



Estimated Amount of
Life Insurance in Force
as Survivor Benefits
under OASI 1959-60

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This study has been issued by the Division of the Actuary under authority delegated by the Commissioner of Social Security. It is designed for the use of the staff of the Social Security Administration and for limited circulation to other persons in administration, insurance, and research concerned with the subject treated.

FOREWORD

This Study is another in the series presenting the results of analysis as to the "amount of life insurance in force" as survivor benefits under the Old-Age and Survivors Insurance system. Since the previous investigation (Actuarial Study No. 47 as of the beginning of 1957), the amount of life insurance in force has increased because of the increase in the wage level, the liberalization of the benefits provided under OASI, and an increase in the number of insured workers.

Although the amount of life insurance in force under the OASI system is analogous to the amount in force under private insurance contracts, there are certain important points of difference. Generally, the amount of insurance under private contract is definitely known or easily determinable. However, under the OASI system conditions for receipt of benefit are not based solely on life contingencies, but also on elements more readily under the control of the individual beneficiary, such as marriage, employment, retirement, etc. Therefore, the concept of insurance in force under the OASI system is open to several interpretations and must necessarily be considered on a range basis.

The importance of the OASI system in the national economy is indicated by the fact that the amount of insurance in force under the more restrictive concept of the "net" estimate was about \$503 billion at the beginning of 1960; which figure, in spite of the applicability of the new remarriage rates (to be discussed in Section B of this Study), was only slightly less than that in all private insurance organizations combined.

The "cost of insurance" is also examined. This represents the aggregate value of the survivor protection provided by the life insurance in force under the OASI system and can be compared with the contributions paid by the covered workers. The combined employee and self-employed contributions (excluding employer taxes) under the OASI system (i.e. excluding Disability Insurance) are now in excess of this aggregate value of survivor benefits largely because of the stepping up of the contribution rates in 1959 and 1960 respectively.

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ESTIMATED AMOUNT OF LIFE INSURANCE IN FORCE AS SURVIVOR BENEFITS
UNDER OASI--1959-60

A. Introduction

This is the seventh in a series of actuarial studies designed to present estimates of the amount of life insurance in force as survivor benefits under the Old-Age and Survivors Insurance system. Such estimates are of topical interest insofar as they allow broad comparisons with the amount of life insurance in force on the lives of policy holders in private insurance organizations and on the lives of servicemen and veterans under the insurance systems of the Veterans Administration.

The pioneer work in the field of survivorship insurance in force was done some two decades ago and brought out in Actuarial Study No. 16. The latter study utilized the limited data then available and gave results for 1940 under the 1939 Amendments.

The second in the series was Actuarial Study No. 29, which was also prepared under the 1939 Amendments and gave estimates of life insurance in force for two successive years, as of January 1, 1946 and 1947, respectively.

Next in line was Actuarial Study No. 31, which estimated the amount of life insurance in force as of January 1, 1951 and reflected the 1950 Amendments, which had effected an extensive increase in benefits through the conversion table and had liberalized eligibility requirements.

The fourth in the series was Actuarial Study No. 37, giving an estimate of the amount of life insurance in force as of January 1, 1953 soon after the 1952 Amendments, which had effected a further increase in benefits through modification of the conversion table and liberalization of the benefit formula.

Actuarial Study No. 43 presented an estimate of the life insurance in force as of January 1, 1955 and reflected further changes made under the 1954 Amendments.

The sixth in the series was Actuarial Study No. 47, which incorporated the liberalizations made under the 1956 Amendments and gave results as of January 1, 1957.

The present study, geared to keep pace with further changes made in the Old-Age and Survivors Insurance system, presents estimates of life insurance in force as of January 1, 1959 and 1960, respectively, both estimates being prepared for the provisions of the 1958 Amendments. Provisional estimates for January 1, 1961, following the changes made in the 1960 and 1961 Amendments, are also given.

Concept of Life Insurance in Force under OASI: Under the Old-Age and Survivors Insurance system, the amount of life insurance in force at any given time on the life of an insured worker may be defined as the sum total of the lump-sum death payment and the present value, at a specified rate of interest, of the monthly survivor benefits available if death of the insured worker occurred at that particular time. In other words, the concept of the amount of life insurance in force, as herein defined, represents the total life insurance protection currently available to an insured worker, as distinct from the total liability which will be entered into, in his behalf, in any given year. An estimate of the latter type of liability, known as the "cost of insurance," is also shown in this Study.

In general, monthly survivor benefits, based on the earnings credits of the insured workers, are provided to widows aged 62 and over; to widowed mothers with children under age 18 (or aged 18 and over if disabled prior to age 18); to children under age 18 orphaned by the death of the insured parent (father or mother); to orphaned children aged 18 and over if they have been continuously disabled since prior to age 18; to dependent aged parents; and to dependent aged widowers. For the purpose of this Study survivor benefits to disabled children, dependent parents and dependent widowers are considered to be of relatively minor importance and are, therefore, ignored.

Railroad Employment: The amount of life insurance in force, as given in the present Study, includes that arising from railroad employment, all of which is assumed to be OASI employment. This is in accordance with the 1951 Amendments to the Railroad Retirement Act; under the financial interchange provisions, the OASI Trust Fund is to be placed in the same position in which it would have been if railroad service had always been covered under OASI.

