

AN ANALYSIS OF BENEFITS AND THE PROGRESS OF THE OLD-AGE
RESERVE ACCOUNT UNDER TITLE II OF THE SOCIAL SECURITY ACT

by
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FOREWORD

The following report by Mr. Myers, of the Office of the Actuary, has developed a large number of relationships in connection with appropriations, benefit payments, coverage, prospective beneficiaries, and other interrelationships which follow from Title II of the Social Security Act.

It is necessary to emphasize all the stated limitations herein set forth and to recognize further that such tables as 11, 12, and 13 are less credible than the preceding tables. Table 14, likewise, is a reasonable display of what could be the case and not an indication of what probably will be the case. In Table 15 the relationships of the various portions of the cost one to another are reasonable; the total costs expressed in terms of payroll to be accepted with considerable hesitation.

The report is valuable in its presentation of relationships under the Act and must be recognized as both explanatory and suggestive of many more queries.

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AN ANALYSIS OF BENEFITS AND THE PROGRESS OF THE OLD-AGE RESERVE ACCOUNT
UNDER TITLE II OF THE SOCIAL SECURITY ACT

A. Introduction

The purpose of this report is to present various statistical data in regard to the benefits under Title II and also to discuss and explain the estimate of the progress of the Old-Age Reserve Account from 1937 to 1980. Some of this material has been published in various scattered sources, whereas the remainder of it has been developed in numerous intra-office memoranda.

Sections B, C, and D of this report will present illustrative data on the benefits as prescribed under Title II and thus contain only quantitative data based on the provisions of the Act. Sections E and F of the report contain estimates of the future functioning of Title II as to numbers of persons affected and amounts of money involved. Although the latter part of the report is not intended to contain debatable material, its accuracy should not be assumed to be of the same degree as the material in the first part. Thus, any estimates of conditions in the far-off future are prone to wide variations and fluctuations. A further discussion of the limitations on these future estimates will be given in the section pertaining to the progress of reserve for 1937-1980.

A further purpose of this report is to bring out a fairly comprehensive explanation of the complex interrelationship of the

benefits-tax-reserve provisions under Titles VIII and II of the Social Security Act. There are here set down many of the implications which follow from the announced estimates of probable cost, coordinate with the factors which show the serious limitations upon these estimates.

While the availability of the early wage credits for the year 1937 will add further material which must be taken into account in reshaping the estimates herein set forth, the long-range credence to these early Baltimore statistics must be equally limited. However, the actual data, although for only a short period of operation, tends to appear to be a sounder base for use in extrapolation than do more theoretic assumptions.

The important limiting factors in utilizing the Baltimore data will be:

- (1) The unknown extent of non-compliance in tax payment;
- (2) The varying, sometimes conflicting, rulings as to coverage;
- (3) The possibility that a single year's earnings may be decidedly non-typical;
- (4) The extent of the range of distribution of earnings between covered and non-covered employments and the extent of idle time, both in the one year observed and to be expected in the future;
- (5) The trend toward greater coverage of formerly non-employed individuals and the possible wider distribution of earnings among more people;
- (6) The natural lag in securing complete records at any time.

B. Illustrative Monthly Benefits

The major purpose of any system which is to provide old-age security is obviously the granting of monthly benefits or annuities to aged individuals. Title II of the Social Security Act provides monthly benefits beginning in 1942 to individuals who meet certain simple qualifications, namely; (1) that the individual is at least 65 years old; (2) that he has received total wages of at least \$2000 in a covered employment after 1936 and prior to attainment of age 65; (3) that the individual received wages in covered employment in at least one day of each of five different calendar years after 1936 and prior to age 65. These monthly benefits are payable for as long as the individual lives but no payments are to be made in respect to any months during which the individual engages in "regular employment".

The amount of the monthly benefit is determined by the total wages received in covered employment after 1936 and prior to age 65. However, only the first \$3000 of wages received from any one employer during any calendar year is credited. Thus, an individual who is employed simultaneously in several covered positions receives credit for all wages from all the employers, except that no credit is given for wages in excess of \$3000 during any calendar year from any one of the employers.

The following formula is applied to such total wages to determine

the monthly benefit: 1/2 of 1% of the first \$3000 of total credited wages; plus 1/12 of 1% of the next \$42,000 of total credited wages; plus 1/24 of 1% of all total wages in excess of \$45,000. It is further provided that no monthly benefit shall exceed \$85, so that all individuals having \$129,000 or more of total credited wages would receive this maximum. A minimum monthly benefit of \$10 is involved, although not explicitly stated; in order to qualify for monthly benefits it is necessary to receive at least \$2000 of total credited wages, this amount yielding a monthly benefit of \$10 according to the formula.

To determine the monthly benefit from the formula, it is usually necessary to add several items. By an algebraic transformation* the formula can be restated so that only one calculation is necessary:

<u>Total Wages</u>	<u>Monthly Annuity</u>	<u>Annual Annuity</u>
\$2,000 - 3,000	1/2% of total wages	6% of total wages
3,000 - 45,000	1/12% of total wages + \$12.50	1% of total wages + \$150
45,000 - 129,000	1/24% of total wages + \$31.25	1/2% of total wages + \$375
129,000 and over	\$85	\$1020

As an example of the use of this restated formula, the annual annuity corresponding to \$36,000 of total wages is 1% of \$36,000 (or \$360) plus \$150, equalling \$510. Expressed in this fashion the formula is easier to apply than in the form prescribed in the Act, and the result is exactly the same since the two are mathematically equivalent.

A rather interesting feature of the restated formula for the \$3000 - 45,000 range is its similarity to the benefit formulas of private pension plans. For this range the monthly benefit is equal to

* e.g. For wages falling in the \$3000-15,000 range the monthly benefit is 1/2% of \$3000 plus 1/12% of total wages less \$3000 or algebraically $1/2\% \times 3000 + 1/12\% \times (W - 3000)$ which equals $\$15.00 + 1/12\%$ of $W - 2.50$ or $1/12\%$ of $W + \$12.50$.

1/12 of 1% of total wages plus \$12.50. Since total wages are merely the average annual wage multiplied by years of coverage (or 12 times average monthly wage times years of coverage), the benefit formula can be expressed as 1% of average monthly wage per year of coverage plus a flat amount of \$12.50. Under private pension plans the monthly annuity is commonly 1, $1\frac{1}{2}$, or 2% of average monthly wage per year of service. Under Title II the years of coverage refer only to service after 1936, while under private pension plans credit is frequently given for service prior to the inception of the plan. It might therefore be reasoned that for the bulk of the initially covered group Title II is a 1% plan for future service plus a flat amount of \$12.50 as an allowance for past service.

It can be seen from the benefit formula that proportionately far more credit is given to those individuals who have a small amount of total credited wages. The factor for the first \$3000 of total wages is six times as large as that used for the next \$42,000, and twelve times as large as that used for total wages in excess of \$45,000. Total wages of \$3000 produce a monthly benefit of \$15. In order to obtain double this benefit, or \$30, it is necessary to have seven times as much total wages, or \$21,000, while for triple the benefit, or \$45, there is required thirteen times as much total wages, or \$39,000. The effect of this heavy weighting of the first \$3000 of total wages is to give proportionately higher annuities to those with

a small amount of total wages, namely, the individuals now old and the lower paid individuals of all ages.

Table 1 shows illustrative monthly benefits for various average monthly wages and for various periods of coverage. Illustrations are given in detail for both the very low paid individuals and for the individuals who, because of a number of simultaneous high-paid positions, average more than \$3000 of total credited wages per year. From this table there can readily be seen the effect of the heavy weighting of the first \$3000 of total wages, which was mentioned previously. For individuals who have five years of coverage, the \$50-per-month man receives \$15, while the \$250-per-month man receives \$25. Thus, while the one individual received an average wage five times as high as the other individual, his monthly benefit is only two-thirds greater. On the other hand, if individuals having the same average monthly wage of \$100 are considered, the 60 year old man, who can look forward to five years of coverage, will get \$17.50 as compared to the 20 year old man who will receive \$53.75 after 45 years of coverage. Thus, the 20 year old man has a prospective period of coverage nine times as great as the 60 year old man, but expects to receive a benefit only about three times as large.

From Table 1 it can be seen that the low paid individuals who average \$25 or less per month require many years of coverage to qualify for monthly benefits because of the \$2000 limitation, but when

Table 1

ILLUSTRATIVE MONTHLY OLD-AGE BENEFITS UNDER TITLE II
FOR VARIOUS AVERAGE MONTHLY WAGES^{a/}

Average Monthly Wage	Years of Coverage ^{b/}									
	5	10	15	20	25	30	35	40	45	50
\$ 5	*	*	*	*	*	*	\$10.50	\$12.00	\$13.50	\$15.00
10	*	*	*	\$12.00	\$15.00	\$15.50	16.00	16.50	17.00	17.50
15	*	*	\$13.50	15.50	16.25	17.00	17.75	18.50	19.25	20.00
20	*	\$12.00	15.50	16.50	17.50	18.50	19.50	20.50	21.50	22.50
25	*	15.00	16.25	17.50	18.75	20.00	21.25	22.50	23.75	25.00
50	\$15.00	17.50	20.00	22.50	25.00	27.50	30.00	32.50	35.00	37.50
75	16.25	20.00	23.75	27.50	31.25	35.00	38.75	42.50	46.25	50.00
100	17.50	22.50	27.50	32.50	37.50	42.50	47.50	51.25	53.75	56.25
125	18.75	25.00	31.25	37.50	43.75	50.00	53.13	56.25	59.38	62.50
150	20.00	27.50	35.00	42.50	50.00	53.75	57.50	61.25	65.00	68.75
175	21.25	30.00	38.75	47.50	53.13	57.50	61.88	66.25	70.63	75.00
200	22.50	32.50	42.50	51.25	56.25	61.25	66.25	71.25	76.25	81.25
225	23.75	35.00	46.25	53.75	59.38	65.00	70.63	76.25	81.88	85.00
250	25.00	37.50	50.00	56.25	62.50	68.75	75.00	81.25	85.00	85.00
500	37.50	56.25	68.75	81.25	85.00	85.00	85.00	85.00	85.00	85.00
1250	62.50	85.00	85.00	85.00	85.00	85.00	85.00	85.00	85.00	85.00
2500	85.00	85.00	85.00	85.00	85.00	85.00	85.00	85.00	85.00	85.00

^{a/} No wages in excess of \$3000 received from any one employer during any calendar year are counted. For those cases where the average monthly wage is shown to be in excess of \$250 (or \$3000 per year) it is assumed that the individual works for more than one employer. For example, the \$2500 per month individual may be assumed to work for ten employers at a monthly salary of \$250 from each one over the entire period of coverage.

^{b/} Years employed in a covered occupation after 1936 and prior to age 65.

* Not eligible for monthly benefits because total wages are less than \$2000.

they do qualify, they receive a rather good-sized benefit in comparison to their average wage. This will be discussed later in more detail. For those individuals who work for only one employer at the maximum creditable wage of \$3000, it is only possible to receive the \$85 maximum monthly benefit after 43 years of coverage. However, for those individuals who average more than \$3000 of total credited wages per year because of simultaneous high-paid positions, this maximum is attainable much sooner. For example, an individual, who was employed by ten different employers at a salary of \$3000 from each, would be eligible for the maximum benefit after five years of coverage. Thus, it would be possible for an individual now aged 60 to receive this amount as early as 1942, although most of the benefit payments at that time would be under \$25 (the maximum amount obtainable for five years of coverage when no more than \$3000 of total credited wages is obtained in any one year).

In Table 1a there are presented illustrative monthly benefits for various average weekly wages and periods of coverage. This table is similar to Table 1, except that it is based on average weekly wages for a limited number of cases. Any detailed discussion of this table would be similar to that previously given for Table 1.

In Table 2 there are shown the total wages corresponding to various monthly benefits. There are also shown the minimum total payments which will be made. In this respect Title II provides that if

Table 1a

ILLUSTRATIVE MONTHLY OLD-AGE BENEFITS UNDER TITLE II
FOR VARIOUS AVERAGE WEEKLY WAGES^{a/}

Average Weekly Wages	Years of Coverage ^{b/}								
	<u>5</u>	<u>10</u>	<u>15</u>	<u>20</u>	<u>25</u>	<u>30</u>	<u>35</u>	<u>40</u>	<u>45</u>
\$10	\$13.00	\$16.83	\$19.00	\$21.17	\$23.33	\$25.50	\$27.67	\$29.83	\$32.00
15	15.75	19.00	22.25	25.50	28.75	32.00	35.25	38.50	41.75
20	16.83	21.17	25.50	29.83	34.17	38.50	42.83	47.17	50.75
25	17.92	23.33	28.75	34.17	39.58	45.00	50.21	52.92	55.63
30	19.00	25.50	32.00	38.50	45.00	50.75	54.00	57.25	60.50
35	20.08	27.67	35.25	42.83	50.21	54.00	57.79	61.58	65.38
40	21.17	29.83	38.50	47.17	52.92	57.25	61.58	65.92	70.25
45	22.25	32.00	41.75	50.75	55.63	60.50	65.38	70.25	75.13
50	23.33	34.17	45.00	52.92	58.33	63.75	69.17	74.58	80.00
55	24.42	36.33	48.25	55.08	61.04	67.00	72.96	78.92	84.88
57.70	25.00	37.50	50.00	56.25	62.50	68.75	75.00	81.25	85.00

^{a/} No wages in excess of \$3000 received from any one employer during any calendar year are counted. The maximum creditable weekly wage for an individual who works for only one employer during each year is therefore \$57.70.

^{b/} Years employed in a covered occupation after 1936 and prior to age 65.

Table 2

TOTAL CREDITED WAGES AND MINIMUM AMOUNT OF BENEFIT PAYMENTS
CORRESPONDING TO VARIOUS MONTHLY BENEFITS

<u>Monthly Benefit</u>	<u>Total Credited Wages^{a/}</u>	<u>Minimum Total Payments^{b/}</u>	<u>Monthly Benefit</u>	<u>Total Credited Wages^{a/}</u>	<u>Minimum Total Payments^{b/}</u>
\$10	\$2,000	\$70	\$48	\$42,600	\$1,491
11	2,200	77	49	43,800	1,533
12	2,400	84	50	45,000	1,575
13	2,600	91	51	47,400	1,659
14	2,800	98	52	49,800	1,743
15	3,000	105	53	52,200	1,827
16	4,200	147	54	54,600	1,911
17	5,400	189	55	57,000	1,995
18	6,600	231	56	59,400	2,079
19	7,800	273	57	61,800	2,163
20	9,000	315	58	64,200	2,247
21	10,200	357	59	66,600	2,331
22	11,400	399	60	69,000	2,415
23	12,600	441	61	71,400	2,499
24	13,800	483	62	73,800	2,583
25	15,000	525	63	76,200	2,667
26	16,200	567	64	78,600	2,751
27	17,400	609	65	81,000	2,835
28	18,600	651	66	83,400	2,919
29	19,800	693	67	85,800	3,003
30	21,000	735	68	88,200	3,087
31	22,200	777	69	90,600	3,171
32	23,400	819	70	93,000	3,255
33	24,600	861	71	95,400	3,339
34	25,800	903	72	97,800	3,423
35	27,000	945	73	100,200	3,507
36	28,200	987	74	102,600	3,591
37	29,400	1,029	75	105,000	3,675
38	30,600	1,071	76	107,400	3,759
39	31,800	1,113	77	109,800	3,843
40	33,000	1,155	78	112,200	3,927
41	34,200	1,197	79	114,600	4,011
42	35,400	1,239	80	117,000	4,095
43	36,600	1,281	81	119,400	4,179
44	37,800	1,323	82	121,800	4,263
45	39,000	1,365	83	124,200	4,347
46	40,200	1,407	84	126,600	4,431
47	41,400	1,449	85	129,000	4,515

^{a/} Wages received in covered employment after 1936 and prior to age 65. No wages in excess of \$3000 received from any one employer during any calendar year are counted.

