

**TRANSACTIONS OF SOCIETY OF ACTUARIES  
1964 REPORTS**

**III. MORTALITY UNDER INDIVIDUAL  
IMMEDIATE ANNUITIES**

**T**HIS report, the latest in a series of intercompany studies of mortality under individual immediate annuities, covers the experience between 1958 and 1963 anniversaries. The last previous report (*TSA, 1959 Reports*, p. 67) covered the experience from 1953 to 1958 anniversaries. The present study includes the experience on individual immediate nonrefund and refund annuity issues of 1931-62. Contracts providing for either cash or instalment refund payments and annuities with a period certain are classified as refund annuities.

As in previous studies, the following types of annuities were excluded: (a) annuities issued in conjunction with single premium insurance without evidence of insurability or those providing at all times for the payment of virtually the entire consideration as a death benefit, (b) supplementary contracts, (c) under-average risks with special rate concessions, (d) temporary annuities, (e) joint and survivor annuities (or annuities to single survivors of contracts originally issued on a joint basis), (f) deferred annuities both before and after the end of the deferred period, and (g) annuities under group annuity contracts.

The age at issue was taken as the age nearest birthday on the issue date of the contract (or some reasonable approximation thereto).

Expected deaths were calculated on the Annuity Table for 1949 Ultimate without projection and with Projection B, allowing for mortality improvement through the period from 1958 to 1963 anniversaries. Expected deaths on the 1937 Standard Annuity Table, included in former reports, were discontinued.

The names of the twenty contributing companies and their proportionate contributions to the experience on nonrefund and refund annuities are given in Table A of the Appendix.

The findings of the present study are based on an experience of 755,520 contract years and \$256,795,103 income years of exposure (a decrease of 17 per cent and 8 per cent, respectively, from the previous study); 51,222 contracts involving \$16,700,162 of annual income were terminated by death. An analysis of the exposures and deaths by sex, type of annuity, and duration is given in Table B of the Appendix. Refund annuities accounted for 63 per cent of the total exposure by amounts of annual income. Females accounted for 68 per cent of the refund annuity exposure and 66 per cent of the nonrefund annuity exposure by amounts of annual

income. The detailed experience showing exposures, actual claims, and expected claims is set forth in Table C of the Appendix.

EXPERIENCE IN RELATION TO THE ANNUITY TABLE FOR 1949 ULTIMATE  
(WITHOUT PROJECTION)

Tables 1 and 2 present the mortality ratios on the Annuity Table for 1949 Ultimate (*a*-1949 Table) for nonrefund and refund annuities, respectively. The following are the main features of the 1958-63 experience:

TABLE 1  
INDIVIDUAL IMMEDIATE NONREFUND ANNUITIES  
ISSUES OF 1931 TO 1962  
EXPERIENCE BETWEEN 1958 AND 1963 ANNIVERSARIES  
MORTALITY RATIOS ON ANNUITY TABLE FOR 1949 ULTIMATE

ATTAINED AGES	BY NUMBER OF CONTRACTS				BY AMOUNTS OF ANNUAL INCOME			
	Contract Years			All Con- tract Years	Contract Years			All Con- tract Years
	1-2	3-5	6 and Over		1-2	3-5	6 and Over	
Male								
Under 50.....	*	*	*	*	*	*	*	*
50-59.....	*	*	<i>218%</i>	<i>158%</i>	*	*	<i>326%</i>	<i>183%</i>
60-69.....	<i>41%</i>	<i>66%</i>	97	83	<i>28%</i>	<i>109%</i>	116	93
70-79.....	68	75	101	96	77	66	101	92
80-84.....	<i>64</i>	<i>64</i>	104	100	<i>56</i>	<i>60</i>	97	89
85-89.....	<i>49</i>	<i>36</i>	107	101	<i>33</i>	<i>53</i>	97	88
90 and over.....	*	*	100	98	*	*	99	93
80 and over.....	57	51	104	100	44	52	98	90
All ages.....	<i>57%</i>	<i>61%</i>	<i>103%</i>	<i>98%</i>	<i>54%</i>	<i>61%</i>	<i>100%</i>	<i>91%</i>
Female								
Under 50.....	*	*	*	*	*	*	*	*
50-59.....	*	*	<i>148%</i>	<i>139%</i>	*	*	<i>144%</i>	<i>120%</i>
60-69.....	<i>53%</i>	<i>104%</i>	122	112	<i>33%</i>	<i>89%</i>	127	102
70-79.....	64	92	105	103	56	85	111	102
80-84.....	<i>66</i>	<i>85</i>	106	104	<i>56</i>	<i>86</i>	110	105
85-89.....	<i>78</i>	<i>74</i>	104	103	<i>93</i>	<i>65</i>	101	99
90 and over.....	*	*	97	97	*	*	90	90
80 and over.....	69	81	102	102	69	78	99	98
All ages.....	<i>65%</i>	<i>90%</i>	<i>103%</i>	<i>102%</i>	<i>60%</i>	<i>82%</i>	<i>102%</i>	<i>99%</i>

\* Fewer than ten contracts terminated by death.