Veterans and Servicemen: This Study also includes the amount of life insurance in force under OASI on the lives of veterans and servicemen (other than that arising under the separate insurance systems of the Veterans Administration). The 1956 Amendments covered servicemen on a regular contributory basis, whereas previously they had been allowed "gratuitous" wage credits of \$160 a month.

Illustrative Example: The meaning of the "amount of insurance" in force as survivor benefits under the OASI system can be further clarified by means of an example. Let us assume that a man aged 22 (born January 1, 1937) enters covered employment on January 1, 1959, earns a level wage of \$400 a month and remains so employed until retirement. On January 1, 1962 he marries a woman aged 20 (born January 1, 1942). The first child is born after two years and a second child after four years of marriage. The accompanying chart traces the amount of insurance in force for this typical family from age 22 to age 80 of the insured worker. The various assumptions as to the rate of interest, mortality and the remarriage rates are indicated on the chart itself. It is further assumed that the OASI system as amended in 1958 remains unchanged indefinitely into the future, although the system has since been further modified under the Amendments of 1960 and 1961 respectively. The chart shows that a worker

becomes insured in the sixth calendar quarter of employment when he is entitled to an insurance protection equal to the maximum lump-sum of \$255; this sum would be payable immediately on his death whether or not he leaves any dependents eligible for monthly benefits.

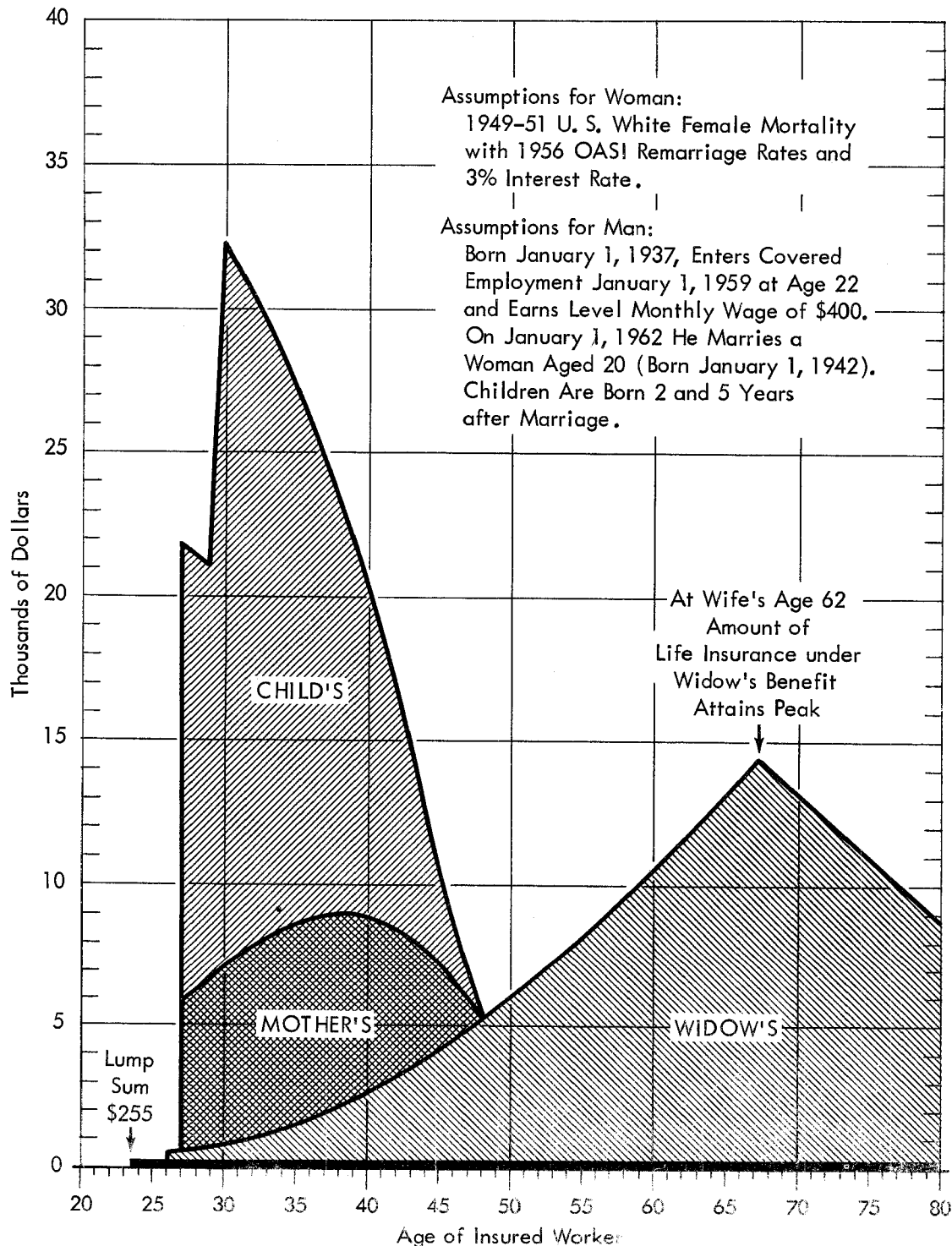
One year after marriage-following the completion of the "marriage qualifying period" specified in the Social Security Act--at his attained age 26, the amount of insurance is increased slightly by the present value at 3% interest of a deferred monthly benefit of \$95.30¹/payable to his widow at her attained age 62; such payments being continued for the un-remarried lifetime of the widow. At his attained age 27, there is a sharp jump in the amount of insurance in force due to the fact that additional mother's and child's protection becomes available then²/. The amount of insurance in force at this point is about \$21,800. There is another jump in the amount of insurance at his attained age 30 when the second child is born. Here, the amount of insurance reaches a peak of about \$32,300; thereafter, it decreases rapidly as the children grow older and their period of dependency to age 18 becomes shorter. After the worker's attained age 47, however, when the period of dependency of children is over, the protection consists of lump-sum and widow's benefit only. The steadily increasing protection from this point onward is solely due to the increasing present value at 3% interest of the widow's protection, which reaches a peak at his wife's attained age 62 and decreases thereafter.