^{b/} If total monthly benefits received by the individual are less than this amount, the difference is payable as a death benefit. This minimum amount is $3\frac{1}{2}\%$ of total credited wages.

monthly benefit payments actually received do not equal $3\frac{1}{2}\%$ of total credited wages, the difference shall be payable as a death benefit. This will be more fully discussed in the next Section.

In many private pension plans the benefit formulas are so arranged that the annuity shall be a given percentage of average wage (normally from 30% to 60%). Since the benefit formula under Title II is based on total wages, little attention has been drawn to the connection between monthly benefits and average wage. Table 3 shows the monthly old-age benefit as a percentage of average monthly wage for various wages and periods of coverage. The monthly wages are taken at small intervals for the lower wages in order to illustrate the cases where the monthly benefit might be more than the average wage.

For all practical purposes the lowest average monthly wage with which an individual could qualify for monthly benefits is \$3.33, and he would have to earn this wage for 50 years. At the end of that time the monthly benefit would be \$10 or three times his average wage. In quite a number of instances where the average monthly wage is less than \$25, it is possible for the monthly benefit to be greater than the average monthly wage. However, no individual earning more than \$25 per month can receive a monthly benefit larger than his average wage unless the period of coverage is longer than 50 years, a comparative rarity. There is a great gap for the lowest wage groups between those who qualify for monthly benefits and those who fail to qualify

Table 3

MONTHLY OLD-AGE BENEFIT UNDER TITLE II COMPARED TO AVERAGE WAGE^{a/}

Average Monthly Wage	Years of Coverage ^{b/}									
	5	10	15	20	25	30	35	40	45	50
\$ 3.33 ^{c/}	*	*	*	*	*	*	*	*	*	300%
5	*	*	*	*	*	*	210%	240%	270%	300
10	*	*	*	120%	150%	155%	160	165	179	175
15	*	*	90%	103	108	113	118	123	128	133
20	*	60%	78	83	88	93	98	103	108	113
25	*	60	65	70	75	80	85	90	95	100
50	30%	35	40	45	50	55	60	65	70	75
75	22	27	32	37	42	47	52	57	62	67
100	18	23	28	33	38	43	48	51	54	56
125	15	20	25	30	35	40	43	45	48	50
150	13	18	23	28	33	36	38	41	43	46
175	12	17	22	27	30	33	35	38	40	43
200	11	16	21	26	28	31	33	36	38	41
250	10	15	20	23	25	28	30	33	34	34
500	8	11	14	16	17	17	17	17	17	17
1250	5	7	7	7	7	7	7	7	7	7
2500	3	3	3	3	3	3	3	3	3	3

a/ No wages in excess of \$3000 received from any one employer during any calendar year are counted. For those cases where the average monthly wage is shown to be in excess of \$250 (or \$3000 per year) it is assumed that the individual works for more than one employer. For example, the \$2500 per month individual may be assumed to work for ten employers at a monthly salary of \$250 from each one over the entire period of coverage.

b/ Years employed in a covered occupation after 1936 and prior to age 65.

c/ Lowest average monthly wage which would qualify an individual for monthly benefits for 50 years of coverage.

* Not eligible for monthly benefits because total wages are less than \$2000.

by reason of not having \$2000 of total wages. The former receive an annuity equal to or larger than their average wage, while the latter receive merely a lump sum payment.

The great majority of the covered individuals will probably have average monthly wages of \$50-250. For the \$50-per-month individual the monthly benefit ranges from 30% of average wage for 5 years of coverage up to 75% for 50 years of coverage, while for the \$250-per-month man the corresponding figures are 10% and 34%. Considering the \$100-per-month individual as representing the average of the covered group, the monthly benefit will be about 20% of average wage for 5 years of coverage and about 50% for 40 years of coverage. Thus, this system is designed to provide ultimate annuities at half-pay for individuals with a lifetime average wage of \$100 per month. For individuals having a lower wage the monthly benefit will be proportionately greater and vice versa.

Due to the \$85 maximum the monthly benefit is a very low percentage of average wage for individuals who are credited, on the average, with more than \$3000 per year. Thus, in the extreme case of the individual who is employed by ten different employers at a monthly salary of \$250 from each, the monthly benefit is only 3% of the average wage. This is, of course, a very extreme case, but it shows the wide amount of variation possible.

The purpose of this section has been to give illustrative

monthly benefits for various wages and periods of coverage. In subsequent sections further data in regard to monthly benefits will be presented. This will include both a comparison of the estimated average size of monthly benefits that retired individuals will receive in future years under Title II and also the estimated aggregate financial effect of this benefit as shown in the progress of the Old-Age Reserve Account.

C. Illustrative Death Benefits

Title II of the Social Security Act, in addition to providing monthly benefits, also grants death benefits for individuals dying either before or after age 65. For individuals dying before age 65 the death benefit is a payment of $3\frac{1}{2}\%$ of total credited wages received after 1936 and prior to death. For individuals dying after age 65 the death benefit is a payment of the excess, if any, of $3\frac{1}{2}\%$ of total credited wages earned after 1936 and prior to age 65 over the total monthly benefits actually received.

Table 4 shows illustrative death benefits for individuals dying prior to age 65. These benefits, unlike the monthly benefits, are directly proportional to the average wage since the benefit is a uniform $3\frac{1}{2}\%$ of total wages. From this table it can clearly be seen that in the first few years the death benefit will be very small, growing to an appreciable size ultimately. Thus, for one year of coverage at an average monthly wage of \$100 the death benefit is only \$42. For deaths occurring in the calendar year 1937, the average period of coverage is only half a year so that the benefit for a \$100 individual would only be half of this, or \$21. Considering the individual who has had 40 years of coverage, the death benefit is around \$1000 for individuals with average monthly wages of between \$50 and \$100. Thus, eventually, this death benefit will be of appreciable size.

Table 4

ILLUSTRATIVE LUMP SUM BENEFITS UNDER TITLE II
FOR INDIVIDUALS DYING PRIOR TO AGE 65

Average Monthly Wage ^{a/}	Years of Coverage ^{b/}							
	<u>1</u>	<u>2</u>	<u>5</u>	<u>10</u>	<u>20</u>	<u>30</u>	<u>40</u>	<u>45</u>
\$ 10	\$4.20	\$8.40	\$21	\$42	\$84	\$126	\$168	\$189
20	8.40	16.80	42	84	168	252	336	378
30	12.60	25.20	63	126	252	378	504	567
40	16.80	33.60	84	168	336	504	672	756
50	21.00	42.00	105	210	420	630	840	945
100	42.00	84.00	210	420	840	1,260	1,680	1,890
150	63.00	126.00	315	630	1,260	1,890	2,520	2,835
200	84.00	168.00	420	840	1,680	2,520	3,360	3,780
250	105.00	210.00	525	1,050	2,100	3,150	4,200	4,725
500	210.00	420.00	1,050	2,100	4,200	6,300	8,400	9,450
1250	525.00	1,050.00	2,625	5,250	10,500	15,750	21,000	23,625
2500	1,050.00	2,100.00	5,250	10,500	21,000	31,500	42,000	47,250

^{a/} No wages in excess of \$3000 received from any one employer during any calendar year are counted. For those cases where the average monthly wage is shown to be in excess of \$250 (or \$3000 per year) it is assumed that the individual works for more than one employer. For example, the \$2500 per month individual may be assumed to work for ten employers at a monthly salary of \$250 from each one over the entire period of coverage.

^{b/} Completed years employed in a covered occupation after 1936 and prior to age 65.

For individuals earning more than \$3000 per year from a single employer, credited wages (and likewise the death benefit) accrue as earned until \$3000 of wages has been received during the given calendar year. Thus, for a \$6000 per year or \$500 per month individual who works for only one employer the death benefit for one month of coverage is based on \$500 of credited wages. The credited wages increase until the seventh month by which time \$3000 has been credited and from then until the end of the calendar year no more wages are credited. The death benefit is thus \$17.50 for one month of coverage increasing to \$105 for six months of coverage and remaining level at that figure for the next six months. Of course, at the beginning of the next calendar year wages are once more credited in a similar fashion.

It is interesting to note the large size of the death benefit for individuals who have a very large average wage due to joint employment with several employers at salaries of \$3000 or more from each. Thus, for the individual who is credited with \$1250 of wages per month over a period of 30 years, the death benefit reaches the amount of \$15,750. Of course, this is a very rare instance, but it shows the possibility of paying quite large death benefits under Title II.

Under industrial insurance the average size of the policy is about \$200 and provides merely burial expenses, while the average size of individual certificates under group insurance policies is about \$1500, thus providing some funds for the immediate needs of surviving

dependents. Considering the individual with an average monthly wage of \$100, it can be seen from Table 4 that the death benefit under Title II for 5 years of coverage will be about equal to the average death benefit for industrial insurance. However, for this class of individuals it will take almost 40 years of coverage to produce a death benefit equal to the average under group insurance policies.

Table 5 shows illustrative death benefits under Title II for individuals dying after age 65. In the previous section it was pointed out that qualified individuals who engage in "regular employment" after age 65 do not receive any monthly benefits in respect to the months that they engage in such employment. Thus, this death benefit is reduced by the monthly benefits received, until it is finally exhausted when the total of such benefits exceeds $3\frac{1}{2}\%$ of total credited wages. Since the death benefit at age 65 is directly proportional to average wage, being based on $3\frac{1}{2}\%$ of total wages received after 1936 and prior to age 65, while the monthly benefit is much greater proportionately for those with low average wages, this death benefit is more quickly exhausted for those with a small amount of total credited wages. An individual who has an average monthly benefit of \$10 has an initial death benefit of \$70. However, after he has received seven payments, the death benefit will be entirely exhausted. On the other hand, when we consider an individual with a monthly benefit of \$85 based on total credited wages of \$129,000, the

Table 5

ILLUSTRATIVE LUMP SUM BENEFITS UNDER TITLE II
FOR INDIVIDUALS DYING AFTER AGE 65

Total Credited Wages ^{a/}	Monthly Benefit	Number of Monthly Benefit Payments Received ^{b/}						
		None	6	12	24	36	48	60
\$ 2,000	\$10	\$70	\$10	*	*	*	*	*
3,000	15	105	15	*	*	*	*	*
9,000	20	315	195	\$75	*	*	*	*
15,000	25	525	375	225	*	*	*	*
21,000	30	735	555	375	\$15	*	*	*
27,000	35	945	735	525	105	*	*	*
33,000	40	1,155	915	675	195	*	*	*
39,000	45	1,365	1,095	825	285	*	*	*
45,000	50	1,575	1,275	975	375	*	*	*
69,000	60	2,415	2,055	1,695	975	\$255	*	*
93,000	70	3,255	2,835	2,415	1,575	735	*	*
129,000	85	4,515	4,005	3,495	2,475	1,455	\$435	*
200,000	85	7,000	6,490	5,980	4,960	3,940	2,920	\$1,900
500,000	85	17,500	16,990	16,480	15,460	14,440	13,420	12,400
1,000,000	85	35,000	34,490	33,980	32,960	31,940	30,920	29,900

a/ Wages received in covered employment after 1936 and prior to age 65. No wages in excess of \$3000 received from any one employer during any calendar year are counted.

b/ Monthly benefits are not payable to qualified individuals for months in which wages have been received with respect to regular employment.

* Monthly benefits received exceed $\frac{31}{2}\%$ of total credited wages so that no lump sum benefit is available.

death benefit is not exhausted until 54 monthly payments have been received.

Since individuals qualifying for monthly benefits in the first few years will receive about \$20 or \$25 per month, it can be seen that this type of death benefit will not be very important in the near future. The individual receiving a \$20 monthly benefit will only have a death benefit of \$195 if he has received six monthly payments, and only \$75 after he has received twelve monthly payments. The death benefit will be exhausted after he has received sixteen monthly benefit payments. However, ultimately this death benefit will be more important. Thus, for the individual with a monthly benefit of \$45 the death benefit will be \$825 after twelve monthly benefit payments have been received, and will not be exhausted until 31 monthly benefit payments have been received.

Again considering the extreme case of an individual who has \$1,000,000 of total credited wages due to joint employment with several employers at \$3000 or more from each, the death benefit is \$35,000, if no monthly benefit payments have been received, and decreases slowly since the monthly benefit payments are only \$85 per month. Thus, after 60 monthly benefit payments have been received, the death benefit is still as great as \$29,000. For this rare individual this death benefit would not be extinguished until 412 monthly payments have been received. Thus, if the individual retired at age 65 and remained out of "regular employment" thereafter,

the death benefit would not be extinguished for 34 1/3 years or until the individual was over age 99. From the above discussion it can be seen that the death benefit after age 65 is exhausted, in most instances, in two or three years, although for individuals with a large amount of total credited wages the death benefit may extend throughout their entire possible span of life. It should be noted that the death benefit diminishes only as monthly benefits are paid. When a qualified individual works in "regular employment" up to age 75, his death benefit remains unchanged throughout the ten year period.

The purpose of this section has been to give illustrative death benefits for various wages and periods of coverage. In subsequent sections further data in regard to death benefits will be presented. This will include both a comparison of the estimated average size of death benefits under Title II in future years, and also the estimated aggregate financial effect of this benefit as shown in the progress of the Old-Age Reserve Account.

D. Comparison of Benefits Under Title II and Taxes Under Title VIII

Under Title II of the Social Security Act, benefits are provided for individuals in certain covered occupations who were under 65 years of age on January 1, 1937. Similarly, under Title VIII, a tax is imposed upon such employees and their employers for the purpose of raising general revenues. While the Act does not specifically state that these taxes are for the purpose of financing the benefits under Title II, they are commonly regarded as contributions to a contributory old-age insurance system. It is the purpose of this section to compare the benefits with the taxes as though they were contributions.

Table 6 shows the total taxes paid under Title VIII by an individual entering the system in January, 1937, with a level monthly wage of \$100. Under Title VIII the employer and the employee pay an equal amount of tax; the combined tax is 2% for the period 1937-39, 3% for 1940-42, 4% for 1943-45, 5% for 1946-48, and 6% for 1949 and thereafter. Thus, individuals in the system at present will pay a graded tax schedule.

