

Remarriage Tables Based
on Experience under
OASDI and US Employees
Compensation Systems

|||
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FOREWORD

This Study draws together a considerable amount of material dealing with remarriage rates of widows that has accumulated over the years in the Division of the Actuary. In addition, it presents certain previously unpublished material about such experience under the OASDI system. Two basic remarriage tables are presented from the experience data of the U. S. Employees' Compensation system (workmen's compensation for Federal employees) and for the OASDI system. Corresponding commutation columns for these remarriage experiences, combined with population mortality, are also given.

It is intended in the future to make additional remarriage experience studies, including mortality analyses for unremarried widows.

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REMARRIAGE TABLES BASED ON EXPERIENCE UNDER OASDI
AND U. S. EMPLOYEES' COMPENSATION SYSTEMS

The study of a considerable amount of widow remarriage experience under certain benefit systems in the United States and Canada is represented by at least four previously published remarriage tables--not counting several others which in effect are flat percentage modifications of the American Remarriage Table, or which are based on modification only of the mortality basis to be combined with remarriage rates from that table. This study presents two new tables--the 1916-55 U. S. Employees' Compensation Remarriage Table, and the 1956 OASDI Remarriage Table. Remarriage rates from each of these tables are combined with U. S. White Female mortality 1949-51 for commutation columns at 3%.

A. Comparison of Existing Remarriage Tables

In Table 1, average rates from these six remarriage tables are shown along with ratios of successive rates by 5-year age and duration groups. The first column gives age at widowhood--an exact age except in the case of the American Remarriage Table, which is based on age last birthday. The second column gives the average absolute annual remarriage rate during the first 5 years of widowhood. This average is defined as the constant annual rate which would produce the same number of surviving unremarried widows as the actual varying annual absolute rates, assuming no decrement for mortality in either case.^{a/} The third column shows ratios of the average rates for succeeding central ages at widowhood. The third and fourth columns represent a similar analysis for duration 5-9. Durations 5-9, except for the Canada Pension Act table, are on an "ultimate" attained age basis. The last column is the ratio of the average rate for durations 5-9 to that for durations 0-4.

In connection with the general levels of rates in Table 1, it should be pointed out that under the Railroad Retirement and OASDI systems, widow's benefits at the younger ages (under 65 until the 1956 Amendments and then under 62 for OASDI; and under 65 until the 1954 Amendments and then under 60 for RRB) are payable only to mothers with children and only until the youngest child reaches age 18 (except that payment continues beyond 18 if the child is permanently and totally disabled before then--since the 1956 Amendments for OASDI and the 1954 Amendments for Railroad Retirement). Also, substantial earnings by the widow may result in reduction or withholding of the benefit. Because of these special conditions, it is likely that the possibility of losing the benefit is not as much of a deterrent to remarriage as it otherwise would be.

a/ Thus, if we define ${}_{0-4}P^m[x]$ as the complement of this average rate, then

$$\left({}_{0-4}P^m[x] \right)^5 = P^m[x] \cdot P^m[x]+1 \cdot P^m[x]+2 \cdot P^m[x]+3 \cdot P^m[x]+4$$

where $P^m[x]+t$ is the complement of the annual absolute rate of remarriage at duration t, corresponding to age x at widowhood.

The average OASDI mother's monthly benefit payable was \$47.35 at the end of 1956, while the corresponding mother's benefit under Railroad Retirement was \$64.99 at the end of 1956. The Railroad Retirement experience, of course, covered some earlier years when the average mother's benefit was lower, but for the entire period, Railroad Retirement benefits probably represented a higher average level of subsistence than did the OASDI benefit for 1956. It is believed that this difference in relative benefit levels is reflected in the lower remarriage rates under the Railroad Retirement system. Also, rates in the final RRB table are arbitrarily reduced by 5% as a margin for conservatism. Under both systems, remarriage rates are comparatively high, so that perhaps neither the 1956 RRB table or the 1956 OASDI table should be considered conservative for valuation of systems for which the benefit is payable without a retirement test and will not be terminated when the youngest child attains majority.

Under the other four programs, benefits are terminated only on death or remarriage. In these, the highest benefits (up to \$525 per month) are payable under the U. S. Employees' Compensation system, which in effect is a workmen's compensation system for employees of the Federal Government, paying benefits to widows of employees dying as a result of job-connected injury or disease. The remarriage rates for this system are quite low, although in comparison with the older American Remarriage Table reflecting the generally slightly higher rates for the entire period 1916-55, which of course includes World War I and II and postwar periods.

Under the Canada Pension Act, benefits are payable to widows of members of the Canadian armed forces who died as a result of injury or disease attributable to military service. The widow's benefit runs from \$115 to \$180 per month; a lump-sum benefit equal to 1 year's pension is payable on remarriage. The general level of remarriage rates is higher than under the U.S. Employees' Compensation system.

For the U. S. Civil Service Remarriage Table, the bulk of the experience was in respect to widows' benefits based on employee or annuitant deaths before October 1, 1956. These benefits could not begin before age 50 unless there was a survivor child under age 18 at the time of death. However, the benefit did not terminate when the youngest child reached age 18, but instead generally continued until the widow remarried or died, unless she was the widow of an annuitant not electing the optional survivor benefit, in which case the benefit terminated at age 50. The major portion of the Civil Service Remarriage Table is therefore based on benefits terminating on remarriage or death, but with a surviving child under age 18 required for original entitlement. A minor part of the experience relates to these conditions plus an automatic cut-off at age 50. A further minor share of the experience relates to benefits payable under the 1956 Amendments (for deaths after September 1956); these are payable until remarriage or death, with no surviving child required for entitlement. The average widows' benefit in force during the 1954-57 period was on the order of \$40-45 per month.

Under all studies of remarriage of widows, the rates by duration are quite low for the first year but reach a peak after about 2 or 3 years, after which there is a gradual decline. (This characteristic is, of course, not directly shown in Table 1, since rates for the first 5 years are expressed in terms of a single average.) Generally, except for this, the ratios of successive rates are fairly constant, both by age and by duration, over the middle ranges of the tables. Between tables, a rough general similarity of the progressions in rates is evident, even for tables for which the general level of rates is quite different.

Apparently it would be possible to devise methods of graduation of remarriage data based on constants of the Makeham or Gompertz type, representing the data with reasonable fidelity except at very early durations. However, there seems to have been little practical reason for doing so. In fact, a trend toward simpler graduations is apparent. The original American Remarriage Table was graduated (after preliminary trials using various mathematical functions) assuming a cubic relationship between rates by age, while most of the later tables, involving much more data, were graduated by simpler mathematical processes or graphically. Simpler graduations are considered more appropriate since it has become apparent that remarriage rates vary considerably by time, much more so than do mortality rates, for example. In this respect, remarriage rates are like withdrawal rates under pension systems, for which elaborate graduations are not considered worthwhile. The possible use of more refined mathematical methods for graduation of remarriage data is discussed in "Graduation of Marriage and Remarriage Tables by Mathematical Formulas" by E. Olifers, Transactions of the Actuarial Society of America, Vol. XXXI, (p. 223).

In Table 1, the proportional reduction in rates of remarriage by duration is shown to be generally greater for the American Remarriage Table than for any other. The least reduction by duration is noted in the Canada Pension Act table, which is the only one for which nominal durations 5-9 do not actually represent ultimate attained age experience. Aside from this, the slower changes by duration in tables other than the American Remarriage Table may represent an actual trend since the 1921-29 period, although it should be pointed out that many of the later tables were based on a considerably greater volume of data than the American Remarriage Table, both at the later durations and in total.

The relative reduction in rates of remarriage by age at widowhood, for a constant duration, are generally less for the American Remarriage Table than for the others. In three tables--American Remarriage, 1956 OASDI, and 1956 RRB--the rates by age at widowhood tend slightly toward a leveling off at the older ages, while dropping off at an increasing rate in the other three tables. There seems to be no particular reason to expect one or the other of these trends in the experiences involved. It is possible that the particular method of graduation which is chosen may influence trends at the extremes of the tables.

Sources of descriptions of these remarriage tables, along with commutation columns combining remarriage, mortality, and interest bases, are shown in Table 2.

B. Population Remarriage Experience

Unfortunately, widow remarriage experience in the general population is available only for certain reporting states and only by attained age groupings. Mortimer Spiegelman shows in RATA, XXVIII, (p. 194) the 1940 remarriage rates by attained age for widowed females in the general U. S. population, based on an approximate computation process using the 1940 census and vital statistics reports. Remarriage data by attained age groups were available for 22 states and the District of Columbia, but were available separately for widowed and divorced in Massachusetts only.

