

ACTUARIAL COST ESTIMATES FOR SUGGESTED PLAN

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The purpose of this report is to present cost estimates for the suggested plan as compared to those for the present Title II. The estimates will be made on the basis of two sets of assumptions; first, the original assumptions made by the Committee on Economic Security, and second, a revised set of assumptions which indicate probable maximum costs.

A. Original Assumptions of the Committee on Economic Security, 1935

In preparing cost estimates for the benefits under Title II, the Committee on Economic Security made a number of assumptions on the basis of such data as were available at that time. They were as follows:

- (1) That the covered group start at 25,337,000, relatively full-time employees, and slowly increase due to general population growths.
- (2) That a reasonable age distribution derived from the 1930 Census figures of gainful workers could be accepted as applicable to the prospective coverage.
- (3) That as time went on, the expected mortality on the future coverage would be in accordance with the white lives portion of the United States population tables based on data of the period 1920-29 (somewhat in conflict with the development of coverage under population estimates under (1) which assumed continuously improving mortality).
- (4) That net immigration would remain fairly constant at the sum of 200,000 new lives per year with certain arbitrary assumptions as to the age distribution of such immigrants.
- (5) That a uniform annual wage of \$1100 could reasonably represent the effective per capita

- wage during the entire period under specification.
- (6) That other than in this wage assumption, no special treatment of periods of unemployment would be introduced.
 - (7) That no attempt would be made to forecast when booms and depressions would occur, nor the extent of their year by year effect upon the progress of funds and benefit payments.
 - (8) That all retirements take place at the age of 67½ rather than at varying ages which are roughly equivalent to this single age. However, certain adjustments were necessary to provide for retirements in the early years.
 - (9) That the amounts of death benefits for death prior to age 65 would generally follow uniformly from the above assumptions and the continuous use of the white life mortality table.
 - (10) That the amounts of death benefits for deaths after age 65 would be reasonably estimated by considering that the full benefits applicable for death at age 65 would be payable for death prior to age 67½ and thereafter would be reduced by the monthly benefit based on the \$1100 level wage. This assumption is in accordance with that in (8).
 - (11) That lump-sum benefits could be predicted with some adequacy in considering non-qualified individuals reaching the age of 65 before 1942, and that thereafter certain crude assumptions could be made without too great distortion of the aggregate results.
 - (12) That the ratio of covered individuals to population at the productive ages would remain reasonably constant.
 - (13) That, since tax rates have been so determined as to be "self-supporting" and adequate to cover expenses of administration and benefit costs, the excess of tax collections over expenses of administration shall be appropriated into a reserve account which shall earn 3% compound interest.
 - (14) That, although appropriations are made by Con-

gress, their action is assumed to follow the pattern of (13) for a period of 45 years.

- (15) That the increasing proportion of the aged would not result in a change in time of retirement or of granting of benefits, but that a program initiated in 1937 would under widely changing conditions be maintained unchanged over a long period.
- (16) That the excess of appropriations over benefits paid would only be invested at the end of the year, no interest earnings being credited within the year on any such excess.
- (17) That uniformity in ruling as to what categories of employment are covered and what categories are not covered, and similar uniformity as to rulings on individual coverage, were to be expected over long periods of time and wide areas of the country.
- (18) That claims will be presented promptly in all cases.

Due to the inclusion of several types of benefit provisions which are not present in Title II, various additional assumptions have had to be made, namely:

- (19) Disability costs estimates are vastly more difficult to prepare than those underlying the various other types of benefits. Therefore, two estimates (low cost and high cost) have been prepared for each set of assumptions. The distinction between low and high cost estimates arises from varied credence given to the factors entering into the cost estimates based on an analysis of German and British social insurance and American disability experiments. It is assumed that in the course of time it will not be either necessary or practicable to retain the very strict definition of disability proposed for the outset. Accordingly, the disability costs embodied in the attached tables have been prepared from experience tables which assume practical interpretation of the definition of permanent total disability, possibly even a progressive liberalization to a level which may be both practicable and socially desirable.

- (20) The estimates on dependents' benefits have utilized certain foreign data and the limited available census data of 1930 and later special studies involving family composition. Projection into the future recognizes the trends of the National Resources Committee population study. (See d).