This table also shows the average tax rate paid by individuals having a level wage for various periods of coverage. These tax rates apply to all individuals having a level wage rather than merely to the \$100 per month individual. It should be noted that in obtaining this average tax rate the total amount of taxes paid is merely divided

Table 6

TOTAL TAXES PAID UNDER TITLE VIII BY AN INDIVIDUAL
WITH A LEVEL MONTHLY WAGE OF \$100^{a/} WHO ENTERS
COVERAGE ON JANUARY 1, 1937

<u>Years of Coverage</u> ^{b/}	<u>Total Taxes</u>	<u>Total Wages</u>	<u>Total Taxes as % of Total Wages</u>
1	\$ 12	\$ 1,200	1.00%
2	24	2,400	1.00
3	36	3,600	1.00
4	54	4,800	1.13
5	72	6,000	1.20
6	90	7,200	1.25
7	114	8,400	1.36
8	138	9,600	1.44
9	162	10,800	1.50
10	192	12,000	1.60
15	360	18,000	2.00
20	540	24,000	2.25
25	720	30,000	2.40
30	900	36,000	2.50
35	1,080	42,000	2.57
40	1,260	48,000	2.63
45	1,440	54,000	2.67
50	1,620	60,000	2.70

^{a/} This table may be used to obtain total taxes or total wages for any level wage by changing the figures proportionately. For example, for a \$200 per month individual the figures would be doubled.

^{b/} Years employed in a covered occupation after 1936 and prior to age 65. It is assumed that the individual is employed continuously throughout this period at the same level wage.

by the total wages, with no account being taken of the fact that the larger taxes are payable in the far distant future, and thus would be less important if the interest factor were considered. For the first three years the average tax rate on the individual is, of course, 1% gradually increasing to 2.7% for an individual who has 50 years of coverage from the present time. If the individual has an increasing wage history, the average tax rate would be higher and vice versa. Obviously, for individuals entering after 1948, the average tax rate would be 3%, while those entering between 1937-48 would have an average tax rate lying between 3% and the figures shown in Table 6.

In Section C it was pointed out that the death benefit under Title II is a lump-sum payment of $3\frac{1}{2}\%$ of total credited wages. Under Title VIII the individual pays a tax on credited wages ranging from 1% to 3%. It can thus be seen that for individuals dying before age 65 the death benefit will always be greater than the taxes paid under Title VIII. Even for the individual entering in 1949 and thereafter, the death benefit is about 17% greater than the total taxes paid in ($3\frac{1}{2}\%$ of total credited wages as compared to 3%). For individuals dying after age 65, the death benefit is the difference between $3\frac{1}{2}\%$ of total credited wages and the total amount of monthly benefits received. Thus the annuitant is essentially guaranteed annuity payments equal to at least $3\frac{1}{2}\%$ of total wages. Since in no case could his total taxes be greater than 3% of his total wages, he will always

receive more in benefits under Title II than he has paid in taxes under Title VIII.

The question often arises as to the rate of interest which is realized by the individual who dies prior to age 65, based on the $3\frac{1}{2}\%$ death benefit and the taxes paid by him under Title VIII. Since there is no direct relation between the two, the rate of interest will vary both with the year of death and the year of entry. Thus, individuals who enter in 1937 pay lower taxes than similar individuals who enter in or after 1949, although the death benefit after uniform periods of coverage will be the same for both.

Table 7 shows various rates of compound interest realized upon the death benefits under Title II. In these figures it is assumed that the individual earns a level rate of pay and has continuous employment from January 1 of the year of entry until he dies. As would be expected, the rate of interest realized is very large for individuals entering in 1937 and dying within a few years, being over 61% for such individuals who die after five years. The interest rate is even greater for individuals who die after only a year or two of coverage. For example, an individual with an annual wage of \$1000 who dies after one year will have paid taxes of \$10 over the period of a year and the death benefit will be \$35. Thus, \$25 of this will be interest on the \$10 for a period of about half a year (since taxes are assumed to be paid continuously throughout the year). The interest

Table 7

ANNUAL RATE OF COMPOUND INTEREST - ASSUMING DEATH BENEFIT
 UNDER TITLE II TO BE THE RETURN OF DEPOSITS EQUAL TO
 EMPLOYEE'S TAX UNDER TITLE VIII

Year of Death*	<u>Calendar Year of Entry</u>				
	<u>1937</u>	<u>1940</u>	<u>1943</u>	<u>1946</u>	<u>1949</u>
5	61.34%	39.62%	24.88%	13.71%	7.71%
10	19.60	12.50	7.54	4.67	3.38
15	9.35	5.98	3.90	2.71	2.16
20	5.38	3.63	2.53	1.89	1.59
25	3.57	2.52	1.84	1.45	1.25
30	2.58	1.89	1.44	1.16	1.04
35	1.99	1.50	1.17	.98	.89
40	1.59	1.23	.99	.84	.77
45	1.32	1.04	.86	.74	.68

* Number of full years after calendar year of entry.

Assumptions:

1. Level rate of pay and continuous employment from the beginning of the calendar year of entry to time of death.
2. No interest credited for year in which contributions are made.
3. Deaths occur at the end of the year.

rate is roughly 250% for half a year or 500% per year. It is interesting to note that for those entering in 1937 under the assumption of a level wage, an interest rate of at least 3% will be realized for any deaths occurring in the next 28 years, i.e., prior to 1965. However, with an increase in the period of coverage, the rate of interest realized decreases quite rapidly until for a period of forty years of coverage it is only slightly over $1\frac{1}{2}\%$.

For individuals who enter after 1937, the rate of interest realized will be appreciably less than if they had entered in 1937 because for a given period of coverage and average wage the death benefit will be the same, whereas more taxes will have been paid, thus allowing a smaller margin for interest. For individuals entering in and after 1949 when the ultimate tax rate of 3% is in effect, the rate of interest realized at death will be rather large for those dying within the first ten years of coverage. However, after about fifteen years of coverage, the rate of interest realized will be less than 2%, decreasing to only about $\frac{1}{2}\%$ for individuals dying after forty-five years of coverage. This is, of course, due to the death benefit being, one could say, on a "simple interest basis" since it is one-sixth greater than the total taxes paid regardless of duration of coverage, rather than on a "compound interest basis".

As previously mentioned, the computations for Table 7 are based on individuals having a level rate of pay and continuous employ-

ment. If there were a uniformly increasing wage scale, the rate of interest for individuals entering in or after 1949 would be greater than that shown. However, decreasing wage scales and certain types of sporadic increasing wage scales might produce lower rates of interest. It is difficult to generalize for present entrants in regard to various wage histories because of the increasing tax schedule.

In the previous paragraphs the taxes and benefits for individuals dying before age 65 have been compared. Table 8 gives a comparison of total taxes paid by the employee and the average amount of benefits under Title II which may be expected by those who have attained age 65 and who began work in 1937. It should be noted that in this table no account is taken of interest, and that the same assumptions as to wage history are made as were made in Table 7. The total taxes paid by the individual are based on the figures in Table 6, while the average expected amount of benefits is based on a future life expectancy of $12\frac{1}{2}$ years. It is further assumed that the individual does not engage in "regular employment" after age 65, so that he does not forfeit any benefit payments.

The ratio of expected benefits to taxes paid increases with an increase in age at entry and decreases with an increase in level wage. This, of course, would be expected since the monthly benefit is greater proportionately for older individuals and also for those

Table 8

TOTAL TAXES^{a/} AND AVERAGE AMOUNT^{b/} OF BENEFITS UNDER TITLE II
FOR INDIVIDUALS WHO HAVE LIVED TO AGE 65 AND WHO BEGAN WORK IN 1937

Level Monthly Wage	Age at Entry 20			Age at Entry 25			Age at Entry 30		
	Benefits	Taxes	Ratio	Benefits	Taxes	Ratio	Benefits	Taxes	Ratio
\$ 25	\$ 3562	\$ 360	9.9	\$ 3375	\$ 315	10.7	\$ 3187	\$ 270	11.8
50	5250	720	7.3	4875	630	7.7	4500	540	8.3
75	6938	1080	6.4	6375	945	6.7	5813	810	7.2
100	8063	1440	5.6	7688	1260	6.1	7125	1080	6.6
125	8906	1800	4.9	8438	1575	5.4	7969	1350	5.9
150	9750	2160	4.5	9188	1890	4.9	8625	1620	5.3
200	11438	2880	4.0	10688	2520	4.2	9938	2160	4.6
250	12750	3600	3.5	12188	3150	3.9	11250	2700	4.2
	Age at Entry 35			Age at Entry 40			Age at Entry 45		
\$ 25	\$ 3000	\$ 225	13.3	\$ 2812	\$ 180	15.6	\$ 2625	\$ 135	19.4
50	4125	450	9.2	3750	360	10.4	3375	270	12.5
75	5250	675	7.8	4688	540	8.7	4125	405	10.2
100	6375	900	7.1	5625	720	7.8	4875	540	9.0
125	7500	1125	6.7	6563	900	7.3	5625	675	8.3
150	8063	1350	6.0	7500	1080	6.9	6375	810	7.9
200	9188	1800	5.1	8438	1440	5.9	7688	1080	7.1
250	10313	2250	4.6	9375	1800	5.2	8438	1350	6.3
	Age at Entry 50			Age at Entry 55			Age at Entry 60		
\$ 25	\$ 2437	\$ 90	27.1	\$ 2250	\$ 48	46.9	c/	\$ 18	---
50	3000	180	16.7	2625	96	27.3	\$ 2250	36	62.5
75	3563	270	13.2	3000	144	20.8	2438	54	45.1
100	4125	360	11.5	3375	192	17.6	2625	72	36.5
125	4688	450	10.4	3750	240	15.6	2813	90	31.3
150	5250	540	9.7	4125	288	14.3	3000	108	27.8
200	6375	720	8.9	4875	384	12.7	3375	144	23.4
250	7500	900	8.3	5625	480	11.7	3750	180	20.8

a/ Paid by the individual.

b/ Assumes that the average individual who survives to age 65 will live $12\frac{1}{2}$ more years and that the individual does not engage in "regular employment" after age 65.

c/ Not eligible for monthly benefits. Lump sum payment of \$52.50 is made.

Note: In this table no account is taken of interest.

with low level wages, as explained in Section B. Likewise, the tax rate is lower for older individuals (as shown in Table 6) so that the ratio of benefits to taxes tends to be even greater for them since the total taxes paid are proportionately smaller than those paid by the younger persons. For example, consider two individuals with the same level wage who have survived to age 65, one of whom entered at age 25 and the other at age 60. The former has a period of coverage which is 8 times as large as the latter, whereas his total taxes up to age 65 are over 17 times as large and his monthly benefit is only about 3 times as large. This vividly illustrates the cause for the great increase in the ratio of expected benefits to total taxes as the age at entry increases.

For an individual entering at age 60 with a level wage of \$50 per month, the total taxes paid up to age 65 would be only \$36 and he would then be eligible for a monthly annuity of \$15, thus producing an average expected amount of benefits of \$2250, or over 60 times the taxes paid. Even for the higher paid individual entering at age 60, the ratio of probable benefits to taxes paid is over 20. For individuals entering at age 20 who attain age 65, the ratio of probable benefits to total taxes paid ranges from about 10 for the \$25 per month individual to about 4 for the higher paid individuals.

The ratio of the expected amount of benefits to the total taxes paid is, in one respect, rather misleading since no account is taken

of interest. If interest were taken into account by comparing the accumulated amount of taxes and the discounted value of benefits, the ratios would be materially reduced.

As pointed out previously, individuals dying before age 65 have a death benefit equal to the taxes that they themselves paid plus compound interest ranging from $\frac{1}{3}\%$ to about 500%, while those surviving to age 65 will receive, on the average, 4 to 60 times as much in benefits as they themselves paid in taxes. The question might properly be raised at this point as to where the money comes from since everybody gets more in benefits than they have paid in taxes, and some get many times as much.

For individuals dying before age 65, the benefit is, in most instances, less than the total taxes paid by themselves and their employers together with accumulated interest at 3% (the Old-Age Reserve Account earns 3% compound interest). This results in a "profit" for the Account. Other "profits" arise from individuals attaining age 65 who cannot qualify for monthly benefits and for qualified individuals who engage in "regular employment" after age 65 and thus forfeit some of their monthly benefit payments. For individuals reaching age 65, these "profits" can be said to pay in the aggregate that portion of the cost not borne by the accumulated taxes of the retirant and his employer together with 3% compound interest.

In the previous discussion comparisons of benefits and taxes

have been made separately for individuals who die before age 65 and for those who reach age 65. A more satisfactory comparison can be made if the benefits theoretically "purchasable" with the taxes under Title VIII for various ages at entry and level wages are considered. In these comparisons it is assumed that the taxes in a given year will first be used to "purchase" the corresponding death benefit under Title II, the remainder being used to "purchase" as much deferred annuity at the retirement age as possible. The computations are based on the U. S. White Males 1920-29 Mortality Table with 3% interest. The resulting figures thus correspond to the benefits which an insurance company would give for premiums equal to the taxes if it used this mortality table as a standard, and if it had no expenses. Consequently, the figures are purely theoretical and do not represent the rates quoted by any insurance companies.

Table 9 shows the monthly annuities "purchasable" with the combined employee and employer taxes for individuals entering in 1937 for two different retirement ages, while Table 9a gives similar figures using only the employee tax as a "premium". It should be pointed out that the figures in Table 9a are always less than one-half of those in Table 9. This is due to the fact that part of the taxes are first used to "purchase" a death benefit identical to that under Title II. The remainder of the taxes is then used to "purchase" as much annuity as possible. This remainder will always be less than one-half

Table 9

THEORETICAL MONTHLY ANNUITIES PURCHASABLE^{a/} WITH COMBINED EMPLOYER AND EMPLOYEE TAXES
UNDER TITLE VIII FOR INDIVIDUALS ENTERING IN 1937

Age at Entry	Annuity Under Title II	Annuity Purchasable with Combined Taxes		Annuity Under Title II	Annuity Purchasable with Combined Taxes		
		For Retire- ment at 65	For Retire- ment at 67½		For Retire- ment at 65	For Retire- ment at 67½	
Level Monthly Wage of \$25				Level Monthly Wage of \$50			
15	\$25.00	\$19.26	\$24.87	\$37.50	\$38.51	\$49.75	
20	23.75	15.22	19.60	35.00	30.44	39.20	
25	22.50	11.84	15.19	32.50	23.68	30.38	
30	21.25	9.02	11.52	30.00	18.04	23.04	
35	20.00	6.68	8.48	27.50	13.36	16.97	
40	18.75	4.75	5.99	25.00	9.50	11.98	
45	17.50	3.17	3.96	22.50	6.34	7.91	
50	16.25	1.89	2.32	20.00	3.78	4.64	
55	15.00	.91	1.09	17.50	1.82	2.18	
60	b/	.32	.36	15.00	.64	.73	
Level Monthly Wage of \$100				Level Monthly Wage of \$150			
15	\$56.25	\$77.03	\$99.49	\$68.75	\$115.54	\$149.24	
20	53.75	60.89	78.40	65.00	91.33	117.59	
25	51.25	47.36	60.76	61.25	71.05	91.13	
30	47.50	36.08	46.08	57.50	54.13	69.12	
35	42.50	26.72	33.94	53.75	40.09	50.90	
40	37.50	19.00	23.95	50.00	28.49	35.93	
45	32.50	12.67	15.83	42.50	19.01	23.74	
50	27.50	7.56	9.29	35.00	11.34	13.93	
55	22.50	3.65	4.37	27.50	5.47	6.55	
60	17.50	1.27	1.45	20.00	1.91	2.18	
Level Monthly Wage of \$200				Level Monthly Wage of \$250			
15	\$81.25	\$154.06	\$198.98	\$85.00	\$192.57	\$248.73	
20	76.25	121.78	156.79	85.00	152.22	195.99	
25	71.25	94.73	121.51	81.25	118.41	151.89	
30	66.25	72.17	92.16	75.00	90.21	115.20	
35	61.25	53.45	67.87	68.75	66.81	84.84	
40	56.25	37.99	47.90	62.50	47.49	59.88	
45	51.25	25.34	31.66	56.25	31.68	39.57	
50	42.50	15.12	18.58	50.00	18.90	23.22	
55	32.50	7.30	8.74	37.50	9.12	10.92	
60	22.50	2.54	2.90	25.00	3.18	3.63	

a/ According to the U. S. White Males 1920-29 Mortality Table at 3%. Taxes are used as theoretic net premiums without allowance for expense and such annuities resulting are not actually available from insurance companies. Part of the taxes are used to purchase a death benefit identical to that of Title II. The remainder of the taxes are used to purchase a deferred annuity with a refund feature for death after retirement. It is assumed that the individual does not engage in "regular employment" after retirement.

b/ Lump sum payment of \$52.50.