1/ A level monthly wage of \$400 gives a primary insurance amount of \$127 a month. The widow's benefit at her age 62 or over is 75% of this amount; this rate, however, has now been increased to 82¹/₂% under the 1961 Amendments.

2/ The mother's and child's insurance protection is in force from the time the first child is born until the youngest child attains age 18. The mother's benefit is 75% of the primary insurance amount. The child's survivor benefit is, in essence, 75% of the primary insurance amount for the first child and 50% for subsequent children - the 1960 Amendments later increased this rate to 75% for all children, which also is the rate currently applicable under the 1961 Amendments. Thus, when the first child is born, the family survivor benefit is calculated at \$190.60 a month. On the birth of the second child, disregarding the individual rounding of figures, a family maximum of \$254 a month applies. When the first child attains age 18, the family benefit reverts back to \$190.60. For further details relating to the computation of monthly survivor benefits and methods of rounding, see Actuarial Study No. 50.

Chart 1.

LIFE INSURANCE in FORCE for HYPOTHETICAL FAMILY by TYPE of BENEFIT



B. Factors Involved

Rate of Interest: With the exception of the lump-sum death payment, all survivor benefits are payable in monthly installments over varying periods of time. In order to obtain a realistic picture of the extent of survivor insurance protection available under OASI it is, therefore, necessary to discount the present value of all monthly survivor benefits at an assumed rate of interest. The determination of the rate of interest for discounting monthly benefits payable over periods which may extend 50 or 60 years into the future is a problem of great complexity. Furthermore, the higher the rate of interest assumed, the lower will be the discounted values and the equivalent amount of insurance protection. Various alternatives as to the assumption of rate of interest for our purpose are discussed at some length in Actuarial Study No. 47. Current experience in the government as well as the private insurance sector of the economy indicates that an interest rate of 3% per annum will be both realistic and conservative. The present estimates of the amount of life insurance in force have therefore been computed at 3% throughout.

Mortality of Widows and Children: The next fundamental factor involved in the calculation of the equivalent amount of insurance relates to the mortality rates, which in view of the continuous improvement in public health and medical science, have been steadily decreasing and may be expected to decrease still further in the future. In this Study the mortality of widow survivor beneficiaries is assumed to follow the death rates of the United States White Female Life Table for 1949-51; the choice of this table tends to understate the amount of life insurance in force, but this understatement is expected to be offset somewhat by having used the mortality experience of white lives throughout. The mortality of children, however, is considered to have a negligible effect on our estimates and is therefore ignored.

Remarriage Rates of Widows: Since the rights to both widow's and mother's benefits terminate on remarriage, this contingency has also to be measured. Actuarial Study No. 47 assumed remarriage rates of widows equal to 150% of those under the American Remarriage Table (which was based on the experience of 1921-29). This assumption was made in order to allow for the higher remarriage rates under the OASI experience. The present Study, however, takes into account remarriage rates of widows based on specific 1956 OASI experience; the latter indicates remarriage rates substantially higher than even the 150% modification of the American Remarriage Table.

Retirement Test: If a beneficiary has not attained age 72 and earns more than \$1,200 in a year in any employment, then under the 1958 Amendments one month's benefit would be withheld for each \$80 (or fraction thereof) of earnings in excess of \$1,200^{3/} -- in no case, however, would

^{3/} Beginning generally for 1961, as a result of the 1960 and 1961 Amendments, earnings in excess of \$1,200 in a year result in the loss of \$1 of benefits for each \$2 of the first \$500 of such "excess earnings" and then on a \$1 for \$1 basis.

benefits be withheld for any month in which the beneficiary's remuneration as an employee was \$100 or less and in which he rendered no substantial services in self-employment. Many "eligible" survivor beneficiaries engage in employment, earn over \$1200 in a year, and thus have benefits withheld for some months. In times of near full employment, a job with wages is frequently more attractive than the benefits. Thus, the effect of employment on benefit receipt is variable and depends to a great extent on the business activity in the economy.