Also, 1950 remarriage rates for widowed females in 11 states (Connecticut, Delaware, Florida, Idaho, Kansas, Maine, New Hampshire, South Dakota, Tennessee, Virginia, and Wyoming) were calculated by Paul Nowlin of the Social Security Administration using data from the 1950 census and vital statistics reports for these states, which reported widow remarriages separately and by 5-year age groups. Bias from non-resident marriages and from general variations in marriage rates by state are judged to be fairly well balanced out in the 11-state sample, so that the resulting remarriage rates correspond reasonably well with those in the population.

Table 3 shows the resulting estimated remarriage rates for 1940 and 1950. Also given for comparison are attained age remarriage rates for 1950 based on experience for OASDI mother's benefits.

These data can be interpreted as suggesting that remarriage rates under OASDI are not greatly different from those in the general population, in spite of the possible deterrent effect on remarriage of the resulting termination of the OASDI benefit. At the younger ages, OASDI rates are apparently even higher than those of the general population. The OASDI "population" in 1950 included only mothers with children under 18. The child's benefit does not terminate on remarriage of the widow. However, considering the various sources of error in the population data, it is questionable whether there is here any statistically significant indication that young widows with children are more likely to remarry than young widows generally.

The study of workmen's compensation data, 1921-29, for the American Remarriage Table suggested, on the contrary, that remarriage rates vary inversely with number of children, but the differences again were considered inconclusive. The 1940 and 1950 population data apparently demonstrate the general upward trend in marriages which has continued following World War II. For central ages 32 and over, the 1950 rates run about 50% higher than those of 1940. The rates at central ages 22 and 27 appear to run counter to this trend.

The apparent 50% increase in most of the widow remarriage rates by age from 1940 to 1950 is considerably higher than the corresponding reported increase in the overall general population marriage rate, which was given by

the National Office of Vital Statistics as 82.8 per one thousand unmarried females in 1940 (including single, widowed, and divorced) and 90.2 per one thousand in 1950. Since never-married females are more numerous at the younger ages, this lesser increase in the gross marriage rate would not necessarily contradict the theory that higher increases had occurred at the older ages.

C. 1916-55 U. S. Employees' Compensation Remarriage Table

The U. S. Employees' Compensation System provides insurance against job-connected accidental injury or disease to employees of the Federal Government. Since 1916, annuities thereunder have been paid to widows of deceased employees, the annuity terminating only on death or remarriage. Under present law, the annuity is 45% of the employee's final salary if there are no dependent children. If there are dependent children, the widow's annuity is 40% of salary, and each child receives an annuity of 15% of salary until attainment of age 18 (or prior death or marriage). The total family benefit, however, may not exceed the smaller of 75% of salary or \$525 per month. The annuity formula has been changed only twice, in 1926 and 1949; these changes gave large increases, which applied to widows already on the roll as well as to new entrants. The maximum monthly family benefit was increased in 1926 from \$66.67 to \$116.67 and in 1949 to the present level of \$525.

Average widows benefits payable were on the order of \$25 per month for the 1916-25 period, \$45 for 1926-29, \$50 for 1930-39, \$55 for 1940-49, and \$150 for 1950-55. The general levels of remarriage rates dropped sharply beginning with the 1925-30 period, rose sharply in the World War II and postwar period, but with a sharp drop after the benefit increases of 1949. The trend in remarriage rates, apparently due in part to the benefit increases of 1926 and 1949, can be seen in Table 4, which shows for 7 separate periods the average remarriage rates, total exposures and remarriages, and comparison of actual remarriages with tabular remarriages according to the American Remarriage Table. The rough average rates (as defined previously for 5-year intervals of age at widowhood and duration) were graduated graphically for each period.

Complete data for a select and ultimate remarriage study were available. Since 1916, individual cards have been kept showing date of husband's death, age nearest birthday of widow on that date, and, if the benefit has terminated, the cause and date of termination. From the cards, a tabulation was prepared of widows by calendar year of widowhood, age at widowhood in 5-year age groups, and also for remarriages and deaths by completed years of widowhood. The exposure was then computed by 5-year age groups at widowhood for each year of widowhood. It was decided to use the entire period of experience for construction of the table, in an effort to represent average long-term characteristics. A select period of only 5 years was chosen for convenience, even though the data demonstrated differences for a somewhat longer period.

The data were graduated graphically for each period and for the entire 1916-55 period in a manner designed to secure a reasonable compromise between smoothness and fit. The final graduated rates are compared with those of the American Remarriage Table in Table 5. As shown in Table 4, total actual remarriages were only 113% of tabular, using American Remarriage rates. Table 5, however, shows the considerable differences in the graduated rates by age and duration. It was not considered worthwhile to make special adjustments for smoothness or fit. No tests were made of tabular remarriages, based on the final USEC graduated rates, against actual remarriages.

Data for ages at widowhood under 20 and over 45 was relatively limited, and the graduation was rather arbitrary for such ages. Duration experience was fairly comprehensive in total, but not of course in the earlier years of experience. Actual remarriages and rough remarriage rates are shown in Table 6; the final graduated rates appear in Table 7.

A special mortality study in connection with this experience was discussed in "Further Remarriage Experience," by Robert J. Myers, in Proceedings of the Casualty Actuarial Society, Vol. XXXVI. Indications were present of considerable excess mortality for the very youngest ages at widowhood, and also to some extent in the very first year of widowhood, It was believed that this was at least partly due to the "withdrawal" of the healthier lives from the exposure by remarriage. It was decided to combine remarriage rates with U.S. White Female mortality for 1949-51. Basic values and 3% commutation columns are given in Tables 8, 9, and 10. For ages not included, published U.S. White Female 1949-51 values at 3%, multiplied by 0.12395 (to reflect the ratio of l_{72} in this remarriage table to l_{72} in the basic mortality table--72 being the age after which no remarriages are assumed to occur), should be used.

D. 1956 OASDI Remarriage Table

The OASDI "mother's benefit" is 75% of the primary insurance amount, payable while the widow is unremarried and has in her care an eligible child or children under age 18 (or, since the 1956 Amendments, regardless of age if permanently and totally disabled since age 18). The benefit is subject to the OASDI retirement test which under present law results in withholding of \$1 in benefits for each \$2 of the first \$500 annual earnings over \$1200, plus \$1 in benefits for each \$1 of earnings over \$1700.

The average benefit in current payment status was \$47.34 per month at the end of 1956 (the year of experience used in developing the remarriage table). Experience was available only on a calendar-age, calendar-duration basis, the data being classified in this manner for the in-force as of 12/31/55 and 12/31/56, and for remarriages and other terminations separately during 1956. The in-force consists of all entitled to mother's benefits, including those whose benefits were currently being withheld or reduced because of the retirement test. Observation cannot start at the date of widowhood, but rather only at the later date of administrative action, herein assumed to be 3 months after widowhood. Considering this assumption and the calendar age and duration bases, the exposure formulae produce the following:

For remarriages in 1956, awards of 1956: $\frac{1}{2}q_{[x-\frac{1}{4}]}^m + \frac{1}{4}$

For remarriages in 1956, awards of 1955: $q_{[x-1\frac{1}{4}]}^m + \frac{3}{4}$

For remarriages in 1956, awards of 1954: $q_{[x-2\frac{1}{4}]}^m + 1\frac{3}{4}$, etc.

where x is 1956 minus year of birth.

Rough absolute rates were developed by 1-year age and duration intervals on this basis for awards of 1952-56 and by 1-year attained age intervals for awards of 1951 and before. For awards of each of the year 1952-56 separately and for the "ultimate" group, graduations of the age-by-age rough rates were performed, using Whitaker-Henderson type A formulas with $a=3$. There was no necessity for special adjustments to make these separate graduations fit together reasonably well. The graduated rates were used to produce a table of l'_{x+t}^m for the non-integral ages and durations previously described. Values of this function for integral durations were computed using a third degree interpolation formula. The process included extrapolation for duration 0. The corresponding rates for integral durations were then computed from the interpolated values. Rates for integral ages were developed by straight line interpolation on the integral-duration rates by age.

Distribution of exposures is give in Table 11. Ratios of actual to tabular remarriages for 1956 based on the final graduation are shown in Table 12. Smoothness was obtained on data at extremes of age at some sacrifice of fit. At the older ages, the decrement occurring when the youngest child reaches age 18 is very high, and it is believed that the assumption that these occur in the middle of the year may produce a larger error. The proper correction cannot be derived without more information, such as the month of termination. A test of the 1956 table on actual 1959 OASDI mother's benefit

experience is shown in Table 13. Rates for the early durations are higher for 1959 than the 1956 graduated rates would indicate but are lower at durations 5 and over. By age at widowhood, the 1959 trend is toward slightly higher rates at the older ages and vice versa. Total actual to tabular remarriages were 102% for 1959.

In Tables 12 and 13, the columns headed "5-9" and "10 and over" indicate the magnitude of the error in the arbitrary use of a select period of only 5 years for the 1956 OASDI table. The result is an overstatement of the rates at durations 5-9 and understatement at later durations, to the extent shown.

