quarters of coverage at some time in the past,

but have been out of the labor force for long periods, and the increasing proportion of women who retired under age 65 with reduced benefits. After 1980 the average wife's benefit declines somewhat due to an increased proportion of wives claiming actuarially reduced benefits at ages between 62 and 65. Before 1980 this is more than offset by the gradual increase in average earnings on which benefits are computed.

Table 14 shows estimated average survivor and disability benefits and lump-sum death payments. As in the case of the average old-age and supplementary benefits in Table 13, the average benefits are somewhat higher under the low-cost assumptions. The gradual slow decrease in the size of the average lump-sum payments is due to an increasing proportion of females in lump-sum awards. For the first few decades, average disability benefits also decline somewhat for a similar reason, and because of the fact that an increasing percentage of benefits are partially offset by payments from the Veterans Administration.

Table 15 summarizes the estimated benefit payments, along with the actual data for the years 1950-57. The benefit payments increase from the level of about \$7½ billion in 1957 to \$25 to \$31 billion in the year 2000. Old-age benefits constitute from 65 to 70% of the total benefit payments in the year 2000, and together with the other benefits for those who have reached retirement age, make up all but about 10% of the total. In the actual 1957 data old-age benefits were 66%, other benefits for the aged were 19%, and younger survivor, disability, and lump-sum death benefits were 15%.

In addition to the figures for the low-cost and high-cost estimates, there have been developed intermediate cost estimates which are merely the 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 the Congress has adopted the principle of establishing in the law a contribution schedule designed to make the system self-supporting, it was necessary at the time the legislation was enacted to select a single set of estimates as the basis for the 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 has been aimed at as closely as possible by the Congress in 1950 and subsequently when developing the tax schedule in the law.

The low-cost and high-cost estimates result from two carefully considered series of assumptions. The intermediate-cost estimate represents an average of the low-cost and high-cost estimates of beneficiaries, benefit disbursements, and total taxable payroll. The corresponding estimates of benefits relative to payroll are developed from these dollar figures.

The chart presents graphically the trend of the actual and estimated benefit costs relative to payroll from 1937 on, along with the contribution rates specified in the law. Under the low-cost example, benefit costs are somewhat below contributions for almost the entire period up to 2033. On the other hand, under the high-cost example, the benefit cost exceeds the contribution rate at intervals during the next 25 years and continuously thereafter.

Table 16 relates the estimated benefits to taxable payroll by type of benefit. The total cost for the ultimate condition ranges from 9.9 to 15.0% of payroll.

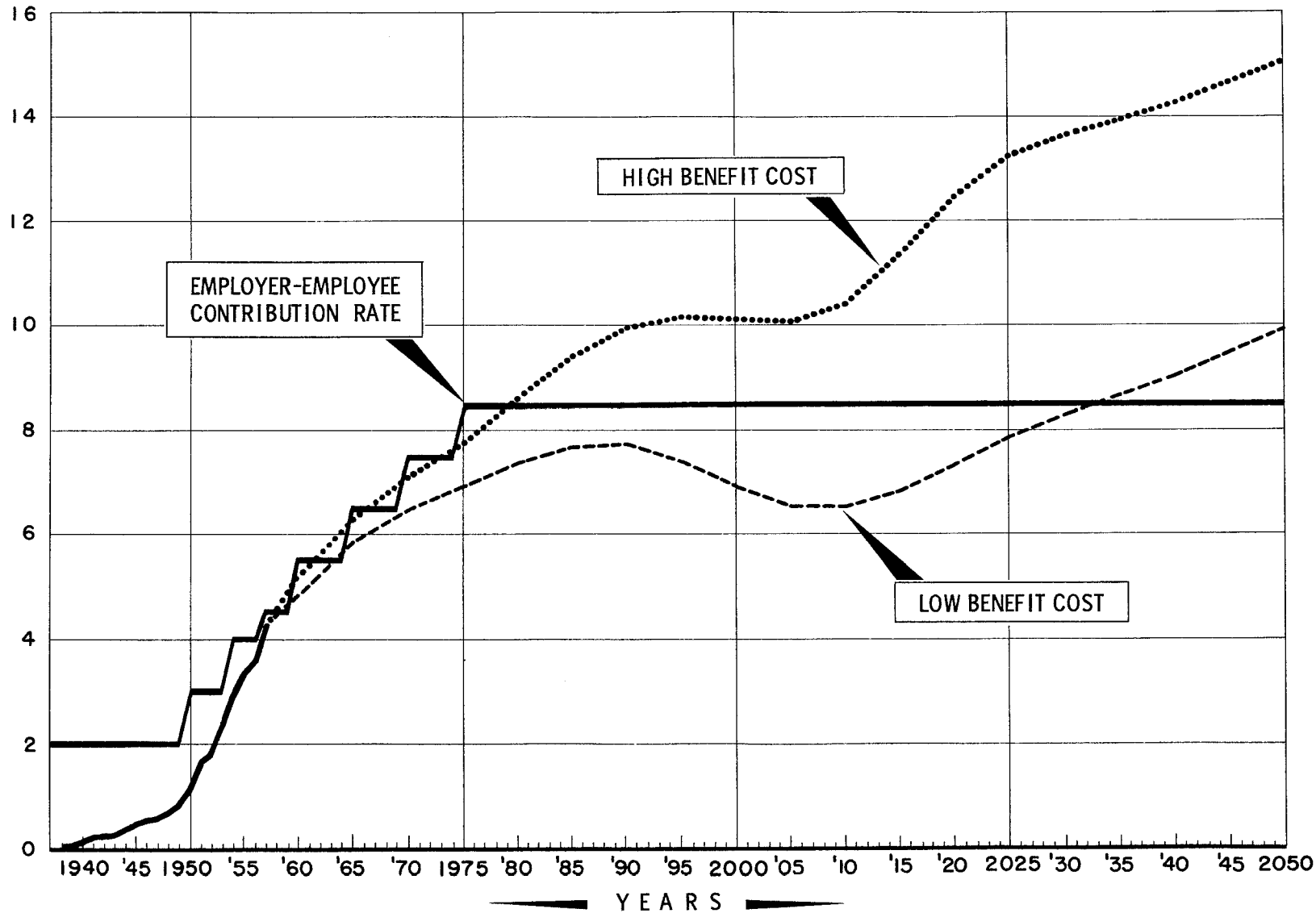
Another concept of long-range cost is the level-premium contribution rate required to support the system into perpetuity based on discounting at interest and assuming that benefit payments and taxable payrolls remain level after the year 2050. If such a level rate were adopted, relatively large accumulations in the trust fund would result, and in consequence also sizable eventual income from interest. Even though such a method of financing is not followed, this concept may nevertheless be used as a convenient measure of long-range costs. This cost concept takes into account the heavy deferred load; on the other hand, some may consider it unrealistic because it deals with periods beyond the year 2050, and also because it is dubious to assume a leveling off or stabilization at any time.

Tables 17 and 17a (for the OASI and Disability Insurance systems, respectively) deal with level-premium costs of the benefits in perpetuity by further taking into account administrative expenses and the accumulated fund on hand at the end of 1957. The resulting "net cost" level-premium would, if actual experience is the same as the particular estimate, be the level contribution rate payable by the employer and employee combined (with the self-employed paying only $\frac{3}{4}$ of this rate), which if in effect hereafter would result in an exactly self-supporting system; then funds accumulating at interest would supply income eventually sufficient to offset the excess of benefit payments over contributions. The resulting figures are shown for three interest rates--2.6% (the rate used in the cost estimates made for the 1956 Amendments when they were being considered by the Congress and about the average yield of the investments of the OASI Trust Fund as of December 31, 1957), 3% (close to the open-market yield-rate on long-term Government bonds as of December 31, 1957), and $3\frac{1}{2}$ %.