Gross and Net Estimates: Two sets of estimates are developed in this Study-"gross" and "net" estimates. The "gross" estimate does not take into consideration the effect of employment on benefit receipt; consequently, this amount of life insurance is the maximum potential amount available if eligible survivor beneficiaries under age 72 take full advantage of their benefit rights and avoid engaging in any employment where their earnings are likely to exceed \$1,200 a year. There is a further element of duplication in the gross estimate. Female covered workers include a considerable number of widows of insured workers. Many of these widows have become, or will become, entitled to old-age benefits in their own right. If the old-age benefit is greater than the widow's benefit, the latter is not payable; if it is less, only the excess of the widow's benefit over the old-age benefit is payable as a widow's benefit. Here again, there is an indeterminate area which does not readily lend itself to an accurate estimation, particularly as to the breakdown between survivor and retirement benefits.

The "net" estimate, on the other hand, adjusts the amount of insurance, both to allow for the effect of employment on current benefits and to account for possible "forfeiture" of the widow's benefits in cases where she has earned old-age benefits in her own right. Reduction factors have, therefore, been applied to the gross estimate by type of benefit as a basis for the net estimate. The reduction factors are 20% for the widow's benefits, 27% for mother's benefits, 3% for child's benefits, and 1% for lump-sum death payments (the latter to allow for the relatively few cases of payments to other than spouses where the reimbursible funeral expenses are less than 3 times the primary insurance amount, or \$255 if lower). These reduction factors are based on OASI claims statistics; the reduction factor for the widow's benefit is based on the long-range cost estimates data and methodology.

Effect of Variable Coverage Requirements for a Fully Insured Status on the Insured Population: Another point of some importance is the fact that the insured population tends to be lower at the beginning of a year than at the end of a preceding year. This is so because the requirement for a fully insured status increases in terms of quarters of coverage as each year goes by; hence, individuals who just meet the quarters of coverage requirement on December 31 at the end of a given year, cease to be insured on January 1 of the following year. On the average, this upward adjustment amounts to about $1\frac{1}{2}\%$ for men and 3-4% for women. However, in this Study, the numbers insured on January 1 are used without such adjustment.

C. Methodology

To determine the equivalent amount of life insurance in force as survivor benefits, the first step was to estimate the number of insured workers living at the beginning of each year under consideration. The Annual Statistical Supplement of the Social Security Bulletin provided the required data broken down by insured status, sex, and age. For the purpose of the Study, the "fully insured" and "currently insured only" categories were combined^{4/} and subdivided into quinquennial age groups; and, to this was added an estimate of the railroad insured workers together with that of a closed group of servicemen who continued to be insured solely on account of supplemental monthly wage credits of \$160 awarded prior to the operation of the 1956 Amendments.

The next step was to subdivide the estimated OASI insured population by marital status. This was done by utilizing the "proportion married" in each quinquennial age group derived from Current Population Reports.^{5/}

One of the most difficult factors to arrive at is the average primary insurance amount. This statistic was estimated by age, sex and marital status of the insured worker from data on 1958-59 survivor benefit awards under the 1958 Amendments. The product of the annualized average primary insurance amount (which is, 12 times the average monthly primary insurance amount) and the insured population resulted in the annualized aggregate primary insurance amount for each of the following categories of insured workers, by age: married male worker, nonmarried male worker, married female worker, and nonmarried female worker. This split of the insured workers by age, sex, and marital status was maintained in all subsequent work.

^{4/} It may be noted that the "currently insured only" category as given in the Annual Statistical Supplement relates to the very small proportion of the insured workers who meet the minimum requirements for currently insured status but lack additional quarters of coverage required for "fully insured status". Consequently, while for males the two categories of insured workers could be combined both for lump-sum and survivor benefits, the procedure adopted for female insured workers had to be somewhat different, since a child's benefit based on the earnings record of a married female insured worker would generally be payable only if she had currently insured status.

^{5/} Current Population Reports, Series P-20, Bureau of Census, U.S. Dept. of Commerce.

The next problem was to develop appropriate discount factors^{6/} under the 1958 Amendments for widow's, mother's, and child's benefits respectively. The present value factors for widow's benefits^{7/} allowed for both survivor and remarriage contingencies.

The present value factors for mother's benefits were similarly calculated. It was recognized that such benefit would terminate on attainment of age 18 of her youngest child.^{8/} The years of dependency to age 18 of children were based on the data of the Family Composition Study of 1935-36.^{9/} The present value factors for child's benefits were developed on the assumption that the monthly benefit would continue to age 18, disregarding the contingencies of the child's death or marriage prior to age 18; both of which were considered to have a negligible effect on our estimates. However, in cases where the maximum family benefit is payable, an allowance was made for an increase in the child's benefit on the death or remarriage of the mother or, in any event, when other children in the family attain age 18. Benefits to disabled children age 18 and over were also ignored.

The product of the annualized aggregate primary insurance amount and the present value factors by age and for each beneficiary category gave what might be termed as the "gross" estimates of the equivalent amount of life insurance protection available as survivor monthly benefits under OASI. These estimates were consolidated separately for male and female insured workers.

The lump-sum death payment is made whether or not the insured worker leaves any eligible dependents. This lump-sum amounts to 3 times the primary insurance amount, subject to a maximum of \$255. Reduction factors for lump-sum benefits were developed to conform to the \$255 maximum wherever 3 times the primary insurance amount exceeded that limit. One-fourth of the annualized aggregate primary insurance amount properly adjusted by means of the reduction factors, and, multiplied by the insured population by age group and sex gave the additional "gross" estimate of the insurance protection under lump-sum payments to be added on to the monthly equivalent protection already derived.