Table 9a

**THEORETICAL MONTHLY ANNUITIES PURCHASABLE^{a/} WITH ONLY EMPLOYEE TAX
UNDER TITLE VIII FOR INDIVIDUALS ENTERING IN 1937**

Age at Entry	Annuity Under Title II	Annuity Purchasable with Combined Taxes		Annuity Under Title II	Annuity Purchasable with Combined Taxes	
		For Retire- ment at 65	For Retire- ment at 67½		For Retire- ment at 65	For Retire- ment at 67½
Level Monthly Wage of \$25				Level Monthly Wage of \$50		
15	\$25.00	\$ 8.07	\$10.10	\$37.50	\$16.15	\$20.20
20	23.75	6.33	7.85	35.00	12.65	15.70
25	22.50	4.88	6.00	32.50	9.77	11.99
30	21.25	3.69	4.48	30.00	7.39	8.96
35	20.00	2.72	3.26	27.50	5.44	6.51
40	18.75	1.93	2.26	25.00	3.86	4.53
45	17.50	1.29	1.48	22.50	2.58	2.95
50	16.25	.77	.85	20.00	1.54	1.70
55	15.00	.38	.38	17.50	.76	.77
60	b/	.14	.13	15.00	.28	.25
Level Monthly Wage of \$100				Level Monthly Wage of \$150		
15	\$56.25	\$32.29	\$40.39	\$68.75	\$48.44	\$60.59
20	53.75	25.31	31.39	65.00	37.96	47.09
25	51.25	19.54	23.99	61.25	29.30	35.98
30	47.50	14.77	17.93	57.50	22.16	26.89
35	42.50	10.88	13.02	53.75	16.33	19.53
40	37.50	7.72	9.06	50.00	11.57	13.59
45	32.50	5.16	5.90	42.50	7.74	8.86
50	27.50	3.08	3.40	35.00	4.63	5.09
55	22.50	1.51	1.54	27.50	2.27	2.30
60	17.50	.55	.50	20.00	.83	.76
Level Monthly Wage of \$200				Level Monthly Wage of \$250		
15	\$81.25	\$64.58	\$80.78	\$85.00	\$80.73	\$100.98
20	76.25	50.62	62.78	85.00	63.27	78.48
25	71.25	39.07	47.98	81.25	48.84	59.97
30	66.25	29.54	35.86	75.00	36.93	44.82
35	61.25	21.77	26.04	68.75	27.21	32.55
40	56.25	15.43	18.12	62.50	19.29	22.65
45	51.25	10.32	11.81	56.25	12.90	14.76
50	42.50	6.17	6.79	50.00	7.71	8.49
55	32.50	3.02	3.07	37.50	3.78	3.84
60	22.50	1.10	1.01	25.00	1.38	1.26

a/ According to the U. S. White Males 1920-29 Mortality Table at 3%. Taxes are used as theoretic net premiums without allowance for expense and such annuities resulting are not actually available from insurance companies. Part of the taxes are used to purchase a death benefit which is identical to that of Title II. The remainder of the taxes are used to purchase a deferred annuity with a refund feature for death after retirement. It is assumed that the individual does not engage in "regular employment" after retirement.

b/ Lump sum payment of \$52.50.

of that for the combined taxes. For example, if the death benefit "costs" 20% of the combined taxes (or in other words, 40% of the employee tax alone), there will be available for the "purchase" of annuity 80% of the combined taxes in Table 9 and 60% of the employee tax (or 30% of the combined taxes) in Table 9a. Thus for this case the annuity "purchasable" in Table 9a would be only $\frac{3}{8}$ of that in Table 9. Obviously, for retirement at age $67\frac{1}{2}$ the monthly annuity will, in practically all instances, be larger than that for retirement at 65, since there is a greater chance of reaching age 65 than age $67\frac{1}{2}$, and since the expectation of life is greater at age 65 than at age $67\frac{1}{2}$.

For older individuals and lower paid individuals, the annuity "purchasable" with the combined taxes is appreciably less than the annuity under Title II. This, of course, is due to the weighting in the benefit formula as explained in Section B. For example, an individual entering at age 60 with a level monthly wage of \$100 receives a monthly annuity of \$17.50 under Title II, while the combined taxes would only purchase \$1.27 per month for retirement at 65 and \$1.45 for retirement at $67\frac{1}{2}$.

For individuals entering at the younger ages the annuity "purchasable" with the combined taxes is, in many instances, greater than that under Title II. However, the annuity "purchasable" with only the employee tax is almost always less than the monthly benefit. For example, for a level monthly wage of \$100 and age at entry 20, the annuity "purchasable" with the combined taxes is \$60.89 for retirement at

65, and \$78.40 for retirement at $67\frac{1}{2}$, as compared to \$53.75 under Title II. Using only the employee tax, the corresponding figures are \$25.31 and \$31.39. However, for individuals entering at age 20 with a lower monthly wage the annuity "purchasable" with the combined taxes will not be as greatly in excess of that arising under Title II; in some instances it will be smaller. For example, for a level monthly wage of \$25 and retirement at age $67\frac{1}{2}$, the annuity "purchasable" with the combined taxes is \$19.60 as compared to \$23.75 under Title II. On the other hand, for higher monthly wages the annuity "purchasable" with the combined taxes is much larger than that arising under Title II. For example, for a level wage of \$250 and age at entry 20 with retirement at age $67\frac{1}{2}$, the annuity "purchasable" is more than twice as large as that granted under Title II. The annuity "purchasable" with only the employee tax is, in practically all cases, less than that arising under Title II.

Tables 10 and 10a present similar data for individuals entering in or after 1949, when the ultimate 6% tax rate is in effect. The annuities "purchasable" are, of course, larger in all cases than those in Tables 9 and 9a since the "premiums" (taxes) are appreciably higher. The same trends as in Tables 9 and 9a in respect to age at entry and wage are shown in these tables.

It should be noted that these figures would be considerably different if another mortality table or rate of interest had been used. If a table with lower mortality were used to make these computations,

Table 10

THEORETICAL MONTHLY ANNUITIES PURCHASABLE^{a/} WITH COMBINED EMPLOYER AND EMPLOYEE TAXES
UNDER TITLE VIII FOR INDIVIDUALS ENTERING IN OR AFTER 1949

Age at Entry	Annuity Under Title II	Annuity Purchasable With Combined Taxes		Annuity Under Title II	Annuity Purchasable With Combined Taxes	
		For Retire- ment at 65	For Retire- ment at 67½		For Retire- ment at 65	For Retire- ment at 67½
Level Monthly Wage of \$25				Level Monthly Wage of \$50		
15	\$25.00	\$24.28	\$31.51	\$37.50	\$48.56	\$63.02
20	23.75	19.48	25.22	35.00	38.95	50.44
25	22.50	15.44	21.71	32.50	30.87	43.42
30	21.25	12.05	15.52	30.00	24.10	31.04
35	20.00	9.21	11.83	27.50	18.43	23.66
40	18.75	6.85	8.77	25.00	13.70	17.53
45	17.50	4.89	6.23	22.50	9.78	12.46
50	16.25	3.27	4.15	20.00	6.55	8.30
55	15.00	1.95	2.46	17.50	3.89	4.91
60	b/	.87	1.09	15.00	1.73	2.18
Level Monthly Wage of \$100				Level Monthly Wage of \$150		
15	\$56.25	\$97.12	\$126.04	\$68.75	\$145.67	\$189.05
20	53.75	77.90	100.88	65.00	116.86	151.33
25	51.25	61.74	86.83	61.25	92.61	130.25
30	47.50	48.19	62.08	57.50	72.29	93.11
35	42.50	36.85	47.32	53.75	55.28	70.97
40	37.50	27.40	35.06	50.00	41.09	52.60
45	32.50	19.56	24.92	42.50	29.34	37.39
50	27.50	13.09	16.61	35.00	19.64	24.91
55	22.50	7.79	9.83	27.50	11.68	14.74
60	17.50	3.47	4.36	20.00	5.20	6.53
Level Monthly Wage of \$200				Level Monthly Wage of \$250		
15	\$81.25	\$194.23	\$252.07	\$85.00	\$242.79	\$315.09
20	76.25	155.81	201.77	85.00	194.76	252.21
25	71.25	123.48	173.66	81.25	154.35	217.08
30	66.25	96.38	124.15	75.00	120.48	155.19
35	61.25	73.70	94.63	68.75	92.13	118.29
40	56.25	54.79	70.13	62.50	68.49	87.66
45	51.25	39.12	49.85	56.25	48.90	62.31
50	42.50	26.18	33.22	50.00	32.73	41.52
55	32.50	15.58	19.66	37.50	19.47	24.57
60	22.50	6.94	8.71	25.00	8.67	10.89

a/ According to the U. S. White Males 1920-29 Mortality Table at 3%. Taxes are used as theoretic net premiums without allowance for expense and such annuities resulting are not actually available from insurance companies. Part of the taxes are used to purchase a death benefit identical to that of Title II. The remainder of the taxes are used to purchase a deferred annuity with a refund feature for death after retirement. It is assumed that the individual does not engage in "regular employment" after retirement.

b/ Lump sum payment of \$52.50.

Table 10a

**THEORETICAL MONTHLY ANNUITIES PURCHASABLE^{a/} WITH ONLY EMPLOYEE TAX
UNDER TITLE VIII FOR INDIVIDUALS ENTERING IN OR AFTER 1949**

Age at Entry	Annuity Under Title II	Annuity Purchasable with Employee Tax		Annuity Under Title II	Annuity Purchasable with Employee Tax		
		For Retire- ment at 65	For Retire- ment at 67½		For Retire- ment at 65	For Retire- ment at 67½	
Level Monthly Wage of \$25				Level Monthly Wage of \$50			
15	\$25.00	\$10.59	\$13.42	\$37.50	\$21.17	\$26.83	
20	23.75	8.45	10.66	35.00	16.91	21.32	
25	22.50	6.68	8.37	32.50	13.36	16.74	
30	21.25	5.21	6.48	30.00	10.42	12.96	
35	20.00	3.99	4.93	27.50	7.97	9.86	
40	18.75	2.98	3.65	25.00	5.96	7.31	
45	17.50	2.15	2.61	22.50	4.30	5.23	
50	16.25	1.46	1.76	20.00	2.93	3.53	
55	15.00	.89	1.07	17.50	1.79	2.14	
60	b/	.41	.49	15.00	.83	.98	
Level Monthly Wage of \$100				Level Monthly Wage of \$150			
15	\$56.25	\$42.35	\$53.66	\$68.75	\$63.52	\$80.50	
20	53.75	33.82	42.64	65.00	50.72	63.95	
25	51.25	26.72	33.48	61.25	40.09	50.22	
30	47.50	20.83	25.92	57.50	31.25	38.88	
35	42.50	15.95	19.72	53.75	23.92	29.57	
40	37.50	11.93	14.62	50.00	17.89	21.92	
45	32.50	8.60	10.45	42.50	12.91	15.68	
50	27.50	5.86	7.06	35.00	8.78	10.58	
55	22.50	3.58	4.27	27.50	5.36	6.41	
60	17.50	1.66	1.96	20.00	2.48	2.93	
Level Monthly Wage of \$200				Level Monthly Wage of \$250			
15	\$81.25	\$84.70	\$107.33	\$85.00	\$105.87	\$134.16	
20	76.25	67.63	85.27	85.00	84.54	106.59	
25	71.25	53.45	66.96	81.25	66.81	83.70	
30	66.25	41.66	51.84	75.00	52.08	64.80	
35	61.25	31.90	39.43	68.75	39.37	49.29	
40	56.25	23.86	29.23	62.50	29.82	36.54	
45	51.25	17.21	20.90	56.25	21.51	26.13	
50	42.50	11.71	14.11	50.00	14.64	17.64	
55	32.50	7.15	8.54	37.50	8.94	10.68	
60	22.50	3.31	3.91	25.00	4.14	4.89	

a/ According to the U. S. White Males 1920-29 Mortality Table at 3%. Taxes are used as theoretic net premiums without allowance for expense and such annuities resulting are not actually available from insurance companies. Part of the taxes are used to purchase a death benefit which is identical to that of Title II. The remainder of the taxes are used to purchase a deferred annuity with a refund feature for death after retirement. It is assumed that the individual does not engage in "regular employment" after retirement.

b/ Lump sum payment of \$52.50.

the resulting annuities would be much smaller. It is expected that in the future mortality rates will continue to decrease so that the figures shown in Tables 9 and 10 are probably too high as representing proper "charges".

The most important conclusion that may be drawn from Tables 9 and 10 is the presence of a large subsidy to the individuals who are now near age 65. However, there is no such large subsidy for those who do not qualify for monthly benefits (see Section B). If the system were on an "individual-purchase" basis, older individuals now could expect to receive annuities of only about \$1 a month instead of the \$15-20 that they will receive. On the other hand, young individuals, particularly those with high wages, receive less under Title II than the combined taxes would buy on an "individual-purchase" basis, although in only a few rare instances less than the employee tax alone would "purchase" (even this situation would not occur if some allowance for expense had been made). This is to be expected because the system is designed to be "self-supporting". It might be argued that the employer's tax is utilized, in part, to pay the excess cost of the benefits for the older or low paid young individuals very much as is the case in group life insurance.

