



UNITED STATES  
POPULATION  
PROJECTIONS  
FOR OASDHI  
COST ESTIMATES

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## FOREWORD

Actuarial Study No. 62 presents the population projections that underlie the long-range cost estimates for the Old-Age, Survivors, Disability, and Health Insurance program. These projections extend further into the future than those prepared by other agencies, because the actuarial techniques employed in evaluating the cost of the program require population projections over a long period.

The assumptions underlying the projections were developed in consultation with various experts in the demographic field and also with the National Center for Health Statistics of the Public Health Service and with the Bureau of the Census. However, the Office of the Actuary is wholly responsible for them. It should be observed that these projections were adopted for the specific use of OASDHI cost estimation and that they may not necessarily be the most suitable ones for other purposes.

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## A. Introduction

The first step in preparing long-range cost estimates for the Old-Age, Survivors, Disability, and Health Insurance program is a projection into the future of the United States population by age and sex. These projections must be carried far into the future, since the program will require many years to reach a stage of relative maturity.

In 1934-35, when the Committee on Economic Security made its original cost estimates for the old-age benefits program to be incorporated in the Social Security Act, no suitable population projection was available. Therefore, the development of a projection was of primary importance. The resulting projection was based on rather simple assumptions--namely, the continuance of mortality rates according to 1920-29 patterns and birth rates such that the total population would follow an arbitrary growth curve, leveling off at 150 million after 1975. This projection is summarized on page 207 of Issues in Social Security, A Report to the Committee on Ways and Means of the House of Representatives by the Committee's Social Security Technical Staff, January 1946.

After the passage of the Social Security Act, cost studies made in 1937 were based on a set of more comprehensive population projections made by Thompson and Whelpton for the National Resources Committee (Population Statistics, National Data, October 1937). The published data were given in detail for six projections based on varying assumptions as to fertility, mortality, and immigration. New cost estimates for the old-age insurance plan (presented in Actuarial Study No. 8) were developed on the basis of the "medium" NRC projection, which involved medium fertility, medium mortality, and 100,000 net annual immigration. These new cost estimates did not supersede the original ones but rather supplemented them by indicating the potential range in costs.

The cost estimates prepared for the 1939 Amendments (Actuarial Study No. 14) and those prepared subsequently through the World War II years (Actuarial Study No. 17 and Actuarial Study No. 19) were based on the two population projections developed for the original program. New cost estimates were developed in 1946 (Actuarial Study No. 23) to take into account recent wage trends and the latest population data. The population projections used were presented in Actuarial Study No. 24. The projections prepared by Thompson and Whelpton for the National Resources Planning Board (Estimates of Future Population of the United States, 1940-2000, August 1943) were not directly used because, by 1946, considerable data as to combat losses and wartime fertility were available. Accordingly, the new projections of the Social Security Administration utilized the NRPB base but allowed for subsequent actual experience.

The Thompson and Whelpton projections were subsequently revised by themselves and the Bureau of the Census cooperatively to allow for

actual wartime experience as to mortality and fertility.<sup>1/</sup>

The population projections presented in Actuarial Study No. 33 were used as the basis for cost estimates for the Old-Age and Survivors Insurance system prepared in 1953 and 1954. These projections extended the coverage of the population projections to correspond to that of the Old-Age and Survivors Insurance system, which by then included Alaska, Hawaii, Puerto Rico, and the Virgin Islands (and, in addition, Americans employed outside the United States by American employers).

New population projections were prepared in 1957 and presented in Actuarial Study No. 46.<sup>2/</sup> These projections were used for the Old-Age, Survivors, and Disability Insurance cost estimates prepared in 1958, 1961, and 1963 and also for cost estimates of the Health Insurance program enacted in 1965.

The present study establishes a new set of population bases for the Old-Age, Survivors, Disability, and Health Insurance system. New projections are desirable in order to take into account the recent fertility and mortality experience as well as the results of the 1960 census of population.

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- 1/ Population Special Reports, Series P-46, No. 7, September 1946. Subsequently, to take account of postwar experience, revised short-range estimates (up to 1960) were released (Current Population Reports, Series, P-25, No. 18, February 1949, and No. 43, August 1950). In 1953, the Bureau of the Census published four projections to 1975 (Current Population Reports, Series P-25, No. 78, August 1953); these involved four different fertility assumptions, referred to as Series A (the highest fertility assumed), B, C, and D (the lowest fertility). Two years later, these projections were revised (Current Population Reports, Series P-25, No. 123, October 1955), and Series D was dropped, while a new Series AA involving higher fertility than Series A was added. These various projections of the Bureau of the Census employed only a single set of mortality assumptions, which extrapolated to 1960 the mortality decline of the 1940's, but assumed no further improvement after 1960.
- 2/ Actuarial Study No. 46 postulated two different sets of mortality rates (a low-mortality and a high-mortality) for the year 2000. Under both projections the mortality rates were interpolated for years between 1954 and 2000. The rates were assumed to remain level after the year 2000. The postulated high-mortality rates or an average of the low and high rates were used by the Bureau of the Census in its population projections of Series P-25, No. 187, November 1958; No. 241, January 1962; No. 251, July 1962; No. 286, July 1964; No. 329, March 1966; and No. 345, July 1966.

## B. Methodology and Assumptions

The population projections presented in this report have been prepared by the same general method used by Thompson and Whelpton in their two reports cited previously and by this office in previous projections. This method begins with an enumerated or estimated population at a starting date, subdivided by quinquennial age groups and sex. No subdivision by race is made in these projections, as there is no need for such data for Old-Age, Survivors, Disability, and Health Insurance cost estimates. Each of these population groups is then projected into the future by the use of quinquennial survival rates that give the proportion of persons in a particular quinquennial age group surviving for 5 years.

At the same time, the number of births within the next 5-year period is obtained by applying age-specific birth rates (i.e., births in a 1-year period per 1,000 women of a specified 5-year age group) to the female population on both ends of the period and multiplying the average of the resulting annual births by 5. These births are then subdivided by sex according to a fixed sex ratio at birth (a very stable factor) and are projected by appropriate survival factors to the end of the 5-year period--and then to the end of subsequent 5-year periods in the same fashion as the original population. Carrying these various steps forward, population estimates are developed by quinquennial age groups and sex for all quinquennial years in the future.

To take immigration into consideration, the survivors of the postulated net immigrants during a 5-year period are added to the survivors (at the end of period) of the population existing at the beginning of the period. The combined total is then projected into the future.

Two separate projections have been made. They involve the same assumptions as to the starting population and net immigration, but differ in the mortality and fertility assumptions (see Table 1). A third projection, the average of these two, is also presented.

### Starting Population

The starting point for the projections is the estimated United States population on July 1, 1965. It includes Alaska, Hawaii, Puerto Rico, the Virgin Islands, Guam, and American Samoa, since these areas are covered by OASDHI. An attempt has been made to include in the projections those American citizens temporarily outside the covered areas. An adjustment for census underenumeration has also been added. The figures by area or category are as follows:



Table 1

GENERAL BASES OF POPULATION PROJECTIONS

	<u>Fertility</u>	<u>Mortality</u>	<u>Annual Net Immigration</u>
Low-Cost Projection	High	High	400,000
High-Cost Projection	Low	Low	400,000

Note: See text for detailed description of above bases and other ones used.

Area or Category	Estimated Population On July 1, 1965 (in thousands)
Residents of the 50 States and D. C.	193,818
Armed Forces Overseas	765
Puerto Rico	2,633
American Samoa, Guam, and the Virgin Islands	127
Federal Civilian Employees and Dependents of all Federal Employees Overseas	618
Crews of Merchant Vessels	32
Other Citizens Overseas	188
Adjustment for Net Undercount	<u>3,878</u>
<b>Total</b>	<u>202,059</u>

The Bureau of the Census prepared an estimate of the population of the United States, including armed forces overseas, and Federal civilian employees and their dependents overseas by age and sex for July 1, 1965.<sup>3/</sup> Inasmuch as this estimate does not provide any subdivision by age of the population aged 85 and over, the age distribution of this group was assumed to be the same as in the high-mortality projections for 1965 in Actuarial Study No. 46. Also, the population at ages 65-79 was redistributed into three new 5-year age groups to adjust for what is believed to be a bulge (or excess) at ages 70-74. The estimated populations for Puerto Rico, American Samoa, Guam, and the Virgin Islands were distributed by age in a form identical to that in the 1960 census. For the remaining two population groups (crews of merchant vessels and other citizens overseas) the only available data were 1960 total. This total was used again for 1965 and was distributed by age and sex in the same proportion as the rest of the population.

There is an overlap between (a) the population of Puerto Rico and other outlying areas and (b) the estimated Armed Forces overseas, civilian Federal employees overseas and their dependents, but this is believed to be small and to be partially offset by the exclusion of the U.S. citizens in the Canal Zone and by the relatively large net undercount of the other citizens overseas in the 1960 census.

It is believed that most population censuses are subject to an appreciable amount of underenumeration.<sup>4/</sup> This is not limited to the very young ages and is believed to be of significance for practically all age groups. Although attempts to measure this element have been made by several demographers, no definite consensus about the magnitude of the net undercount in the 1960 census has been reached. However, it is agreed that its relative size varies by age and sex.

For the present study, it was decided arbitrarily to adjust the estimated 1965 populations in each age group from ages 5-9 on by adding

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<sup>3/</sup> Current Population Reports, Series P-25, No. 321.

<sup>4/</sup> See for example, Jacob S. Siegel and Melvin Zelnik, "An Evaluation of the Coverage in the 1960 Census of Population by Techniques of Demographic Analysis and by Composite Methods", 1966 Proceedings of the Social Statistics Section, American Statistical Association.