For convenience, the headings in these tables are listed by integral ages and durations. Actually they are properly described only in terms of the non-integral values previously discussed. Thus all durations and ages as shown in Tables 11-13 need a $\frac{1}{4}$ year negative correction, except duration 0 which needs the addition of $\frac{1}{4}$ year. (Duration 0 represents data for terminations in the year of experience from awards in the same year).

General past levels of remarriage terminations for OASDI mother's benefits are indicated by Table 14. Actual to tabular ratios are shown in terms of the American Remarriage Table. Basically, the OASDI data here were attained-age data, with special approximations used to develop the assumed income and remarriages by duration and age at widowhood, for application of rates according to the American Remarriage Table. The process is described in "Further Remarriage Experience," Proceedings of the Casualty Actuarial Society, XXXVI (p. 85) by Robert J. Myers.

Table 15 shows the final graduated remarriage rates. U. S. White Female 1949-51 mortality is combined with the remarriage table for elementary values in Table 16, and for commutation columns at 3% in Table 17 and 18. At older ages not given, U.S. White Female published values may be used without adjustment, since the combined remarriage-mortality table is built backward from the U. S. White Female 1949-51 mortality table at age 79, assuming no remarriages after that age.

Table 1

AVERAGE REMARRIAGE RATES

Central Age at Widowhood	Durations 0-4		Durations 5-9		Ratio, 5-9 Average Rate to 0-4 Average Rate
	Average Annual Rate	Ratios of Successive Rates, by Age	Average Annual Rate	Ratios of Successive Rates, by Age	

American Remarriage Table

(State Workmen's Compensation Experience, 1921-29)
(37,040 Years of Exposure; 1,187 Remarriages)

22	.090	--	.038	--	.42
27	.063	.70	.026	.68	.41
32	.043	.68	.018	.69	.42
37	.028	.65	.011	.61	.39
42	.018	.64	.0073	.66	.41
47	.012	.67	.0047	.64	.39
52	.0080	.67	.0034	.72	.43
57	.0061	.76	.0028	.82	.46
62	.0054	.89	.0026	.93	.48

1916-55 USEC Remarriage Table

(U.S. Employees' Compensation Experience, 1916-55)
(90,455 Years of Exposure; 1,738 Remarriages)

22	.108	--	.068	--	.63
27	.070	.65	.041	.60	.59
32	.045	.64	.026	.63	.58
37	.030	.67	.015	.58	.50
42	.019	.63	.0090	.60	.47
47	.011	.58	.0044	.49	.40
52	.0058	.53	.0026	.59	.45
57	.0030	.52	.0014	.54	.47
62	.0014	.47	.0006	.43	.43

Canada Pension Act Remarriage Table

(Canada Pension Act Experience, 1940-57)
(336,186 Years of Exposure; 8,465 Remarriages)

22	.161	--	.117	--	.73
27	.100	.62	.070	.60	.70
32	.056	.56	.040	.57	.71
37	.031	.55	.022	.55	.71
42	.017	.55	.012	.55	.71
47	.0091	.54	.0060	.50	.66
52	.0046	.51	.0026	.43	.57
57	.0022	.48	.0010	.38	.45
62	.0008	.36	--	--	--

Table 1 (Continued)

AVERAGE REMARRIAGE RATES

Central Age at Widowhood	Durations 0-4		Durations 5-9		Ratio, 5-9 Average Rate to 0-4 Average Rate
	Average Annual Rate	Ratios of Successive Rates, by Age	Average Annual Rate	Ratios of Successive Rates, by Age	

1956 RRB Remarriage Table
(Railroad Retirement Experience, 1951-56)
(307,095-Years of Exposure; 3,238 Remarriages)

22	.161	--	.082	--	.51
27	.117	.73	.052	.63	.44
32	.080	.68	.031	.60	.39
37	.050	.62	.020	.65	.40
42	.028	.56	.013	.65	.46
47	.014	.50	.0082	.63	.59
52	.0080	.57	.0052	.63	.65
57	.0052	.65	.0032	.62	.62
62	.0032	.62	.0021	.66	.66

1956 OASDI Remarriage Table
(OASDI Experience, Calendar Year 1956)
(402,947-Years of Exposure; 20,233-Remarriages)

22	.191	--	.107	--	.56
27	.137	.72	.077	.72	.56
32	.093	.68	.054	.70	.58
37	.062	.67	.036	.67	.58
42	.038	.61	.021	.58	.55
47	.020	.53	.011	.52	.55
52	.011	.55	.0062	.56	.56
57	.0073	.66	.0043	.69	.59
62	.0057	.78	.0033	.77	.58

Civil Service Remarriage Table
(U. S. Federal Civil Service Experience, Fiscal Years 1954-57)
(129,972-Years of Exposure; 2,024 Remarriages)

22	.156	--	.107	--	.69
27	.113	.72	.075	.70	.66
32	.080	.71	.050	.67	.62
37	.053	.66	.032	.64	.60
42	.034	.64	.019	.59	.56
47	.020	.59	.011	.58	.55
52	.011	.55	.0055	.50	.50
57	.0058	.53	.0030	.55	.52
62	.0031	.53	.0021	.70	.68

Table 2

SOURCES OF PRINCIPAL REMARRIAGE TABLES

<u>Remarriage Table</u>	<u>Source^{a/}</u>	<u>Mortality Base</u>	<u>Commutation Columns</u>
American	PCAS, XIX, p. 279	U.S. White Female, 1910	3½%
Revised American	RAIA, XXXVIII, p. 5	Spiegelman, 1940 population widow death rates ad- justed to 1945	3% (remarriage 150% of rates from American Remarriage table, ages 20-27, graded to 100% at ages 59 and over)
Modified American	PCAS, XXXVI, p. 73	U.S. White Female, 1939-41	3% (with remar- riage bases 100% and 150% of rates from American Re- marriage Table)
1916-55 USEC	This study	U.S. White Female, 1949-51	3%
1956 RRB	TSA, XII, p. 1	1950 RRB female survivors, 1 year age setback	3%
1956 OASDI	This study	U.S. White Female, 1949-51	3%
Canada Pension Act	TSA, XII, p. 449	none	none
U.S. Civil Service	38th Annual Report of the Board of Actuaries of the CSR System, p. 27	CSR female survi- vors, 1954-57	3% (annuity values)

a/ PCAS-Proceedings of Casualty Actuarial Society
RAIA-Record of American Institute of Actuaries
TSA-Transactions of Society of Actuaries

Table 3

ESTIMATED REMARRIAGE RATES, FOR WIDOWED FEMALES
(rates per thousand)

<u>Central Attained Age</u>	<u>Limited Study, U.S. Population, 1940</u>	<u>Limited Study, U.S. Population, 1950</u>	<u>OASDI Mother's Benefits, 1950</u>
22	208	143	197
27	138	139	142
32	79	104	106
37	46	72	72
42	30	47	42
47	20	32	27
52	12	19	14
57	7	13	7
62	{3	7	6
67		4	--
Mid-year Population of Widows in Sample	<u>1/</u>	738,070	209,422
Total Remarriages	<u>1/</u>	10,417	12,754

1/ Not known

Table 4

AVERAGE REMARRIAGE RATES FOR U.S. EMPLOYEES' COMPENSATION SYSTEM EXPERIENCE,
1916-55

Period (Anniversary of Annuity)	Central Age at Widowhood and Duration														Total Exposures	Total Remarriages	Ratio, Actual to Tabular *
	22		27		32		37		42		47		52				
	0-4	5-9	0-4	5-9	0-4	5-9	0-4	5-9	0-4	5-9	0-4	5-9	0-4	5-9			
1916-25	110	-	77	-	47	-	28	-	16	-	8	-	4	-	5,794	209	114%
1925-30	75	52	48	34	29	20	17	12	11	6	7	3	4	1	6,741	114	84
1930-35	64	40	42	23	28	16	16	9	9	5	5	2	3	-	8,907	105	69
1935-40	65	40	49	26	36	17	24	9	14	4	8	2	3	-	11,273	129	73
1940-45	122	83	85	54	58	33	34	20	23	10	12	4	5	1	15,486	382	137
1945-50	102	70	77	50	57	36	40	24	27	14	18	8	9	3	20,505	530	150
1950-55	103	54	71	37	47	24	29	15	16	9	9	5	5	2	21,749	269	104
All periods	108	68	70	41	45	26	30	15	19	9	11	4	6	3	90,455	1,738	113

*Tabular by American Remarriage Table.