OASDI BENEFIT COSTS AS PERCENT OF PAYROLL

HIGH-EMPLOYMENT ASSUMPTIONS

PERCENT OF PAYROLL



At 3% interest the net cost level-premium for the OASI system ranges from 7.0 to 9.0% of payroll. In other words, for the present system a level employer-employee contribution rate (self-employed paying $\frac{3}{4}$) of as little as 7% might be sufficient or, on the other hand, a rate of 9% might be necessary under adverse circumstances. Using a higher interest rate naturally results in somewhat lower costs and vice versa. A differential of $\frac{1}{2}$ % in the interest rate has a net effect on the level-premium of about .4% of payroll.

Table 17 also shows the level-premium equivalents of the present contributions to the OASI system based on the graded schedule in the 1956 Act. These figures are on a comparable basis with the net cost level-premium figures for benefits and show the relative sufficiency (or insufficiency) of the contribution schedule. The 2.6% interest figures in Table 17 are not entirely comparable with the corresponding figures in the cost estimates made at the time the 1956 legislation was enacted because the latter were as of the end of 1955, and these are as of the end of 1957 (and thus are slightly higher as to both benefit costs and contributions). However, the increase in the "insufficiency" on the intermediate-cost basis from .2% to almost .8% is due primarily to the use of revised assumptions rather than to the change in the date of computation.

Table 17a presents similar data for the Disability Insurance system. Here the effect of the interest rate assumed is slight, and there is an actuarial sufficiency of about .15% of payroll on all three interest bases under the intermediate-cost estimates.

Table 18 presents the estimated progress of the OASI Trust Fund at 3% interest under the contribution schedule in the 1956 Act. The contribution income figures shown in this table represent the payments which will actually be made directly to the Trust Fund by contributors. They also include reimbursements to the Trust Fund by the Federal Treasury for the cost of the "free" wage credits allowed for military service between September 15, 1940 and December 31, 1956, as provided by Public Law No. 84-881. Similarly, the benefit disbursement figures shown reflect only the payments which will actually be made from the Trust Fund to individual beneficiaries. The effect (positive or negative) of the Railroad Retirement financial interchange provisions is shown separately. Thus, the figures for benefit payments are not comparable with those given in Table 15, which are based on the assumption that all railroad employment will be (and, beginning with 1937, has been) covered employment.

Under the low-cost estimate, the Trust Fund continues to grow in the future, reaching \$159 billion in the year 2000. However, under the other estimates the Fund grows for a time and then declines until it is eventually exhausted. Under the high-cost estimate the Fund reaches

a peak in 1980 of \$29 billion and is exhausted in 1992. Under the intermediate-cost assumptions the Fund reaches \$50 billion in 1985, remains at about this level for the next 15 years, then rises to a peak of \$84 billion in 2016 and finally declines to exhaustion in 2032. The actuarial balance shown in Table 17 is positive only for the low-cost assumption. Thus, it would be anticipated that the Trust Fund would continue to grow only under this assumption and would be ultimately exhausted under the other assumptions.

Table 18a gives projected figures on the same assumptions at 2.6% interest and at 3.5% interest.

Table 19 shows the progress of the Disability Insurance Trust Fund at 3% interest. This Fund continues to grow indefinitely under all three cost assumptions, although of course more slowly under the high-cost assumption. This is to be expected, since Table 17a showed that the Disability Insurance system, even under the high-cost assumptions has a small positive actuarial balance. Of course, if actual operating experience were only a little less favorable than under the high-cost assumptions, the Fund would rise to a peak and eventually become exhausted.

Table 20 shows the progress of the OASI Trust Fund, based on 3% interest, under the intermediate-cost assumptions for a contribution schedule the same as in the 1956 Act except that the ultimate rate (1975 and after) is such that the system is exactly self-supporting (under these cost assumptions). Such ultimate combined employer-employee rate is 8.79% (vs. the 8% actually in the 1956 Act).

D. Accrued Liability as of January 1, 1958

Estimates have been made of the accrued liability of the OASDI system under two different concepts of that term. In each case the present value of the contributions to be paid by the present adult population is subtracted from the present value of benefits to be paid on the basis of the earnings records of this population and of persons who died before 1958, including applicable administrative expenses. Under the "deficit for present members" concept the contributions are computed at the actual rates in the present law. Under the "entry-age normal cost" method they are computed at the normal cost rate, which is the level rate that would have to be paid by persons who become adults after the valuation date in order to exactly pay for their benefits. The "unfunded accrued liability" is obtained in either case by subtracting the existing fund of \$23 billion.

The estimates have been obtained by making separate cost estimates for present members (workers aged 20 and over at the beginning of 1958) and new entrants (workers who attain age 20 in 1958 and later). The results are shown for the intermediate-cost estimate at 3% interest in Table 21. The level-premium cost, after allowing for the existing fund, is 16.10% for present members as compared with 4.93% for new entrants (the latter figure is the normal cost). The sum of the present value of the contributions to be paid under the present schedule by present members and the existing fund is \$269 billion less than the present value of benefits to be paid to them and their dependents and survivors; this is the unfunded accrued liability under the "deficit for present members" concept. On the other hand, there is a "surplus" of \$228 billion for new entrants.

Under the "entry-age normal cost" concept, the unfunded accrued liability is \$321 billion. It is greater than under the "deficit for present members" concept because the normal cost of 4.93% is less than the level-premium equivalent of 6.74% to be actually paid by present members. The \$321 billion unfunded accrued liability is equivalent to a level contribution rate payable both by present members and new entrants of 3.32%. Adding the normal cost of 4.93%, the net level-premium cost of 8.25% is obtained. Under the financing method of normal cost plus interest on unfunded accrued liability, which is sometimes used in private pension plans, the first-year cost to pay interest on the unfunded accrued liability would be about 5.13%, making a total cost of 10.06%; this would gradually decrease to 7.06% in 2050 and after since the cost of paying interest on the initial (and unchanging) unfunded accrued liability would stay the same in dollars and thus would be a decreasing percentage of the rising total payroll.

It should be noted, however, that the concept of unfunded accrued liability does not have the same significance for a social insurance system as it does for a private insurance system. In a private insurance program, the insurance company must have sufficient funds available so that if the business is terminated, the company will be in a position to pay off the accrued liabilities. However, this is not the basis of a national compulsory social insurance system. It can be presumed that under Government auspices such a system will continue, and the test of financial soundness is not a question of sufficient reserve funds to pay off all accrued liabilities, but rather the test is whether the proposed future income from taxes and investments plus the fund on hand will be sufficient to pay anticipated expenditures. Thus, it is quite proper to count on both receiving contributions from new entrants to the system in the future and paying benefits to this group. These additional assets and liabilities must be considered in determining the actuarial position of the system.

E. The Effect of an Increasing Earnings Assumption

A factor mentioned earlier, but not assumed in the actuarial projections, is the trend observed 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 trend in the contribution curves, however, would be far more accentuated than would be such trend in the benefit curves. The main reasons are--

(1) The benefits are determined by the average monthly earnings up to the maximum of \$350; 55% is applied to the first \$110 thereof and 20% to that part above \$110. As average earnings increase and as more persons approach or reach the \$350 maximum, a larger portion of such earnings falls in that bracket of the benefit formula to which the 20% rather than the 55% 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 80 years previous.

The assumption of steadily rising earnings in conjunction with an unamended benefit formula would have an important bearing in considering 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 made by the 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 when the 1954 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 true 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

Trust Fund at that time would have developed from contributions on the lower earnings prevailing during the past. The fund 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 fund toward financing of 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 partially counterbalanced by the time lag which would undoubtedly occur between the rise in earnings level and the amendment of the benefit provisions. However, for large rates of increase in earnings levels (i.e., for rates equal to or in excess of the assumed valuation interest rate), the level-premium cost would be the ultimate cost, since the fund would ultimately not play any role in the financing of the benefits.

In addition to excluding the assumption of increasing earnings in the future, the detailed cost estimates given have avoided dealing with various other important secular trends. These have 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 for men and 62 for women, 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 72.