2.7% for males and 1.7% for females. These adjustments were selected after an examination of the effect of alternative estimates of net undercounts<sup>5/</sup> and after consultation with several experts on the subject. It was believed that these adjustments would produce reasonable results for most age groups and that the assumption of different levels of net undercount by age would add to the arbitrariness of the adjustments without appreciably changing the starting population. No adjustment was made at ages 0-4, since these values were developed by the Bureau of the Census from birth and death statistics, and they are believed to be sufficiently accurate.

### Fertility Assumptions

Making assumptions as to fertility is the greatest problem in making population projections. Fertility rates have fluctuated widely in the past and could vary over a wide range in the future, with correspondingly great variation in the resulting populations. Table 2 shows crude birth rates (live births divided by mid-year population) and birth rates by age of mother (live births to mothers of given ages divided by total mid-year female population of those ages) for various past years and the assumed rates for future years. Birth rates are subject to error because of underregistration of births. Those for years before 1959 have been adjusted on the basis of tests of completeness of registration made in conjunction with the censuses of 1940 and 1950. For years after 1959, the rates are shown without adjustment. The rates for 1959 are shown under both bases. The rates are also subject to error in the opposite direction because of census underenumeration, but none of the rates shown have been adjusted for this error.

Examination of past rates is not of much help in forming hypotheses about the future. Birth rates for the entire population of the United States are available only since 1933. Those for 1915-32 relate to the gradually increasing Birth Registration Area.<sup>6/</sup> Fertility declined from 1915 to a minimum in the middle 1930's. Since then, birth rates have increased greatly except at the oldest ages of mothers. The increase has not been uniform, but declines have been followed by increases to higher levels. The last peak was reached in 1957. Since then the rates have been falling continuously. Preliminary figures for 1965 and for the early portion of 1966 indicate that the rates are still declining.

The recent decline in fertility can be observed to occur at all ages and is also observable in the crude birth rate, as well as in the total fertility rate. For the projections in this study, the birth rates were assumed to continue to decrease under both the low-fertility and high-fertility assumptions. For the high-fertility assumptions, it was assumed that an ultimate level would be reached in 1985 which would be equivalent to a total fertility rate of 2,800. The ultimate level for the low-fertility assumptions was assumed to be attained in the year 2010-- at rates equivalent to a total fertility rate of 2,300.

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<sup>5/</sup> Current Population Reports, Series P-25, No. 310.

<sup>6/</sup> The National Center for Health Statistics has prepared estimates of the birth rates for the total United States for years before 1933.

Table 2

## ACTUAL PAST AND PROJECTED FUTURE BIRTH RATES PER THOUSAND

Year	Crude <sup>a/</sup> Birth Rate	Total <sup>b/</sup> Fertility Rate	Rates by Age of Mother <sup>c/</sup>					
			15-19	20-24	25-29	30-34	35-39	40-44
Actual Rates, Adjusted for Underregistration								
1940	19.4	2,301.3	54.1	135.6	122.8	83.4	46.3	15.6
1945	20.4	2,491.2	51.1	138.9	132.2	100.2	56.9	16.6
1950	24.1	3,090.5	81.6	196.6	166.1	103.7	52.9	15.1
1955	25.0	3,579.7	90.5	242.0	190.5	116.2	58.7	16.1
1959	24.3	3,712.4	90.4	260.1	200.5	115.6	58.2	15.5
Actual Rates, Not Adjusted for Underregistration								
1959	24.0	3,669.7	89.1	257.5	198.6	114.4	57.3	15.3
1960	23.7	3,653.6	89.1	258.1	197.4	112.7	56.2	15.5
1961	23.3	3,627.6	88.0	253.6	197.8	113.3	55.6	15.6
1962	22.4	3,471.0	81.3	243.8	191.3	108.7	52.6	14.8
1963	21.7	3,331.6	76.5	231.3	185.4	105.9	51.2	14.2
1964	21.0	3,201.8	72.9	219.8	178.8	103.5	49.9	13.8
Low-Fertility Assumption								
1970	19.4	2,683.0	58.6	182.0	151.0	88.0	44.0	13.0
1975	19.9	2,543.0	55.0	172.4	143.0	83.0	42.5	12.7
1985	19.2	2,386.0	51.8	160.0	135.0	78.0	40.1	12.3
1995	17.2	2,321.5	50.2	156.0	131.5	76.0	38.5	12.1
2010	16.7	2,300.0	50.0	155.0	130.0	75.0	38.0	12.0
High-Fertility Assumption								
1970	20.5	2,831.5	64.5	192.2	158.3	92.8	45.0	13.5
1975	21.8	2,805.0	62.5	190.0	157.5	92.5	45.0	13.5
1985	21.9	2,800.0	62.0	189.5	157.5	92.5	45.0	13.5

a/ Total number of births divided by the mid-year population. For low fertility the population was projected on a low-mortality assumption, while for high fertility, it was projected on a high-mortality basis.

b/ Calculated as the sum of the rates by age of mother multiplied by 5. For the actual experience, the rates for age groups 10-14 and 45-49 (not shown in this table) were used in the calculation.

c/ Calculated as the ratio of the births to mothers in the age group to the total mid-year female population in the age group.

The ultimate fertility rates assumed are, on the average, lower than those assumed by the Bureau of the Census for its latest projections.<sup>7/</sup> The Census prepared its projections under four different assumptions as to the ultimate total fertility rate. For Series A, a level of 3,350 was assumed. This corresponds to the fertility experienced in the year 1953. For Series B, a level of 3,100 or about that experienced in 1949 was assumed. Series C assumed a level of 2,775, corresponding to the average of 1945 and 1946. The lowest level assumed was 2,450 for Series D, and it corresponds to the experience in the years 1941 and 1942. As will be observed, the high-fertility rates assumed in this study are slightly higher than those for Series C in the Census projections, but much lower than for Series A and B. The low-fertility rates that we have assumed are lower than the lowest series projected by the Bureau of the Census.

There are two basic reasons for our use of lower rates than those projected by the Census. In our opinion, the recent reductions in fertility rates will continue. We believe that present methods of birth control will continue to be improved and also that the continued open discussion of the subject will improve the moral acceptability of the practice, and so make its use more widespread. In addition, the population projections that are presented in this study were prepared to serve as a basis for estimating the cost of the Old-Age, Survivors, Disability, and Health Insurance system. Since the use of high-fertility assumptions tends to underestimate the cost of the system, we believe it would be preferable to project birth rates that are reasonable and yet are not too optimistic about the future cost of the program.

Table 3 presents the estimated number of yearly births and crude birth rates. It should be noted that these are dependent not only on the birth rates used, but also on the population to which they are applied. In this case, the high-fertility rates were used in connection with a high-mortality assumption, while the low-fertility rates were used in conjunction with a low-mortality assumption.

It was assumed that the sex distribution of births in the future would be the same as in 1963-64, 51.22% males and 48.78% females. It is known that the percentage of males tends to decrease slightly with parity, and therefore with increasing age of mother, but for simplicity the same percentage was used for all births.

The relatively simple procedure of projecting birth rates by age of mother was used in preference to the cohort-fertility approach, because it was believed that the additional work involved in a cohort-fertility estimating procedure would out-weigh the possible improvement in the results obtained. This is the case, especially when the assumptions are going to be rather arbitrary anyhow, and when the final "reasonable" projected fertility rates have a wide range of variability between the population projections.

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<sup>7/</sup> Current Population Reports, Series P-25, Nos. 329 and 345.

Table 3

## PROJECTED ANNUAL NUMBER OF BIRTHS AND CRUDE BIRTH RATES

Year	Annual Number of Births (in 1000's)		Crude Birth Rate (per 1000)	
	Low Fertility	High Fertility	Low Fertility	High Fertility
1970	4,143	4,381	19.4	20.5
1975	4,524	4,997	19.9	21.8
1980	4,842	5,540	20.0	22.5
1985	4,932	5,804	19.2	21.9
1990	4,864	5,903	17.9	20.8
1995	4,938	6,231	17.2	20.6
2000	5,145	6,752	17.1	20.9
2005	5,365	7,290	17.0	21.1
2010	5,528	7,721	16.7	20.9
2015	5,638	8,100	16.3	20.5
2020	5,755	8,538	16.0	20.3
2025	5,914	9,077	15.8	20.3

Note: The low-fertility rates were applied in the high-cost projection which assumed low mortality, while the high-fertility rates were applied in the low-cost projection which assumed high mortality.

## Mortality Assumption

Two sets of mortality rates varying by age, sex, and calendar year were developed. Hypothetical low-mortality rates by age and sex were developed for the year 2000. These rates were calculated assuming certain reductions in mortality for different causes as shown in Table 4. The high-mortality rates were calculated assuming that the improvement in mortality would be half of that assumed for the low mortality. The procedure for obtaining the 5-year survival rates is described in detail in the following paragraphs.

The postulated low-mortality rates for the year 2000 were arrived at by considering the 1959-61 death rates by age, sex, and 10 broad groups of causes of death, as obtained from special tabulations prepared by the National Center for Health Statistics in connection with the decennial life tables by causes of death. To these death rates were applied the assumed percentage reductions shown in Table 4 and totaled to obtain average reductions by age and sex for all causes combined (these are also shown in Table 4).

The causes of death were grouped and their corresponding code numbers, according to the Seventh Revision of the International Lists of Diseases and Causes of Death, are as follows:

- I. Tuberculosis (009-019)
- II. Other infective and parasitic diseases (020-138)
- III. Malignant neoplasms (140-205)
- IV. Diabetes (260)
- V. Major cardiovascular-renal diseases (330-334, 400-468, 592-594)
- VI. Influenza and pneumonia (480-493)
- VII. Gastritis, duodenitis, enteritis, and diseases of early infancy (543, 571, 572, 760-776)
- VIII. Congenital malformations (750-759)
- IX. Accident, suicide, and homicide (E800-E964, E970-E985)
- X. All other causes

To obtain the high-mortality rates for the year 2000, the average reduction, shown in Table 4 for low mortality, was assumed to be cut in half. This means for example that, if the low-mortality assumptions involved an average reduction of 26% for males at ages 30-34, then the reduction for the high-mortality assumptions was taken at 13%. For years between 1960 and 2000, the reductions for both low- and high-mortality assumptions were linearly interpolated. For years after 2000, mortality was assumed to remain constant (i.e., subject to no further improvement).