Table 5

U.S. EMPLOYEES' COMPENSATION SYSTEM--RATIOS OF GRADUATED
 REMARRIAGE RATES TO RATES OF AMERICAN REMARRIAGE TABLE

Age at Widowhood	Duration of Widowhood						Attained Age
	0	1	2	3	4	5 and Over	
20	127%	88%	126%	121%	182%	211%	25
25	99	86	126	120	165	170	30
30	90	90	116	106	140	152	35
35	95	104	98	90	130	141	40
40	108	114	96	90	134	124	45
45	110	104	101	97	105	121	50
50	74	60	95	98	79	93	55
55	20	41	64	66	65	63	60
60	29	24	45	47	51	36	65
65	0	13	17	17	28	0	70

Table 6

U.S. EMPLOYEES' COMPENSATION SYSTEM--ACTUAL REMARRIAGES AND
 REMARRIAGE RATES
 (1916-55 period)

Age at Widowhood	Duration of Widowhood					5 and Over	Attained Age
	0	1	2	3	4		
Actual Remarriages							
Under 20	10	16	12	4	12	12	Under 25
20-24	37	60	61	47	38	58	25-29
25-29	29	73	83	68	45	115	30-34
30-34	25	67	46	38	29	143	35-39
35-39	23	41	28	23	27	110	40-44
40-44	12	29	13	15	13	100	45-49
45-49	3	12	14	14	4	46	50-54
50-54	2	2	4	5	5	27	55-59
55-59	1	2	0	3	1	16	60-64
60-64	1	0	1	0	0	8	65-69
65 and over	0	0	0	0	0	5	70 and over
Remarriage Rates (per thousand)							
Under 20	96	170	156	62	200	169	Under 25
20-24	63	111	130	117	110	75	25-29
25-29	28	75	94	87	66	46	30-34
30-34	24	68	51	46	38	31	35-39
35-39	22	40	30	25	32	17	40-44
40-44	12	31	15	18	16	13	45-49
45-49	4	15	18	19	6	5	50-54
50-54	3	3	6	8	9	3	55-59
55-59	2	4	0	7	2	2	60-64
60-64	3	0	4	0	0	1	65-69
65 and over	0	0	0	0	0	1	70 and over

Table 7

U.S. EMPLOYEES' COMPENSATION SYSTEM--GRADUATED REMARRIAGE RATES
(Per thousand)

<u>Age, x</u>	$\frac{q_1^r(x)}{[x]}$	$\frac{q_1^r(x)}{[x]+1}$	$\frac{q_1^r(x)}{[x]+2}$	$\frac{q_1^r(x)}{[x]+3}$	$\frac{q_1^r(x)}{[x]+4}$	$\frac{q_1^r(x)}{x+5}$
18	91	147	166	157	145	126
19	84	139	157	148	136	115
20	77	131	148	139	127	104
21	70	123	139	130	118	94
22	63	115	130	122	109	84
23	56	107	122	114	100	75
24	49	99	114	106	91	67
25	43	92	106	98	82	60
26	38	85	98	90	74	54
27	34	79	90	82	66	49
28	31	74	82	74	59	45
29	29	70	74	67	53	41
30	27	66	67	60	48	37
31	25	63	60	54	43	34
32	23	60	54	48	39	31
33	21	57	48	43	36	28
34	20	54	43	38	33	25
35	19	51	38	34	30	23
36	18	48	34	31	28	21
37	17	45	31	28	26	19
38	16	42	28	26	24	17
39	15	39	26	24	22	15
40	14	36	24	22	20	13
41	13	33	22	20	18	12
42	12	30	20	18	16	11

Table 7 (Continued)

U.S. EMPLOYEES' COMPENSATION SYSTEM--GRADUATED REMARRIAGE RATES
(Per thousand)

<u>Age, x</u>	$\frac{q_1^+(x)}{[x]}$	$\frac{q_1^+(x)}{[x]+1}$	$\frac{q_1^+(x)}{[x]+2}$	$\frac{q_1^+(x)}{[x]+3}$	$\frac{q_1^+(x)}{[x]+4}$	$\frac{q_1^+(x)}{x+5}$
43	11	27	18	17	14	10
44	10	24	17	16	12	9
45	9	21	16	15	10	8
46	8	18	15	14	9	7
47	7	15	14	13	8	6
48	6	12	12	12	7	5
49	5	10	11	11	6	4
50	4	8	10	10	5	4
51	4	7	9	9	4	3
52	3	6	8	8	4	3
53	3	5	7	7	3	3
54	3	4	6	6	3	3
55	2	4	5	5	3	2
56	2	3	4	4	3	2
57	2	3	4	4	2	2
58	2	3	3	3	2	2
59	1	2	3	3	2	1
60	1	2	3	3	2	1
61	1	2	2	2	1	1
62	1	1	2	2	1	1
63	1	1	2	2	1	1
64	1	1	1	1	1	1
65	0	1	1	1	1	0
66	0	1	1	1	0	0
67	0	0	1	1	0	0

Table 8

U.S. EMPLOYEES' COMPENSATION SYSTEM REMARRIAGE RATES AND 1949-51
U.S. WHITE FEMALE MORTALITY--NUMBER OF SURVIVING WIDOWS

Age, x	$l_{[x]}^{(T)}$	$l_{[x]+1}^{(T)}$	$l_{[x]+2}^{(T)}$	$l_{[x]+3}^{(T)}$	$l_{[x]+4}^{(T)}$	$l_{x+5}^{(T)}$
18	96,586	87,738	74,789	62,328	52,502	44,853
19	80,338	73,538	63,270	53,296	45,372	39,169
20	67,696	62,438	54,218	46,156	39,708	34,635
21	57,778	53,693	47,051	40,478	35,185	31,006
22	49,942	46,758	41,346	35,941	31,528	28,066
23	43,713	41,231	36,788	32,271	28,565	25,684
24	38,646	36,722	33,057	29,262	26,135	23,733
25	34,555	33,040	29,972	26,769	24,122	22,119
26	31,202	29,989	27,413	24,702	22,454	20,768
27	28,424	27,430	25,238	22,941	21,036	19,623
28	26,118	25,282	23,386	21,444	19,832	18,637
29	24,206	23,479	21,810	20,172	18,796	17,774
30	22,581	21,946	20,472	19,076	17,905	17,020
31	21,196	20,641	19,316	18,131	17,126	16,364
32	20,003	19,518	18,321	17,306	16,448	15,780
33	18,977	18,552	17,468	16,603	15,861	15,262
34	18,095	17,707	16,723	15,977	15,341	14,804
35	17,325	16,968	16,074	15,435	14,880	14,402
36	16,674	16,345	15,531	14,972	14,476	14,037
37	16,094	15,791	15,049	14,550	14,109	13,706
38	15,581	15,300	14,625	14,181	13,776	13,407
39	15,129	14,868	14,254	13,847	13,476	13,138
40	14,716	14,475	13,917	13,544	13,205	12,896
41	14,343	14,118	13,613	13,272	12,962	12,681
42	13,988	13,781	13,326	13,015	12,733	12,478

Table 8 (Continued)

U.S. EMPLOYEES' COMPENSATION SYSTEM REMARRIAGE RATES AND 1949-51
 U.S. WHITE FEMALE MORTALITY--NUMBER OF SURVIVING WIDOWS

Age, x	$\frac{1^{(T)}}{[x]}$	$\frac{1^{(T)}}{[x]+1}$	$\frac{1^{(T)}}{[x]+2}$	$\frac{1^{(T)}}{[x]+3}$	$\frac{1^{(T)}}{[x]+4}$	$\frac{1^{(T)}}{x+5}$
43	13,668	13,476	13,067	12,784	12,515	12,286
44	13,380	13,200	12,835	12,566	12,311	12,105
45	13,106	12,940	12,617	12,360	12,117	11,933
46	12,862	12,708	12,423	12,179	11,946	11,772
47	12,630	12,487	12,241	12,007	11,784	11,618
48	12,399	12,265	12,056	11,844	11,630	11,472
49	12,202	12,078	11,891	11,688	11,484	11,333
50	12,019	11,904	11,737	11,542	11,344	11,199
51	11,856	11,737	11,577	11,390	11,199	11,059
52	11,702	11,590	11,437	11,256	11,070	10,924
53	11,542	11,425	11,278	11,104	10,924	10,780
54	11,390	11,267	11,126	10,956	10,780	10,627
55	11,233	11,115	10,967	10,801	10,627	10,466
56	11,082	10,957	10,813	10,649	10,476	10,305
57	10,945	10,812	10,659	10,486	10,305	10,133
58	10,791	10,649	10,487	10,316	10,133	9,951
59	10,628	10,487	10,326	10,144	9,951	9,757
60	10,488	10,337	10,165	9,971	9,767	9,562
61	10,306	10,144	9,961	9,767	9,562	9,356
62	10,135	9,962	9,777	9,572	9,356	9,136
63	9,962	9,777	9,582	9,366	9,136	8,900
64	9,757	9,562	9,356	9,136	8,900	8,646
65	9,553	9,356	9,136	8,900	8,646	8,372
66	9,347	9,136	8,900	8,646	8,372	8,087
67	9,127	8,900	8,654	8,380	8,087	7,781