F. Comparison with Previous Estimates

The cost estimates prepared from 1939 until 1953 had always contained the assumption that the system would mature in the year 2000 or, in other words, that benefit payments and contributions would be level thereafter. In the cost estimates of 1953, a different assumption was made by maturing any trends, such as mortality, in the year 2000 but going on with the estimates for another 50 years. In one sense, this seems necessary because the aged population itself cannot mature by the year 2000. The reason for this is that the number of births in the 1930's was very low as compared with subsequent and previous periods. As a result, a dip in the relative proportion of the aged occurs from 1995 to about 2010, which, in itself, would be reflected in OASI benefit costs for that period. Accordingly, the year 2000 is by no means a typical "ultimate year."

Table 22 compares benefit costs related to payroll for various years for all the major long-range cost estimates that have been made for the program, beginning with the 1935 Act and for each of the major Amendments. No figures are shown after 1980 for the earliest estimates, and after 2000 for all but the most recent estimates. In those instances, the cost was assumed to level off after that point.

It is not appropriate to compare level-premium costs because of several factors, such as different interest rates, different assumptions as to when "maturity" would occur, and the different time elements involved. In regard to the latter point, the level-premium cost in a given estimate for a particular plan will shift over the course of time if a graded contribution schedule is involved. Thus, for instance, consider a plan beginning in 1937 and remaining unchanged thereafter, with the experience exactly following the cost assumptions originally used. Under such circumstances, if the level-premium cost were 5% at the inception of the plan, and if a graded contribution schedule beginning at 2% and running up to 6% over a period of years were established such as to be equivalent to the level rate of 5%, then the level-premium cost determined in later years would be higher than 5% because this amount had not been collected in the early years of operation. In fact, ultimately the level-premium cost would be 6% of payroll (by the time the contribution schedule reached 6%).

In 1960, the current estimates indicate a cost of roughly 5% of payroll. By coincidence this is within the range of the original cost estimates for the 1935 Act and well below the $5\frac{1}{2}$ to $6\frac{1}{2}$ % range shown for the 1939 Amendments in the estimates made at the time of their enactment. Subsequent 1960 estimates made for the 1939 Act show lower costs than this, as do also the corresponding estimates for the 1950 and 1952 Amendments made at the time of their enactment.

As to ultimate costs, the estimates for the present Act indicate a range from about 10% for the low-cost estimate to 15% for the high-cost estimate. This is not far from the range shown in the original estimates for the 1935 Act, namely somewhat over 9% to somewhat over 13%. These ultimate costs for the present Act, according to the current estimates, are above the level of other cost estimates made at various times--but so too is the ultimate contribution rate.

Table 1

ACTUAL AND PROJECTED U. S. POPULATION^{a/}, 1950-2050
(in millions)

Calendar Year	Aged 20-64			Aged 65 and Over			All Ages		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
	Actual Data ^{a/}								
1950 ^{b/}	44.2	44.9	89.1	5.8	6.5	12.3	77.2	77.6	154.9
1955 ^{c/}	47.0	47.9	95.0	6.8	7.8	14.6	86.0	86.6	172.6
	Projection for Low-Cost Assumptions								
1960	48.4	49.8	98.2	7.4	8.9	16.3	93	94	188
1970	55	56	111	9	11	20	108	110	218
1980	64	66	130	10	14	24	125	128	254
1990	75	75	150	12	17	28	145	148	293
2000	90	90	180	12	17	29	165	168	332
2025	122	122	244	19	26	45	209	213	422
2050	137	137	274	27	37	65	232	239	471
	Projection for High-Cost Assumptions								
1960	48.5	49.8	98.3	7.5	9.0	16.4	91	93	184
1970	55	57	112	9	12	21	101	104	206
1980	63	64	127	11	15	26	113	116	230
1990	69	70	139	14	19	32	125	128	252
2000	78	77	155	15	20	35	135	137	272
2025	88	87	174	23	28	51	152	155	307
2050	88	87	176	27	32	59	156	158	314

a/ These data relate to the total United States and not merely to the continental United States. Figures for 1955 and after incorporate a correction for under-enumeration (see Actuarial Study No. 46).

b/ From 1950 Census (as of April 1).

c/ As of July 1, estimated.

Note: Figures are individually rounded, and in some instances do not add exactly to totals shown.

Table 2a

ASSUMED RATIOS OF PERSONS UNDER AGE 60 WITH EARNINGS
CREDITS IN YEAR TO TOTAL POPULATION IN AGE GROUP^{a/}

Age Group	Male			Female		
	1960	1980	2000	1960	1980	2000
15-19	67-69%	65-69%	65-69%	49%	49%	50%
20-24	90	90	90	59	59	60
25-29	94	94	94	44	44	45
30-34	94	94	94	42	42	43
35-39	94	94	94	44	45	45
40-44	92%	92%	92%	48%	50%	54%
45-49	91	91	91	49	51	56
50-54	87	87	87	46	48	53
55-59	81	81	81	36	37	40

a/ When two figures are shown, the larger figure was used in the low-cost assumptions and the smaller figure in the high-cost assumptions.

Table 2b

ASSUMED RATIOS OF PERSONS AGED 60 AND OVER WITH EARNINGS
CREDITS IN YEAR TO TOTAL POPULATION IN AGE GROUP

Age Group	Male			Female		
	1960	1980	2000	1960	1980	2000
Low-Cost Assumptions						
60-64	75%	76%	76%	28%	28%	29%
65-69	58	59	62	18	19	21
70-74	33	34	35	10	10	11
75 and over	12	13	13	3	3	3
High-Cost Assumptions						
60-64	74%	74%	74%	27%	26%	26%
65-69	56	50	46	17	15	15
70-74	31	27	26	9	8	8
75 and over	11	10	10	3	3	3

Table 3

ASSUMED PERCENTAGE DISTRIBUTIONS OF PERSONS WITH COVERED EARNINGS
IN YEAR BY 4-QUARTER WORKERS AND ALL OTHERS

Age Group	Male		Female	
	4-Quarter Workers	Other Workers	4-Quarter Workers	Other Workers
15-19	39%	61%	32%	68%
20-24	72	28	54	46
25-29	85	15	56	44
30-34	88	12	60	40
35-39	89	11	64	36
40-44	89	11	70	30
45-49	89	11	74	26
50-54	89	11	77	23
55-59	87	13	77	23
60-64	83	17	77	23
65-69	73	27	71	29
70-74	70	30	66	34
75 and Over	70	30	61	39

Table 4

**ESTIMATED PERSONS WITH EARNINGS CREDITS, TOTAL CREDITED EARNINGS,
AND AVERAGE CREDITABLE EARNINGS**

Calendar Year	Persons with Earnings Credits in Year (in millions)			Total Credited Earnings in Year (in billions)	Average Credited Earnings
	Male	Female	Total		
Actual Data ^{a/}					
1950	32.6	15.7	48.3	\$85.4	\$1769
1951	38.7	19.5	58.1	118.5	2039
1952	39.2	20.4	59.6	125.7	2109
1953	39.9	20.9	60.8	132.5	2178
1954	39.1	20.5	59.6	130.4	2187
1955	44.0	22.0	66.0	155.0	2360
1956	45.0	23.0	68.0	166.0	2400
Low-Cost Assumptions					
1960	51.1	26.6	77.7	\$196.5	\$2529
1980	69.1	36.8	105.9	263.5	2489
2000	95.6	52.8	148.4	369.9	2493
2025	128.1	69.4	197.5	498.5	2524
2050	144.5	77.5	222.0	563.0	2536
High-Cost Assumptions					
1960	50.8	26.6	77.4	\$195.8	\$2530
1980	65.7	34.5	100.2	252.6	2523
2000	80.4	43.8	124.2	314.1	2528
2025	90.8	48.2	139.0	353.9	2547
2050	92.0	48.3	140.3	357.9	2551

^{a/} Preliminary. Not adjusted to reflect effect of (1) provisions that coordinate the Old-Age, Survivors and Disability Insurance and Railroad Retirement programs and (2) earnings credits for military service.