Table 4

POSTULATED DEATH RATES FOR YEAR 2000 AS PERCENT OF THE 1959-61 RATES  
 Low Mortality<sup>a/</sup>

Age	All Causes	Group of Causes of Death									
		I	II	III	IV	V	VI	VII	VIII	IX	X
Males											
Under 1	54.5	0	20	70	50	60	55	50	80	60	50
1-4	52.5	0	20	60	50	50	40	30	70	65	40
5-9	55.1	0	20	70	50	40	30	50	60	65	35
10-14	60.6	0	15	70	50	35	40	70	65	70	40
15-19	72.6	0	10	70	60	40	50	80	80	80	50
20-24	74.0	0	10	70	70	45	60	80	90	80	60
25-29	77.0	0	10	70	80	50	60	80	90	85	80
30-34	74.0	0	10	70	85	55	60	80	90	85	80
35-39	70.2	0	15	70	90	60	60	80	90	80	80
40-44	70.2	0	15	70	90	65	60	80	90	80	80
45-49	69.2	5	20	70	90	65	60	80	90	80	80
50-54	68.6	10	20	70	90	65	60	80	90	80	80
55-59	68.8	15	25	70	90	65	60	80	90	80	85
60-64	68.2	20	30	70	85	65	65	80	90	70	85
65-69	71.7	30	40	70	85	70	70	80	90	65	90
70-74	76.0	40	50	75	85	75	75	80	90	65	90
75-79	80.1	40	60	80	85	80	80	80	90	60	90
80-84	84.6	40	80	85	90	85	85	80	90	60	90
85 and over	88.6	50	90	90	90	90	90	80	90	50	90
Age adjusted (1960 population)	73.5	21.6	31.0	74.0	86.6	74.4	69.7	51.4	79.3	74.7	82.4
Females											
Under 1	54.6	0	20	60	50	50	50	50	80	65	50
1-4	51.1	0	20	60	50	35	40	30	70	65	40
5-9	56.2	0	20	70	50	25	30	50	60	75	40
10-14	59.8	0	15	70	60	30	40	70	65	80	50
15-19	64.8	0	10	65	70	35	50	80	80	80	55
20-24	66.1	0	10	65	80	40	60	80	90	85	60
25-29	67.8	0	10	65	85	45	60	80	90	90	70
30-34	69.4	0	10	65	85	50	70	80	90	90	80
35-39	67.6	0	20	65	90	50	75	80	90	90	80
40-44	65.8	0	30	65	90	50	80	80	90	90	80
45-49	64.4	10	35	65	85	50	80	80	90	90	80
50-54	62.8	15	40	65	80	50	80	80	90	90	80
55-59	64.2	20	45	65	80	55	80	80	90	90	85
60-64	65.7	25	50	65	80	60	80	80	90	90	85
65-69	68.3	30	55	65	80	65	80	80	90	80	90
70-74	71.4	40	60	65	85	70	85	80	90	70	90
75-79	78.3	40	70	65	85	80	85	80	90	60	90
80-84	82.9	40	80	70	90	85	90	80	90	50	90
85 and over	87.8	40	90	80	90	90	90	80	90	50	90
Age adjusted (1960 population)	72.9	18.8	37.5	66.2	83.4	74.8	76.8	52.3	79.8	74.9	80.7

a/ For high mortality the reductions were assumed as one half of those for low mortality. See explanation in the text.



The percentages of reduction in mortality were arrived at after consultation with various demographers and other experts, but the responsibility for their adoption for the present purposes rests entirely with the Office of the Actuary. Needless to say, they are highly conjectural. Both the low-mortality and high-mortality assumptions involve some improvement in the future, but this improvement is not as large as was assumed in our previous projections. The latter projections were prepared in the mid-1950's and they were, naturally, strongly influenced by the long and continued trend of declining mortality that had occurred until then. Since 1954, there has been a marked deceleration in this decline, especially at the older ages where there are now indications of possible increases in future mortality. Our present study attempts to recognize this change in the trend.

It should be observed from Table 4 that we are assuming a slightly greater improvement in mortality for females than for males. This implies an assumption of a continuation of the widening of the mortality gap between the two sexes. It should also be noted that we are assuming large improvements at infancy and childhood ages, and small improvements at the older ages. Moderate reductions are assumed for adolescence and adulthood, with somewhat larger reductions at the middle ages.

By causes, the largest reductions are assumed for tuberculosis and other infective and parasitic diseases. The smallest improvement is assumed for diabetes. Cancer and major cardiovascular-renal diseases, the two most important groups, are assumed to have medium-sized improvements.

Values of death rates and expectations of life were calculated on the basis of the low-mortality and high-mortality assumptions for the year 2000. They are shown in Tables 5 and 6, along with comparable figures from our previous population projections and from the last United States decennial life tables. In Table 5, it will be noted that the death rates for males show a greater absolute decline between 1959-61 and 2000 than those for females, notwithstanding the assumption of a greater relative decline in the latter. It should also be observed that in general (as measured by the age-adjusted rates) the low-mortality assumptions in this study are higher than those used in our previous population projections, but that there has been little change as to the high-mortality assumptions. However, the new rates are lower than the previous ones from age 1 to about age 20.

As indicated earlier, the mathematical procedure used to translate the postulated reductions in mortality into the survival ratios needed for the population projections made use of the available data and the computer programs that were prepared in connection with the United States 1959-61 Life Tables by Causes of Death.<sup>8/</sup> Briefly, what was done was to create a

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<sup>8/</sup> For a description of the methodology of these life tables, see National Center for Health Statistics, "United States Life Tables by Causes of Death", Life Tables: 1959-61, Vol. 1, No. 6.

Table 5

PROJECTED DEATH RATES (PER 1000) FOR YEAR 2000  
 COMPARED WITH OTHER DEATH RATES

Age	United States Population 1959-61	Low Mortality, 2000		High Mortality, 2000	
		Actuarial Study No. 46	This Study	Actuarial Study No. 46	This Study
Males					
Under 1	30.40	12.31	16.56	18.97	23.48
1-4	1.15	.71	.61	1.01	.88
5-9	.56	.34	.31	.50	.43
10-14	.56	.37	.34	.52	.45
15-19	1.28	.90	.93	1.30	1.11
20-24	1.81	1.31	1.34	1.89	1.57
25-29	1.71	1.18	1.32	1.47	1.51
30-34	2.01	1.19	1.49	1.67	1.75
35-39	2.85	1.66	2.00	2.40	2.42
40-44	4.59	2.61	3.22	3.94	3.91
45-49	7.48	4.17	5.18	6.40	6.33
50-54	12.31	6.65	8.44	10.68	10.38
55-59	18.58	9.90	12.79	16.83	15.68
60-64	27.74	14.87	18.91	25.40	23.33
65-69	40.88	21.74	29.33	37.25	35.10
70-74	58.19	35.02	44.22	51.08	51.21
75-79	84.98	62.11	68.07	79.51	76.53
80-84	132.23	103.37	111.81	117.01	122.02
85 and over	228.41	164.47	202.42	184.74	215.42
Age adjusted (1960 population)	10.90	6.60	8.01	9.51	9.45
Females					
Under 1	23.19	9.59	12.67	14.76	17.93
1-4	.96	.55	.49	.84	.73
5-9	.41	.22	.23	.34	.32
10-14	.32	.20	.19	.30	.26
15-19	.54	.38	.35	.56	.44
20-24	.70	.44	.46	.64	.58
25-29	.88	.53	.60	.77	.74
30-34	1.23	.67	.85	.99	1.04
35-39	1.79	1.01	1.21	1.50	1.50
40-44	2.76	1.55	1.81	2.30	2.28
45-49	4.20	2.36	2.70	3.50	3.45
50-54	6.39	3.66	4.01	5.42	5.20
55-59	9.31	5.23	5.98	7.74	7.64
60-64	14.58	8.07	9.58	11.90	12.08
65-69	22.44	13.06	15.33	19.94	18.88
70-74	36.26	23.38	25.89	31.26	31.07
75-79	60.08	46.50	47.02	54.12	53.55
80-84	104.23	84.17	86.41	97.06	95.32
85 and over	201.07	135.85	176.63	169.87	188.85
Age adjusted (1960 population)	8.01	5.16	5.84	6.85	6.93

Table 6

EXPECTATION OF LIFE (IN YEARS) BASED ON PROJECTED  
DEATH RATES FOR THE YEAR 2000 COMPARED WITH THOSE  
BASED ON OTHER DEATH RATES

Age	United States Population 1959-61	Low Mortality, 2000		High Mortality, 2000	
		Actuarial Study No. 46	This Study	Actuarial Study No. 46	This Study
Males					
0	66.80	73.97	71.56	68.92	69.06
1	67.80	73.88	71.72	69.23	69.65
5	64.10	70.09	67.89	65.51	65.89
10	59.27	65.20	62.99	60.66	61.03
20	49.77	55.58	53.35	51.16	51.45
30	40.56	46.21	43.99	41.99	42.18
40	31.42	36.79	34.67	32.74	32.95
50	23.02	27.86	25.91	24.17	24.38
60	15.94	19.78	18.18	16.86	16.99
65	12.95	16.11	14.75	13.80	13.80
70	10.33	12.66	11.69	11.10	10.97
Females					
0	73.24	78.87	77.53	75.41	75.30
1	73.93	78.62	77.50	75.52	75.63
5	70.21	74.79	73.65	71.77	71.85
10	65.35	69.87	68.73	66.89	66.96
20	55.60	60.06	58.91	57.15	57.17
30	46.00	50.33	49.19	47.51	47.51
40	36.61	40.71	39.64	38.04	38.05
50	27.71	31.40	30.42	28.99	28.99
60	19.52	22.57	21.69	20.58	20.55
65	15.80	18.39	17.63	16.69	16.67
70	12.37	14.45	13.82	13.16	13.06