6/ The term "discount" or "present value" factor is used synonymously in this Study. In developing these factors, "continuous" actuarial functions (whether with or without life contingency) were used throughout.

7/ It may be recalled that widow's benefit is deferred to her age 62, or is payable immediately if that age has been attained.

8/ The mother's benefit also terminates on the death or marriage of the last child under age 18. On the other hand, it can continue beyond that age if the child is disabled. But such contingencies being of relatively minor nature (and to some extent counterbalancing) were ignored.

9/ Federal Security Agency, Social Security Board, Bureau of Research and Statistics, Statistics of Family Composition in Selected Areas in the United States, 1936, Vol. II, The Urban Sample.

The "gross" estimate, however, carries elements of duplication, which have already been discussed in Section B. It was, therefore, necessary to apply further reduction factors^{10/} to arrive at the "net" estimate.

It may be borne in mind that only survivor benefits are considered in determining the amount of life insurance in force; retirement and disability benefits of workers and supplementary benefits to their spouses do not belong in the category of life insurance that matures at the death of an insured worker. However, the fully insured group aged 65 and over considered herein properly includes those who are old-age beneficiaries, on whose death, in fact, survivor benefits become payable.

So far we have dealt with the method of estimating the equivalent amount of life insurance in force. As mentioned in the Introduction this Study also examines the "cost of insurance" concept, which represents the discounted value of the estimated amount of obligations that will be entered into as a result of expected deaths in any given year.

The cost of insurance was estimated by multiplying the "net" amount of life insurance in force by the appropriate death rates by age group and sex of the insured worker; group totals were then combined into an aggregate figure for the total insured population.

^{10/} See under "Gross and Net Estimates" in Section B.

D. Analysis of Results

In considering the results of this Study, allowance should be made for the limitations of the data. For instance, the assumption that the family composition as to children parallels that of the Family Composition Study is subject to criticism, even though these data are the best available ^{11/} By and large, the heavy birth rates of the last decade, as compared with the low birth rates of the 1930's, would be expected to lead to a relative increase in the proportion of younger children.

Table 1 summarizes the estimated amount of life insurance in force as of January 1, 1959 and 1960 respectively, by type of benefit and by sex of the insured worker under the gross and net estimates. The table shows that at 3% interest both gross and net estimates increased by 9% during 1959. Under the gross estimate, the equivalent amount of life insurance in force increased from \$522 billion at the beginning of 1959 to \$571 billion a year later. The net estimates were \$460 billion and \$503 billion respectively, or about 12% less than the corresponding gross estimates.

As explained earlier in these pages, the net estimate gives a more realistic picture of the amount of insurance in force under the OASI system. The percentage distribution of the amount of insurance based on the net estimates by type of benefit is approximately 21% for widow's benefits, 17% for mother's benefits, 58% for child's benefits, and about 4% for lump-sum death payments.

An analysis by sex shows that the male insured workers had about 92% of the total net insurance in force. The remaining 8% in respect to women is a much greater proportion if compared with the corresponding 4% before the enactment of the 1950 Amendments. This comparison is of interest primarily because the 1950 Amendments provided child's survivor benefits on the earnings records of currently insured married women, even though the husband was living, working, and insured. As far as the total amount of life insurance is concerned, the protection has been taken as additive in regard to children protected under the earnings records of both the insured father and the insured mother. ^{12/}

^{11/} It should be noted, however, that the proportions of families having children were based on OASI claims data for 1958. The Family Composition Study was used only to estimate the distribution of family size and ages of children for families with one or more children.

^{12/} Since a child cannot get benefits on both earnings records (but, in effect, only the larger benefit if both parents die), there is a slight element of overstatement in combining the amounts for men and women.

Table 2 gives both gross and net estimates of the amount of life insurance in force as of January 1, 1959 by age, sex, and type of benefit. Table 3 shows the corresponding estimates as of January 1, 1960. Under widow's benefits, about three-fourths of the life insurance in force was on insured workers aged 35-64 during 1959. Allowing for minor discrepancies due to rounding of numbers, both under mother's and child's benefits, the peak occurs at ages 30-34 of the insured worker. This, in fact, relates to the period where child dependency is greatest and, hence, in this age group the greatest amount of insurance protection is found.

Table 4 shows the estimated "cost of insurance" to meet the probable amounts of future benefits arising from deaths in 1959 and 1960 respectively. The cost of insurance is calculated on the basis of "net" amount of life insurance in force.

The present value of benefits on account of deaths in 1959 was estimated to be \$3.9 billion (under the provisions of the 1958 Amendments), of which 97% arose from male deaths. The total amount of OASI contributions (i.e. exclusive of the separate Disability Insurance contributions) paid in 1959 by employees and self-employed persons (i.e. excluding employer taxes) was about \$4.3 billion.^{13/} In 1957, the OASI contributions were about 9% less than the cost of survivorship protection on account of deaths in the same year, while in 1959, the contributions were about 10% in excess of the "cost" of survivor benefits. This reversal of the trend in the relationship between the contributions and the survivor benefits was largely due to the stepping up of the contribution rate in 1959.