Table 5

ASSUMED RATIOS OF INSURED^{a/} PERSONS TO TOTAL POPULATION

Age Group	Male			Female			
	1960	1980	2000 and After	1960	1980	2000	2050
15-19	18-22%	18-22%	18-22%	11-12%	11-12%	11-13%	11-13%
20-24	81-85	81-85	81-85	56-57	56-58	56-59	56-59
25-29	88-92	88-92	88-92	51-55	50-54	51-55	51-55
30-34	92-95	92-95	92-95	51-55	48-53	49-54	49-54
35-39	92-95	92-95	92-95	53-57	46-52	47-53	47-53
40-44	92-95	92-95	92-95	52-56	47-53	47-54	47-54
45-49	90-93	92-96	92-96	50-54	48-55	50-57	51-59
50-54	87-90	92-96	92-96	45-49	49-56	52-60	55-63
55-59	83-86	92-96	92-96	40-44	49-56	53-61	58-67
60-64	79-81	92-95	92-96	35-39	47-54	53-61	60-69
65-69	83-88	90-94	92-97	30-34	43-50	53-62	60-70
70-74	87-90	87-91	92-97	25-28	39-45	51-60	60-70
75-79	79-82	83-87	92-97	20-23	37-43	49-57	60-70
80-84	62-65	81-83	92-96	12-15	35-39	47-54	60-70
85 and Over	37-40	80-84	87-91	7-9	25-29	39-46	60-70

a/ Includes both those fully insured and those currently insured only. At older ages and in future years latter category is relatively negligible.

Note: In each case the smaller figure was used in the low-cost estimates and the larger figure in the high-cost estimates.

Table 6
ESTIMATED INSURED^{a/} POPULATION
(in millions)

Calendar Year	All Ages			Aged 65 and Over		
	Male	Female	Total	Male	Female	Total
Actual Data (as of January 1) ^{b/}						
1950	30.7	15.0	45.7	1.9	.3	2.2
1951	37.9	21.9	59.8	2.6	.6	3.2
1952	39.6	23.2	62.8	2.8	.7	3.5
1953	42.2	26.0	68.2	3.4	.9	4.3
1954	43.5	27.5	71.0	3.7	1.1	4.8
1955	43.7	27.0	70.7	4.0	1.2	5.2
1956	44.0	26.9	70.9	4.3	1.4	5.7
1957	45.4	27.1	72.5	5.1	1.6	6.7
Low-Cost Assumptions						
1960	49.6	27.2	76.8	5.9	2.1	8.0
1980	68.3	39.0	107.3	8.8	5.4	14.2
2000	94.2	55.9	150.1	11.0	8.6	19.6
2025	130.0	80.4	210.4	17.4	15.1	32.5
2050	151.8	96.2	248.0	24.9	22.5	47.4
High-Cost Assumptions						
1960	51.8	29.4	81.2	6.2	2.4	8.6
1980	71.0	42.7	113.7	10.1	6.7	16.8
2000	89.9	56.8	146.7	14.7	11.4	26.1
2025	107.0	71.3	178.3	22.5	19.0	41.5
2050	111.2	75.4	186.6	25.8	22.7	48.5

a/ Includes both fully insured and currently insured only. In future years relatively few of those aged 65 and over will be currently insured only.

b/ Not adjusted to reflect effect of (1) provisions that coordinate Old-Age, Survivors, and Disability Insurance and Railroad Retirement programs and (2) earnings credits for military service.

Table 7

ESTIMATED OLD-AGE BENEFICIARIES IN CURRENT PAYMENT STATUS
AS PERCENT OF AGED^{a/} INSURED POPULATION

<u>Calendar Year</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
	Actual Data ^{b/}		
1950	59%	61%	59%
1951	57	55	56
1952	64	70	65
1953	60	64	61
1954	66	71	67
1955	71	78	72
1956	76	86	79
1957	70	87	74
	Low-Cost Assumptions		
1960	78%	74%	77%
1980	80	85	82
2000	83	89	86
2050	81	90	86
	High-Cost Assumptions		
1960	80%	78%	79%
1980	84	88	86
2000	89	93	91
2050	89	94	91

a/ In this table, this implies persons aged 65 and over for actual data, and men aged 65 and over and women aged 62 and over for projected data.

b/ At beginning of year, excluding effect of railroad coverage under financial interchange provisions.

Table 8

ESTIMATED OLD-AGE BENEFICIARIES IN CURRENT PAYMENT STATUS
AS PERCENT OF INSURED POPULATION, BY AGE AND SEX

Calendar Year	Aged 62-64	Aged 65-69		Aged 70-71		Aged 72 and Over	
	Female	Male	Female	Male	Female	Male	Female
Actual Data ^{a/}							
1956	-	59%	80%	74%	84%	97%	98%
Low-Cost Estimates							
1960	35%	56%	81%	74%	83%	99%	100%
1980	53	58	86	73	90	99	100
2000	57	57	87	74	91	99	100
2050	62	57	89	74	93	99	100
High-Cost Estimates							
1960	42%	59%	84%	76%	87%	100%	100%
1980	61	66	90	79	92	100	100
2000	67	70	92	80	94	100	100
2050	71	70	93	80	95	100	100

^{a/} At beginning of year, excluding effect of railroad coverage under financial interchange provisions.

Table 9

ESTIMATED AGED^{a/} MONTHLY BENEFICIARIES IN CURRENT PAYMENT STATUS^{b/}
(in thousands)

Calendar Year	Old-Age ^{c/}		Wife's ^{d/}	Survivors		Total Aged
	Male	Female		Widow's ^{e/}	Parent's	
Actual Data ^{f/} (as of December)						
1950	1,469	302	499	314	15	2,584
1951	1,819	459	618	384	19	3,273
1952	2,052	592	690	434	21	3,789
1953	2,438	784	823	511	22	4,578
1954	2,803	972	932	595	24	5,326
1955	3,252	1,222	1,084	701	25	6,284
1956	3,572	1,540	1,316	913	27	7,368
1957	4,198	1,999	1,703	1,095	29	9,024
Low-Cost Assumptions						
1960	4,830	2,205	1,931	1,397	31	10,394
1970	5,824	3,888	2,223	2,618	26	14,579
1980	7,322	5,990	2,608	3,421	23	19,364
2000	9,456	9,295	2,849	4,287	17	25,904
2050	20,968	24,726	5,211	8,554	25	59,484
High-Cost Assumptions						
1960	5,205	2,619	2,053	1,323	30	11,230
1970	6,565	4,758	2,466	2,392	25	16,206
1980	8,897	7,636	3,091	2,896	21	22,541
2000	13,529	12,591	3,696	3,684	12	33,512
2050	23,756	25,097	4,290	4,937	12	58,092

a/ Before 1956 this implies persons aged 65 and over; in 1956 and after, men aged 65 and over and women aged 62 and over.

b/ For projected data, this corresponds to average monthly number in current payment status, assuming prompt filing of claims.

c/ I.e., retired workers. Persons qualified both for old-age benefits and for other benefits are shown only as old-age beneficiaries, except in 1950 and 1951.

d/ Including husband's benefits.

e/ Including widower's benefits.

f/ Excluding effect of railroad coverage under financial interchange provisions. Wife's, widow's and parent's figures for 1950 and 1951 include persons also receiving old-age benefits.

Table 10

ESTIMATED AGED^{a/} BENEFICIARIES IN CURRENT PAYMENT STATUS
AS PERCENT OF TOTAL AGED POPULATION

<u>Calendar Year</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
Actual Data ^{b/} (as of December)			
1950	24%	16%	20%
1951	29	21	25
1952	32	24	28
1953	37	29	33
1954	42	33	37
1955	48	38	43
1956	51	37	43
1957	59	46	51
Low-Cost Assumptions			
1960	65%	50%	56%
1970	68	63	64
1980	72	70	70
2000	79	80	80
2050	77	85	83
High-Cost Assumptions			
1960	70%	54%	60%
1970	74	67	69
1980	79	74	76
2000	89	86	87
2050	89	91	90

a/ Before 1956 this implies persons aged 65 and over; in 1956 and after, men aged 65 and over and women aged 62 and over.

b/ Excluding effect of railroad coverage under financial interchange provisions.