Table 7

## PROJECTED EXPECTATION OF LIFE (IN YEARS) FOR VARIOUS AGES AND YEARS

Year	Age 0		Age 20		Age 65	
	Low Mortality	High Mortality	Low Mortality	High Mortality	Low Mortality	High Mortality
<b>Males</b>						
1959-61	66.80	66.80	49.77	49.77	12.95	12.95
1967-68	67.69	67.21	50.38	50.07	13.26	13.10
1972-73	68.18	67.48	50.80	50.27	13.47	13.21
1977-78	68.76	67.76	51.23	50.48	13.69	13.31
1982-83	69.36	68.04	51.68	50.69	13.91	13.42
1987-88	69.96	68.33	52.14	50.90	14.14	13.53
1992-93	70.59	68.62	52.61	51.12	14.38	13.64
1997-98	71.23	68.91	53.10	51.34	14.63	13.75
2000	71.56	69.06	53.35	51.45	14.75	13.80
<b>Females</b>						
1959-61	73.24	73.24	55.60	55.60	15.80	15.80
1967-68	73.99	73.62	56.17	55.89	16.12	15.96
1972-73	74.51	73.87	56.57	56.08	16.33	16.06
1977-78	75.03	74.12	56.97	56.27	16.55	16.17
1982-83	75.57	74.38	57.38	56.47	16.78	16.28
1987-88	76.11	74.64	57.80	56.67	17.01	16.39
1992-93	76.67	74.90	58.23	56.87	17.25	16.50
1997-98	77.24	75.16	58.68	57.07	17.50	16.61
2000	77.53	75.30	58.91	57.17	17.63	16.67

hypothetical cause of death that would account exactly for the postulated reductions in mortality. The computer was then requested to prepare a life table eliminating the hypothetical cause of death. The life table calculated in this way is based on exactly the same death rates that were postulated and at the same time would be in full agreement with the whole series of decennial life tables. It should be observed that no additional assumption, other than those embodied in the decennial tables, was required.

These special life tables eliminating the specified cause were calculated for the mid-date in each 5-year period (for example, July 1, 1967 for 1965-70) under the assumption that the reduction postulated for the year 2000 could be linearly interpolated for any date between 1960 and 2000. Separate calculations were made for males and females. Table 7 contains the calculated expectation of life for ages 0, 20, and 65 from these life tables.

The survival ratio, that is, the proportion of persons aged  $x$  to  $x+4$  that will survive 5 years to ages  $x+5$  to  $x+9$  was computed as  $5L_{x+5}/5L_x$  from the life table values.

For those born in the 5-year period, the survival ratio was calculated as  $5L_0/5L_5$ . This value was later applied to the number of births in the 5-year period to obtain the population aged 0-4 at the end of the period. For the population at the other end of the table--i.e., those aged 90 and over--the survival ratio was computed as  $T_{95}/T_{90}$ . Tables 8A, 8B, 8C, and 8D contain the calculated survival ratios.

As a by-product of the population projections, we have estimated the average annual number of deaths and the average crude death rates. These are presented in Table 9. Due to the facts that the low-mortality assumptions were applied jointly with the low-fertility assumptions and that the high-mortality assumptions were applied with the high-fertility assumptions, there are significant differences in the distribution of the population by age in the two projections. This difference causes the crude death rates in the projections to cross each other in about the year 2005. It should also be observed that all changes in the crude death rates after the year 2000 are due entirely to changes in the age structure of the population, since the death rates were assumed to remain constant after that year in both the projections.

#### Migration Assumption

Migration was once a very important element in the growth of the United States population. In 1910-15, there was a net immigration (excess of immigration over emigration) of about 3 million. It decreased greatly because of World War I, and the adoption of quotas based on national origin in 1921 prevented a return to the former high levels. The depression caused an additional but temporary decrease, and in some years of the 1930's, there

Table 8A

## PROJECTED SURVIVAL RATIOS FOR 5-YEAR AGE GROUPS, MALE POPULATION, LOW MORTALITY

<u>Age Groups</u>	<u>1965-70</u>	<u>1970-75</u>	<u>1975-80</u>	<u>1980-85</u>	<u>1985-90</u>	<u>1990-95</u>	<u>1995-2000</u>	<u>2000-2005 and after</u>
Birth to 0-4	.972210	.973922	.975636	.977350	.979072	.980794	.982520	.983384
0-4 to 5-9	.995624	.995901	.996179	.996460	.996736	.997015	.997295	.997431
5-9 to 10-14	.997693	.997829	.997966	.998102	.998239	.998376	.998512	.998581
10-14 to 15-19	.995791	.995965	.996139	.996312	.996486	.996660	.996834	.996920
15-19 to 20-24	.992455	.992717	.992980	.993243	.993506	.993769	.994033	.994164
20-24 to 25-29	.991577	.991845	.992113	.992381	.992650	.992919	.993187	.993322
25-29 to 30-34	.991372	.991643	.991915	.992186	.992458	.992730	.993002	.993138
30-34 to 35-39	.988822	.989237	.989653	.990068	.990485	.990901	.991318	.991526
35-39 to 40-44	.982950	.983616	.984285	.984952	.985622	.986290	.986961	.987295
40-44 to 45-49	.972519	.973605	.974697	.975785	.976880	.977971	.979069	.979615
45-49 to 50-54	.955015	.956832	.958659	.960483	.962318	.964150	.965992	.966911
50-54 to 55-59	.930997	.933750	.936515	.939286	.942068	.944856	.947657	.949059
55-59 to 60-64	.897713	.901798	.905896	.910021	.914159	.918326	.922505	.924606
60-64 to 65-69	.851056	.856518	.862020	.867565	.873140	.878750	.884401	.887244
65-69 to 70-74	.791940	.798230	.804582	.810986	.817443	.823941	.830503	.833805
70-74 to 75-79	.713141	.719964	.726852	.733793	.740817	.747913	.755076	.758677
75-79 to 80-84	.596625	.603468	.610410	.617399	.624504	.631675	.638948	.642600
80-84 to 85-89	.451711	.457413	.463217	.469051	.474988	.480954	.487028	.490073
85-89 to 90-94	.303390	.309236	.315169	.321105	.327129	.333159	.339275	.342331
90+ to 95+	.169314	.174985	.180708	.186395	.192209	.197988	.203874	.206797

Table 8B

## PROJECTED SURVIVAL RATIOS FOR 5-YEAR AGE GROUPS, MALE POPULATION, HIGH MORTALITY

<u>Age Groups</u>	<u>1965-70</u>	<u>1970-75</u>	<u>1975-80</u>	<u>1980-85</u>	<u>1985-90</u>	<u>1990-95</u>	<u>1995-2000</u>	<u>2000-2005 and after</u>
Birth to 0-4	.970932	.971788	.972644	.973500	.974362	.975216	.976080	.976508
0-4 to 5-9	.995417	.995552	.995696	.995834	.995971	.996112	.996250	.996320
5-9 to 10-14	.997590	.997658	.997726	.997795	.997863	.997931	.997999	.998033
10-14 to 15-19	.995661	.995748	.995834	.995922	.996008	.996095	.996182	.996226
15-19 to 20-24	.992257	.992388	.992520	.992651	.992783	.992914	.993046	.993111
20-24 to 25-29	.991376	.991509	.991644	.991778	.991912	.992046	.992180	.992247
25-29 to 30-34	.991168	.991303	.991439	.991575	.991711	.991846	.991982	.992050
30-34 to 35-39	.988510	.988718	.988926	.989133	.989341	.989549	.989757	.989861
35-39 to 40-44	.982449	.982784	.983116	.983450	.983783	.984118	.984452	.984618
40-44 to 45-49	.971702	.972245	.972790	.973333	.973878	.974423	.974969	.975241
45-49 to 50-54	.953651	.954560	.955470	.956377	.957289	.958202	.959115	.959571
50-54 to 55-59	.928932	.930312	.931682	.933064	.934438	.935826	.937205	.937900
55-59 to 60-64	.894663	.896699	.898732	.900771	.902814	.904870	.906922	.907951
60-64 to 65-69	.846984	.849710	.852438	.855175	.857921	.860684	.863448	.864834
65-69 to 70-74	.787252	.790386	.793521	.796682	.799842	.803028	.806215	.807820
70-74 to 75-79	.708094	.711462	.714878	.718281	.721731	.725167	.728650	.730383
75-79 to 80-84	.591555	.594947	.598374	.601787	.605254	.608708	.612234	.613978
80-84 to 85-89	.447445	.450283	.453115	.455985	.458849	.461733	.464648	.466113
85-89 to 90-94	.299011	.301913	.304827	.307791	.310727	.313672	.316629	.318131
90+ to 95+	.165124	.167918	.170736	.173653	.176395	.179256	.182112	.183528