The present value of benefits arising from deaths during 1960 was \$4.3 billion (based on the provisions of the 1958 Amendments). The corresponding OASI contributions made by employees and self-employed were \$5.7 billion,^{14/} or over 30% higher than the "cost" of the survivor benefits.

Table 5 gives comparative data relating to the total number insured and the total gross amount of insurance in force as of specified dates by sex, for all the Actuarial Studies released hitherto in this series including the present one.

Actuarial Study No. 47 estimated the gross amount of insurance in force as of January 1, 1957 at \$486 billion, which represented an increase of 27% in the 2-year interval between January 1, 1955 and January 1, 1957. The major factors which seemed to contribute to this rapid increase were analyzed in the aforesaid Actuarial Study. However, at the time Actuarial Study No. 47 was prepared, data on the number insured as of January 1, 1957 were not available in their final form. Consequently, the procedure adopted

^{13/} See Social Security Bulletin: Annual Statistical Supplement, 1959, Table 8.

^{14/} It may be stated that this total of contributions reflects a further increase in the contribution rate in 1960.

to arrive at a reasonable estimate of the gross amount of insurance in force was to make a first estimate of this sum based on the provisional figures of the number insured and then to make an upward adjustment of 5% to the gross amount so arrived at. ^{15/} Current knowledge of the number insured as of January 1, 1957 indicates an upward adjustment factor of only 3% instead of the 5% used then. This tends to show that the gross estimate of \$486 billion as given in Actuarial Study No. 47 needs to be reduced by 2% to \$476 billion. ^{16/}

In the next 2-year period between January 1, 1957 and January 1, 1959 there was, thus, an increase of about 9½% in the gross amount of insurance in force. Several factors contributed to this increase. The increase in the number of insured workers during the period, the upward movement in the average primary insurance amount applicable to all living insured workers, and an increase in the earnings base from \$4,200 to \$4,800 under the 1958 Amendments all tended to enhance the amount of insurance in force. However, the new remarriage rates for widows based on 1956 OASI experience were used for the first time in the present Study, and these rates being considerably higher than the ones used in the previous Study had a retarding effect on the upward movement of the amount of insurance in force. It is estimated that the use of the new remarriage rates for widows lowered the gross amount by about 5½%. In other words, if the remarriage rates based on 150% of American Remarriage Table had continued to be used, the gross amount of insurance between 1957 and 1959 would have increased by about 16%^{17/} instead of 9½%, described above.

The gross amount further increased by 9% between January 1, 1959 and January 1, 1960. By and large, this increase can be attributed to the average primary insurance amount (applicable to all living insured workers) which increased in about the same proportion. Also, there was a slight increase in the insured population.

^{15/} All figures by age and sex were likewise increased by a flat 5%.

^{16/} The net estimate should correspondingly be reduced by about the same percentage.

^{17/} Gross (corrected) amount of insurance in force
as of Jan. 1, 1957 = \$476 billion
Gross amount of insurance in force as of Jan. 1, 1959,
based on 150% of American Remarriage Rates = \$553 billion
Percentage increase between 1957 and 1959 = 16%

E. Comparison With Other Life Insurance Protection

As indicated in the Foreword, the amount of life insurance in force as survivor benefits under the Old-Age and Survivors Insurance system is analogous to the amount of insurance in force in a private life insurance company to the extent that each figure represents the aggregate present value of the benefit payments which would become due if all participants in the system in question should die immediately. There are, however, important points of difference; such as, the absence of contractual relationships and of cash values under the social insurance system; and the conditions for receipt of benefits, such as failure to remarry or to engage in substantial employment, which are not present under private insurance. Nevertheless, it is of interest to compare the estimate of the amount of insurance in force under OASI with the amount in force in private organizations and in the programs administered by the Veterans Administration. Table 6 allows such comparison to be made.

Not included in the table, however, is a considerable sum of life insurance in force as survivor benefits under the Civil Service Retirement and some other public retirement systems, which perhaps account for another \$15 billion of life insurance. Private pension plans also have a substantial amount of survivor protection in force (mostly in the form of potential refunds of employee contributions), although their primary purpose is to provide retirement benefits.

In comparing the amount of insurance under the Old-Age and Survivors Insurance system with that in private organizations, it may be mentioned that the former includes a large proportion of decreasing term insurance; survivor protection is concentrated where it is most needed socially, that is, at the younger ages of the insured worker and where the greatest number of minor children is found. Since the "cost" of insurance is relatively low at these ages, the current annual "cost" of insurance in force under OASI would be expected to be substantially less than that for the aggregate of all private insurance.

F. Provisional Estimates for January 1, 1961

Although this Actuarial Study presents the amounts of life insurance in force as survivor benefits primarily for the provisions of the 1958 Amendments, it seems desirable to indicate, at least on a tentative basis, the relative effect of further changes made in the OASI system under the subsequent amendments. Despite the inadequacy of the data available, an attempt is thus made in this Section to give estimates of the "net" amounts of life insurance in force as of January 1, 1961 both for the provisions of the 1960 and 1961 Amendments, respectively.