Table 11

ESTIMATED MONTHLY BENEFICIARIES UNDER RETIREMENT AGE IN CURRENT PAYMENT STATUS^{a/}
AND LUMP-SUM DEATH PAYMENTS IN YEAR
(in thousands)

Calendar Year	Supplementary Benefits ^{b/}		Survivor Benefits		Disability Benefits ^{d/}	Lump-sum Payments ^{e/}
	Wife's ^{c/}	Child's	Mother's	Child's		
Actual Data ^{f/}						
1950	9	46	169	653	--	200
1951	29	68	204	778	--	414
1952	34	75	229	864	--	438
1953	41	90	254	963	--	512
1954	49	107	272	1,054	--	516
1955	57	122	292	1,154	--	567
1956	62	131	301	1,210	--	547
1957	81	180	328	1,322	150	689
Low-Cost Assumptions						
1960	72	159	363	1,537	300	877
1970	79	176	425	1,901	563	1,110
1980	105	232	462	2,064	702	1,348
2000	118	265	544	2,429	866	1,870
2050	281	627	591	2,639	1,896	4,121
High-Cost Assumptions						
1960	79	173	380	1,456	500	890
1970	92	204	406	1,488	1,130	1,066
1980	130	288	362	1,325	1,408	1,258
2000	171	384	328	1,201	1,753	1,822
2050	302	678	319	1,167	2,545	3,267

a/ For projected data, this corresponds to average monthly number in current payment status, assuming prompt filing of claims.

b/ Payable to dependents of old-age beneficiaries (retired workers).

c/ Wife is under age 65, with dependent child under 18 in her care.

d/ First payable in 1957. Includes women at ages 62-64.

e/ Number of decedents on whose account payments are made.

f/ For monthly benefits, as of December. Excluding effect of railroad coverage under financial interchange provisions.

Table 12

ESTIMATED FEMALE BENEFICIARIES QUALIFIED FOR BOTH OLD-AGE BENEFITS^{a/}
AND WIFE'S OR WIDOW'S BENEFITS^{b/}, IN CURRENT PAYMENT STATUS^{c/}
(in thousands)

Calendar Year	Qualified for Old-Age and Wife's		Qualified for Old-Age and Widow's	
	<u>Total Eligible</u>	<u>With Smaller Old-Age Benefit</u>	<u>Total Eligible</u>	<u>With Smaller Old-Age Benefit</u>
Low-Cost Assumptions				
1960	290	113	528	211
1980	889	257	2,580	1,496
2000	1,954	567	4,366	2,663
2050	6,815	1,977	11,215	6,841
High-Cost Assumptions				
1960	347	135	618	247
1980	1,193	381	3,243	1,978
2000	3,205	1,025	5,397	3,562
2050	9,010	2,883	10,191	6,726

a/ I.e., retired workers.

b/ Number eligible for both old-age and parent's benefits is negligible.

c/ This corresponds to average monthly number in current payment status, assuming prompt filing of claims.

Table 13

ESTIMATED AVERAGE ANNUAL BENEFITS FOR OLD-AGE BENEFICIARIES
AND THEIR DEPENDENTS IN CURRENT PAYMENT STATUS

Calendar Year	Old-Age ^{a/}		Total	Supplementary ^{b/}		Child's
	Male	Female		With No Old-Age Benefit	Wife's With Smaller Old-Age Benefit	
Actual Data ^{c/} (as of December)						
1950	\$548	\$421	\$526	\$283 ^{d/}	d/	\$205
1951	533	396	506	273 ^{d/}	d/	160
1952	626	470	591	312 ^{d/}	d/	176
1953	654	488	613	331	\$59	189
1954	760	565	710	391	107	222
1955	797	590	740	409	117	240
1956	819	604	754	419	125	248
1957	e/	e/	e/	412 ^{f/}	132	263
Low-Cost Assumptions						
1960	\$925	\$634	\$834	\$456	\$138	\$321
1980	1,097	631	887	501	151	353
2000	1,106	613	862	489	148	351
2050	1,106	599	832	488	148	354
High-Cost Assumptions						
1960	\$912	\$599	\$808	\$450	\$158	\$318
1980	1,079	588	852	494	174	347
2000	1,088	574	840	481	169	349
2050	1,088	562	818	478	169	350

a/ I.e., benefit for retired worker.

b/ Including husband's benefits.

c/ Excluding effect of railroad coverage under financial interchange provisions.

d/ Subdivision not available; figure shown is for all wife's and husband's benefits.

e/ Not available.

f/ Estimated.

Table 14

ESTIMATED AVERAGE ANNUAL SURVIVOR AND DISABILITY BENEFITS
IN CURRENT PAYMENT STATUS AND LUMP-SUM DEATH PAYMENTS

Calendar Year	Widow's ^{a/}		Mother's	Child's	Parent's	Disability	Lump-Sum ^{b/} Death Payments
	With No Old-Age Benefit	With Smaller Old-Age Benefit					
Actual Data ^{c/} (as of December)							
1950	\$438 ^{d/}	d/	\$411	\$341	\$440	--	\$164
1951	432 ^{d/}	d/	399	337	440	--	139
1952	488 ^{d/}	d/	434	376	496	--	145
1953	509	\$179	450	387	504	--	171
1954	581	195	534	444	569	--	179
1955	584	199	551	457	599	--	199
1956	602	206	568	472	609	--	200
1957	613	216	589	490	622	\$873	201
Low-Cost Assumptions							
1970	\$786	\$252	\$737	\$628	\$786	\$858	\$219
1980	823	263	737	628	823	823	216
2000	830	266	737	628	830	904	210
2050	830	266	737	628	830	904	206
High-Cost Assumptions							
1970	\$774	\$286	\$725	\$618	\$774	\$869	\$213
1980	809	299	725	618	809	839	207
2000	816	302	725	618	816	884	201
2050	816	302	725	618	816	884	196

a/ Including widower's benefits.

b/ Based on number of decedents on whose account payments are made.

c/ Excluding effect of railroad coverage under financial interchange provisions.

d/ Subdivision not available; figure shown is for all widow's and widower's benefits.

Table 15

ESTIMATED BENEFIT PAYMENTS
(in millions)

Calendar Years	Monthly Benefits to the Aged				Monthly Benefits to Younger Persons			Lump Sum Death Payments	Total Benefits
	Old-Age ^{a/}	Wife's ^{b/}	Widow's ^{c/}	Parent's	Child's	Mother's	Disability ^{d/}		
Actual Data ^{e/}									
1950	\$557	\$86	\$89	\$4	\$142	\$49	-	\$33	\$961
1951	1,135	175	156	9	271	82	-	57	1,885
1952	1,328	200	191	10	310	92	-	63	2,194
1953	1,884	275	248	12	385	114	-	88	3,006
1954	2,340	338	304	13	451	133	-	92	3,670
1955	3,253	466	396	16	561	163	-	113	4,968
1956	3,793	536	469	17	614	177	-	109	5,715
1957	4,888	756	653	19	694	198	\$57	139	7,404
Low-Cost Assumptions									
1960	\$5,865	\$929	\$1,014	\$21	\$850	\$225	\$265	\$167	\$9,336
1980	11,814	1,398	3,208	19	1,378	340	578	291	19,026
2000	16,161	1,534	4,266	14	1,618	401	783	393	25,170
2050	38,009	2,975	8,920	21	1,879	436	1,714	847	54,801
High-Cost Assumptions									
1960	\$6,320	\$980	\$964	\$20	\$808	\$234	\$436	\$165	\$9,927
1980	14,094	1,656	2,934	17	919	262	1,161	261	21,324
2000	21,942	2,032	4,082	10	876	238	1,550	366	31,096
2050	39,940	2,684	6,060	10	958	231	2,250	639	52,772
Intermediate-Cost Assumptions									
1960	\$6,092	\$954	\$989	\$20	\$829	\$230	\$350	\$166	\$9,630
1980	12,954	1,527	3,071	18	1,148	301	880	276	20,175
2000	19,052	1,783	4,174	12	1,247	320	1,166	380	28,134
2050	38,975	2,830	7,490	16	1,418	334	1,982	743	53,788

a/ I.e., for retired workers.

b/ Including husband's and young wife's benefits.

c/ Including widower's benefits.

d/ First payable in 1957.

e/ Excluding effect of railroad coverage under financial interchange provisions.