Table 8C

## PROJECTED SURVIVAL RATIOS FOR 5-YEAR AGE GROUPS, FEMALE POPULATION, LOW MORTALITY

<u>Age Groups</u>	<u>1965-70</u>	<u>1970-75</u>	<u>1975-80</u>	<u>1980-85</u>	<u>1985-90</u>	<u>1990-95</u>	<u>1995-2000</u>	<u>2000-2005 and after</u>
Birth to 0-4	.978368	.979704	.981042	.982384	.983724	.985068	.986414	.987088
0-4 to 5-9	.996504	.996732	.996956	.997180	.997408	.997633	.997857	.997970
5-9 to 10-14	.998450	.998537	.998625	.998713	.998801	.998889	.998977	.999020
10-14 to 15-19	.998041	.998139	.998237	.998334	.998432	.998530	.998628	.998676
15-19 to 20-24	.997086	.997220	.997354	.997488	.997622	.997756	.997891	.997958
20-24 to 25-29	.996344	.996505	.996666	.996827	.996988	.997149	.997310	.997391
25-29 to 30-34	.995130	.995330	.995531	.995732	.995933	.996133	.996334	.996435
30-34 to 35-39	.993051	.993340	.993630	.993918	.994209	.994498	.994788	.994932
35-39 to 40-44	.989574	.990036	.990499	.990961	.991424	.991887	.992350	.992582
40-44 to 45-49	.984115	.984850	.985586	.986322	.987060	.987797	.988535	.988905
45-49 to 50-54	.975872	.977041	.978219	.979391	.980572	.981748	.982931	.983521
50-54 to 55-59	.964683	.966383	.968087	.969794	.971504	.973217	.974933	.975792
55-59 to 60-64	.946531	.948969	.951412	.953860	.956317	.958782	.961252	.962489
60-64 to 65-69	.918055	.921498	.924949	.928410	.931889	.935386	.938893	.940649
65-69 to 70-74	.873243	.877994	.882758	.887557	.892376	.897238	.902113	.904565
70-74 to 75-79	.799091	.804891	.810725	.816624	.822546	.828523	.834534	.837568
75-79 to 80-84	.678486	.684866	.691326	.697863	.704452	.711089	.717810	.721202
80-84 to 85-89	.514119	.519974	.525926	.531921	.538000	.544109	.550322	.553441
85-89 to 90-94	.325959	.332050	.338232	.344427	.350716	.357017	.363417	.366616
90+ to 95+	.172146	.178122	.184169	.190247	.196387	.202543	.208798	.211911



Table 8D

## PROJECTED SURVIVAL RATIOS FOR 5-YEAR AGE GROUPS, FEMALE POPULATION, HIGH MORTALITY

<u>Age Groups</u>	<u>1965-70</u>	<u>1970-75</u>	<u>1975-80</u>	<u>1980-85</u>	<u>1985-90</u>	<u>1990-95</u>	<u>1995-2000</u>	<u>2000-2005 and after</u>
Birth to 0-4	.977366	.978032	.978700	.979370	.980038	.980706	.981376	.981712
0-4 to 5-9	.996337	.996448	.996561	.996673	.996786	.996898	.997012	.997066
5-9 to 10-14	.998384	.998428	.998472	.998516	.998560	.998603	.998647	.998669
10-14 to 15-19	.997968	.998017	.998066	.998115	.998163	.998212	.998261	.998285
15-19 to 20-24	.996986	.997053	.997120	.997187	.997254	.997321	.997389	.997422
20-24 to 25-29	.996223	.996304	.996384	.996465	.996546	.996626	.996707	.996747
25-29 to 30-34	.994979	.995079	.995180	.995280	.995381	.995481	.995581	.995631
30-34 to 35-39	.992834	.992978	.993123	.993268	.993413	.993557	.993702	.993774
35-39 to 40-44	.989228	.989458	.989690	.989921	.990152	.990383	.990614	.990730
40-44 to 45-49	.983565	.983931	.984299	.984666	.985035	.985402	.985770	.985954
45-49 to 50-54	.974992	.975576	.976164	.976749	.977337	.977923	.978512	.978805
50-54 to 55-59	.963411	.964256	.965107	.965956	.966809	.967657	.968511	.968937
55-59 to 60-64	.944712	.945932	.947148	.948373	.949593	.950819	.952041	.952657
60-64 to 65-69	.915483	.917201	.918908	.920633	.922347	.924079	.925800	.926668
65-69 to 70-74	.869703	.872060	.874422	.876785	.879161	.881546	.883936	.885130
70-74 to 75-79	.794753	.797636	.800507	.803402	.806295	.809221	.812135	.813603
75-79 to 80-84	.673717	.676906	.680069	.683292	.686487	.689739	.692966	.694607
80-84 to 85-89	.509748	.512687	.515609	.518560	.521515	.524515	.527501	.529006
85-89 to 90-94	.321384	.324444	.327477	.330522	.333581	.336692	.339776	.341323
90+ to 95+	.167648	.170656	.173626	.176613	.179624	.182674	.185695	.187212

Table 9

## PROJECT ANNUAL NUMBER OF DEATHS AND CRUDE DEATH RATES

<u>Period</u>	<u>Annual Number of Deaths (in 1000's)</u>		<u>Crude Death Rate (per 1000)</u>	
	<u>Low Mortality</u>	<u>High Mortality</u>	<u>Low Mortality</u>	<u>High Mortality</u>
1965-70	1,921	1,968	9.24	9.45
1970-75	2,030	2,109	9.20	9.51
1975-80	2,136	2,246	9.10	9.45
1980-85	2,232	2,373	8.94	9.29
1985-90	2,327	2,494	8.79	9.10
1990-95	2,422	2,621	8.67	8.94
1995-00	2,522	2,753	8.58	8.79
2000-05	2,665	2,940	8.63	8.79
2005-10	2,848	3,123	8.80	8.73
2010-15	3,026	3,320	8.94	8.69
2015-20	3,233	3,559	9.16	8.73
2020-25	3,506	3,868	9.55	8.92
2025-30	3,883	4,239	10.21	9.20
2030-35	4,186	4,622	10.66	9.45
2035-40	4,474	4,969	11.07	9.58
2040-45	4,674	5,264	11.25	9.59
2045-50	4,806	5,520	11.26	9.49

was actually a net emigration. The Bureau of the Census had been recently assuming an annual net immigration of 300,000, but this was increased in its latest population projections to 400,000 to take into consideration the effect of the Immigration Act of 1965 and other related changes. The latter value approximates the level of net immigration experienced in fiscal year 1966. A similar level of annual net immigration was assumed for this study. The values assumed, by age and sex, for all future 5-year periods (after allowing for deaths before the end of the period) are as follows:

Age	Number (in thousands)	
	Males	Females
Under 5	70	62
5-9	112	108
10-14	97	95
15-19	103	111
20-24	121	177
25-29	123	164
30-34	97	100
35-39	67	70
40-44	40	50
45-49	25	34
50-54	16	29
55-59	14	27
60-64	13	20
65-69	7	13
70-74	3	8
75-79	2	4
80-84	1	2
85-89	--	1
Total	911	1,075

### C. Population Projections

Three different population projections are presented in this study. Two of them, the low-cost projection and the high-cost projection can be regarded as basic, since they were derived from the basic set of assumptions regarding future fertility, mortality, and migration. On the other hand, the intermediate-cost population projection cannot be viewed as basic, since it is in reality an average of the two basic projections. It should be noted that this intermediate projection differs from the one that would be calculated using assumptions of average fertility and average mortality. This projection was calculated for use in those cases where a single average value is desired instead of the two, low-cost and high-cost values.

Table 10

## PROJECTIONS OF THE UNITED STATES POPULATION BY BROAD AGE GROUPS

Year	Population (in thousands)				65 and over as..	
	Under 20	20-64	65 and over	Total	Percent of Total	Ratio of 20-64
<b>Low-Cost Projection</b>						
1965	80,139	103,209	18,711	202,059	9.3%	.181
1970	82,400	111,500	20,296	214,196	9.5	.182
1975	85,840	121,245	22,016	229,101	9.6	.182
1980	90,313	131,858	24,044	246,215	9.8	.182
1990	106,181	149,144	28,185	283,510	9.9	.189
2000	119,023	174,838	29,577	323,438	9.1	.169
2010	133,672	204,336	31,753	369,761	8.6	.155
2020	151,593	227,542	41,382	420,517	9.8	.182
2030	169,386	255,057	50,437	474,880	10.6	.198
2040	190,189	289,091	54,151	533,431	10.2	.187
2050	213,160	322,410	62,426	597,996	10.4	.194
<b>High-Cost Projection</b>						
1965	80,139	103,209	18,711	202,059	9.3%	.181
1970	81,868	111,580	20,405	213,853	9.5	.183
1975	83,629	121,439	22,304	227,372	9.8	.184
1980	85,331	132,195	24,585	242,111	10.2	.186
1990	93,489	149,303	29,458	272,250	10.8	.197
2000	98,353	171,142	31,756	301,251	10.5	.186
2010	103,111	193,385	34,706	331,202	10.5	.179
2020	109,756	205,170	45,386	360,312	12.6	.221
2030	115,348	215,544	55,678	386,570	14.4	.258
2040	121,520	229,968	58,470	409,958	14.3	.254
2050	128,087	241,154	63,209	432,450	14.6	.262

It should be emphasized, however, that the latter pair of projections do not represent the extreme outside limits possible as to the size of the population or as to the cost of the OASDHI system. Similarly, the intermediate cost projection should not be considered as our prediction or forecast of what the population will be in the future.

Table 10 summarizes, by broad age groups, the projected growth of the population. In this table, the population is divided into those aged 0-19, most of whom are not yet covered by the OASDHI system, those aged 20-64, who can be considered potential contributors to the system, and those aged 65 and over, who can be regarded as potential beneficiaries. Two other values of interest are also given. The percentage of aged persons in the total population gives a rough indication of the possible aging of the population. The ratio of the persons aged 65 and over to those aged 20-64 provides a good indicator of the possible future changes in cost of the OASDHI system.

The final population projections by sex and 5-year age groups are presented for each fifth year in the series of Tables 11. The High-Cost Projection (low fertility and low mortality) estimates the total population to increase by about 50% between 1965 and 2000, with a further increase of 45% projected in the next 50 years. Under the Low-Cost Projection (high fertility and high mortality) the population would increase by 60% by the year 2000 and would almost triple by the year 2050.

In comparing the results of the various projections, it is noteworthy that the fertility assumptions have considerably more influence than the mortality assumptions. This is not only because the fertility assumptions provide for a much wider range of variation than the mortality assumptions, but also because the important factor in the projection is the survival rate as opposed to the death rate. In fact, death rates at the younger ages are already so low--and correspondingly the survival rates are so close to unity--that there is not much room for further improvement.