B. Probable Maximum Cost Assumptions, 1938

The estimates for the original assumptions, both for the suggested plan and the original Title II, have been kept as consistent as possible. Since 1935 much additional data and information have become available which would lead to changes in the assumptions being used. The set of cost estimates presented here as probable maximum cost assumptions takes into account not only the latest available pertinent data, but also uses more conservative assumptions in connection with such factors where no data are available at the present time or will be available in the next few years. The following changes in assumptions have been made:

- (a) Average annual wage: Instead of \$1100 being used as in Item 5 above, \$900 is now assumed. This latter figure is based on preliminary tabulations of the actual 1937 wage data. The use of \$900 instead of \$1100 involves increased costs since under the various benefit formulae the benefits are relatively larger for lower wages.
- (b) Average retirement age: Instead of an assumed average retirement age of $67\frac{1}{2}$, as in Item 8 above, there is now used instead age 66. This factor is one for which no data will be available until the system has been in operation many years. Little data are available in regard to retirements under private pension plans in this country and under foreign social insurance systems; applicability of such data to this problem is of an extremely limited nature. In order to be conservative a lower retirement age has been selected for these new estimates.

This would involve larger costs.

- (c) Initial coverage: Instead of the original assumption of 25½ million persons being covered on a full-time basis at \$1100 as in Item 1 above, it is now assumed that 32 million persons are covered at a wage of \$900. These new assumptions are based on preliminary tabulations of the 1937 wage data. Many of the 32 million persons had, at the end of 1937, only a few dollars of wage credits; this explains to some extent the difference between the original assumption and the actual experience since the original assumption was on a full-time job basis.
- (d) Population and mortality: Instead of using the United States population tables based on data from 1920-29, as in Item 3 above, the new assumptions provide for the use of the estimates of the National Resources Committee (medium estimate). These source data, which have just become available within the last year, present the result of an exhaustive study which indicates that mortality will tend to improve greatly in the future. As a result of improved mortality more individuals will live to old age so that benefit costs will be greatly increased despite reductions in cost for benefits for those dying before age 65 (including widows and orphans' benefits).
- (e) In-and-out movement: In the original estimate only a small allowance was made for the transfer back and forth of workers between covered and non-covered industries although there was taken into account the factor of women working for only a short time in their youth and then withdrawing completely from gainful employment upon their marriage. In the new cost estimate a greater allowance has been made for this in-and-out movement by assuming that certain proportions of the individuals who are eligible by reason of age but who were previously assumed ineligible because of not being in covered occupations, earn sufficient wage credits to qualify for monthly benefits. Since most of these individuals are assumed to earn only a small amount of wage credits, and since the benefit formulae favor individuals with low amounts of wages, the cost will be increased greatly.

- (f) Disability: In these probable maximum cost assumptions it has been further assumed that there would be a slight increase in cost for the disability benefits as a result of the improvement in mortality.

The probable maximum cost assumptions will not result in maximum costs for each of the different types of benefits but rather for the whole schedule of benefits considered as a unit. For example, with the greatly improved mortality of these maximum cost assumptions the cost for the widows and orphans benefits is materially reduced over that arising from the original assumptions due to the lower mortality prevailing among husbands, while all other categories of benefits involve increased costs. In the early years of the system there is but small difference between the estimates based on the original assumptions and those based on the probable maximum cost assumptions since the differences in the two sets of assumptions have been so chosen that they affect to the greatest extent the long range costs under the programs. Little account has been taken of a wide possible range in the early years arising from lag in presentation and adjudication of claims. Retirement rates in the early years are especially subject to wide fluctuations.

It should be emphasized that the probable maximum cost assumptions do not indicate the absolute maximum cost which might occur. On the other hand, estimates based on the original assumptions do not by any means represent the minimum cost possible. The wide range between the two sets of estimates only tends to indicate the great difficulty of making such long-range estimates due to the many possible reasonable assumptions which might be made. Particularly, such a

factor as average retirement age is apt to depend upon many elements, such as future mortality, business conditions, industrial mechanization, etc. It might also be pointed out that the estimates in these tables take no account of temporary business cycles which would have an appreciable effect on both benefit payments and taxable pay roll.

Table 1a

TOTAL BENEFIT PAYMENTS UNDER SUGGESTED PLAN, INCLUDING DEATH AND DISABILITY BENEFITS,
AS COMPARED TO THOSE UNDER PRESENT TITLE II