Note: Where persons are qualified both for old-age benefits and for other benefits, the full old-age benefit is assumed to be paid, with supplementary payment of the excess of the other benefit if larger, except that in 1955-57 some of such supplementary payments are included with old-age benefits.

Table 16

ESTIMATED BENEFIT PAYMENTS AS PERCENT OF TAXABLE PAYROLL^{a/}

Calendar Year	Monthly Benefits to the Aged				Monthly Benefits to Younger Persons			Lump-Sum Death Payments	Total Benefits
	Old-Age	Wife's	Widow's	Parent's	Child's	Mother's	Disability		
Actual Data ^{c/}									
1950	.65%	.10%	.10%	.01%	.16%	.06%	--	.04%	1.10%
1951	.97	.15	.13	.01	.23	.07	--	.05	1.61
1952	1.06	.16	.15	.01	.25	.07	--	.06	1.76
1953	1.43	.21	.19	.01	.29	.09	--	.07	2.28
1954	1.81	.26	.23	.01	.35	.10	--	.07	2.84
1955	2.13	.31	.26	.01	.37	.11	--	.07	3.26
1956	2.31	.33	.29	.01	.37	.11	--	.07	3.49
1957	2.76	.43	.37	.01	.39	.11	.03%	.08	4.18
Low-Cost Assumptions									
1960	3.05%	.48%	.53%	.01%	.44%	.12%	.14%	.09%	4.86%
1970	3.89	.53	1.02	.01	.57	.14	.22	.11	6.49
1980	4.58	.54	1.24	.01	.53	.15	.22	.11	7.38
1990	4.93	.51	1.30	.01	.52	.13	.22	.11	7.71
2000	4.47	.42	1.18	*	.45	.11	.22	.11	6.96
2050	6.89	.54	1.62	*	.34	.08	.31	.15	9.93
High-Cost Assumptions									
1960	3.30%	.51%	.50%	.01%	.42%	.12%	.23%	.09%	5.18%
1970	4.38	.58	.96	.01	.45	.13	.45	.10	7.07
1980	5.70	.67	1.19	.01	.37	.11	.48	.11	8.63
1990	6.91	.72	1.31	.01	.34	.09	.47	.11	9.95
2000	7.14	.76	1.33	*	.28	.08	.50	.12	10.11
2050	11.38	.75	1.73	*	.27	.07	.64	.18	15.03
Intermediate-Cost Assumptions									
1960	3.17%	.50%	.52%	.01%	.43%	.12%	.18%	.09%	5.01%
1970	4.14	.56	.99	.01	.51	.14	.33	.11	6.78
1980	5.13	.60	1.22	.01	.45	.12	.35	.11	7.99
1990	5.87	.61	1.30	.01	.43	.11	.34	.11	8.78
2000	5.69	.53	1.25	*	.37	.10	.35	.11	8.41
2050	8.63	.63	1.66	*	.31	.07	.44	.16	11.92
Level-Premium ^{b/}									
2.6% interest	4.92	.48	1.21	.01	.44	.11	.24	.12	7.52
3% interest	4.76	.48	1.17	.01	.45	.11	.24	.12	7.33
3.5% interest	4.59	.48	1.13	.01	.46	.11	.23	.11	7.13
Level-Premium ^{b/}									
2.6% interest	7.08	.65	1.24	.01	.34	.09	.50	.13	10.03
3% interest	6.72	.64	1.20	.01	.35	.10	.49	.12	9.62
3.5% interest	6.34	.63	1.15	.01	.36	.10	.47	.12	9.17
Level-Premium ^{b/}									
2.6% interest	5.90	.56	1.22	.01	.40	.10	.36	.12	8.66
3% interest	5.66	.55	1.18	.01	.41	.10	.35	.12	8.38
3.5% interest	5.40	.55	1.14	.01	.41	.11	.34	.12	8.08

* Less than .005%.

^{a/} Taking into account lower contribution rate for self-employed as compared with employer-employee rate.^{b/} Level-premium contribution rate for benefit payments after 1957 and in perpetuity, not taking into account accumulated funds through 1957 or administrative expenses (see Table 17). These level-premium rates assume benefits and payrolls remain level after the year 2050.^{c/} Excluding effect of railroad coverage under financial interchange provisions.

Table 17

ANALYSIS OF ESTIMATED LEVEL-PREMIUM COST (AS OF JANUARY 1, 1958)
OF OLD-AGE AND SURVIVORS INSURANCE SYSTEM AS PERCENT OF PAYROLL^a

<u>Level-Premium Equivalent of</u>	<u>Estimate</u>		
	<u>Low-Cost</u>	<u>High-Cost</u>	<u>Intermediate-Cost</u>
Interest at 2.6%			
Benefit Payments	7.28%	9.53%	8.30%
Administrative Expenses	.09	.12	.10
Interest on 1957 Trust Fund ^{b/}	.18	.21	.19
Net Cost ^{c/}	7.19	9.44	8.21
Contributions ^{d/}	7.48	7.37	7.43
Actuarial Balance ^{e/}	.29	-2.07	-.78
Interest at 3%			
Benefit Payments	7.09%	9.13%	8.03%
Administrative Expenses	.09	.11	.10
Interest on 1957 Trust Fund ^{b/}	.21	.25	.23
Net Cost ^{c/}	6.97	8.99	7.90
Contributions ^{d/}	7.38	7.28	7.33
Actuarial Balance ^{e/}	.41	-1.71	-.57
Interest at 3.5%			
Benefit Payments	6.90%	8.70%	7.74%
Administrative Expenses	.09	.11	.10
Interest on 1957 Trust Fund ^{b/}	.26	.30	.28
Net Cost ^{c/}	6.73	8.51	7.56
Contributions ^{d/}	7.26	7.16	7.21
Actuarial Balance ^{e/}	.53	-1.35	-.35

- ^{a/} Effective taxable payroll (adjusted to take into account that the self-employed pay $\frac{3}{4}$ of the combined employer-employee tax rate).
- ^{b/} Interest on Trust Fund existing at end of 1957 as earned in future years (in percent of effective taxable payroll).
- ^{c/} Level-premium equivalent of benefit payments plus administrative expenses less interest on existing Fund at end of 1957.
- ^{d/} Level-premium contribution rate for employer and employee combined equivalent to the graded rates in the 1956 Act (assuming that the self-employed pay $\frac{3}{4}$ as much).
- ^{e/} A negative figure indicates the extent of lack of actuarial sufficiency.

Table 17a

ANALYSIS OF ESTIMATED LEVEL-PREMIUM COST (AS OF JANUARY 1, 1958)
OF DISABILITY INSURANCE SYSTEM AS PERCENT OF PAYROLL^{a/}

Level-Premium Equivalent of	Estimate		
	Low- Cost	High- Cost	Intermediate- Cost
Interest at 2.6%			
Benefit Payments	.24%	.50%	.36%
Administrative Expenses	.01	.01	.01
Interest on 1957 Fund ^{b/}	.01	.01	.01
Net Cost ^{c/}	.24	.50	.36
Contributions ^{d/}	.50	.50	.50
Actuarial Balance	.26	.00	.14
Interest at 3%			
Benefit Payments	.24%	.49%	.35%
Administrative Expenses	.01	.01	.01
Interest on 1957 Fund ^{b/}	.01	.01	.01
Net Cost ^{c/}	.24	.49	.35
Contributions ^{d/}	.50	.50	.50
Actuarial Balance	.26	.01	.15
Interest at 3.5%			
Benefit Payments	.23%	.47%	.34%
Administrative Expenses	.01	.01	.01
Interest on 1957 Fund ^{b/}	.01	.01	.01
Net Cost ^{c/}	.23	.47	.34
Contributions ^{d/}	.50	.50	.50
Actuarial Balance	.27	.03	.16

a/ Effective taxable payroll (adjusted to take into account that the self-employed pay $\frac{3}{4}$ of the combined employer-employee tax rate).

b/ Interest on Trust Fund existing at end of 1957 as earned in future years (in percent of effective taxable payroll).

c/ Level-premium equivalent of benefit payments plus administrative expenses less interest on existing Fund at end of 1957.

d/ Level-premium contribution rate for employer and employee combined equivalent to the graded rates in the 1956 Act (assuming that the self-employed pay $\frac{3}{4}$ as much).