The population under age 20 is, of course, materially affected by the fertility assumptions made. However, even under the low-fertility assumptions, the population under age 20 increases steadily, mainly because of the increasing number of mothers, due to the continuing increase in the annual number of births during recent decades. Under the low-fertility assumptions, this population increases by 60% by the year 2050, while it increases by 160% under the high-fertility assumptions.

The age group 65 and over will be considered in more detail, since it is the most important with regard to OASDHI costs. Under both projections, this group increases rapidly until the year 1995, when its growth decelerates (almost leveling off under the high-mortality assumptions) for 10 to 15 years before returning again to a rapid rate of increase.

Table 11A

UNITED STATES TOTAL POPULATION, INTERMEDIATE-COST PROJECTION  
Average of High-Cost and Low-Cost Projections, 1965-2050  
(in thousands)

<u>Age</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>	<u>2025</u>	<u>2050</u>
0-4	21051	19316	22142	24434	25948	26448	27008	28422	36060	45352
5-9	21495	21186	19462	22280	24569	26082	26586	27148	34645	43498
10-14	19836	21645	21338	19619	22432	24720	26233	26739	33512	41804
15-19	17757	19987	21792	21490	19777	22584	24868	26380	32231	39970
20-24	14235	17960	20181	21980	21683	19980	22778	25055	30754	38238
25-29	11810	14434	18140	20351	22143	21850	20160	22946	29081	36562
30-34	11504	11926	14536	18220	20419	22204	21917	20240	27732	35054
35-39	12472	11535	11956	14547	18203	20388	22165	21887	27115	33688
40-44	12891	12388	11470	11890	14452	18070	20237	22002	26478	32124
45-49	11871	12668	12184	11292	11713	14234	17793	19934	24636	30057
50-54	10919	11502	12286	11832	10981	11402	13860	17333	21883	27580
55-59	9450	10385	10958	11724	11312	10519	10940	13312	18522	25220
60-64	8057	8742	9632	10190	10931	10576	9861	10281	18811	23258
65-69	6710	7146	7783	8608	9144	9846	9560	8948	17283	20649
70-74	5242	5606	5999	6568	7302	7798	8438	8234	13710	16880
75-79	3597	3984	4289	4618	5090	5695	6122	6667	9687	12184
80-84	2050	2309	2580	2802	3040	3378	3810	4130	5255	7276
85-89	828	998	1136	1283	1407	1540	1728	1968	2244	4078
90-94	235	260	318	368	423	470	523	594	746	1432
95+	49	48	54	66	79	94	109	124	198	320
0-19	80139	82134	84734	87823	92726	99834	104695	108689	136448	170624
20-64	103209	111540	121343	132026	141837	149223	159711	172990	225012	281781
65+	18711	20351	22159	24313	26485	28821	30290	30665	49123	62819
<b>Total</b>	<b>202059</b>	<b>214025</b>	<b>228236</b>	<b>244162</b>	<b>261048</b>	<b>277878</b>	<b>294696</b>	<b>312344</b>	<b>410583</b>	<b>515224</b>

Table 11B

UNITED STATES TOTAL POPULATION, LOW-COST PROJECTION  
 High Fertility and High Mortality, 1965-2050  
 (in thousands)

<u>Age</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>	<u>2025</u>	<u>2050</u>
0-4	21051	19586	22987	25830	27821	28730	29796	31897	43246	57724
5-9	21495	21184	19728	23117	25953	27940	28849	29915	40940	54659
10-14	19836	21644	21335	19882	23266	26099	28083	28994	39075	51884
15-19	17757	19986	21790	21484	20037	23412	26238	28218	37031	48893
20-24	14235	17959	20177	21974	21672	20234	23594	26409	34821	46129
25-29	11810	14433	18136	20343	22131	21833	20405	23749	32370	43461
30-34	11504	11925	14532	18212	20405	22184	21891	20474	30326	41068
35-39	12472	11533	11953	14539	18188	20365	22133	21847	29183	38942
40-44	12891	12386	11464	11881	14435	18041	20195	21947	28173	36662
45-49	11871	12663	12175	11278	11692	14199	17737	19858	25814	33796
50-54	10919	11495	12269	11807	10948	11358	13791	17229	22474	30444
55-59	9450	10376	10936	11685	11259	10454	10857	13188	18521	27260
60-64	8057	8730	9603	10139	10852	10476	9745	10136	18445	24648
65-69	6710	7133	7749	8546	9048	9709	9395	8761	16787	21497
70-74	5242	5592	5965	6503	7197	7648	8234	7993	13150	17055
75-79	3597	3971	4257	4559	4993	5550	5925	6407	9147	11904
80-84	2050	2300	2556	2757	2967	3268	3652	3921	4867	6804
85-89	828	993	1124	1258	1366	1479	1639	1843	2033	3672
90-94	235	259	313	358	406	445	487	544	652	1240
95+	49	48	52	63	74	86	97	108	160	254
0-19	80139	82400	85840	90313	97077	106181	112966	119023	160292	213160
20-64	103209	111500	121245	131858	141582	149144	160348	174838	240127	322410
65+	18711	20296	22016	24044	26051	28185	29429	29577	46796	62426
<b>Total</b>	<b>202059</b>	<b>214196</b>	<b>229101</b>	<b>246215</b>	<b>264710</b>	<b>283510</b>	<b>302743</b>	<b>323438</b>	<b>447215</b>	<b>597996</b>

Table 11C

**UNITED STATES TOTAL POPULATION, HIGH-COST PROJECTION**  
**Low Fertility and Low Mortality, 1965-2050**  
 (in thousands)

<u>Age</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>	<u>2025</u>	<u>2050</u>
0-4	21051	19046	21296	23038	24075	24167	24219	24946	28873	32980
5-9	21495	21188	19196	21442	23184	24224	24322	24381	28350	32338
10-14	19836	21646	21342	19355	21599	23341	24383	24484	27950	31723
15-19	17757	19988	21795	21496	19517	21757	23498	24542	27431	31046
20-24	14235	17962	20185	21987	21694	19727	21962	23701	26687	30347
25-29	11810	14436	18144	20358	22155	21868	19915	22144	25792	29663
30-34	11504	11927	14539	18227	20432	22223	21943	20006	25138	29039
35-39	12472	11537	11960	14555	18218	20412	22197	21927	25047	28434
40-44	12891	12391	11475	11900	14470	18098	22079	22057	24784	27587
45-49	11871	12672	12193	11307	11734	14269	17847	20009	23459	26318
50-54	10919	11508	12302	11856	11014	11447	13929	17437	21293	24717
55-59	9450	10394	10980	11763	11365	10584	11024	13435	18524	23181
60-64	8057	8753	9661	10242	11010	10675	9977	10426	19177	21868
65-69	6710	7158	7817	8671	9240	9982	9726	9135	17779	19801
70-74	5242	5620	6033	6634	7408	7948	8643	8474	14269	16704
75-79	3597	3996	4321	4677	5187	5840	6320	6929	10227	12465
80-84	2050	2318	2605	2847	3114	3489	3969	4340	5643	7747
85-89	828	1002	1149	1308	1448	1601	1817	2092	2456	4484
90-94	235	262	324	379	440	496	559	645	840	1623
95+	49	49	55	69	84	102	121	141	237	385
0-19	80139	81868	83629	85331	88375	93489	96422	98353	112604	128087
20-64	103209	111580	121439	132195	142092	149303	159073	171142	209901	241154
65+	18711	20405	22304	24585	26921	29458	31155	31756	51451	63209
<b>Total</b>	<b>202059</b>	<b>213853</b>	<b>227372</b>	<b>242111</b>	<b>257388</b>	<b>272250</b>	<b>286650</b>	<b>301251</b>	<b>373956</b>	<b>432450</b>



Table 11D

**UNITED STATES MALE POPULATION, INTERMEDIATE-COST PROJECTION**  
**Average of High-Cost and Low-Cost Projections, 1965-2050**  
 (in thousands)

<u>Age</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>	<u>2025</u>	<u>2050</u>
0-4	10747	9866	11310	12482	13256	13514	13801	14526	18430	23178
5-9	10975	10811	9936	11375	12546	13321	13580	13868	17701	22223
10-14	10130	11046	10884	10011	11448	12618	13392	13654	17117	21350
15-19	9049	10190	11103	10944	10076	11508	12675	13448	16488	20450
20-24	7162	9101	10234	11144	10988	10127	11552	12714	15668	19492
25-29	5866	7224	9148	10274	11178	11026	10174	11590	14758	18573
30-34	5705	5912	7260	9170	10288	11187	11038	10194	14041	17770
35-39	6149	5707	5913	7249	9140	10251	11144	11000	13698	17042
40-44	6316	6082	5651	5856	7174	9041	10139	11025	13295	16196
45-49	5818	6164	5942	5528	5732	7024	8850	9931	12296	15068
50-54	5352	5568	5908	5704	5314	5518	6766	8535	10806	13686
55-59	4591	4992	5204	5532	5354	5000	5204	6392	8990	12313
60-64	3851	4127	4502	4708	5022	4877	4571	4773	8922	11068
65-69	3088	3276	3528	3866	4061	4354	4250	4002	7926	9448
70-74	2323	2442	2605	2822	3110	3288	3545	3482	5990	7391
75-79	1540	1653	1749	1880	2052	2276	2425	2634	3980	5023
80-84	848	916	991	1058	1148	1263	1414	1519	1987	2789
85-89	324	381	416	454	490	536	596	674	775	1446
90-94	89	98	116	129	143	156	174	196	246	486
95+	17	18	20	24	28	32	36	40	64	106
0-19	40901	41912	43232	44812	47326	50961	53448	55496	69736	87201
20-64	50810	54877	59762	65164	70190	74050	79438	86154	112475	141208
65+	8229	8784	9426	10234	11032	11906	12440	12547	20968	26688
<b>Total</b>	<b>99940</b>	<b>105573</b>	<b>112420</b>	<b>120210</b>	<b>128548</b>	<b>136917</b>	<b>145326</b>	<b>154197</b>	<b>203178</b>	<b>255097</b>