Calendar Year	Total Benefit Payments ^{a/}			Benefits as % of Payroll			Increase in Cost for	
	Present Title II	Suggested Plan, Low Cost	Disability High Cost	Present Title II	Suggested Plan, Low Cost	Disability High Cost	Suggested Plan, Low Cost	Disability High Cost
Estimate Based on Original Assumptions								
1940	49	127	138	.17%	.44%	.48%	159%	182%
1945	218	723	820	.73	2.39	2.71	227	271
1950	538	1,383	1,538	1.71	4.33	4.83	153	182
1955	921	1,803	2,002	2.81	5.40	6.00	92	114
Level ^{b/}	--	--	--	5.06	5.77	6.34	14	25
Estimate Based on Probable Maximum Cost Assumptions								
1940	46	144	175	.16%	.49%	.59%	206%	269%
1945	290	862	1,104	.93	2.74	3.51	195	277
1950	834	1,693	2,089	2.52	5.05	6.23	100	147
1955	1,445	2,311	2,828	4.15	6.52	7.98	57	92
Level ^{b/}	--	--	--	7.88	7.80	9.24	- 1	17

a/ In millions of dollars.

b/ Level percent required to support the benefits over a long range period.

Table 1b

TOTAL BENEFIT PAYMENTS UNDER SUGGESTED PLAN, INCLUDING DISABILITY BENEFITS BUT EXCLUDING DEATH BENEFITS,
AS COMPARED TO THOSE UNDER PRESENT TITLE II

Calendar Year	Total Benefit Payments ^{a/}			Benefits as % of Payroll			Increase in Cost for	
	Present Title II	Suggested Plan, Disability		Present Title II	Suggested Plan, Disability		Suggested Plan, Disability	
		Low Cost	High Cost		Low Cost	High Cost	Low Cost	High Cost
Estimate Based on Original Assumptions								
1940	49	80	91	.17%	.28%	.32%	65%	88%
1945	218	662	759	.73	2.19	2.51	200	244
1950	538	1,305	1,460	1.71	4.09	4.59	139	168
1955	921	1,707	1,906	2.81	5.11	5.71	82	103
Level ^{b/}	—	—	—	5.06	5.43	6.00	7	19
Estimate Based on Probable Maximum Cost Assumptions								
1940	46	96	127	.16%	.34%	.44%	113%	175%
1945	290	802	1,044	.93	2.55	3.32	174	257
1950	834	1,618	2,014	2.52	4.83	6.01	92	138
1955	1,445	2,222	2,739	4.15	6.27	7.73	51	86
Level ^{b/}	—	—	—	7.88	7.53	8.97	- 4	14

^{a/} In millions of dollars.

^{b/} Level percent required to support the benefits over a long range period.

Table 1c

TOTAL BENEFIT PAYMENTS UNDER SUGGESTED PLAN, INCLUDING DEATH BENEFITS
BUT EXCLUDING DISABILITY BENEFITS, AS COMPARED TO THOSE UNDER
PRESENT TITLE II

Calendar Year	Total Benefit Payments ^{a/}		Benefits as % of Payroll		Increase in Cost for Suggested Plan
	Present Title II	Suggested Plan	Present Title II	Suggested Plan	
Estimate Based on Original Assumptions					
1940	49	105	.17%	.37%	118%
1945	218	594	.73	1.97	170
1950	538	1,183	1.71	3.71	117
1955	921	1,550	2.81	4.64	65
Level ^{b/}	—	—	5.06	5.03	- 1
Estimate Based on Probable Maximum Cost Assumptions					
1940	46	118	.16%	.40%	150%
1945	290	700	.93	2.23	140
1950	834	1,436	2.52	4.28	70
1955	1,445	1,978	4.15	5.58	34
Level ^{b/}	—	—	7.88	6.87	- 13

a/ In millions of dollars.

b/ Level percent required to support the benefits over a long range period.

Table 1d

TOTAL BENEFIT PAYMENTS UNDER SUGGESTED PLAN, EXCLUDING DEATH AND DISABILITY.
BENEFITS, AS COMPARED TO THOSE UNDER PRESENT TITLE II

Calendar Year	Total Benefit Payments ^{a/}		Benefits as % of Payroll		Increase in Cost for Suggested Plan
	Present Title II	Suggested Plan	Present Title II	Suggested Plan	
Estimate Based on Original Assumptions					
1940	49	58	.17%	.21%	24%
1945	218	533	.73	1.77	142
1950	538	1,105	1.71	3.47	103
1955	921	1,454	2.81	4.35	55
Level ^{b/}	--	--	5.06	4.69	- 7
Estimate Based on Probable Maximum Cost Assumptions					
1940	46	70	.16%	.25%	56%
1945	290	640	.93	2.04	119
1950	834	1,361	2.52	4.06	61
1955	1,445	1,889	4.15	5.33	28
Level ^{b/}	--	--	7.88	6.60	- 16

^{a/} In millions of dollars.

^{b/} Level percent required to support the benefits over a long range period.