The purpose of this section has been to give various comparisons of the benefits under Title II and the taxes under Title VIII so as to show the great differences that result in various individual cases. The wide variations shown do not indicate a weakness in the

system, but rather point out the considerable difference between social insurance under Title II and private insurance as exemplified in an "individual-purchase" system. It is also demonstrated that no individual gets less in benefits under Title II than he himself has paid in taxes under Title VIII, with some individuals getting many times as much.

E. Progress of Old-Age Reserve Account

Section 201a of the Social Security Act creates an account in the Treasury of the United States known as the Old-Age Reserve Account. Appropriations to this Account are authorized for each fiscal year after 1936. These appropriations are to be of an amount sufficient as an "annual premium" to provide for the payments required under Title II, such amount to be determined on a reserve basis in accordance with "accepted actuarial principles".

In preparing cost estimates for the benefits under Title II, the Committee on Economic Security made a number of arbitrary, but rather reasonable, assumptions 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 (a trifle in conflict with the development of coverage under population estimates 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 $67\frac{1}{2}$ rather than at varying ages roughly equivalent to the results of such a uniform retirement, except for a few minor adjustments, such as those necessary to start benefit payments in 1942.
- (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 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 $67\frac{1}{2}$ 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 Congress, 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 from the Treasury Department and the Social Security Board, over long periods of time and wide areas of the country.
- (18) That the present rule requiring separate returns for affiliated corporations need not be separately considered as affecting the amount of earnings credited to the individual accounts.
- (19) That claims will be presented in all cases of eligibility.
- (20) That there will be no lag in claim presentation.

Of particular importance are assumptions (13) and (14) which deal with the estimated appropriations in the future. There are many bases which

the Treasury could use to determine the required actuarial premium, although these methods are not necessarily binding on Congress. In the cost estimates the Committee on Economic Security assumed that the appropriation would equal the taxes collected under Title VIII, less an arbitrary allowance for administrative expenses (8 1/3% when the tax rate is 2%, 6 2/3% when the tax rate is 3%, and 5% when the tax rate is 4% or more). This seems to have been the basis contemplated in the Senate Finance Committee discussion.

Table 11 presents the estimated appropriations, benefit payments, and balances in the Reserve Account under Title II for each calendar year of the period 1937-80. Disbursements for the various types of benefit payments are shown separately. It should be noted that this table differs in two respects from that shown in the Report of the Senate Finance Committee on the Social Security Bill (Senate Report No. 628, Seventy-fourth Congress, page 9): first, the figures in the Senate Report are presented on a fiscal year basis rather than a calendar year basis; and second, no provision was made in the estimates of the benefit payments in the Senate Report for lump sum payments to non-qualified individuals reaching age 65. In regard to the latter point, such payments seem to be of appreciable amount at present, but after 1942 there will be relatively few such payments so that the financial effect over a long period of time is slight, and, as a result, detailed estimates thereon had been omitted by the

Table 11

ESTIMATED APPROPRIATIONS, BENEFIT PAYMENTS, AND RESERVES
UNDER TITLE II, 1937-80^{a/}

(All figures in millions of dollars)

Calendar Year	Appropriation to Reserve	Benefit Payments					Net Balance ^{d/}	Interest on Reserve	Balance in Reserve ^{e/}
		Annuity	Death Under 65	Death After 65 ^{b/}	Lump Sum ^{c/}	Total			
1937	511.0	0.0	3.7	0.0	2.3	6.0	505.0	0.0	505.0
1938	515.9	0.0	10.7	0.0	7.9	18.6	497.3	15.2	1017.5
1939	521.0	0.0	18.2	0.0	14.5	32.7	488.3	30.5	1536.3
1940	803.3	0.0	25.7	0.0	22.8	48.5	754.8	46.1	2337.2
1941	811.0	0.0	33.5	0.2	11.9	45.6	765.4	70.1	3172.7
1942	818.6	35.0	35.9	1.0	9.8	81.7	736.9	95.2	4004.8
1943	1121.4	70.7	43.7	2.1	7.9	124.4	997.0	120.1	5121.9
1944	1131.8	113.8	51.9	3.5	6.2	175.4	956.4	153.7	6232.0
1945	1142.2	148.5	60.1	4.6	4.7	217.9	924.3	187.0	7343.3
1946	1440.6	209.2	69.4	6.6	3.4	288.6	1152.0	220.3	8715.6
1947	1453.6	257.8	77.7	8.2	2.3	346.0	1107.6	261.5	10084.7
1948	1466.6	315.0	85.8	10.3	1.4	412.5	1054.1	302.5	11441.3
1949	1775.5	365.5	95.4	12.1	.7	473.7	1301.8	343.2	13086.3
1950	1791.1	420.0	103.8	14.1	.1	538.0	1253.1	392.6	14732.0
1951	1806.7	490.8	114.4	17.1	.1	622.4	1184.3	442.0	16358.3
1952	1822.2	548.4	122.6	19.6	.1	690.7	1131.5	490.7	17980.5
1953	1837.8	610.6	129.9	22.4	.1	763.0	1074.8	539.4	19594.7
1954	1853.4	688.3	140.5	25.9	.1	854.8	998.6	587.8	21181.1
1955	1869.0	744.5	147.7	28.6	.1	920.9	948.1	635.4	22764.6
1956	1884.5	840.2	159.3	32.9	.1	1032.5	852.0	682.9	24299.5
1957	1900.1	913.8	167.3	36.5	.1	1117.7	782.4	729.0	25810.9
1958	1915.7	1012.3	178.2	40.9	.1	1231.5	684.2	774.3	27269.4
1959	1931.3	1099.6	184.9	45.1	.1	1329.7	601.6	818.1	28689.1
1960	1946.8	1188.9	192.0	49.3	.1	1430.3	516.5	860.7	30066.3
1961	1962.5	1293.9	203.0	54.3	.1	1551.3	411.2	902.0	31379.5
1962	1978.0	1379.6	214.1	58.5	.1	1652.3	325.7	941.4	32646.6
1963	1993.5	1446.1	219.9	62.3	.1	1728.4	265.1	979.4	33891.1
1964	2009.1	1520.7	226.0	66.5	.1	1813.3	195.8	1016.7	35103.6
1965	2024.7	1565.2	239.8	69.7	.1	1874.8	149.9	1053.1	36306.6
1966	2040.3	1660.2	246.9	74.9	.1	1982.1	58.2	1089.2	37454.0
1967	2055.8	1733.1	252.8	79.4	.1	2065.4	-9.6	1123.6	38568.0
1968	2071.5	1820.8	257.3	84.2	.1	2162.4	-90.9	1157.0	39634.1
1969	2087.0	1901.5	261.8	88.7	.1	2252.1	-165.1	1189.0	40658.0
1970	2102.6	1985.5	275.9	93.6	.1	2355.1	-252.5	1219.7	41625.2
1971	2118.1	2082.2	280.9	98.9	.1	2462.1	-344.0	1248.8	42530.0
1972	2133.8	2180.4	285.7	104.5	.1	2570.7	-436.9	1275.9	43369.0
1973	2149.3	2281.2	295.0	110.3	.1	2686.6	-537.3	1301.1	44132.8
1974	2164.9	2394.2	299.3	116.5	.1	2810.1	-645.2	1324.0	44811.6
1975	2180.5	2502.6	308.7	122.8	.1	2934.2	-753.7	1344.3	45402.2
1976	2180.5	2618.0	311.3	129.0	.1	3058.4	-877.9	1362.1	45886.4
1977	2180.5	2729.4	319.4	135.5	.1	3184.4	-1003.9	1376.6	46259.1
1978	2180.5	2853.6	322.5	142.7	.1	3318.9	-1138.4	1387.8	46508.5
1979	2180.5	2971.8	325.2	149.8	.1	3446.9	-1266.4	1395.3	46637.4
1980	2180.5	3086.1	332.8	156.9	.1	3575.9	-1395.4	1399.1	46641.1
Total	76045.2	52079.0	7730.6	2380.0	98.9	62288.5	13756.7	32884.4	

a/ Estimates of the Committee on Economic Security, slightly modified to include payments to non-qualified individuals reaching age 65.

b/ For those who die after age 65 and before receiving monthly benefits equal to $\frac{3}{8}$ of total wages after 1936 and prior to age 65.

c/ For those who attain age 65 and do not qualify for monthly benefits, either because of not earning at least \$2000 of total wages after 1936 and prior to age 65 or because of not having employment in each of five calendar years after 1936 and prior to age 65.

d/ Excess of appropriation over total benefit payments.

e/ At the end of the year.

NOTE: These estimates are preliminary and subject to revision. They represent the best guesses according to certain assumptions and should be considered tentative. The figures shown are subject to wide fluctuations in absolute value, but are believed consistent with the assumptions made.

Committee on Economic Security. It is estimated that over the period 1937-80 these payments will amount to less than 100 million dollars, or about .16% of total outlay, with the great bulk of these payments falling due prior to 1950.

The estimated appropriation to the Reserve Account, as shown in Table 11, increases from slightly over half a billion dollars in 1937 to over two billion dollars by 1980. The two reasons for this increase are:

- (1) The appropriations are assumed to be based on the tax yield under Title VIII, which increases sharply when the tax rate increased at three year intervals.
- (2) A gradual increase in coverage is assumed.

In regard to the latter point, Table 12 presents the estimated number of employees covered in various calendar years. It is assumed that the coverage increases by about 250,000 persons each year from 1937 to 1975, a rather artificial ignoring of the migration between uncovered and covered employment which will apparently add many short-time employees to the coverage. The estimated appropriations are derived from three major factors: first, the estimated coverage; second, the tax rate under Title VIII and the assumed allowances for expense; and third, an assumed average wage of \$1100 throughout the entire period for each of the employees covered. It might be mentioned that the estimated number of employees covered refers to full-time employment or, in other words, man-years of employment at an

Table 12

ESTIMATED NUMBER OF EMPLOYEES COVERED, ANNUITANTS, DEATHS
AND NON-QUALIFIED INDIVIDUALS UNDER TITLE II, 1937-80^{a/}

(All figures in thousands of persons)

Calendar Year	Number of Employees Covered ^{b/}	Number of Annuitants		Deaths Among Those		Non-Qualified Individuals Reaching 65 ^{e/}
		Becoming Eligible ^{c/}	Receiving Benefits ^{d/}	Under Age 65	Over Age 65 ^{d/}	
1937	25,337			191		123
1938	25,585			194		136
1939	25,834			198		151
1940	26,082			201		169
1941	26,330	150		204	1	95
1942	26,578	212	175	207	6	85
1943	26,827	223	343	211	11	75
1944	27,076	234	537	214	16	65
1945	27,324	246	681	217	19	55
1950	28,566	309	1,680	234	35	3
1955	29,808	378	2,594	252	52	3
1960	31,050	448	3,528	270	71	3
1965	32,292	517	4,130	289	85	3
1970	33,534	585	4,705	309	100	3
1975	34,776	638	5,291	329	117	3
1980	34,776	664	5,912	337	135	3

a/ Estimates of the Committee on Economic Security, slightly modified to include non-qualified individuals reaching age 65.

b/ Average number during the year.

c/ Number reaching age 65 in the given year who qualify for monthly benefits by reason of having at least \$2000 of total credited wages with earnings in at least one day in each of five different calendar years after 1936 and prior to age 65.

d/ Includes only deaths among those eligible to receive refunds; that is, those who have not received monthly benefits equal to $3\frac{1}{2}\%$ of total credited wages.

e/ Non-qualified individuals are those reaching age 65 with less than \$2000 of total credited wages or without covered employment in at least one day in each of five different calendar years after 1936. They are eligible for a benefit of $3\frac{1}{2}\%$ of total credited wages.

NOTE: These estimates are preliminary and subject to revision. They represent an attempt at consistency rather than informed estimates alone, and should be considered tentative. The figures shown are subject to wide fluctuations in absolute value and are known to be untenable in many respects.

\$1100 average wage. Rigorous adjustment will be necessary as soon as the actual coverage has been determined so as to recognize the distribution of numbers covered correlated with amount of wage credits.

Thus, in 1937 the estimated coverage is shown to be 25,337,000. In the calendar year 1937 over 37,000,000 applications for account numbers (SS-5's) have been received by the Social Security Board. At first glance this would indicate that the estimates far understated the coverage. However, many of the SS-5's are from non-covered individuals (unemployed, in excluded occupations, or over age 65), while some represent duplicates (i.e., individuals filing more than one application). Moreover, as mentioned previously, the 25,337,000 figure applies to virtually full-time employment. There may be some 22,000,000 practically full-time employees, 5,000,000 part-time employees, and 3,000,000 employees with such small wage credits as to give them no expectancy of becoming qualified individuals.

A better yardstick for judging the accuracy of the coverage estimate is the comparison of the estimated payroll giving rise to wage credits with the actual payroll upon which taxes are now being paid under Title VIII. The taxable payroll under Title VIII and the "creditable" payroll under Title II are, of course, theoretically identical. From March to December, 1937, the monthly taxes collected

under Title VIII averaged about 49 million dollars per month, indicating a total annual payroll of about 29.4 billion dollars. Tax receipts prior to March were appreciably smaller, chiefly due to administrative lag. The estimated payroll for 1937, as shown in Table 13, is 27.9 billion dollars (25,337,000 times \$1100).

The estimated annuity payments, as shown in Table 11, increase from about 35 million dollars in 1942 to over 3 billion dollars in 1980, a hundred-fold increase. This great increase is due to two factors: first, the increasing number of annuitants; and second, the increasing size of the average annuity payment. In Table 12 there is shown the estimated number of individuals receiving benefits for various future years. This number increases from 175,000 in 1942 to almost 6,000,000 in 1980. At this point it should be mentioned that although the coverage figures in Table 12 are based on virtually full-time employment, the number of annuitants takes account of individuals who had been unemployed or in excluded occupations in certain years of their lives as well as those who had had continuous full-time employment. This tends to minimize understatement of the number of annuitants. From Table 13 it can be seen that over the same period the average monthly annuity in effect during the year increases from \$17 to \$44. Thus, the number of annuitants is 35 times as great in 1980 as in 1942, while the average monthly annuity triples over that period.