Table 11E

UNITED STATES MALE POPULATION, LOW-COST PROJECTION  
 High Fertility and High Mortality, 1965-2050  
 (in thousands)

Age	1965	1970	1975	1980	1985	1990	1995	2000	2025	2050
0-4	10747	10003	11740	13193	14210	14677	15222	16297	22096	29492
5-9	10975	10810	10071	11801	13250	14265	14732	15277	20910	27915
10-14	10130	11046	10882	10145	11872	13319	14332	14800	19950	26489
15-19	9049	10189	11102	10940	10207	11928	13370	14380	18974	25053
20-24	7162	9100	10232	11140	10981	10254	11964	13398	17773	23555
25-29	5866	7223	9146	10270	11171	11015	10295	11993	16458	22118
30-34	5705	5911	7257	9165	10280	11175	11022	10309	15383	20857
35-39	6149	5706	5911	7244	9132	10237	11125	10976	14769	19734
40-44	6316	6081	5648	5851	7164	9024	10114	10992	14136	18513
45-49	5818	6162	5937	5519	5720	7003	8818	9886	12872	16965
50-54	5352	5564	5898	5689	5294	5492	6726	8473	11079	15119
55-59	4591	4986	5190	5509	5322	4961	5154	6318	8963	13304
60-64	3851	4120	4484	4677	4975	4818	4502	4687	8703	11680
65-69	3088	3269	3508	3829	4007	4275	4154	3894	7635	9801
70-74	2323	2434	2587	2787	3053	3208	3436	3352	5680	7385
75-79	1540	1647	1734	1851	2004	2205	2328	2506	3703	4835
80-84	848	912	981	1039	1115	1214	1343	1426	1807	2559
85-89	324	379	411	445	474	512	561	624	688	1274
90-94	89	97	114	125	137	147	161	178	210	411
95+	17	18	19	23	26	29	32	35	50	83
0-19	40901	42048	43795	46079	49539	54189	57656	60754	81930	108949
20-64	50810	54853	59703	65064	70039	73979	79720	87032	120136	161845
65+	8229	8756	9354	10099	10816	11590	12015	12015	19773	26348
Total	99940	105657	112852	121242	130394	139758	149391	159801	221839	297142

Table 11F

UNITED STATES MALE POPULATION, HIGH-COST PROJECTION  
 Low Fertility and Low Mortality, 1965-2050  
 (in thousands)

Age	1965	1970	1975	1980	1985	1990	1995	2000	2025	2050
0-4	10747	9728	10879	11771	12303	12352	12381	12755	14764	16864
5-9	10975	10812	9800	10949	11841	12375	12427	12460	14493	16531
10-14	10130	11047	10886	9877	11025	11917	12452	12506	14284	16212
15-19	9049	10190	11105	10947	9944	11089	11980	12516	14001	15846
20-24	7162	9102	10237	11148	10994	10000	11141	12030	13564	15428
25-29	5866	7225	9151	10279	11186	11036	10052	11188	13057	15028
30-34	5705	5912	7262	9174	10296	11199	11053	10079	12699	14684
35-39	6149	5708	5915	7254	9150	10265	11164	11024	12627	14350
40-44	6316	6084	5654	5862	7185	9058	10164	11058	12454	13879
45-49	5818	6167	5948	5536	5745	7044	8883	9976	11721	13171
50-54	5352	5572	5917	5718	5333	5545	6807	8597	10533	12253
55-59	4591	4997	5217	5555	5385	5038	5253	6465	9018	11322
60-64	3851	4134	4519	4739	5068	4936	4640	4859	9141	10456
65-69	3088	3284	3548	3902	4118	4432	4345	4111	8217	9095
70-74	2323	2449	2624	2858	3167	3369	3655	3812	6301	7396
75-79	1540	1659	1765	1909	2099	2348	2522	2762	4257	5210
80-84	848	920	1002	1078	1180	1312	1484	1612	2167	3018
85-89	324	383	421	464	506	560	631	723	862	1619
90-94	89	98	118	133	149	166	187	214	281	561
95+	17	18	20	25	29	34	40	46	77	130
0-19	40901	41777	42670	43544	45113	47733	49240	50237	57542	65453
20-64	50810	54901	59820	65265	70342	74121	79157	85276	104814	120571
65+	8229	8811	9498	10369	11248	12221	12864	13080	22162	27029
Total	99940	105489	111988	119178	126703	134075	141261	148593	184518	213053

Table 11G

UNITED STATES FEMALE POPULATION, INTERMEDIATE-COST PROJECTION  
Average of High-Cost and Low-Cost Projections, 1965-2050  
(in thousands)

Age	1965	1970	1975	1980	1985	1990	1995	2000	2025	2050
0-4	10304	9450	10833	11952	12692	12934	13206	13895	17630	22174
5-9	10520	10375	9526	10904	12023	12762	13006	13279	16943	21276
10-14	9706	10599	10454	9608	10984	12102	12841	13086	16395	20453
15-19	8708	9798	10689	10546	9701	11076	12193	12932	15744	19520
20-24	7073	8860	9946	10836	10696	9854	11225	12342	15086	18747
25-29	5944	7210	8992	10077	10964	10826	9986	11356	14324	17989
30-34	5799	6014	7276	9050	10130	11016	10880	10046	13691	17283
35-39	6323	5828	6044	7298	9062	10138	11020	10887	13417	16646
40-44	6575	6306	5818	6034	7278	9028	10098	10977	13183	15928
45-49	6053	6503	6242	5765	5980	7210	8942	10002	12340	14989
50-54	5567	5934	6378	6128	5668	5884	7094	8798	11077	13894
55-59	4859	5394	5754	6193	5958	5520	5737	6920	9532	12908
60-64	4206	4614	5130	5482	5910	5698	5290	5508	9889	12190
65-69	3622	3869	4255	4742	5082	5492	5311	4945	9357	11200
70-74	2919	3165	3394	3746	4192	4510	4893	4752	7719	9489
75-79	2057	2330	2540	2738	3038	3418	3698	4034	5707	7162
80-84	1202	1394	1589	1744	1893	2116	2397	2612	3268	4487
85-89	504	616	720	828	917	1004	1132	1294	1470	2632
90-94	146	163	202	240	280	314	349	398	500	946
95+	32	30	34	42	52	62	73	84	135	213
0-19	39238	40222	41502	43010	45400	48874	51246	53192	66712	83423
20-64	52399	56663	61580	66863	71646	75174	80272	86836	112539	140574
65+	10482	11567	12734	14080	15454	16916	17853	18119	28156	36129
Total	102119	108452	115816	123953	132500	140964	149371	158147	207407	260126

Table 11H

**UNITED STATES FEMALE POPULATION, LOW-COST PROJECTION**  
**High Fertility and High Mortality, 1965-2050**  
(in thousands)

<u>Age</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>	<u>2025</u>	<u>2050</u>
0-4	10304	9583	11247	12637	13611	14053	14574	15600	21150	28232
5-9	10520	10374	9657	11316	12703	13675	14117	14638	20030	26744
10-14	9706	10598	10453	9737	11394	12780	13751	14194	19125	25395
15-19	8708	9797	10688	10544	9830	11484	12868	13838	18057	23840
20-24	7073	8859	9945	10834	10691	9980	11630	13011	17048	22574
25-29	5944	7210	8990	10073	10960	10818	10110	11756	15912	21343
30-34	5799	6014	7275	9047	10125	11009	10869	10165	14943	20211
35-39	6323	5827	6042	7295	9056	10128	11008	10871	14414	19208
40-44	6575	6305	5816	6030	7271	9017	10081	10955	14037	18149
45-49	6053	6501	6238	5759	5972	7196	8919	9972	12942	16831
50-54	5567	5931	6371	6118	5654	5866	7065	8756	11395	15325
55-59	4859	5390	5746	6176	5937	5493	5703	6870	9558	13956
60-64	4206	4610	5119	5462	5877	5658	5243	5449	9742	12968
65-69	3622	3864	4241	4717	5041	5434	5241	4867	9152	11696
70-74	2919	3158	3378	3716	4144	4440	4798	4641	7470	9670
75-79	2057	2324	2523	2708	2989	3345	3597	3901	5444	7069
80-84	1202	1388	1575	1718	1852	2054	2309	2495	3060	4245
85-89	504	614	713	813	892	967	1078	1219	1345	2398
90-94	146	162	199	233	269	298	326	366	442	829
95+	32	30	33	40	48	57	65	73	110	171
0-19	39238	40352	42045	44234	47538	51992	55310	58269	78362	104211
20-64	52399	56647	61542	66794	71543	75165	80628	87806	119991	160565
65+	10482	11540	12662	13945	15235	16595	17414	17562	27023	36078
<b>Total</b>	<b>102119</b>	<b>108539</b>	<b>116249</b>	<b>124973</b>	<b>134316</b>	<b>143752</b>	<b>153352</b>	<b>163637</b>	<b>225376</b>	<b>300854</b>

Table 111

**UNITED STATES FEMALE POPULATION, HIGH-COST PROJECTION**  
**Low Fertility and Low Mortality, 1965-2050**  
 (in thousands)