"Net" Estimates at
3% Interest, as of
January 1, 1961 ^{18/}
(In billions)

For the provisions of:

1960 Amendments	\$552
1961 Amendments	578

It may be noted that an increase of \$26 billion in the "life insurance equivalent" effected by the provisions of the 1961 Amendments is relatively small. This is due to the fact that the preponderance of the "life insurance equivalent" under OASI system arises in respect to children and young mothers, which categories under the 1961 Amendments are relatively little affected by the increase in the minimum benefit from \$33 to \$40, and hardly at all by the increase in the aged widow's benefit from 75% to 82½% of the primary insurance amount. Consequently, a large part of the increase of \$26 billion arises from the additional number of fully insured persons because of the "1 out of 4" provision.^{19/}

^{18/} The pertinent factors as to mortality and remarriage rates involved in these estimates are those already described in this Study.

^{19/} For a more complete description of the changes made under the 1961 Amendments, see the September 1961 issue of the Social Security Bulletin: "Social Security Amendments of 1961, Summary and Legislative History" by Wilbur J. Cohen and William L. Mitchell.

Table 1

SUMMARY OF ESTIMATED AMOUNT OF LIFE INSURANCE IN FORCE
AS OASI SURVIVOR BENEFITS
(In billions)

Sex of Insured and Type of Benefit	3% Interest			
	Gross Estimate ^{1/} as of January 1,		Net Estimate ^{2/} as of January 1,	
	1959	1960	1959	1960
Total: Both Sexes	\$522	\$571	\$460	\$503
Widow's	120	130	96	104
Mother's	110	120	80	88
Child's	274	301	266	292
Lump Sum	18	20	18	20
Men				
Total	482	528	421	461
Widow's	120	130	96	104
Mother's	110	120	80	88
Child's	240	264	233	256
Lump Sum	12	14	12	14
Women				
Total	40	43	39	42
Child's	34	37	33	36
Lump Sum	6	6	6	6

^{1/} The gross estimate does not take into consideration the effect of employment; it also fails to eliminate the duplication between widow's benefits and primary benefits that widows may earn in their own right.

^{2/} The net estimate takes into account both the effect of employment and the payment of only the excess if the widow's benefit is greater than her primary insurance amount.

Note: See text for description of methodology, concepts and assumptions. All figures are individually rounded and, in some instances, do not add exactly to totals shown.

Table 2

ESTIMATED AMOUNT OF LIFE INSURANCE IN FORCE AS OF JANUARY 1, 1959:
 DISTRIBUTION BY AGE AND TYPE OF BENEFIT
 (In billions)

Age of Insured	3% Interest						
	Total	Widow's	Mother's	Child's Insurance		Lump Sum	
				Men	Women	Men	Women
Gross Estimate							
All ages	\$522	\$120	\$110	\$240	\$34	\$12	\$6
Under 20	1	*	*	*	*	*	*
20-24	38	*	7	23	6	1	1
25-29	60	1	12	39	6	1	1
30-34	92	4	22	55	9	1	1
35-39	87	7	23	48	6	1	1
40-44	73	11	20	36	4	1	1
45-49	57	16	15	23	2	1	1
50-54	39	19	7	11	1	1	*
55-59	27	19	3	4	*	1	*
60-64	20	17	1	1	*	1	*
65-69	14	13	*	*	*	1	*
70-74	9	8	*	*	*	*	*
75 and Over	4	4	*	*	*	*	*
Net Estimate							
All ages	\$460	\$96	\$80	\$233	\$33	\$12	\$6
Under 20	1	*	*	*	*	*	*
20-24	35	*	5	22	6	1	1
25-29	55	1	9	38	5	1	1
30-34	83	3	16	54	9	1	1
35-39	77	6	17	47	6	1	1
40-44	64	9	14	35	4	1	1
45-49	49	13	11	22	2	1	1
50-54	33	15	5	10	1	1	*
55-59	23	15	2	4	*	1	*
60-64	16	14	1	1	*	1	*
65-69	12	11	*	*	*	1	*
70-74	7	7	*	*	*	*	*
75 and Over	3	3	*	*	*	*	*

*Less than \$500 million.

Note: See text for description of methodology, concepts and assumptions.
 All figures are individually rounded and, in some instances, do not add exactly to total shown.

Table 3

ESTIMATED AMOUNT OF LIFE INSURANCE IN FORCE AS OF JANUARY 1, 1960:
 DISTRIBUTION BY AGE AND TYPE OF BENEFIT
 (In billions)

Age of Insured	3% Interest						
	Total	Widow's	Mother's	Child's Insurance		Lump Sum	
				Men	Women	Men	Women
Gross Estimate							
All ages	\$571	\$130	\$120	\$264	\$37	\$14	\$6
Under 20	1	*	*	*	*	*	*
20-24	44	*	8	26	7	1	1
25-29	65	1	14	42	6	1	1
30-34	101	4	24	61	9	2	1
35-39	96	8	25	53	6	2	1
40-44	79	12	21	39	5	2	1
45-49	62	17	16	24	2	1	1
50-54	43	21	8	12	1	1	1
55-59	28	20	3	4	*	1	*
60-64	22	18	1	1	*	1	*
65-69	17	16	*	*	*	1	*
70-74	9	8	*	*	*	*	*
75 and Over	5	5	*	*	*	*	*
Net Estimate							
All ages	\$503	\$104	\$88	\$256	\$36	\$13	\$6
Under 20	1	*	*	*	*	*	*
20-24	40	*	6	26	7	1	1
25-29	60	1	10	41	6	1	1
30-34	92	3	18	59	9	2	1
35-39	85	6	18	52	6	2	1
40-44	70	9	16	38	4	2	1
45-49	54	14	12	24	2	1	1
50-54	36	16	6	11	1	1	1
55-59	23	16	2	4	*	1	*
60-64	18	15	1	1	*	1	*
65-69	14	12	*	*	*	1	*
70-74	7	7	*	*	*	*	*
75 and Over	4	4	*	*	*	*	*

*Less than \$500 million.