There are three reasons for the great increase in the number of

Table 13

**ESTIMATED TOTAL PAYROLL AND AVERAGE SIZE OF BENEFITS
UNDER TITLE II, 1937-80^{a/}**

<u>Calendar Year</u>	<u>Total Annual Payroll^{b/}</u>	<u>Average Monthly Annuity Available to Eligibles^{c/}</u>	<u>In Effect in Year^{d/}</u>	<u>Average Death Benefit For Death Before 65</u>	<u>For Death After 65^{e/}</u>	<u>Average Lump Sum Payment^{f/}</u>
1937	27.871			\$19		\$19
1938	28.144			55		58
1939	28.417			92		96
1940	28.690			128		135
1941	28,963			165	\$165	125
1942	29,236	\$16.67	\$16.67	173	157	115
1943	29,510	17.58	17.17	207	185	105
1944	29,784	18.45	17.67	243	216	95
1945	30,056	19.32	18.17	277	247	85
1950	31,423	23.67	20.83	444	398	35
1955	32,789	28.03	23.92	586	549	35
1960	34,155	32.38	28.08	711	693	35
1965	35,521	36.73	31.58	830	817	35
1970	36,887	40.59	35.17	893	937	35
1975	38,254	43.30	39.42	938	1,052	35
1980	38,254	45.44	43.50	988	1,150	35

a/ Estimates of the Committee on Economic Security, slightly modified to include non-qualified individuals reaching age 65.

b/ Total "creditable" payroll in millions of dollars. No wages in excess of \$3000 received by an individual from an employer with respect to employment during any calendar year are included.

c/ Average annuity payable to those who became eligible in the given year through work termination after the attainment of age 65 and through having \$2000 of total credited wages with earnings in at least one day in each of five different calendar years after 1936, and prior to age 65.

d/ Average annuity payable to those receiving annuities during the year.

e/ Includes only deaths among those eligible to receive refunds; i.e., those who have not received monthly benefits equal to 3 $\frac{1}{2}$ % of total credited wages.

f/ For "non-qualified" individuals reaching age 65.

NOTE: These estimates are preliminary and subject to revision. They represent an attempt at consistency rather than informed estimates alone, and should be considered tentative. The figures shown are subject to wide fluctuations in absolute value and are known to be untenable in many respects.

annuitants. First, for many years in any retirement program such as this the individuals coming onto the pension roll far exceed those leaving it through death, so that with a constant number of persons reaching retirement age in each calendar year the number on the pension roll would increase for 30 or 40 years; i.e., until pensioners exist at all ages from the earliest retirement age to the end of the life span. Second, a greater number of persons will reach age 65 in future calendar years due to the shifting age distribution of the population. Third, a greater proportion of the individuals reaching age 65 in future years will be eligible for monthly benefits since many of the initially uncovered individuals will have received credited wages at some time during their working career of 45 years. Individuals now old have only a few years to accumulate such wages so that many of the older unemployed individuals, or those in excluded occupations, will have insufficient credits to qualify for monthly benefits under Title II.

In Table 12 there is shown the number becoming eligible for annuities in the various calendar years. This figure represents those reaching age 65 in the given year who qualify for monthly benefits by reason of having at least \$2000 of total credited wages with earnings in at least one day of each of five different calendar years after 1936 and prior to age 65. This number increases from about 200,000 in the early years to over 600,000 in 1980. It might be noted

that 150,000 are estimated to become eligible in 1941. Individuals may become qualified for monthly benefits as early as January 1941 although no monthly benefits are payable until January 1942. A further 95,000 are estimated to attain age 65 in 1941 without having the necessary qualifications for eligibility for monthly benefits. These individuals receive lump-sum payments. Not all of these individuals will receive monthly benefits because many of them will engage in "regular employment". This tends to explain the apparent paradox in 1942 when 362,000 individuals first become eligible, while only 175,000 individuals receive benefits. The actual retirements in the first years that monthly benefits are paid will be largely decided by the work opportunities then prevailing for the aged.

In Table 13 there is shown the average monthly annuity which is available to those becoming eligible in given years. This amount is, in all instances, higher than the average monthly annuity actually being paid during the year because the individuals becoming eligible in the year have had, on the average, a longer period of coverage than all of those who are at that time receiving benefits. However, by 1980 these two figures are nearly equal and would tend to become even more so thereafter. The estimated annuity disbursements, as shown in Table 11, are obtained by multiplying the number of annuitants in Table 12 by the average monthly annuity in effect in Table 13.

The estimated death benefits for death under 65 increase from about 4 million dollars in 1937 to over 300 million dollars in 1980, again a hundred-fold increase. There are two reasons for this great increase, namely, the increase in the number of deaths among those covered, and the increase in the average size of the death benefit. In Table 12 there is shown the number of deaths among those under age 65. These deaths increase from about 200,000 in 1937 to over 300,000 in 1980. This increase of 50% is due to two causes: first, the increased size of the covered group; and second, the older average age of this covered group due to estimated age distribution shifts in the total population of the United States. In Table 13 there is shown the average death benefit for death prior to age 65. This average benefit increases from about \$20 in 1937 to almost \$1000 in 1980, and it can thus be seen that this factor is the predominant one underlying the great increase in these benefits. The average death benefit increases in size primarily because the individuals covered accumulate a greater amount of total credited wages with the passage of time. By 1980 such total credited wages will in effect be based on all wages received in a covered occupation during the working career, while in the early years the total credited wages are greatly reduced by the limitation that only wages after 1936 are counted.

The death benefit payments for death after 65 increase from less than 1 million dollars in 1941 to over 150 million dollars in

1980. There are, of course, no payments in this category prior to 1941 because all individuals reaching the age of 65 prior to 1941 receive lump sum payments. It should be noted that individuals may become eligible for monthly benefits in 1941 (although no monthly benefit payments will be made until January 1942). For example, an individual who reaches age 65 on January 20, 1941, and who has earned at least \$2000 of total credited wages with employment in each of the years 1937-1940, and also in 1941 prior to his birthday, is eligible for monthly benefits beginning in January, 1942. Thus, if this individual dies in 1941 after his birthday, he would fall in this category, namely, death benefit payments for death after age 65.

The reasons for the great increase in these benefit payments are similar to those for the increase in death benefits for death prior to age 65. Thus, in Table 12 it can be seen that the number of deaths increases from a few thousand in the early years to over 100,000 by 1980. Included in these deaths are only those individuals who receive a lump sum payment and not all deaths among qualified individuals (annuitants plus eligible individuals who are engaged in "regular employment" after age 65). In other words, only those individuals are counted who have not received monthly benefits equal to $3\frac{1}{3}\%$ of their total credited wages. The increasing number of deaths is thus due to three factors: first, there are more individuals exposed to the risk of death, since the number of qualified individuals

increases greatly year by year; second, with the passage of time the average age of the qualified individuals increases, thus producing a higher aggregate death rate among them; and third, more of the deaths result in payment because with an increase in the annuity, the death benefit is applicable over a longer period (see pages 12 and 13).

The increase in the average death benefit is explained by the third reason mentioned above. The slight drop in the average benefit from 1941 to 1942 is due to the fact that all deaths occurring in 1941 receive the full $3\frac{1}{2}\%$ of total wages, while the deaths occurring in 1942 receive this amount less any monthly benefits received. The average death benefit for death before 65 exceeds that for death after 65 until 1970; thereafter the death benefit for death after 65 is slightly greater ultimately because it is based on total wages received from about age 20 up to age 65 (less annuity payments received), whereas the average death benefit for death before 65 is based on a smaller number of years of coverage, namely, from about age 20 up to the effective average age at death.

The estimated payments for lump sum benefits to non-qualified individuals reaching age 65 increase from about 2 million dollars in 1937 to about 23 million dollars in 1940 and thereafter decline to about \$100,000 in 1950 and thereafter. The great increase from 1937 to 1940 is due to the slightly increasing number of individuals who qualify for such benefits (see Table 12) and to the greatly increasing

average size of the benefit (see Table 13). The average size of the benefit, of course, increases because on the average more total credited wages are earned by individuals reaching age 65 in later years than by those reaching age 65 in 1937. There is a sharp decrease in these lump sum benefits after 1940 because many individuals will qualify for monthly benefits in 1941 and thereafter. The ultimate figure of \$100,000 is rather arbitrary, being based on an estimated 3000 individuals reaching age 65 in each year, most of whom do not qualify because of not having \$2000 of total wages. It is assumed that these individuals will have, on the average, \$1000 of total wages so that the average lump sum payment will be \$35. For individuals qualifying for this benefit between 1940 and 1950, the average benefit will decrease slowly to the ultimate figure of \$35, since this group is made up of two classes -- those who have less than \$2000 of total credited wages, and those who have more than \$2000 of total credited wages, but do not have the necessary employment in each of five different calendar years. Probably a very limited group would fail to qualify because of the latter reason.

In the foregoing discussion there has been presented the estimates of appropriations and benefit payments as prepared by the Committee on Economic Security. The total benefit payments as shown in Table 11 range from 6 million dollars in 1937 to over $3\frac{1}{2}$ billion dollars in 1980, a 600-fold increase. Meanwhile, the appropriations

range from about 500 million dollars to 2.2 billion dollars, a four-fold increase. The Net Balance, or excess of appropriation over benefit payments, increases from about 500 million dollars in 1937 to a maximum of 1.3 billion dollars in 1949, decreasing thereafter to zero by 1967. After 1967 the total benefit payments exceed the appropriation, this difference amounting to about 1.4 billion dollars in 1980.

The Balance in Reserve for any year is determined by adding to the Reserve of the previous year the Net Balance and the interest on the previous year's Reserve. The latter item is merely 3% of the Balance in Reserve. In 1980 the Interest amounts to 1.4 billion dollars. The Reserve builds up gradually to 10 billion dollars in 1947, 20 billion dollars in 1954, 30 billion dollars in 1960, 40 billion dollars in 1969, and almost 47 billion dollars in 1980. Even though the benefit payments exceed the appropriation after 1967 the Balance in Reserve continues to mount because of the Interest element. In 1980 the appropriation plus Interest equals 3,580 million dollars, which is approximately the same as the total benefit payments (3,576 million dollars).

All of the previous discussion as to the size of the individual benefit payments has been confined to average payments. While discussion of averages is often quite helpful, the range in size of the payments may be lost sight of. In Table 14 there is presented a percentage breakdown by size of the monthly annuities in effect under

Table 14

ILLUSTRATIVE BREAKDOWN BY SIZE FOR ANNUITIES IN EFFECT IN VARIOUS YEARS UNDER TITLE II

Calendar Year	Average Monthly Annuity ^{a/}	Number of Annuitants ^{b/}	Percentage of Annuitants Receiving Monthly											
			\$10-85	\$10-15	\$15-20	\$20-25	\$25-30	\$30-35	\$35-40	\$40-45	\$45-50	\$50-55	\$55-70	\$70-85
1945	\$18.17	681,000	100.0%	15.6%	46.9%	27.1%	8.7%	1.7%	*	*	*	*	*	*
1950	20.83	1,680,000	100.0	10.6	31.4	30.6	16.2	7.1	2.9%	1.0%	0.2%	*	*	*
1955	23.92	2,594,000	100.0	7.3	20.8	26.3	20.2	12.2	6.7	3.5	1.9	1.1%	*	*
1960	28.08	3,528,000	100.0	5.1	15.4	18.8	19.4	15.6	10.5	6.1	4.0	3.9	1.2%	*
1965	31.58	4,130,000	100.0	3.6	11.5	14.3	16.5	15.5	12.5	8.9	5.9	7.0	4.3	*
1970	35.17	4,705,000	100.0	3.1	8.9	10.8	12.7	14.1	12.7	10.4	7.8	9.8	9.3	0.4%
1975	39.42	5,291,000	100.0	2.7	7.4	8.5	9.6	11.2	11.9	11.3	9.0	12.4	14.3	1.7
1980	43.50	5,912,000	100.0	2.3	6.8	6.5	7.9	9.5	9.9	10.1	9.8	14.4	18.8	4.0

* Less than .05%.

a/ Average annuity payable to those receiving annuities during the year.

b/ Average number during the year.

NOTE: These estimates are preliminary and subject to revision. They represent an attempt at consistency rather than informed estimates alone, and should be considered tentative. The figures shown are subject to wide fluctuations in absolute value and are known to be untenable in many respects.

Title II in various future years. "Annuities in effect" refers to those being paid to all annuitants in the given year rather than to the ones available to those retiring in the given year.

In 1945 about 16% of the annuitants are assumed to receive \$10-15 per month, while about 47% receive \$15-20, so that 63% are getting less than \$20 per month. By 1960 only 20% receive annuities of less than \$20, while by 1980 less than 10% are in this class. In other words, the percentage getting more than \$20 per month is only 37% in 1945, 80% in 1960, and more than 90% in 1980. Similarly, only 3% get more than \$30 per month in 1945, while for 1960 and 1980 the corresponding figures are 41% and 77%, respectively. In 1945 a negligible percentage receive more than \$50 per month, while for 1960 and 1980 the corresponding figures are 5% and 37%, respectively. It should be remembered that large annuities (as high as the maximum) may be obtained in the early years through employment at high wages by several employers simultaneously (see pages 6 and 7).

The modal class (the largest class) passes steadily from the lower annuity groups to the larger ones with the passage of time. Thus in 1945 the modal class is \$15-20, while by 1960 it is the \$25-30 group. In 1980 it is the \$50-55 group; the \$55-70 group, although being slightly larger, is not the true modal class because it has a fifteen dollar class interval instead of a five dollar range.

In considering the later years it might be noted that there is

a sharp break in the proportion in each group as between the \$45-50 and the \$50-55 classes. Thus, in 1975, there is 11.3% in the \$40-45 class, 9.0% in the \$45-50 class, and 12.4% in the \$50-55 class. This break is, of course, due to the change in the annuity formula at total wages of \$45,000 (\$50 per month). Thus, individuals obtaining \$39,000-45,000 fall in the \$45-50 class, while those with \$45,000-57,000 are in the \$50-55 class. Thus, the range for the \$50-55 group is \$12,000 of total wages or double that of the \$45-50 class (\$6000 of total wages) so that more individuals fall in the former class, the longer range more than offsetting the difficulty of getting a larger amount of total wages.

There is presented in Table 15 the estimated benefit payments under Title II, as shown in Table 11, as a percentage of the total "creditable" payroll, as shown in Table 13. The annuity payments are about .1% of payroll in 1942 increasing to over 8% in 1980. The death benefits for death under 65 increase from a negligible percentage in 1937 to .9% in 1980. Similarly, the death benefits for death after 65 increase to about .4% of payroll in 1980. In the early years the lump sum benefits for non-qualified individuals are about .05% of payroll, whereas ultimately they are negligible. The total benefit payments as a percentage of payroll increase from about .1% of payroll in the early years to about 9 1/3% by 1980.

Previously there were mentioned twenty assumptions which affect the reasonableness of these estimates. Up to the present time some of these factors have been studied, and there will now be presented briefly

Table 15

ESTIMATED BENEFIT PAYMENTS UNDER TITLE II
AS A PERCENTAGE OF PAYROLL, 1937-80^{a/}

Calendar Year	Benefit Payments as Percentage of Payroll ^{b/}				
	Annuity	Death Under 65	Death After 65 ^{c/}	Lump Sum ^{d/}	Total
1937	.00%	.01%	.00%	.01%	.02%
1938	.00	.04	.00	.03	.07
1939	.00	.06	.00	.05	.11
1940	.00	.09	.00	.08	.17
1941	.00	.12	e/	.04	.16
1942	.12	.12	e/	.03	.27
1943	.24	.15	e/	.03	.42
1944	.38	.17	.01	.02	.58
1945	.49	.20	.02	.02	.73
1950	1.34	.33	.04	e/	1.71
1955	2.27	.45	.09	e/	2.81
1960	3.48	.56	.14	e/	4.18
1965	4.41	.68	.20	e/	5.29
1970	5.38	.75	.25	e/	6.38
1975	6.54	.81	.32	e/	7.67
1980	8.07	.87	.41	e/	9.35

a/ Estimates of the Committee on Economic Security, slightly modified to include non-qualified individuals reaching age 65. No allowance is made for administrative expenses.

b/ Total "creditable" payroll in millions of dollars. No wages in excess of \$3000 received by an individual from an employer with respect to employment during any calendar year are included.

c/ For those who die after age 65 and before receiving monthly benefits equal to $3\frac{1}{2}\%$ of total wages after 1936 and prior to age 65.

d/ For those who attain age 65 and do not qualify for monthly benefits, either because of not earning at least \$2000 of total wages after 1936 and prior to age 65 or because of not having employment in each of five calendar years after 1936 and prior to age 65.

e/ Less than .005%.