NOTE.—Mortality ratio in italics where 10-49 contracts terminated by death.

1. For all contract years combined, the mortality ratios for male non-refund annuities are virtually level at attained ages 60 and over both by number of contracts and by amounts. The mortality ratios for females on both nonrefund and refund annuities are approximately level at attained ages 70-89 by number and at attained ages 60-89 by amounts. The mortality ratios for male refund annuities tend to decrease with advancing age.

TABLE 2  
INDIVIDUAL IMMEDIATE REFUND ANNUITIES  
ISSUES OF 1931 TO 1962  
EXPERIENCE BETWEEN 1958 AND 1963 ANNIVERSARIES  
MORTALITY RATIOS ON ANNUITY TABLE FOR 1949 ULTIMATE

ATTAINED AGES	BY NUMBER OF CONTRACTS				BY AMOUNTS OF ANNUAL INCOME			
	Contract Years			All Contract Years	Contract Years			All Contract Years
	1-2	3-5	6 and Over		1-2	3-5	6 and Over	
Male								
Under 50.....	*	*	172%	173%	*	*	150%	169%
50-59.....	142%	199%	93	109	98%	150%	121	120
60-69.....	96	108	119	113	85	125	138	121
70-79.....	95	87	110	108	91	104	115	111
80-84.....	54	96	103	101	66	82	109	104
85-89.....	92	69	97	96	79	110	102	102
90 and over.....	119	118	97	98	109	106	96	96
80 and over.....	74	89	100	99	75	94	103	101
All ages....	91%	95%	104%	103%	85%	106%	109%	107%
Female								
Under 50.....	*	*	303%	296%	*	*	387%	324%
50-59.....	167%	110%	149	147	115%	111%	147	135
60-69.....	74	89	120	112	89	77	118	108
70-79.....	77	101	104	103	99	107	107	107
80-84.....	87	112	108	108	78	96	109	107
85-89.....	76	91	104	103	82	95	111	110
90 and over.....	*	147	93	93	*	203	92	93
80 and over.....	84	105	102	102	77	102	105	104
All ages....	82%	101%	103%	103%	90%	101%	106%	105%

\* Fewer than ten contracts terminated by death.

NOTE.—Mortality ratio in italics where 10-49 contracts terminated by death.

2. For all ages combined, mortality ratios consistently increase with duration. Male nonrefund annuities show very low mortality ratios in the first five contract years, particularly at ages 85 and over.
3. The aggregate mortality ratios by amounts of annual income are slightly lower than those by number of contracts on nonrefund annuities, but the reverse is true on refund annuities.
4. Mortality ratios on nonrefund annuities are generally lower than on refund annuities. The difference is greater for males than for females and is greater by amounts of annual income than by number of contracts.

The accompanying tabulation gives an indication of the variation by company in the aggregate mortality ratios by amounts of annual income.

	MALES		FEMALES	
	Number of Companies	Proportion of Actual Deaths	Number of Companies	Proportion of Actual Deaths
Nonrefund Annuities				
Percentage points below average:				
> 20.....	1	1.8%	1	1.9%
11-20.....	4	15.7	3	13.2
6-10.....	1	9.0	3	16.7
1- 5.....	2	17.5	2	5.1
Percentage points above average:				
0- 5.....	7	25.2	6	45.0
6-10.....	2	16.0	2	6.0
11-20.....	2	11.7	3	12.1
> 20.....	1	3.1	.....	.....
Refund Annuities				
Percentage points below average:				
> 20.....	2	5.6%	1	1.2%
11-20.....	2	5.3	.....	.....
6-10.....	1	2.0	3	14.2
1- 5.....	4	39.0	4	40.1
Percentage points above average:				
0- 5.....	3	14.1	6	18.9
6-10.....	5	21.8	2	6.0
11-20.....	1	2.4	4	19.6
> 20.....	2	9.8	.....	.....

EXPERIENCE IN RELATION TO THE ANNUITY TABLE  
FOR 1949 ULTIMATE WITH PROJECTION B

The mortality experience under individual immediate annuities during the period from 1958 to 1963 anniversaries was also compared with that expected on the *a*-1949 Table with Projection B, assuming decreases in mortality from the end of 1950 through the period from 1958 to 1963 anniversaries. The methods used in the computation of expected deaths on this basis are outlined on pages 91-93. Mortality ratios are presented in Tables 3 and 4 for nonrefund and refund annuities, respectively.