Note: See text for description of methodology, concepts and assumptions.
 All figures are individually rounded and, in some instances, do not add exactly to total shown.

Table 4

ESTIMATED COST OF INSURANCE^{1/} IN 1959 AND 1960
(In billions)

	<u>1959</u>	<u>1960</u>
Total	\$3.9	\$4.3
Men	3.8	4.2
Women	.1	.1

^{1/} Based on "net" estimate of life insurance in force.

Table 5

COMPARISON OF SUMMARY RESULTS OF THIS STUDY AND PREVIOUS STUDIES

Actuarial Study No.	Date	Number Insured (In millions)			Amount of Insurance In Force (In Millions)		
		Total	Men	Women	Total	Men	Women
16	1940	24.0	18.2	5.7	\$ 42	\$ 41	\$ 1
29)	Jan. 1, 1946	40.2	26.7	13.6	64	61	3
29)	Jan. 1, 1947	41.6	27.6	14.0	67	64	3
31	Jan. 1, 1951	61.5	39.5	22.0	191	168	23
37	Jan. 1, 1953	69.9	44.9	25.0	342	320	22
43	Jan. 1, 1955	72.5	45.8	26.7	383	353	30
47	Jan. 1, 1957	75.4	48.5	26.9	486	447	39
54	Jan. 1, 1959	79.7	51.2	28.5	522	482	40
54	Jan. 1, 1960	80.7	51.8	28.9	571	528	43

Notes: The dollar figures are on a 3% interest basis.

All figures in this table are exactly as they have appeared in the various Actuarial Studies without any subsequent adjustments. The figures as given for Actuarial Study No. 47, however, need to be revised; and, the extent to which this should be done is indicated in Section D of the text.

Figures for each of the Actuarial Studies from No. 31 onward relate to the gross estimate; those for Actuarial Study No. 29 are the high estimate (which is the same concept as "gross" estimate); and those for Actuarial Study No. 16 refer to the low estimate which is fairly comparable to the high or gross estimate in the later studies.

Table 6

COMPARISON OF OASI, VETERANS ADMINISTRATION AND PRIVATE INSURANCE PROTECTION

	Estimated Amount of Life Insurance in Force as of	
	Jan. 1, 1959	Jan. 1, 1960
	(in billions)	
Total	\$1,011.9	\$1,104.0
Old-Age and Survivors Insurance system	460.0	503.0
Veterans Administration		
Total	43.2	42.6
U.S. Government Life Insurance (World War I)	1.5	1.4
National Service Life Insurance (World War II)	35.2	34.9
Veteran's Special Term Insurance (Korean Conflict) and Service-Disabled Veterans Insurance (Korean Conflict)	6.5	6.2
Private Insurance		
Total	508.7	558.4
Ordinary, Group Industrial and Credit Insurance	493.6	542.1
Savings Bank Insurance	1.1	1.1
Fraternal Insurance	12.4	13.6
Assessment Life Insurance	1.6	1.6

Actuarial Studies Available from the Division of the Actuary*

10. Various Methods of Financing Old-Age Pension Plans--September 1938.
14. An Analysis of the Benefits and Costs under Title II of the Social Security Act Amendments of 1939--December 1941.
19. OASI 1943-44 Cost Studies--May 1944.
21. Analysis of Long-Range Cost Factors--September 1946.
32. Analysis of 346 Group Annuities Underwritten in 1946-50--October 1952.
34. Analysis of the Benefits under the OASI Program as Amended in 1952--December 1952.
37. Estimated Amount of Life Insurance in Force as Survivor Benefits under Social Security Act Amendments of 1952--August 1953.
38. Long-Range Cost Estimates for Changes Proposed in the OASI System by H.R. 7199, with Supplementary Estimates for Universal Coverage--March 1954.
40. The Financial Principle of Self-Support in the OASI System--April 1955.
41. Analysis of Benefits, OASI Programs, 1954 Amendments--May 1955.
43. Estimated Amount of Life Insurance in Force as Survivor Benefits under OASI--1955--September 1955.
44. Analysis of 157 Group Annuity Plans Amended in 1950-54--July 1956.
45. Present Values of OASI Benefits in Current Payment Status 1940-56 --May 1957.
46. Illustrative United States Population Projections--May 1957.
47. Estimated Amount of Life Insurance in Force as Survivor Benefits under OASI--1957--July 1958.
48. Long-Range Cost Estimates for Old-Age, Survivors, and Disability Insurance under 1956 Amendments--August 1958.

* Numbers not listed are out of print.

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.