NOTE: These estimates are preliminary and subject to revision. They represent an attempt at consistency rather than informed estimates alone, and should be considered tentative. The figures shown are subject to wide fluctuations in absolute value and are known to be untenable in many respects.

the results of these preliminary investigations so as to indicate the great variations possible in such future estimates as these.

In order to present comparable figures showing the effect of variations in these factors, the residual reserve theory of Assumption 13 will be rigidly adhered to throughout the following discussion. The term "reserve" will be assumed to be the accumulation at compound interest of the excess of the appropriations (based on payroll tax receipts minus administrative expenses) over benefit payments.

The effect of a change in the interest rate for the Old-Age Reserve Account (Assumption 13) is shown in Table 16. The great effect of this one factor alone can be seen from the estimated balance in reserve in 1980. Under the present estimate, using 3% interest, the balance is about 47 billion dollars. If, however, it were possible to obtain 6% interest, the reserve would be 132 billion dollars, or almost three times as great. On the other hand, if no interest at all were available, the reserve would only be about 14 billion dollars, or about one-third the size of the reserve under a 3% interest assumption. A decrease of $\frac{1}{2}\%$ in the rate of interest (i.e., from 3% to $2\frac{1}{2}\%$) would lower the reserve in 1980 by about 8 billion dollars.

The effect of a wide "use" of the system by the uncovered group (Assumption 12) also has an appreciable effect on the Reserve Account. In the original estimates some allowance was made for individuals coming into the system for only a short period, such as

Table 16

PROGRESS OF RESERVE^{a/} UNDER PRESENT TITLE II
FOR VARIOUS RATES OF INTEREST BEING CREDITED
TO THE OLD-AGE RESERVE ACCOUNT

(All figures in millions of dollars)

Calendar Year	Rate of Interest				
	0%	2%	2½%	3%	6%
1937	505	505	505	505	505
1938	1,003	1,013	1,016	1,018	1,033
1939	1,491	1,521	1,529	1,536	1,583
1940	2,246	2,306	2,322	2,337	2,433
1945	6,627	7,094	7,219	7,343	8,160
1950	12,494	13,931	14,325	14,732	17,509
1955	17,832	20,950	21,835	22,765	29,491
1960	21,268	26,724	28,339	30,066	43,395
1965	22,616	30,921	33,496	36,307	59,635
1970	22,156	33,675	37,434	41,625	79,336
1975	19,439	34,374	39,524	45,402	103,173
1980	13,757	32,062	38,777	46,641	131,744

^{a/} The estimated appropriations and benefit payments used in each case are the same as those shown in Table 11.

married women who work for a few years prior to their marriage. However, in any future year there will be a large number of persons aged 65 and over who are neither working in covered employment nor receiving monthly benefits. It would have been possible for many of these persons to qualify for a monthly benefit of \$15, which is relatively large as compared to taxes paid, by earning merely a total of \$3000 of wages in covered employment prior to attaining age 65.

Table 17 presents cost estimates assuming that a certain proportion of these excluded aged persons qualify for monthly benefits by having earned an assumed total of \$3000 of credited wages before attaining age 65. Assumption A assumes that 25% of these non-covered individuals qualify, while Assumptions B and C assume that 50% and 100%, respectively, will qualify. There is little difference in estimated appropriations between these plans and the present estimates since the additional taxes will be small, but there is a great difference in estimated total benefit payments. As a result the reserve is materially decreased. Thus, under Assumption C there is a "negative" reserve of 22 billion dollars in 1980 as compared to the 47 billion dollar reserve under the present estimate.

The effect of a change in retirement age (Assumption 8) is shown in Table 13. For a given assumption as to retirement age, it is implied that all individuals retire at that age and do not engage in "regular employment" thereafter. Under the assumption that all retire at age 65, the reserve builds up to a maximum of about 33 billion dollars in 1970, and then decreases to about $27\frac{1}{2}$ billion dollars

Table 17

**ANNUITANTS, APPROPRIATIONS, BENEFIT PAYMENTS, AND
BALANCE IN RESERVE UNDER THREE ASSUMPTIONS AS TO
INCREASED COVERAGE^{a/} UNDER TITLE II**

(All figures in thousands of persons or millions of dollars)

<u>Calendar Year</u>	<u>Present Estimate</u>	<u>Estimated Under Assumption</u>			<u>Percent of Present Estimate</u>		
		<u>A</u>	<u>B</u>	<u>C</u>	<u>A</u>	<u>B</u>	<u>C</u>
Number of Annuitants							
1945	681	1,226	1,771	2,861	180%	260%	420%
1950	1,680	2,864	4,048	6,416	170	241	382
1960	3,528	5,486	7,442	11,355	155	210	322
1970	4,705	6,788	8,871	13,037	144	189	277
1980	5,912	8,017	10,121	14,330	136	171	242
Appropriations							
1945	1,142	1,157	1,171	1,200	101	103	105
1950	1,791	1,818	1,845	1,900	102	103	106
1960	1,947	1,977	2,008	2,069	102	103	106
1970	2,103	2,131	2,160	2,218	101	103	105
1980	2,181	2,211	2,241	2,302	101	103	106
Benefit Payments							
1945	213	311	409	606	146	192	284
1950	538	751	964	1,390	140	179	258
1960	1,430	1,782	2,135	2,839	125	149	199
1970	2,355	2,730	3,105	3,855	116	132	164
1980	3,576	3,955	4,333	5,091	111	121	142
Balance in Reserve							
1945	7,343	7,246	7,048	6,654	99	96	91
1950	14,732	13,852	12,848	10,840	94	87	74
1960	30,066	25,840	21,445	12,656	86	71	42
1970	41,625	32,032	22,209	2,566	77	53	6
1980	46,641	29,764	12,577	-21,792	64	27	-

^{a/} Each assumption presumes that a certain proportion of those not covered under Title II obtain a total of \$3000 of covered employment and thus qualify for monthly benefits at age 65. These proportions are as follows: Assumption A - 25%; Assumption B - 50%; and Assumption C - 100%.

Table 18

PROGRESS OF RESERVE UNDER PRESENT TITLE II ASSUMING THAT
ALL QUALIFIED INDIVIDUALS RETIRE AT AGE 65^{a/}

(All figures in millions of dollars)

Calendar Year	Appropri- ation	Benefit Payments	Interest on Reserve	Balance in Reserve	Cumulative	
					Appropri- ations	Benefit Payments
1937	511	6	0	505	511	6
1938	516	18	15	1,018	1,027	24
1939	521	33	30	1,536	1,548	57
1940	803	48	46	2,337	2,351	105
1941	811	45	70	3,173	3,162	150
1942	819	87	95	4,000	3,981	237
1943	1,121	141	120	5,100	5,102	378
1944	1,132	205	153	6,180	6,234	583
1945	1,142	258	185	7,249	7,376	841
1950	1,791	652	380	14,175	15,304	3,327
1955	1,869	1,116	597	21,257	24,493	7,995
1960	1,947	1,734	779	26,942	34,071	15,440
1965	2,025	2,272	903	30,749	44,039	25,888
1970	2,103	2,855	976	32,753	54,396	38,999
1975	2,180	3,556	975	32,095	65,143	55,317
1980	2,180	4,334	863	27,485	76,043	75,419

^{a/} It is assumed that all individuals retire at age 65 and do not engage in "regular employment" thereafter.

by 1980. Thus, considering the reserve in 1980, there is a decrease of almost 20 billion dollars due to the assumption that all retire at age 65 instead of age $67\frac{1}{2}$. Conversely, if the average retirement age were greater than $67\frac{1}{2}$, the reserve in 1980 would be much greater than the 47 billion dollar figure.

The effect of a change in the assumed level annual wage of \$1100 (Assumption 5) is shown in Table 19. The reserve is appreciably smaller for average wages of less than \$1100 and vice versa. For a lower wage the appropriations are reduced proportionately, while the total benefit payments are only slightly reduced (because of the weighting in the annuity formula). For example, consider the case of two individuals entering at age 20 with level annual wages of \$600 and \$1200, respectively. The taxes of the \$1200 individual are 100% greater than those of the \$600 individual, while his prospective annuity at age 65 is only 54% greater (\$53.75 as compared to \$35.00).

As a result of the above tendencies the reserve decreases more than a proportionate amount with a decrease in assumed average wage and vice versa. Thus, in 1980 for a \$500 average wage the reserve is only 6 billion dollars as compared to 47 billion dollars for an \$1100 average wage and 92 billion dollars for a \$1700 average wage.

These preliminary studies of the various factors affecting the cost estimates indicate that there can be a wide range in the progress of reserve, depending upon what assumptions are made. Thus, in Tables 16-19 the range for the balance in the Reserve Account

Table 19

APPROPRIATIONS, BENEFIT PAYMENTS, AND RESERVES UNDER TITLE II
FOR VARIOUS ASSUMPTIONS AS TO AVERAGE WAGE ^{a/}

(All figures in millions of dollars)

Calendar Year	Assuming Level Average Annual Wage Of						
	\$500	\$700	\$900	\$1100	\$1300	\$1500	\$1700
<u>Appropriations</u>							
1937	232	325	418	511	604	697	790
1940	365	511	657	803	949	1095	1241
1945	519	727	935	1142	1350	1558	1765
1950	814	1140	1465	1791	2117	2442	2768
1960	885	1239	1593	1947	2301	2655	3009
1970	956	1338	1720	2103	2485	2867	3249
1980	991	1388	1784	2180	2577	2973	3370
<u>Benefit Payments</u>							
1937	3	4	5	6	7	8	9
1940	22	31	40	48	57	66	75
1945	149	174	196	218	240	262	284
1950	374	430	485	538	592	647	700
1960	912	1076	1239	1430	1564	1727	1891
1970	1437	1743	2048	2355	2660	2934	3173
1980	2094	2593	3092	3576	3954	4284	4593
<u>Balance in Reserve</u>							
1937	229	321	413	505	597	689	781
1940	1063	1486	1911	2337	2762	3188	3610
1945	3214	4579	5962	7343	8723	10106	11484
1950	6025	8903	11818	14732	17642	20552	23461
1960	10398	16934	23529	30066	36712	43299	49883
1970	10895	21195	31586	41625	52337	62782	73432
1980	5646	19385	33241	46641	61468	76558	92276

^{a/} The present estimate of the progress of the Old-Age Reserve Account as shown in Table 11 is based on an \$1100 level average wage.

for the year 1980 is from 132 billion dollars down to -22 billion dollars. It should be mentioned that under the assumptions made a reserve in 1980 of less than 47 billion dollars would continue to decrease after 1980, while one greater than that figure would continue to increase indefinitely.

Preliminary studies made by the Social Security Board in regard to coverage, wage rates, "in and out" movement, future mortality, etc., confirm the belief of those who were responsible for the estimates of the Committee on Economic Security that many of their assumptions, as set forth in the cost estimates of this section, should undergo constant reexamination. Estimates based on more thorough analyses, especially using the data shortly to be available from the Baltimore records, will possess greater accuracy as to initial coverage. They will furnish little additional indication of the subsequent cost trends, which will not be subject to adequate appraisal for years to come.

In conclusion, the warning should again be given that although all the discussion on the detailed figures in Tables 11-14 has been of a specific nature, these figures should not be considered to be extremely accurate despite their apparent precision. All these tables should thus be considered in the light of the assumptions made, and more credence may be given to them if they are considered relative to one another rather than absolutely. They are rather in the nature of "what might be if" than what is really anticipated.

F. Lump Sum Claims, 1937-38

In the previous section there have been presented estimates of benefit payments in various future years up to 1980. It is the purpose of this section to consider in more detail the benefit payments to be made in the early years of the system.

As has been pointed out previously, no monthly benefits will become payable prior to 1942. However, payments are being made in respect to covered individuals reaching age 65 and to those dying subsequent to December 31, 1936. In making estimates of the number of individuals becoming eligible for claims, it is necessary to know the age distribution of the covered group and then to apply death and survival rates to this distribution. The estimated coverage in each year was shown previously in Table 12. An age distribution was estimated from data in the 1930 census, and death rates according to the U. S. White Males and White Females Mortality Tables for 1920-29 were applied in order to get the annual number of claims, as shown in Table 12. It should be emphasized that the number of estimated eligibilities applies to the total number of deaths and attainments of age 65 during the year on the assumptions determined, rather than the number of claims filed during the year or those filed in that year and later years in respect to the given year. Thus, many claims arising in a given year would not be filed until a number of years

later, while others might never be filed due to the small amount of money involved or the lack of knowledge as to the benefits available.

Table 20 presents the estimated eligibilities under Title II by months for the calendar years 1937 and 1938. The breakdown by months was obtained from the annual figures by taking account of the different numbers of days in the months and the gradual upward secular trend (see Table 12). In addition, for deaths the difference in mortality rates between months was taken into account. Thus, the winter months have an appreciably higher death rate than the summer months; January, the highest month, having a death rate about one-third greater than that of September, the lowest month. In each year February is, of course, the lowest month in regard to life eligibilities because of the shorter number of days. However, for deaths the high mortality rate in February more than offsets the shorter number of days, with September having the smallest number. The total eligibilities for 1937 vary from a low of 24,300 for September to a high of 29,200 for January.

In order to test the accuracy of these estimates it would be necessary to have a record of the claims that have been filed according to the month in which they became eligible. Although the data is available, nothing has been published as yet and, in fact, it is desirable to wait until more of the claims have come in so as to have a more complete record of the past. However, there is available the

Table 20

ESTIMATED ELIGIBILITIES^{a/} UNDER TITLE II, 1937-38

<u>Month</u>	<u>Calendar Year 1937</u>			<u>Calendar Year 1938</u>		
	<u>Death</u>	<u>Age 65</u>	<u>Total</u>	<u>Death</u>	<u>Age 65</u>	<u>Total</u>
January	19,200	10,000	29,200	19,600	11,000	30,600
February	16,800	9,100	25,900	17,000	10,100	27,100
March	17,800	10,100	27,900	18,100	11,200	29,300
April	16,500	9,900	26,400	16,700	10,900	27,600
May	16,100	10,300	26,400	16,400	11,400	27,800
June	14,900	10,100	25,000	15,100	11,100	26,200
July	14,800	10,500	25,300	15,000	11,600	26,600
August	14,400	10,600	25,000	14,600	11,700	26,300
September	13,900	10,400	24,300	14,100	11,400	25,500
October	14,700	10,700	25,400	15,000	11,900	26,900
November	15,100	10,500	25,600	15,400	11,600	27,000
December	17,100	10,800	27,900	17,400	12,100	29,500
Total	191,300	123,000	314,300	194,400	136,000	330,400

^{a/} Death claims are those arising under Section 203, payable to those dying prior to age 65. Life claims are those arising under Section 204, payable to those attaining age 65 who are not eligible for monthly benefits.