Table 9

U.S. EMPLOYEES' COMPENSATION REMARRIAGE RATES AND 1949-51

U.S. WHITE FEMALE MORTALITY -- $D_{[x]+t}^{(T)}$ AT 3%

Age, x	$D_{[x]}^{(T)}$	$D_{[x]+1}^{(T)}$	$D_{[x]+2}^{(T)}$	$D_{[x]+3}^{(T)}$	$D_{[x]+4}^{(T)}$	$D_{x+5}^{(T)}$
18	56,734	50,036	41,409	33,504	27,400	22,727
19	45,816	40,716	34,011	27,815	22,990	19,269
20	37,482	33,563	28,296	23,387	19,534	16,542
21	31,059	28,022	23,840	19,913	16,805	14,377
22	26,064	23,692	20,340	17,166	14,619	12,635
23	22,149	20,283	17,570	14,964	12,860	11,226
24	19,011	17,539	15,328	13,173	11,423	10,071
25	16,504	15,320	13,493	11,700	10,236	9,112.7
26	14,468	13,501	11,982	10,482	9,250.8	8,306.9
27	12,796	11,989	10,710	9,451.4	8,414.1	7,620.3
28	11,416	10,728	9,634.7	8,577.3	7,701.5	7,026.6
29	10,272	9,673.0	8,723.7	7,833.5	7,086.6	6,506.1
30	9,303.1	8,778.1	7,950.0	7,192.1	6,554.0	6,048.6
31	8,478.1	8,015.7	7,282.6	6,636.8	6,086.3	5,646.1
32	7,767.9	7,358.8	6,706.3	6,150.3	5,675.1	5,286.0
33	7,154.8	6,790.9	6,207.8	5,728.6	5,313.2	4,963.6
34	6,623.6	6,292.8	5,770.0	5,352.0	4,989.3	4,674.4
35	6,157.0	5,854.5	5,384.5	5,019.9	4,698.4	4,415.0
36	5,753.1	5,475.3	5,051.1	4,727.5	4,437.7	4,177.8
37	5,391.2	5,135.6	4,751.8	4,460.4	4,199.2	3,960.5
38	5,067.3	4,831.0	4,483.4	4,220.7	3,980.7	3,761.2
39	4,777.0	4,557.9	4,242.4	4,001.2	3,780.6	3,578.4
40	4,511.3	4,308.2	4,021.4	3,799.7	3,596.7	3,410.2
41	4,268.9	4,079.5	3,819.0	3,614.9	3,427.7	3,255.7
42	4,042.0	3,866.2	3,629.6	3,441.7	3,269.0	3,110.3

Table 9 (Continued)

U.S. EMPLOYEES' COMPENSATION REMARRIAGE RATES AND 1949-51
 U.S. WHITE FEMALE MORTALITY -- $D_{[x]+t}^{(T)}$ AT 3%

Age, x	$D_{[x]}^{(T)}$	$D_{[x]+1}^{(T)}$	$D_{[x]+2}^{(T)}$	$D_{[x]+3}^{(T)}$	$D_{[x]+4}^{(T)}$	$D_{x+5}^{(T)}$
43	3,834.5	3,670.5	3,455.4	3,282.1	3,119.5	2,973.2
44	3,644.3	3,490.6	3,295.2	3,132.2	2,979.2	2,844.1
45	3,465.7	3,322.2	3,144.9	2,991.1	2,846.9	2,722.0
46	3,302.2	3,167.6	3,006.4	2,861.5	2,725.0	2,607.1
47	3,148.1	3,021.8	2,876.0	2,738.9	2,609.7	2,498.0
48	3,000.5	2,881.7	2,750.1	2,623.0	2,500.6	2,394.8
49	2,866.9	2,755.1	2,633.4	2,513.1	2,397.3	2,296.9
50	2,741.6	2,636.3	2,523.6	2,409.4	2,299.1	2,203.6
51	2,625.7	2,523.6	2,416.7	2,308.4	2,203.6	2,112.7
52	2,516.1	2,419.4	2,317.9	2,214.8	2,114.8	2,026.1
53	2,409.4	2,315.5	2,219.1	2,121.3	2,026.1	1,941.2
54	2,308.4	2,217.0	2,125.5	2,032.0	1,941.2	1,857.9
55	2,210.3	2,123.4	2,034.1	1,944.9	1,857.9	1,776.4
56	2,117.1	2,032.2	1,947.1	1,861.7	1,778.1	1,698.2
57	2,030.0	1,946.9	1,863.5	1,779.8	1,698.2	1,621.2
58	1,943.1	1,861.7	1,780.0	1,700.0	1,621.2	1,545.7
59	1,858.0	1,780.0	1,701.6	1,622.9	1,545.7	1,471.4
60	1,780.2	1,703.4	1,626.3	1,548.8	1,472.9	1,400.0
61	1,698.3	1,622.9	1,547.2	1,472.9	1,400.0	1,329.9
62	1,621.5	1,547.4	1,474.4	1,401.5	1,329.9	1,260.9
63	1,547.4	1,474.4	1,402.9	1,331.4	1,260.9	1,192.5
64	1,471.4	1,400.0	1,329.9	1,260.9	1,192.5	1,124.7
65	1,398.7	1,329.9	1,260.9	1,192.5	1,124.7	1,057.4
66	1,328.7	1,260.9	1,192.5	1,124.7	1,057.4	991.6
67	1,259.6	1,192.5	1,125.8	1,058.4	991.6	926.3

Table 10

U.S. EMPLOYEES' COMPENSATION REMARRIAGE RATES AND 1949-51
 U.S. WHITE FEMALE MORTALITY-- $N_{[x]+t}^{(T)}$ AT 3%

Age, x	$N_{[x]}^{(T)}$	$N_{[x]+1}^{(T)}$	$N_{[x]+2}^{(T)}$	$N_{[x]+3}^{(T)}$	$N_{[x]+4}^{(T)}$	$N_{x+5}^{(T)}$
18	464,157	407,423	357,387	315,978	282,474	255,074
19	403,695	357,879	317,163	283,152	255,337	232,347
20	355,340	317,858	284,295	255,999	232,612	213,078
21	316,175	285,116	257,094	233,254	213,341	196,536
22	284,040	257,976	234,284	213,944	196,778	182,159
23	257,350	235,201	214,918	197,348	182,384	169,524
24	234,772	215,761	198,222	182,894	169,721	158,298
25	215,480.1	198,976.1	183,656.1	170,163.1	158,463.1	148,227.1
26	198,798.2	184,330.2	170,829.2	158,847.2	148,365.2	139,114.4
27	184,168.0	171,372.0	159,383.0	148,673.0	139,221.6	130,807.5
28	171,244.7	159,828.7	149,100.7	139,466.0	130,888.7	123,187.2
29	159,749.4	149,477.4	139,804.4	131,080.7	123,247.2	116,160.6
30	149,431.8	140,128.7	131,350.6	123,400.6	116,208.5	109,654.5
31	140,105.4	131,627.3	123,611.6	116,329.0	109,692.2	103,605.9
32	131,618.2	123,850.3	116,491.5	109,785.2	103,634.9	97,959.8
33	123,869.1	116,714.3	109,923.4	103,715.6	97,987.0	92,673.8
34	116,737.9	110,114.3	103,821.5	98,051.5	92,699.5	87,710.2
35	110,150.1	103,993.1	98,138.6	92,754.1	87,734.2	83,035.8
36	104,065.5	98,312.4	92,837.1	87,786.0	83,058.5	78,620.8
37	98,381.2	92,990.0	87,854.4	83,102.6	78,642.2	74,443.0
38	93,065.6	87,998.3	83,167.3	78,683.9	74,463.2	70,482.5
39	88,080.4	83,303.4	78,745.5	74,503.1	70,501.9	66,721.3
40	83,380.2	78,868.9	74,560.7	70,539.3	66,739.6	63,142.9
41	78,942.7	74,673.8	70,594.3	66,775.3	63,160.4	59,732.7
42	74,725.5	70,683.5	66,817.3	63,187.7	59,746.0	56,477.0

Table 10 (Continued)