<u>Age</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>	<u>2025</u>	<u>2050</u>
0-4	10304	9318	10417	11267	11772	11815	11838	12191	14109	16116
5-9	10520	10376	9396	10493	11343	11849	11895	11921	13857	15807
10-14	9706	10599	10456	9478	10574	11424	11931	11978	13666	15511
15-19	8708	9798	10690	10549	9573	10668	11518	12026	13430	15200
20-24	7073	8860	9948	10839	10700	9727	10821	11671	13123	14919
25-29	5944	7211	8993	10079	10969	10832	9863	10956	12735	14635
30-34	5799	6015	7277	9053	10136	11024	10890	9927	12439	14355
35-39	6323	5829	6045	7301	9068	10147	11033	10903	12420	14084
40-44	6575	6307	5821	6038	7285	9040	10115	10999	12330	13708
45-49	6053	6505	6245	5771	5989	7225	8964	10033	11738	13147
50-54	5567	5936	6385	6138	5681	5902	7122	8840	10760	12464
55-59	4859	5397	5763	6208	5980	5546	5771	6970	9506	11859
60-64	4206	4619	5142	5503	5942	5739	5337	5567	10036	11412
65-69	3622	3874	4269	4769	5122	5550	5381	5024	9562	10706
70-74	2919	3171	3409	3776	4241	4579	4988	4862	7968	9308
75-79	2057	2337	2556	2768	3088	3492	3798	4167	5970	7255
80-84	1202	1398	1603	1769	1934	2177	2485	2728	3476	4729
85-89	504	619	728	844	942	1041	1186	1369	1594	2865
90-94	146	164	206	246	291	330	372	431	559	1062
95+	32	31	35	44	55	68	81	95	160	255
0-19	39238	40091	40959	41787	43262	45756	47182	48116	55062	62634
20-64	52399	56679	61619	66930	71750	75182	79916	85866	105087	120583
65+	10482	11594	12806	14216	15673	17237	18291	18676	29289	36180
<b>Total</b>	<b>102119</b>	<b>108364</b>	<b>115384</b>	<b>122933</b>	<b>130685</b>	<b>138175</b>	<b>145389</b>	<b>152658</b>	<b>189438</b>	<b>219397</b>

The temporary stability around the turn of the century is due entirely to the low birth rates that were experienced during the depression years of the 1930's. The total number of aged persons is projected to increase by 60-70% by the year 2000 under the high-mortality and low-mortality assumptions respectively. For the year 2050, the increases over 1965 are projected at about 230-240%.

It is important to note that the number of persons aged 65 and over in the low-cost projection (high-mortality assumptions) increases less rapidly than under the high-cost projections (low-mortality assumptions) for many years. However, ultimately the two projections are very close in this respect in absolute numbers. The reason for this is that the higher mortality in the low-cost projection is eventually offset by the higher fertility, which results in more people being exposed to the possibility (albeit a lower one) of attaining age 65 or over.

Percentagewise, the age group 65 and over will increase from the current level of 9.3% of the total population to about 10.5% in 2050 under the low-cost projection and about 14.5% under the high-cost projection. It will be noted in Table 10 that there is a dip in the period 2000-2010 in the relative number of aged persons. The ratio, both with respect to those aged 20-64 and to the total population, decreases temporarily due to the low birth rates in the depression years of the 1930's. A similar dip should also be expected in the OASDHI costs.

Table 12 shows the sex ratios (i.e., the number of males per 1,000 females) for the total population and for the aged population for the two projections, as well as for past censuses. Both for the total population and the aged population, the sex ratio has declined substantially since the 1920's and 1930's. This is due in large part to the decline in the number of immigrants (among whom there was a substantial excess of males during the period of heavy immigration) and also to the higher mortality experienced in the past by males. For the total population, the sex ratio is currently below 1,000. The two projections show a slight decrease over the next 20 years, followed by a slight rise, but in both of them there are more women than men in the population throughout the entire period considered.

In the population aged 65 and over, there are now slightly less than 800 males per 1,000 females. Under both projections, this ratio decreases during the next few decades and then rises slightly as the full effect of the lower "ultimate" levels of mortality is felt. The especially low sex ratios in the year 2000 are due in part to the very low birth rates of the 1930's, resulting in smaller increments to the aged group (and, consequently, in a higher average age for the group) in the neighborhood of the year 2000.

Table 12

ACTUAL AND PROJECTED SEX RATIO<sup>a/</sup> OF THE  
UNITED STATES TOTAL POPULATION AND AGED POPULATION

Year	Total Population			Population Aged 65 and over		
	Actual	Low Cost	High Cost	Actual	Low Cost	High Cost
1900	1,045	--	--	1,022	--	--
1910	1,061	--	--	1,012	--	--
1920	1,043	--	--	1,013	--	--
1930	1,027	--	--	1,005	--	--
1940	1,012	--	--	955	--	--
1950	993	--	--	897	--	--
1960	976	--	--	830	--	--
1970	--	973	973	--	759	760
1980	--	970	969	--	724	729
1990	--	972	970	--	698	709
2000	--	977	973	--	684	700
2010	--	982	977	--	697	717
2020	--	984	976	--	729	752
2030	--	984	971	--	727	753
2040	--	986	970	--	721	745
2050	--	988	971	--	730	747

<sup>a/</sup> Males per 1,000 females



#### D. Comparison with Previous Projections

Tables 13 and 14 compare the various population projections prepared since 1950 by this office with those prepared by the Bureau of the Census. It should be observed that the projections prepared by this office include the estimated population residing in the outlying areas (Puerto Rico, the Virgin Islands, etc...) covered by the OASDHI system, while those prepared by the Bureau of the Census do not include these areas. In addition, the last two sets of projections prepared by this office have included an adjustment for net census undercount.

For the total population, there has been a tendency to prepare higher projections, principally to take into account the larger number of births than previously projected. This trend is apparently coming to an end, since fertility rates have been declining rapidly in the last 7 years and since mortality improvements are decelerating. For persons aged 65 and over, there has also been a tendency to prepare higher estimates. In this case, the increases are due to lower mortality than projected and to adjustment indicated by the results of the 1960 census. Up to the moment, no acceptable explanation has been found to account for the high number of aged persons in the 1960 census as compared to the total that would be obtained from a projection of those enumerated in the 1950 census.

Table 13

SUMMARY OF VARIOUS POPULATION PROJECTIONS,<sup>a/</sup>  
 TOTAL POPULATION  
 (in millions)

Projection	1965	1975	2000
This Study <sup>b/</sup>	202	227-229	301-323
Actuarial Study No.46,1957 <sup>b/</sup>	194-203	215-238	263-343
Actuarial Study No.33,1952 <sup>b/</sup>	177-182	189-201	210-254
Bureau of the Census, 1966	195	214-227	280-356
Bureau of the Census, 1964	194-195	219-230	290-362
Bureau of the Census, 1958 <sup>c/</sup>	192-197	216-244	d/
Bureau of the Census, 1955 <sup>c/</sup>	186-193	207-228	d/
Bureau of the Census, 1953 <sup>c/</sup>	181-190	199-221	d/

- a/ Where more than one projection was prepared, the figures shown are for the lowest and highest values.
- b/ Includes population in outlying areas. For Actuarial Studies No. 46 and 62 (this study) includes adjustment for net undercount. Projections V and VI of Actuarial Study No. 46 were not considered.
- c/ Excludes population in Alaska and Hawaii.
- d/ Not available.

Table 14

SUMMARY OF VARIOUS POPULATION PROJECTIONS,<sup>a/</sup>  
 POPULATION AGED 65 AND OVER  
 (in millions)

<u>Projection</u>	<u>1965</u>	<u>1975</u>	<u>2000</u>
This Study <sup>b/</sup>	18.7	22.0-22.3	29.6-31.8
Actuarial Study No. 46, 1957 <sup>b/</sup>	18.1-18.4	22.0-23.3	29.5-35.2
Actuarial Study No. 33, 1952 <sup>b/</sup>	16.9-17.1	20.1-20.6	25.8-28.0
Bureau of the Census, 1966	18.2	21.2	<u>d/</u>
Bureau of the Census, 1964	18.1	21.2	28.2
Bureau of the Census, 1958 <sup>c/</sup>	17.6	21.9	<u>d/</u>
Bureau of the Census, 1955 <sup>c/</sup>	17.4	20.7	<u>d/</u>
Bureau of the Census, 1953 <sup>c/</sup>	17.3	20.7	<u>d/</u>

- a/ Where more than one projection was prepared, the figures shown are for the lowest and highest values.
- b/ Includes population in outlying areas. For Actuarial Studies No. 46 and 62 (this study) includes adjustment for net undercount. Projections V and VI of Actuarial Study No. 46 were not considered.
- c/ Excludes population in Alaska and Hawaii.
- d/ Not available.

Actuarial Studies Available from the Office of the Actuary\*

40. The Financial Principle of Self-Support in the OASI System--April 1955.
41. Analysis of Benefits, OASI Program, 1954 Amendments--May 1955.
46. Illustrative United States Population Projections--May 1957.
48. Long-Range Cost Estimates for Old-Age, Survivors, and Disability Insurance under 1956 Amendments--August 1958.
49. Methodology Involved in Developing Long-Range Cost Estimates for the Old-Age, Survivors, and Disability Insurance System--May 1959.
50. Analysis of Benefits, OASDI Program, 1960 Amendments--December 1960.
51. Present Values of OASI Benefits in Current Payment Status, 1960--February 1961.
52. Actuarial Cost Estimates for Health Insurance Benefits Bill--July 1961.
53. Medium-Range Cost Estimates for Old-Age, Survivors, and Disability Insurance and Increasing-Earnings Assumption--August 1961.
54. Estimated Amount of Life Insurance in Force as Survivor Benefits under OASI 1959-60--October 1961.
55. Remarriage Tables Based on Experience under OASDI and U.S. Employees' Compensation Systems--December 1962.
56. Analysis of Benefits under 26 Selected Private Pension Plans--January 1963.
57. Actuarial Cost Estimates for Hospital Insurance Bill--July 1963.
58. Long-Range Cost Estimates for Old-Age, Survivors, and Disability Insurance System, 1963--January 1964.
59. Actuarial Cost Estimates for Hospital Insurance Act of 1965 and Social Security Amendments of 1965--January 1965.
60. Mortality Experience of Workers Entitled to Old-Age Benefits under OASDI 1941-1961--August 1965.
61. History of Cost Estimates for Hospital Insurance--December 1966.

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\* Numbers not listed are out of print.