Note: These estimates indicate the number of claims arising in the given month, which could be filed rather than the claims actually filed in the month, or the claims filed in that month and subsequent months which are in respect to that month.

number of claims received each month. From these some indication may be obtained as to the accuracy of the estimates, although the data is not strictly comparable due to the lag in filing claims and the number of claims that may never be filed.

Table 21 presents the estimated eligibilities for 1937-38, shown in Table 20, as compared to the actual claims received each month. It might be noted that by claims received there is meant those received and recorded by the Social Security Board in Washington, and thus does not include claims still in the Field Offices or in transit, or claims which had been received but not yet recorded. It is believed that the claims "received" as shown in Table 21 are understatements for October and possibly for November, and are overstatements for December because of administrative readjustments in the processing of claims. These readjustments resulted in an accumulated "backlog" of claims which was subsequently eliminated. Assuming a lag of ten days between the filing in the Field Office and the receipt in Washington would indicate that there were approximately 7000 additional claims that had been filed during 1937 (based on the claims receipt rate in December).

As compared to estimated eligibilities of 314,300 for 1937, there had been "received" only about 70,000 claims or 22% of the eligibilities. If the estimated 7000 additional claims are counted, this figure would be 24 $\frac{1}{2}$ %. However, if the month by month picture is considered, the true situation can more clearly be seen. Thus, in

Table 21

COMPARISON OF ACTUAL CLAIMS RECEIVED^{a/} AND ESTIMATED ELIGIBILITIES^{b/}
 UNDER TITLE II, 1937-38

Month	Death Claims			Life Claims			Total Claims		
	Actual	Estimated	Ratio	Actual	Estimated	Ratio	Actual	Estimated	Total
Calendar Year 1937									
January	0	19,200	*	0	10,000	*	0	29,200	*
February	32	16,800	*	31	9,100	*	63	25,900	*
March	252	17,800	1%	262	10,100	3%	514	27,900	2%
April	639	16,500	4	869	9,900	9	1,508	26,400	6
May	1,418	16,100	9	1,703	10,300	17	3,121	26,400	12
June	2,347	14,900	16	2,312	10,100	23	4,659	25,000	19
July	2,561	14,800	17	2,104	10,500	20	4,665	25,300	18
August	3,537	14,400	25	2,672	10,600	25	6,209	25,000	25
September	3,531	13,900	25	3,092	10,400	30	6,623	24,300	27
October	4,325	14,700	29	3,935	10,700	37	8,260	25,400	33
November	6,202	15,100	41	7,264	10,500	69	13,466	25,600	53
December	10,454	17,100	61	10,229	10,800	95	20,683	27,900	74
Total	35,298	191,300	18	34,473	123,000	28	69,771	314,300	22
Calendar Year 1938									
January	11,016	19,600	56	8,403	11,000	76	19,419	30,600	63
February	10,464	17,000	62	7,750	10,100	77	18,214	27,100	67
March	12,102	18,100	67	8,786	11,200	78	20,888	29,300	71

* Less than 0.5%.

a/ This includes all claims received by the Social Security Board in Washington rather than claims certified for payment. Claims which were filed in the Field Offices, but which had not yet reached Washington, are not included. Claims disallowed during 1937 represented approximately 3% of total claims certified; however, many of these claims which were disallowed may be allowed subsequently.

b/ Death claims are those arising under Section 203, payable to those dying prior to age 65. Life claims are those arising under Section 204, payable to those attaining age 65 who are not eligible for monthly benefits.

Note: These estimates indicate the number of claims arising in the given month, which could be filed, rather than the claims actually filed in the month or the claims filed in that month and subsequent months which are in respect to that month.

January no claims were "received", while in February only 63 were "received". The number "received" grew rapidly month by month until by December over 20,000 had been "received". In other words, of the total claims "received" in 1937, almost one-third were "received" during the last month and about one-half during the last two months. The ratio of actual claims to estimated eligibilities increased steadily during 1937 from 2% in March to 74% in December.

As compared to about 70,000 claims "received" in 1937 there have already been received almost 60,000 claims during the first three months of 1938. Claims are now being "received" at the rate of 20,000 per month or about 800 per working day. The ratio of actual claims to estimated eligibilities showed a decrease from 74% in December 1937 to 63% in January 1938; this was probably due to the artificial overstatement of claims in December as mentioned previously. This ratio continued to increase in 1938, rising from 63% in January to 67% in February and 71% in March. Although the actual number of claims "received" showed a slight decrease for February as compared to January, this drop was more than compensated by the smaller number of days in February, resulting in appreciably less estimated eligibilities.

Considering the death claims, it can be seen that a total of more than 35,000 were "received" during 1937, while slightly less than this number of life claims were "received". Throughout the

various months of 1937 the number of death and life claims ran at about the same rate, in some months more death claims being "received" and in other months more life claims. However, the estimated death eligibilities were about 50% greater than the estimated life eligibilities, so that the ratio of actual to estimated is much higher for the life claims than for the death claims. Thus, for the life claims the ratio has increased from 3% in March to almost 100% in December, while for death claims the range has only been from 1% to about 60%. For the entire year 1937 the actual life claims "received" are about 28% of the estimated, while for the death claims the corresponding figure is 18%. The estimate as to the number of persons attaining age 65 probably has a wider range of error than that for the expected deaths.

During the first three months of 1938 almost 34,000 death claims were "received" as compared to about 25,000 life claims. There has thus been a reversal of the trend shown during 1937 when about the same number of life and death claims were "received" (approximately 35,000 of each). However, relative to estimated eligibilities the life claims are being "received" at a somewhat faster rate, the ratio being about 77% for life claims as compared to 56-67% for death claims. It is interesting to note in this respect that the ratio for death claims has been steadily increasing, while that for life claims has tended to level off.

Therefore, if only the total figure for 1937 is considered

rather than the month to month trend, it would appear as though the estimates were decidedly high. However, when the trend is considered, it can be seen that the great deficiency of claims is due principally to the lag, although in the case of the death claims the estimates appear to be overstatements. This overstatement of death claims may extend throughout the entire period for which estimates are made. The apparent deficiency in death claims is probably due to both the lower mortality being experienced now than in the period covered by the life table (1920-29) upon which the mortality rates were based and also to the relative difficulty in filing death claims. In regard to the latter point there are not only greater difficulties in obtaining the required evidence, but also there is the fact that the dependents of a covered individual are not as much aware of the benefits (or the taxes paid) as is the man himself in the case of life claims. In this connection it may be noted that 3.5% of the death claims "received" during 1937 were disallowed, whereas only .7% of the life claims were disallowed, indicating the greater difficulty of filing death claims. It might further be pointed out that life claims "received" are understated slightly and death claims correspondingly overstated due to the practice of classifying claims in respect to individuals who died after age 65 but before receiving a lump sum benefit as death claims rather than life claims.

The purpose of this section and the previous one has been to

present the estimates of the Committee on Economic Security and subsequent ones made on the same general assumptions. However, a study has been made in regard to the prospective number of eligibilities based on data not available when the Committee made its estimates. This data consists of mortality rates as shown in the U. S. Life Tables for 1933 and an age, sex, and race distribution of a sample of individuals applying for Social Security account numbers. Since the sample gave data for age, sex, and race, tabular mortality rates were applied for whites and negroes and males and females separately. Based on the estimated 1937 coverage of 25,337,000 (see Assumption 1, page 27), new figures for the number of estimated eligibilities were obtained. A comparison of these and the estimates of the Committee on Economic Security, as used throughout this report, is given below:

	<u>COES</u> <u>Estimates</u>	<u>New</u> <u>Estimates</u>	<u>Difference</u>	<u>Ratio</u>
Death Eligibilities	191,300	174,800	16,500	91.4%
Life Eligibilities	123,000	103,300	19,700	84.0
Total Eligibilities	314,300	278,100	36,200	88.5

From this it can be seen that the original estimates are appreciably higher than the revised estimates, both as to the number of death eligibilities and life eligibilities. The new estimates represent a 10% reduction in the estimated number of death eligibilities and a 15% reduction in the number of life eligibilities. The death

eligibilities seem to be reduced because of the lower death rates now prevailing and also because of the slightly younger age distribution. The life eligibilities are reduced because of the smaller number of individuals in the covered group who are estimated to be age 64-65. Part of the excess of estimated eligibilities over actual claims received, as shown in Table 21, is due to the possible overestimation indicated by this recent study. If the actual 1937 coverage were higher than the original estimate, then the new estimates would be proportionately increased, perhaps to the level of the earlier estimates.

In Table 13 of the previous section it was shown that the estimated average size of the lump sum payments to be made during the calendar year 1937 was \$19 for both the death and life claims. For the calendar year 1938 the estimated average size is \$55 for the death claims and \$58 for the life claims. The average death claim for 1938 is estimated to be slightly lower than the average life claim because of the entrance of some additional younger workers in 1938 who would have only one year of credited wages and thus a lower death benefit. On the other hand, it is assumed that the older individuals who will receive life claims will have continuous employment from 1937 to their sixty-fifth birthday. The estimated average payment is based on an \$1100 wage and coverage of $\frac{1}{2}$ year for 1937 claims and $1\frac{1}{2}$ years for 1938 claims, since the individuals will, on the average, die or

attain age 65 in the middle of the year.

Particular importance is attached to the distribution of these estimated claims by size, since this will give some indication of claims that may not be filed because of the small amount involved. Table 22 presents a breakdown by size for the claims of the estimated eligibilities in the fiscal and calendar years 1937 and 1938. For the fiscal year 1937 the average period of coverage for those becoming eligible for claims is $\frac{1}{4}$ year, while for the fiscal year 1938 it is 1 year. There is also set down the distribution by size of claims certified during the fiscal and calendar years 1937. It should be remembered that these two sets of distributions are not comparable since that for the estimated eligibilities applies to the deaths and attainments of age 65 in the given period, whereas that for the claims certified applies to those claims filed and adjudicated during the period regardless of the period in which they arose. Subsequently, data may be available to make the correct comparison. The distribution for claims certified during a given period tends to understate the size of the claims because of the lag involved, while on the other hand, there is an overstatement due to the fact that many of the smaller claims will not be filed. Thus, although these distributions are not directly comparable, it was thought that there would be some benefit derived by placing them side by side.

For the fiscal year 1937 (i.e., the first six months of the

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For the fiscal year 1937 (i.e., the first six months of the

Table 22

BREAKDOWN BY SIZE FOR CLAIMS CERTIFIED^{a/} AND FOR ESTIMATED ELIGIBILITIES^{b/}
UNDER TITLE II, 1937-38^{c/}

Size of Claim	For Claims Certified During		For Estimated Eligibilities In			
	Fiscal Year 1937	Calendar Year 1937	Fiscal Year 1937	Calendar Year 1937	Fiscal Year 1938	Calendar Year 1938
Under \$10	53.4%	28.5%	58%	23%	10%	7%
\$10-19	30.0	25.8	36	35	13	8
20-29	8.8	18.1	6	24	16	9
30-39	2.9	11.3	*	11	19	10
40-49	1.6	6.4	*	5	15	12
50-74	1.7	6.1	*	2	18	28
75-99	1.0	1.8	*	*	7	13
Over \$100	.6	2.0	*	*	2	13
Total	100.0	100.0	100	100	100	100
Average Size	\$13.50	\$24.00	\$9.63	\$19.25	\$38.50	\$57.75

* Negligible.

^{a/} Of the 69,771 claims received by the Social Security Board during the calendar year 1937, 53,237, or 76%, were certified to the Treasury during that year for payment. 4,419 claims were certified during the first six months of 1937 (fiscal year 1937). There are included increases in size due to supplemental awards in later months.

^{b/} Includes both death and life claims. These estimates indicate the number of claims arising in the given month which could be filed rather than the claims actually filed in the month, or the claims filed in that month and subsequent months which are in respect to that month.

^{c/} The fiscal year 1937 runs from July 1, 1936, to June 30, 1937 (no claims could arise prior to January 1, 1937); the fiscal year 1938 runs from July 1, 1937, to June 30, 1938.

calendar year 1937) it is estimated that 58% of the eligibilities would be eligible for a claim of under \$10. However, for the calendar year 1937 it is estimated that only 23% of the eligible claims would be under \$10 in size, while for the calendar year 1938 this figure would be less than 10%. The average size of the estimated payment for the eligibilities increases from about \$10 for the fiscal year 1937 to almost \$60 for the calendar year 1938, at which time over 50% of the eligibilities would be for more than \$50, while 13% would be for more than \$100.

It should be noted that in these estimates all individuals earning \$3000 or more per year are assumed to earn exactly \$3000. It was necessary to make this assumption since no detailed data was available for higher ranges of salary, although there was fairly adequate data for the lower groups. This introduces two errors in the resulting estimates. First, no account is taken of individuals who are credited with more than \$3000 per year. Second, no account is taken of the fact that for high-paid individuals the death benefit accrues during the given calendar year until \$3000 of credited wages has been received from each employer (cf. page 9). These two errors tend to produce an understatement at the upper end of the distribution.

If the distribution for claims certified during the fiscal year 1937 is compared to that for the estimated eligibilities in the

same period, it can be seen that there is a fairly close correspondence. However, as would be expected, the distribution for the estimated eligibilities is higher for the smaller claims and lower for the larger claims. In regard to the latter point, it is interesting to note that about 8% of the claims certified during the fiscal year 1937 were over \$30, whereas for the estimated eligibilities only a negligible proportion fell in this class. The chief explanation for this is that for the higher-paid individuals the death benefit accrues with wages earned until a total of \$3000 during the year has been reached. This latter factor also tends to explain the excess of the average size of claims certified (\$13.50) over the estimated average size (\$9.63).

When the distribution of claims certified during the calendar year 1937 is compared to that for the estimated eligibilities, it may be seen that there is a fairly close correspondence. Just as in the case of the distribution for the fiscal year 1937 the distribution for the estimated eligibilities shows less large claims than there actually were. Thus, about 10% of the claims certified during the calendar year 1937 were over \$50 as compared to only 2% in this class for the estimated eligibilities. As was also the case for the fiscal year 1937 the average size of claims certified (\$24.00) was greater than the estimated average size (\$19.25). This is due possibly to there being less tendency to file for the smaller claims. It is

interesting to note that for the claims certified during the first six months of 1937 only about 50% were greater than \$10. while for those certified during the entire year 1937 more than 70% were greater than \$10. The actual data thus tends to show that the trend with the duration of time will be towards having relatively more claims of higher amounts and less in the smaller classes.