U.S. EMPLOYEES' COMPENSATION REMARRIAGE RATES AND 1949-51
 U.S. WHITE FEMALE MORTALITY-- $N_{[x]+t}^{(T)}$ AT 3%

Age, x	$N_{[x]}^{(T)}$	$N_{[x]+1}^{(T)}$	$N_{[x]+2}^{(T)}$	$N_{[x]+3}^{(T)}$	$N_{[x]+4}^{(T)}$	$N_{x+5}^{(T)}$
43	70,728.7	66,894.2	63,223.7	59,768.3	56,486.2	53,366.7
44	66,935.0	63,290.7	59,800.1	56,504.9	53,372.7	50,393.5
45	63,320.2	59,854.5	56,532.3	53,387.4	50,396.3	47,549.4
46	59,890.1	56,587.9	53,420.3	50,413.9	47,552.4	44,827.4
47	56,614.8	53,466.7	50,444.9	47,568.9	44,830.0	42,220.3
48	53,478.2	50,477.7	47,596.0	44,845.9	42,222.9	39,722.3
49	50,493.3	47,626.4	44,871.3	42,237.9	39,724.8	37,327.5
50	47,640.6	44,899.0	42,262.7	39,739.1	37,329.7	35,030.6
51	44,905.0	42,279.3	39,755.7	37,339.0	35,030.6	32,827.0
52	42,297.3	39,781.2	37,361.8	35,043.9	32,829.1	30,714.3
53	39,779.6	37,370.2	35,054.7	32,835.6	30,714.3	28,688.2
54	37,371.1	35,062.7	32,845.7	30,720.2	28,688.2	26,747.0
55	35,059.7	32,849.4	30,726.0	28,691.9	26,747.0	24,889.1
56	32,848.9	30,731.8	28,699.6	26,752.5	24,890.8	23,112.7
57	30,732.9	28,702.9	26,756.0	24,892.5	23,112.7	21,414.5
58	28,699.3	26,756.2	24,894.5	23,114.5	21,414.5	19,793.3
59	26,755.8	24,897.8	23,117.8	21,416.2	19,793.3	18,247.6
60	24,907.8	23,127.6	21,424.2	19,797.9	18,249.1	16,776.2
61	23,117.5	21,419.2	19,796.3	18,249.1	16,776.2	15,376.2
62	21,421.0	19,799.5	18,252.1	16,777.7	15,376.2	14,046.3
63	19,802.4	18,255.0	16,780.6	15,377.7	14,046.3	12,785.4
64	18,247.6	16,776.2	15,376.2	14,046.3	12,785.4	11,592.9
65	16,774.9	15,376.2	14,046.3	12,785.4	11,592.9	10,468.2
66	15,375.0	14,046.3	12,785.4	11,592.9	10,468.2	9,410.8
67	14,047.1	12,787.5	11,595.0	10,469.2	9,410.8	8,419.2

Table 11

TOTAL EXPOSURES UNDERLYING 1956 OASDI REMARRIAGE TABLE

Age at widowhood	Duration							Total
	0	1	2	3	4	5-9	10 and Over	
Under 20	365	458	408	324	249	691	398	2,893
20-24	2,207	2,800	2,554	2,153	1,758	4,964	4,333	20,769
25-29	3,931	4,950	5,073	4,622	3,906	11,736	7,880	42,098
30-34	6,161	7,548	8,280	7,080	6,108	17,470	8,520	61,167
35-39	8,725	10,323	11,495	9,653	8,189	22,360	7,931	78,676
40-44	10,907	12,272	13,680	10,711	9,098	22,507	5,459	84,634
45-49	10,204	10,927	11,878	8,506	6,895	14,998	2,275	65,683
0 and Over	9,613	9,420	9,946	6,175	4,350	7,105	418	47,027
Total	52,113	58,698	63,314	49,224	40,553	101,831	37,214	402,947

Table 12

RATIO OF ACTUAL TO TABULAR REMARRIAGES,
 1956 OASDI REMARRIAGE TABLE,
 1956 EXPERIENCE

Age at Widowhood	Duration								Total
	0	1	2	3	4	5 and Over	5-9	10 and Over	
Under 20	99%	107%	89%	98%	94%	72%	77%	58%	91%
20-24	90	99	105	99	105	93	101	81	99
25-29	102	95	98	102	97	100	106	86	99
30-34	90	107	98	101	100	103	107	91	102
35-39	96	97	102	98	101	101	105	86	100
40-44	112	102	99	103	102	105	107	92	103
45-49	79	98	103	95	91	89	89	87	96
50 and Over	77	89	71	96	95	119	121	86	89
TOTAL	97	100	99	100	100	100	104	86	100

Table 13

RATIO OF ACTUAL TO TABULAR REMARRIAGES,
1956 OASDI REMARRIAGE TABLE,
1959 EXPERIENCE

Age at Widowhood	Du- ration								Total
	0	1	2	3	4	5 and Over	5-9	10 and Over	
Under 20	68%	91%	98%	111%	81%	59%	61%	55%	85%
20-24	103	85	97	98	96	77	84	64	93
25-29	87	110	95	104	102	87	92	72	96
30-34	94	108	104	107	104	94	99	74	101
35-39	94	118	109	104	109	104	106	89	107
40-44	92	115	109	106	106	110	110	111	109
45-49	108	124	123	112	104	103	106	54	114
50 and Over	145	94	84	107	75	160	160	--	102
TOTAL	96	111	103	105	103	94	99	74	102

Table 14

OASDI MOTHER'S BENEFITS RATIOS OF ACTUAL TO TABULAR REMARRIAGES
BY AMERICAN REMARRIAGE TABLE

Calendar Year of Experience	Year of Birth											
	1930	1925	1920	1915	1910	1905	1900	1895	1890	1885	1880	1880
	-34	-29	-24	-19	-14	-09	-04	-99	-94	-89	-84	-1934
1940	1/	1/	1/	100%	103%	80%	83%	71%	1/	1/	1/	87%
1941	1/	1/	86%	127	142	126	109	59	72%	32%	1/	113
1942	1/	1/	136	135	147	142	119	113	91	66	1/	131
1943	1/	1/	124	127	146	154	130	122	99	72	1/	133
1944	1/	97%	108	129	140	147	140	142	107	103	1/	132
1945	1/	138	124	138	150	153	145	136	94	74	1/	138
1946	1/	237	230	228	231	215	197	177	137	107	1/	220
1947	1/	202	222	227	232	217	206	169	136	125	1/	217
1948	198%	181	205	221	223	213	213	156	130	96	1/	208
1949	173	177	196	212	210	207	195	152	122	105	1/	198
1950	175	180	210	226	221	200	195	151	102	1/	1/	205
1951	184	207	235	245	234	221	183	135	93	1/	1/	222
1952	180	187	214	222	222	209	181	124	115	1/	1/	206
1953	190	195	216	225	229	218	180	128	147	1/	1/	212
1954	183	196	200	204	211	195	149	137	99	1/	1/	197
1940 -54	184	192	202	204	205	194	172	141	110	89	81%	194

1/ Less than 16 tabular remarriages.

Table 15

1956 OASDI REMARRIAGE TABLE - GRADUATED REMARRIAGE RATES
(per thousand)

Age at Widowhood [x]	Duration of Widowhood						Attained Age x+5
	0	1	2	3	4	5 and Over	
	$q'_{[x]}^m$	$q'_{[x]+1}^m$	$q'_{[x]+2}^m$	$q'_{[x]+3}^m$	$q'_{[x]+4}^m$	q'_{x+5}^m	
18	199.7	328.8	259.4	212.5	186.6	147.7	23
19	186.0	311.3	246.5	203.2	178.6	140.4	24
20	172.5	294.1	234.3	194.3	170.9	133.2	25
21	159.4	277.2	222.4	185.6	163.4	126.0	26
22	146.8	260.2	210.9	176.9	155.8	119.2	27
23	135.1	243.3	199.6	168.2	148.2	112.6	28
24	124.4	226.3	188.4	159.4	140.4	106.2	29
25	114.8	209.6	177.5	150.6	132.5	100.2	30
26	106.0	193.7	166.7	141.8	124.6	94.2	31
27	97.7	178.7	156.1	133.0	116.7	88.4	32
28	90.2	164.7	145.7	124.5	109.0	82.8	33
29	83.3	151.8	135.6	116.1	101.4	77.4	34
30	77.2	139.9	125.9	108.1	94.0	72.2	35
31	71.6	129.1	116.8	100.4	87.1	67.1	36
32	66.3	119.0	108.2	93.2	80.6	62.4	37
33	61.4	109.7	100.1	86.4	74.4	57.9	38
34	56.7	100.9	92.3	80.0	68.5	53.8	39
35	52.1	92.6	85.1	74.0	63.0	49.8	40
36	47.9	84.7	78.3	68.4	57.9	46.0	41
37	43.8	77.3	72.0	63.2	53.0	42.4	42
38	40.0	70.4	65.8	58.1	48.6	38.8	43
39	36.4	64.0	60.0	53.3	44.4	35.5	44
40	33.1	57.9	54.5	48.6	40.4	32.2	45
41	29.7	52.1	49.2	44.0	36.5	29.1	46
42	26.4	46.6	44.2	39.6	32.9	26.2	47
43	23.4	41.6	39.5	35.4	29.4	23.4	48
44	20.5	37.0	35.1	31.4	26.1	20.6	49

Table 15 (Continued)