Table 18

ESTIMATED PROGRESS OF OASI TRUST FUND UNDER CONTRIBUTION SCHEDULE IN 1956 ACT^{a/},
 3% INTEREST
 (in millions)

Calendar Year	Contributions	Benefit Payments	Administrative Expenses	Railroad Retirement Financial Interchange ^{b/}	Net Income	Interest on Fund ^{c/}	Fund at End of Year
Actual Data							
1949	\$1,670	\$667	\$54	--	\$949	\$146	\$11,816
1950	2,671	961	61	--	1,649	257	13,721
1951	3,367	1,885	81	--	1,401	417	15,540
1952	3,819	2,194	88	--	1,537	365	17,442
1953	3,945	3,006	88	--	851	414	18,707
1954	5,163	3,670	92	--	1,401	468	20,576
1955	5,713	4,968	119	--	626	461	21,663
1956	6,172	5,715	132	--	325	531	22,519
1957	6,826	7,347	162	--	-683	557	22,393
Low-Cost Assumptions							
1965	\$11,744	\$11,089	\$167	-\$154	\$334	\$701	\$24,226
1970	14,755	13,391	186	- 110	1,008	830	29,037
1980	20,220	18,076	228	+ 28	1,944	1,693	59,085
1990	23,801	22,394	273	+ 127	1,261	2,778	90,020
2000	28,534	24,178	310	+ 191	4,237	4,575	159,186
2025	38,650	36,862	441	+ 191	1,538	15,477	532,158
2050	43,741	52,878	562	+ 191	-9,508	29,416	995,910
High-Cost Assumptions							
1965	\$11,683	\$11,597	\$195	-\$182	-\$291	\$590	\$20,108
1970	14,674	14,065	216	- 148	245	587	20,282
1980	19,382	19,723	263	- 20	- 624	847	28,776
1990	21,577	25,731	315	+ 79	-4,390	279	7,386
2000	24,198	29,291	354	+ 145	-5,302		(Fund exhausted in 1992)
Intermediate-Cost Assumptions							
1965	\$11,714	\$11,342	\$181	-\$168	\$23	\$646	\$22,167
1970	14,714	13,729	201	- 129	655	708	24,660
1975	18,151	16,143	222	- 66	1,720	908	32,048
1980	19,801	18,899	246	+ 4	660	1,270	43,930
1990	22,689	24,062	294	+ 103	-1,564	1,528	51,703
2000	26,366	26,736	332	+ 168	-534	1,605	54,835
2015	30,964	32,484	394	+ 168	-1,746	2,458	83,529
2025	33,002	40,193	453	+ 168	-7,476	1,727	55,560
2050	35,710	51,574	536	+ 168	-16,232		(Fund exhausted in 2032).

a/ Combined rate of 4% in 1957-59, 5% in 1960-64, 6% in 1965-69, 7% in 1970-74 and 8% thereafter.

b/ A positive figure indicates payment to the Trust Fund from the Railroad Retirement Account, and a negative figure indicates the reverse.

c/ In projected data, interest is taken at 3% (except 2.6% in 1958, 2.7% in 1959, 2.8% in 1960, and 2.9% in 1961) on fund at end of previous year plus 1/2 of the net income of the current year.

Table 18a

**ESTIMATED PROGRESS OF OASI TRUST FUND UNDER CONTRIBUTION SCHEDULE
IN 1956 ACT^{a/} AT 2.6% INTEREST AND AT 3.5% INTEREST
(in millions)**

Calendar Year	Net Income ^{b/}	At 2.6% Interest		At 3.5% Interest	
		Interest on Fund ^{c/}	Fund at End of Year	Interest on Fund ^{d/}	Fund at End of Year
Low-Cost Assumptions					
1965	\$334	\$596	\$23,694	\$838	\$24,946
1970	1,068	693	27,884	1,016	30,589
1980	1,944	1,388	55,762	2,120	63,650
1990	1,261	2,223	88,337	3,592	106,857
2000	4,237	3,591	143,834	6,066	181,506
2025	1,538	11,657	460,777	21,719	643,017
2050	-9,508	19,387	760,281	47,405	1,397,067
High-Cost Assumptions					
1965	- \$291	\$501	\$19,625	\$709	\$20,763
1970	245	486	19,315	726	21,592
1980	- 624	678	26,449	1,093	32,021
1990	-4,390	142	3,397	522	13,247
2000	-5,302	(Fund exhausted in 1991)	(Fund exhausted in 1993)	(Fund exhausted in 1993)	(Fund exhausted in 1993)
Intermediate-Cost Assumptions					
1965	\$23	\$548	\$21,660	\$774	\$22,854
1970	655	590	23,600	871	26,090
1975	1,720	745	30,262	1,138	34,484
1980	660	1,033	41,106	1,606	47,836
1990	-1,564	1,182	45,867	2,057	60,052
2000	- 534	1,146	44,976	2,364	69,628
2015	-1,745	1,648	64,142	3,912	114,823
2025	-7,476	783	27,154	3,646	104,080
2050	-16,232	(Fund exhausted in 2029)	(Fund exhausted in 2039)	(Fund exhausted in 2039)	(Fund exhausted in 2039)

a/ Combined rate of 4% in 1957-59, 5% in 1960-64, 6% in 1965-69, 7% in 1970-74 and 8% thereafter.

b/ For analysis of net income figures, see Table 18.

c/ Interest at 2.6% on fund at end of previous year plus $\frac{1}{2}$ of the net income of the current year.

d/ Interest at 3.5% (except 2.6% in 1958, 2.9% in 1959, 3.1% in 1960, and 3.3% in 1961) on fund at end of previous year plus $\frac{1}{2}$ of the net income of the current year.

Table 19

ESTIMATED PROGRESS OF DISABILITY INSURANCE TRUST FUND UNDER 1956 ACT, 3% INTEREST
(in millions)

Calendar Year	Contributions ^{a/}	Benefit Payments	Administrative Expenses	Railroad Retirement Financial Interchange ^{b/}	Net Income	Interest on Fund ^{c/}	Fund at End of Year
Actual Data							
1957	\$702	\$57	\$17	--	\$628	\$7	\$635
Low-Cost Assumptions							
1965	\$1,003	\$362	\$22	-\$15	\$604	\$187	\$6,734
1970	1,080	445	23	- 13	599	313	11,044
1980	1,264	550	27	- 3	684	640	22,306
1990	1,488	640	30	+ 2	820	1,113	38,617
2000	1,783	765	36	+ 7	989	1,811	62,691
2025	2,416	1,303	53	+ 9	1,069	4,885	168,265
2050	2,734	1,698	63	+ 9	982	11,341	389,859
High-Cost Assumptions							
1965	\$997	\$735	\$28	-\$18	\$216	\$134	\$4,700
1970	1,074	941	30	- 16	87	179	6,205
1980	1,211	1,149	35	- 7	20	259	8,905
1990	1,349	1,266	38	- 2	43	352	12,123
2000	1,512	1,528	44	+ 3	-57	486	16,665
2025	1,710	2,046	52	+ 5	-383	642	21,858
2050	1,730	2,230	55	+ 5	-550	782	26,585
Intermediate-Cost Assumptions							
1965	\$1,000	\$548	\$25	-\$17	\$410	\$160	\$5,717
1970	1,077	692	27	- 15	343	246	8,624
1975	1,159	776	30	- 11	342	340	11,844
1980	1,237	850	30	- 5	352	450	15,606
1990	1,419	953	34	0	432	732	25,370
2000	1,647	1,146	40	+ 5	466	1,148	39,678
2025	2,063	1,674	53	+ 7	343	2,764	95,062
2050	2,232	1,964	59	+ 7	216	6,062	208,222

a/ At $\frac{1}{4}\%$ each from employer and employee and $\frac{3}{8}\%$ from the self-employed.

b/ A positive figure indicates payment to the Trust Fund from the Railroad Retirement Account, and a negative figure indicates the reverse.

c/ In projected data, interest is taken at 3% (except 2.6% in 1958, 2.7% in 1959, 2.8% in 1960, and 2.9% in 1961) on fund at end of previous year plus $\frac{1}{2}$ of the net income of the current year.