1956 OASDI REMARRIAGE TABLE - GRADUATED REMARRIAGE RATES
(per thousand)

Age at Widowhood [x]	Duration of Widowhood						Attained Age x+5
	0	1	2	3	4	5 and Over	
	$q_{[x]}^m$	$q_{[x]+1}^m$	$q_{[x]+2}^m$	$q_{[x]+3}^m$	$q_{[x]+4}^m$	q_{x+5}^m	
45	17.8	32.8	31.0	27.7	23.0	18.2	50
46	15.4	29.0	27.3	24.4	20.3	16.0	51
47	13.3	25.4	23.9	21.5	17.8	14.0	52
48	11.2	22.1	20.9	18.9	15.6	12.2	53
49	9.9	19.6	18.3	17.0	13.8	10.6	54
50	8.7	17.2	16.2	15.1	12.2	9.3	55
51	8.0	15.6	14.5	13.6	10.7	8.2	56
52	7.2	14.1	13.2	12.1	9.7	7.4	57
53	6.5	12.9	12.0	10.8	8.8	6.7	58
54	5.9	11.7	10.9	9.7	8.0	6.1	59
55	5.4	10.7	10.0	8.9	7.3	5.6	60
56	5.1	10.2	9.4	8.3	6.9	5.3	61
57	4.7	9.1	8.6	7.6	6.3	4.8	62
58	4.4	8.7	8.1	7.2	5.9	4.5	63
59	4.1	8.2	7.7	6.8	5.6	4.3	64
60	4.0	7.8	7.3	6.5	5.4	4.1	65
61	3.8	7.4	7.0	6.2	5.1	3.9	66
62	3.7	7.2	6.7	6.0	4.9	3.8	67
63	3.5	6.7	6.3	5.5	4.6	3.5	68
64	3.2	6.3	5.9	5.2	4.3	3.3	69
65	3.0	5.9	5.5	4.9	4.0	3.0	70
66	2.9	5.6	5.2	4.6	3.8	2.9	71
67	2.6	5.0	4.7	4.1	3.4	2.6	72
68	2.4	4.8	4.5	4.0	3.3	2.6	73
69	2.3	4.4	4.1	3.7	3.0	2.4	74
70	2.0	4.0	3.7	3.3	2.8	2.1	75
71	1.8	3.7	3.4	3.0	2.5	2.0	76
72	1.7	3.2	3.1	2.7	2.2	1.8	77
73	1.5	2.9	2.7	2.4	2.0	1.6	78

Table 16

1956 OASDI REMARRIAGE TABLE - NUMBER LIVING UNMARRIED

Duration of Widowhood

Age at Widowhood [x]	Duration of Widowhood						Attained Age x+5
	0	1	2	3	4	5 and Over	
	$l^m_{[x]}$	$l^m_{[x]+1}$	$l^m_{[x]+2}$	$l^m_{[x]+3}$	$l^m_{[x]+4}$	l^m_{x+5}	
18	3,630,305	2,903,362	1,947,317	1,441,106	1,133,996	921,655	23
19	2,849,979	2,318,241	1,595,365	1,201,174	956,330	784,879	24
20	2,265,272	1,873,131	1,321,209	1,010,836	813,754	674,105	25
21	1,821,158	1,529,693	1,104,766	858,350	698,440	583,797	26
22	1,479,279	1,261,118	932,192	734,958	604,407	509,767	27
23	1,214,010	1,049,132	793,190	634,304	527,124	448,570	28
24	1,005,608	879,759	680,061	551,424	463,079	397,654	29
25	841,389	744,140	587,620	482,849	409,711	355,038	30
26	710,775	634,847	511,380	425,695	364,935	319,095	31
27	606,071	546,332	448,240	377,858	327,224	288,683	32
28	521,970	474,403	395,838	337,773	295,358	262,818	33
29	453,720	415,475	351,998	303,894	268,259	240,719	34
30	398,180	367,017	315,284	275,227	245,130	221,754	35
31	352,744	327,087	284,485	250,904	225,374	205,412	36
32	315,160	293,879	258,544	230,223	208,429	191,297	37
33	283,827	266,027	236,487	212,471	193,777	179,022	38
34	257,371	242,414	217,602	197,175	181,059	168,312	39
35	234,950	222,350	201,410	183,923	169,965	158,903	40
36	215,879	205,183	187,450	172,420	160,269	150,624	41
37	199,531	190,433	175,354	162,367	151,737	143,317	42
38	185,421	177,641	164,768	153,553	144,251	136,846	43
39	173,248	166,571	155,533	145,816	137,648	131,123	44
40	162,630	156,866	147,394	138,961	131,792	126,035	45
41	153,271	148,328	140,196	132,879	126,598	121,522	46
42	145,080	140,845	133,860	127,506	122,000	117,507	47
43	137,920	134,270	128,244	122,719	117,894	113,922	48
44	131,630	128,491	123,275	118,465	114,238	110,722	49

Table 16 (Continued)

1956 OASDI REMARRIAGE TABLE - NUMBER LIVING UNMARRIED

Duration of Widowhood

Age at Widowhood [x]	Duration of Widowhood						Attained Age x+5
	0	1	2	3	4	5 and Over	
	$l^m_{[x]}$	$l^m_{[x]+1}$	$l^m_{[x]+2}$	$l^m_{[x]+3}$	$l^m_{[x]+4}$	l^m_{x+5}	
45	126,144	123,436	118,902	114,707	110,994	107,878	50
46	121,388	119,033	115,070	111,391	108,109	105,320	51
47	117,208	115,138	111,675	108,440	105,513	103,004	52
48	113,518	111,708	108,672	105,804	103,172	100,890	53
49	110,454	108,793	106,062	103,487	101,054	98,941	54
50	107,705	106,169	103,707	101,351	99,101	97,125	55
51	105,353	103,874	101,577	99,382	97,262	95,401	56
52	103,214	101,793	99,634	97,548	95,546	93,738	57
53	101,229	99,846	97,785	95,787	93,870	92,096	58
54	99,342	97,982	96,010	94,079	92,217	90,457	59
55	97,579	96,224	94,308	92,413	90,567	88,805	60
56	95,970	94,592	92,673	90,776	88,921	87,124	61
57	94,231	92,832	90,960	89,074	87,212	85,390	62
58	92,636	91,198	89,298	87,388	85,485	83,614	63
59	91,016	89,533	87,609	85,658	83,707	81,780	64
60	89,389	87,838	85,873	83,875	81,870	79,881	65
61	87,696	86,080	84,069	82,018	79,961	77,912	66
62	85,986	84,290	82,217	80,114	77,990	75,858	67
63	84,120	82,357	80,251	78,100	75,919	73,689	68
64	82,217	80,397	78,242	76,026	73,748	71,401	69
65	80,259	78,367	76,148	73,844	71,451	68,981	70
66	78,272	76,285	73,970	71,551	69,036	66,429	71
67	76,109	74,022	71,616	69,092	66,463	63,729	72
68	73,963	71,746	69,210	66,550	63,774	60,893	73
69	71,624	69,266	66,610	63,825	60,917	57,910	74
70	69,141	66,650	63,870	60,960	57,933	54,807	75
71	66,549	63,914	61,002	57,968	54,829	51,602	76
72	63,805	61,021	57,951	54,851	51,612	48,295	77
73	60,927	58,007	54,872	51,632	48,304	44,905	78

Table 17

1956 OASDI REMARRIAGE TABLE - $D_{[x]+m}^m$ COLUMNS AT 3 PERCENT
Duration of Widowhood

Age at Widowhood [x]	0	1	2	3	4	5 and Over	Attained Age x+5
	$D_{[x]}^m$	$D_{[x]+1}^m$	$D_{[x]+2}^m$	$D_{[x]+3}^m$	$D_{[x]+4}^m$	D_{x+5}^m	
18	2,132,423	1,655,747	1,078,183	774,665	591,823	466,995	23
19	1,625,303	1,283,554	857,587	626,883	484,565	386,109	24
20	1,254,227	1,006,900	689,528	512,183	400,313	321,957	25
21	978,962	798,335	559,776	422,252	333,579	270,704	26
22	772,024	638,998	458,577	351,020	280,261	229,491	27
23	615,129	516,104	378,832	294,124	237,305	196,060	28
24	494,693	420,178	315,341	248,245	202,401	168,743	29
25	401,852	345,054	264,540	211,042	173,859	146,271	30
26	329,583	285,801	223,512	180,642	150,348	127,634	31
27	272,846	238,789	190,209	155,673	130,885	112,106	32
28	228,141	201,311	163,080	135,105	114,698	99,089	33
29	192,534	171,170	140,795	118,013	101,141	88,114	34
30	164,045	146,802	122,436	103,768	89,729	78,808	35
31	141,093	127,020	107,258	91,842	80,094	70,874	36
32	122,388	110,800	94,639	81,817	71,915	64,081	37
33	107,010	97,378	84,043	73,309	64,912	58,223	38
34	94,209	86,150	75,080	66,050	58,885	53,145	39
35	83,497	76,718	67,469	59,817	53,667	48,713	40
36	74,485	68,733	60,964	54,442	49,132	44,830	41
37	66,839	61,934	55,369	49,775	45,161	41,413	42
38	60,304	56,091	50,511	45,702	41,683	38,391	43
39	54,704	51,064	46,291	42,135	38,616	35,714	44
40	49,855	46,688	42,591	38,985	35,896	33,329	45
41	45,618	42,861	39,331	36,193	33,477	31,199	46
42	41,922	39,513	36,460	33,718	31,322	29,290	47
43	38,692	36,571	33,913	31,507	29,386	27,569	48
44	35,852	33,978	31,649	29,528	27,645	26,014	49