Table 20

ESTIMATED PROGRESS OF OASI TRUST FUND UNDER A THEORETICAL CONTRIBUTION SCHEDULE UNCHANGED FROM SCHEDULE IN 1956 ACT EXCEPT THAT ULTIMATE RATE IS SUCH THAT SYSTEM WILL BE IN BALANCE^{a/}, INTERMEDIATE-COST ASSUMPTIONS, 3% INTEREST (in millions)

<u>Calendar Year</u>	<u>Contributions</u>	<u>Benefit Payments</u>	<u>Administrative Expenses</u>	<u>Railroad Retirement Financial Interchange^{b/}</u>	<u>Net Income</u>	<u>Interest on Fund^{c/}</u>	<u>Fund at End of Year</u>
1965	\$11,714	\$11,342	\$181	-\$168	\$23	\$646	\$22,167
1970	14,714	13,729	201	- 129	655	708	24,660
1980	21,765	18,899	246	+ 44	2,664	1,601	56,299
2000	28,981	26,736	332	+ 208	2,123	4,037	139,653
2050	39,253	51,574	536	+ 208	-12,649	12,649	427,873

a/ Combined rate of 8.79% in 1975 and thereafter.

b/ A positive figure indicates payment to the Trust Fund from the Railroad Retirement Account, and a negative figure indicates the reverse.

c/ Interest taken at 3% (except 2.6% in 1958, 2.7% in 1959, 2.8% in 1960, 2.9% in 1961).

Table 21

COST ANALYSIS OF OASDI SYSTEM FOR PRESENT MEMBERS AND NEW ENTRANTS,
INTERMEDIATE-COST AT 3% INTEREST

Item	Amount (billions)	Equivalent Level Percent of Payroll
Present Value of Payrolls:		
Present Members	\$2,876	
New Entrants	<u>6,795</u>	
Total	9,671	
Present Value of Benefits and Expenses:		
Present Members	486	16.90%
New Entrants	<u>335</u>	4.93
Total	821	8.49
Present Value of Benefits and Expenses Less Existing Fund:		
Present Members	463	16.10
New Entrants	<u>335</u>	4.93
Total	798	8.25
Present Value of Contributions:		
Present Members	194	6.74
New Entrants	<u>563</u>	8.30
Total	757	7.83
Surplus (+) or Deficit (-):		
Present Members	-269	-9.36
New Entrants	<u>+228</u>	+3.37
Total	- 41	- .42
"Entry-Age Normal Cost"		
Accrued Liability:		
Funded	23	.24
Unfunded	<u>321</u>	3.32
Total	344	3.56

Table 22

COMPARISON OF ESTIMATES OF LONG-RANGE COSTS AS PERCENT OF
PAYROLL FOR VARIOUS ACTS

Act	Actuarial Study No.	Employment Assumption	Benefit Cost in Year					
			1955	1960	1970	1980	2000	2050
Low-Cost Assumptions								
1935	12	a/	2.81%	4.18%	6.38%	9.35%		
1939	14	a/	4.46	5.36 ^{c/}	6.33 ^{c/}	7.22 ^{c/}		
1939	17	a/	2.58 ^{c/}	3.35	4.71	6.13	7.55%	
1939	19	a/	2.51	3.45	5.19	7.29	8.98	
1939	23	Low	2.54	3.20	4.14	5.13	5.87	
1939	23	High	1.36	1.81	2.63	3.41	4.28	
1950	b/	a/	2.21	2.83	4.00	4.93	5.80	
1952	b/	a/	2.14	2.87	4.03	4.93	5.77	
1952	36	Low	3.31	4.41	5.57	6.57	6.99	7.63%
1952	36	High	2.80	3.76	4.85	5.86	6.29	6.88
1954	39	High	2.78	4.04	5.57	6.79	7.24	7.89
1956	48	High	-	4.86	6.49	7.38	6.96	9.93
High-Cost Assumptions								
1935	12	a/	3.46%	5.13%	8.41%	13.36%		
1939	14	a/	5.45	6.72 ^{c/}	8.54 ^{c/}	10.60 ^{c/}		
1939	17	a/	3.70 ^{c/}	4.75	6.77	9.55	12.66%	
1939	19	a/	2.14	3.00	4.68	6.94	10.64	
1939	23	Low	3.12	3.85	5.35	7.37	10.76	
1939	23	High	1.95	2.55	3.77	5.32	8.31	
1950	b/	a/	2.69	3.74	5.34	7.14	10.20	
1952	b/	a/	2.45	3.74	5.33	7.08	10.08	
1952	36	Low	3.76	4.97	6.27	7.58	9.33	12.07%
1952	36	High	3.29	4.44	5.66	6.95	8.42	10.93
1954	39	High	3.10	4.63	6.39	7.90	9.31	11.92
1956	48	High	-	5.18	7.07	8.63	10.11	15.03

a/ Only one employment assumption was made, and it was not characterized as to level of employment.

b/ Prepared at time of enactment.

c/ Not shown in Actuarial Study; taken from worksheets.

Actuarial Studies Available from the Division of the Actuary*

10. Various Methods of Financing Old-Age Pension Plans--September 1938.
14. An Analysis of the Benefits and Costs under Title II of the Social Security Act Amendments of 1939--December 1941.
16. Estimated Amount of Life Insurance Value in Force under Survivors Benefits of the Old-Age and Survivors Insurance System--January 1941.
17. New Cost Estimates for the OASI System, with the Assumption of a Static Future Wage Level--December 1942.
19. OASI 1943-44 Cost Studies--May 1944.
21. Analysis of Long-Range Cost Factors--September 1946.
22. Cost Study for Complete Coverage Program of Old-Age, Survivors, and Disability Insurance--August 1945.
23. Long-Range Cost Estimates for OASI, 1946--April 1947.
26. Present Values of OASI Benefits Awarded and in Current Payment Status, 1940-46--May 1948.
28. Long-Range Cost Estimates for Expanded Coverage and Liberalized Benefits Proposed to the OASI System by H.R. 2893--February 1949.
29. Estimated Amount of Life Insurance in Force as Survivor Benefits under OASI System--April 1949.
30. Analysis of the Benefits under Title II of the Social Security Act Amendments of 1950--February 1951.
31. Estimated Amount of Life Insurance in Force as Survivor Benefits under Social Security Act Amendments of 1950--September 1951.
32. Analysis of 346 Group Annuities Underwritten in 1946-50--October 1952.
33. Illustrative U.S. Population Projections, 1952--November 1952.

* Numbers not listed are out of print.

34. Analysis of the Benefits under the OASI Program as Amended in 1952--December 1952.
35. Present Values of OASI Benefits in Current Payment Status 1940-52--May 1953.
36. Long-Range Cost Estimates for OASI 1953--June 1953.
37. Estimated Amount of Life Insurance in Force as Survivor Benefits under Social Security Act Amendments of 1952--August 1953.
38. Long-Range Cost Estimates for Changes Proposed in the OASI System by H.R. 7199, with Supplementary Estimates for Universal Coverage--March 1954.
39. Long-Range Cost Estimates for OASI 1954--December 1954.
40. The Financial Principle of Self-Support in the OASI System--April 1955.
41. Analysis of Benefits, OASI Program, 1954 Amendments--May 1955.
42. Present Values of OASI Benefits in Current Payment Status 1940-54--July 1955.
43. Estimated Amount of Life Insurance in Force as Survivor Benefits under OASI--1955--September 1955.
44. Analysis of 157 Group Annuity Plans Amended in 1950-54--July 1956.
45. Present Values of OASI Benefits in Current Payment Status 1940-56--May 1957.
46. Illustrative United States Population Projections--May 1957.
47. Estimated Amount of Life Insurance in Force as Survivor Benefits under OASI--1957--July 1958.