Table 17 (Continued)

1956 OASDI REMARRIAGE TABLE - $D^m_{[x]+m}$ COLUMNS AT 3 PERCENT
Duration of Widowhood

Age at Widowhood [x]	0	1	2	3	4	5 and Over	Attained Age x+5
	$D^m_{[x]}$	$D^m_{[x]+1}$	$D^m_{[x]+2}$	$D^m_{[x]+3}$	$D^m_{[x]+4}$	D^m_{x+5}	
45	33,357	31,691	29,637	27,759	26,078	24,608	50
46	31,165	29,670	27,847	26,171	24,660	23,324	51
47	29,215	27,863	26,238	24,736	23,367	22,147	52
48	27,471	26,246	24,789	23,432	22,183	21,061	53
49	25,951	24,816	23,489	22,251	21,095	20,052	54
50	24,568	23,513	22,298	21,157	20,085	19,111	55
51	23,332	22,334	21,204	20,142	19,138	18,225	56
52	22,192	21,249	20,193	19,194	18,253	17,386	57
53	21,132	20,236	19,241	18,299	17,410	16,584	58
54	20,134	19,280	18,341	17,449	16,606	15,814	59
55	19,200	18,382	17,491	16,641	15,833	15,073	60
56	18,334	17,544	16,688	15,870	15,093	14,357	61
57	17,477	16,716	15,902	15,119	14,372	13,662	62
58	16,681	15,944	15,157	14,401	13,677	12,988	63
59	15,912	15,197	14,437	13,704	13,002	12,333	64
60	15,172	14,475	13,739	13,028	12,346	11,696	65
61	14,451	13,772	13,058	12,369	11,707	11,075	66
62	13,757	13,093	12,399	11,730	11,086	10,469	67
63	13,066	12,420	11,750	11,102	10,478	9,873.5	68
64	12,399	11,771	11,122	10,492	9,881.4	9,288.3	69
65	11,751	11,140	10,509	9,894.3	9,294.8	8,712.1	70
66	11,126	10,528	9,911.2	9,307.8	8,719.0	8,145.5	71
67	10,504	9,918.1	9,316.2	8,726.1	8,149.6	7,586.7	72
68	9,910.2	9,333.2	8,741.0	8,160.3	7,592.1	7,038.0	73
69	9,317.3	8,748.1	8,167.7	7,598.2	7,040.8	6,498.3	74
70	8,732.3	8,172.6	7,603.5	7,045.8	6,500.9	5,970.9	75
71	8,160.2	7,608.8	7,050.6	6,504.8	5,973.3	5,458.0	76
72	7,595.8	7,052.8	6,508.1	5,975.7	5,459.1	4,959.5	77
73	7,041.9	6,509.2	5,978.0	5,461.2	4,960.4	4,477.0	78

Table 18

1956 OASDI REMARRIAGE TABLE - $N_{[x]+m}^m$ COLUMNS AT 3 PERCENT

Duration of Widowhood

Age at Widowhood [x]	0	1	2	3	4	5 and Over	Attained Age x+5
	$N_{[x]}^m$	$N_{[x]+1}^m$	$N_{[x]+2}^m$	$N_{[x]+3}^m$	$N_{[x]+4}^m$	N_{x+5}^m	
18	9,931,979	7,799,556	6,143,809	5,065,626	4,290,961	3,699,138	23
19	8,110,035	6,484,732	5,201,178	4,343,591	3,716,708	3,232,143	24
20	6,709,185	5,454,958	4,448,058	3,758,530	3,246,347	2,846,034	25
21	5,616,981	4,638,019	3,839,684	3,279,908	2,857,656	2,524,077	26
22	4,754,253	3,982,229	3,343,231	2,884,654	2,533,634	2,253,373	27
23	4,065,376	3,450,247	2,934,143	2,555,311	2,261,187	2,023,882	28
24	3,508,680	3,013,987	2,593,809	2,278,468	2,030,223	1,827,822	29
25	3,055,426	2,653,574	2,308,520	2,043,980	1,832,938	1,659,079	30
26	2,682,694	2,353,111	2,067,310	1,843,798	1,663,156	1,512,808	31
27	2,373,576	2,100,730	1,861,941	1,671,732	1,516,059	1,385,174	32
28	2,115,403	1,887,262	1,685,951	1,522,871	1,387,766	1,273,068	33
29	1,897,632	1,705,098	1,533,928	1,393,133	1,275,120	1,173,979	34
30	1,712,645	1,548,600	1,401,798	1,279,362	1,175,594	1,085,865	35
31	1,554,364	1,413,271	1,286,251	1,178,993	1,087,151	1,007,057	36
32	1,417,742	1,295,354	1,184,554	1,089,915	1,008,098	936,183	37
33	1,298,754	1,191,744	1,094,366	1,010,323	937,014	872,102	38
34	1,194,253	1,100,044	1,013,894	938,814	872,764	813,879	39
35	1,101,902	1,018,405	941,687	874,218	814,401	760,734	40
36	1,019,777	945,292	876,559	815,595	761,153	712,021	41
37	946,269	879,430	817,496	762,127	712,352	667,191	42
38	880,069	819,765	763,674	713,163	667,461	625,778	43
39	820,197	765,493	714,429	668,138	626,003	587,387	44
40	765,688	715,833	669,145	626,554	587,569	551,673	45
41	715,824	670,206	627,345	588,014	551,821	518,344	46
42	670,080	628,158	588,645	552,185	518,467	487,145	47
43	627,924	589,232	552,661	518,748	487,241	457,855	48
44	588,938	553,086	519,108	487,459	457,931	430,286	49

Table 18 (Continued)
 1956 OASDI REMARRIAGE TABLE - $N_{[x]+m}^m$ COLUMNS AT 3 PERCENT
 Duration of Widowhood

Age at Widowhood [x]	0	1	2	3	4	5 and Over	Attained Age x+5
	$N_{[x]}^m$	$N_{[x]+1}^m$	$N_{[x]+2}^m$	$N_{[x]+3}^m$	$N_{[x]+4}^m$	N_{x+5}^m	
45	552,794	519,437	487,746	458,109	430,350	404,272	50
46	519,177	488,012	458,342	430,495	404,324	379,664	51
47	487,759	458,544	430,681	404,443	379,707	356,340	52
48	458,314	430,843	404,597	379,808	356,376	334,193	53
49	430,734	404,783	379,967	356,478	334,227	313,132	54
50	404,701	380,133	356,620	334,322	313,165	293,080	55
51	380,119	356,787	334,453	313,249	293,107	273,969	56
52	356,825	334,633	313,384	293,191	273,997	255,744	57
53	334,676	313,544	293,308	274,067	255,768	238,358	58
54	313,584	293,450	274,170	255,829	238,380	221,774	59
55	293,507	274,307	255,925	238,434	221,793	205,960	60
56	274,416	256,082	238,538	221,850	205,980	190,887	61
57	256,116	238,639	221,923	206,021	190,902	176,530	62
58	238,728	222,047	206,103	190,946	176,545	162,868	63
59	222,132	206,220	191,023	176,586	162,882	149,880	64
60	206,307	191,135	176,660	162,921	149,893	137,547	65
61	191,208	176,757	162,985	149,927	137,558	125,851	66
62	176,841	163,084	149,991	137,592	125,862	114,776	67
63	163,123	150,057	137,637	125,887	114,785	104,307	68
64	150,099	137,700	125,929	114,807	104,315	94,433.6	69
65	137,734	125,983	114,843	104,334	94,440.1	85,145.3	70
66	126,025	114,899	104,371	94,460.0	85,152.2	76,433.2	71
67	114,902	104,398	94,479.6	85,163.4	76,437.3	68,287.7	72
68	104,438	94,527.6	85,194.4	76,453.4	68,293.1	60,701.0	73
69	94,535.1	85,217.8	76,469.7	68,302.0	60,703.8	53,663.0	74
70	85,219.8	76,487.5	68,314.9	60,711.4	53,665.6	47,164.7	75
71	76,491.5	68,331.3	60,722.5	53,671.9	47,167.1	41,193.8	76
72	68,327.3	60,731.5	53,678	47,170.6	41,194.9	35,735.8	77
73	60,727.0	53,685.1	47,175.9	41,197.9	35,736.7	30,776.3	78

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 Program, 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.
55. Remarriage Tables Based on Experience under OASDI and U.S. Employees' Compensation Systems--December 1962.