TABLE 3  
INDIVIDUAL IMMEDIATE NONREFUND ANNUITIES  
ISSUES OF 1931 TO 1962  
EXPERIENCE BETWEEN 1958 AND 1963 ANNIVERSARIES  
MORTALITY RATIOS ON ANNUITY TABLE FOR 1949 ULTIMATE  
WITH PROJECTION B

ATTAINED AGES	BY NUMBER OF CONTRACTS				BY AMOUNTS OF ANNUAL INCOME			
	Contract Years			All Contract Years	Contract Years			All Contract Years
	1-2	3-5	6 and Over		1-2	3-5	6 and Over	
Male								
Under 50.....	*	*	*	*	*	*	*	*
50-59.....	*	*	<i>248%</i>	<i>180%</i>	*	*	<i>371%</i>	<i>208%</i>
60-69.....	<i>46%</i>	<i>73%</i>	109	93	<i>31%</i>	<i>122%</i>	129	104
70-79.....	73	81	108	103	84	72	109	99
80 and over.....	59	52	106	102	45	54	100	92
All ages.....	<i>61%</i>	<i>65%</i>	<i>107%</i>	<i>102%</i>	<i>57%</i>	<i>65%</i>	<i>103%</i>	<i>94%</i>
Female								
Under 50.....	*	*	*	*	*	*	*	*
50-59.....	*	*	<i>168%</i>	<i>157%</i>	*	*	<i>164%</i>	<i>136%</i>
60-69.....	<i>59%</i>	<i>116%</i>	136	125	<i>36%</i>	<i>100%</i>	141	114
70-79.....	69	100	113	111	61	91	119	110
80 and over.....	71	84	104	104	71	80	101	100
All ages.....	<i>70%</i>	<i>95%</i>	<i>106%</i>	<i>105%</i>	<i>64%</i>	<i>87%</i>	<i>105%</i>	<i>102%</i>

\* Fewer than ten contracts terminated by death.

NOTE.—Mortality ratio in italics where 10-49 contracts terminated by death.

The mortality ratios on *a*-1949 Table with Projection B exhibit a tendency to decrease with advancing age, except in the case of male non-refund annuities at attained ages 60 and over. Except for male nonrefund annuities, the mortality ratios in Tables 3 and 4 for all contract years combined are substantially above 100 per cent for ages under 80 and at or slightly above 100 per cent for ages 80 and over.

## COMPARISONS WITH PREVIOUS STUDIES

A comparison of the experience under individual immediate annuities for successive periods between 1941 and 1963 anniversaries is presented in Tables 5 and 6 for nonrefund and refund annuities, respectively.

TABLE 4  
INDIVIDUAL IMMEDIATE REFUND ANNUITIES  
ISSUES OF 1931 TO 1962  
EXPERIENCE BETWEEN 1958 AND 1963 ANNIVERSARIES  
MORTALITY RATIOS ON ANNUITY TABLE FOR 1949 ULTIMATE  
WITH PROJECTION B

ATTAINED AGES	BY NUMBER OF CONTRACTS				BY AMOUNTS OF ANNUAL INCOME			
	Contract Years			All Contract Years	Contract Years			All Contract Years
	1-2	3-5	6 and Over		1-2	3-5	6 and Over	
Male								
Under 50.....	*	*	<i>195%</i>	<i>195%</i>	*	*	<i>170%</i>	<i>192%</i>
50-59.....	<i>161%</i>	<i>226%</i>	106	124	<i>111%</i>	<i>170%</i>	138	136
60-69.....	108	120	133	126	95	139	155	135
70-79.....	103	95	118	117	98	113	124	120
80 and over....	76	92	102	101	77	97	106	104
All ages. . . .	98%	101%	109%	108%	92%	113%	114%	112%
Female								
Under 50.....	*	*	<i>344%</i>	<i>333%</i>	*	*	<i>441%</i>	<i>368%</i>
50-59.....	<i>190%</i>	<i>125%</i>	170	167	<i>130%</i>	<i>126%</i>	167	153
60-69.....	82	100	134	125	99	86	132	120
70-79.....	83	109	112	111	107	115	115	115
80 and over....	87	108	104	104	80	105	107	106
All ages. . . .	89%	108%	107%	107%	97%	108%	110%	110%

\* Fewer than ten contracts terminated by death.

NOTE.—Mortality ratio in italics where 10-49 contracts terminated by death.

TABLE 5

COMPARISON OF MORTALITY RATIOS ON INDIVIDUAL IMMEDIATE NONREFUND ANNUITIES—MALE  
EXPERIENCE BETWEEN 1941 AND 1963 ANNIVERSARIES

Expected Deaths Based on Annuity Table for 1949 Ultimate

ATTAINED AGES	CONTRACT YEARS 1-5						CONTRACT YEARS 6 AND OVER						ALL CONTRACT YEARS					
	Without Projection				With Projection B		Without Projection				With Projection B		Without Projection				With Projection B	
	1941-48	1948-53	1953-58	1958-63	1953-58	1958-63	1941-48	1948-53	1953-58	1958-63	1953-58	1958-63	1941-48	1948-53	1953-58	1958-63	1953-58	1958-63
	By Number of Contracts																	
Under 60.....	146%	<i>89%</i>	<i>134%</i>	*	<i>142%</i>	*	130%	103%	131%	231%	140%	262%	136%	99%	132%	169%	141%	192%
60-69.....	106	92	113	54%	120	61%	127	89	91	97	97	109	120	90	97	83	103	93
70-79.....	99	88	98	72	102	78	111	113	106	101	110	108	108	109	105	96	109	103
80 and over.....	92	64	81	53	82	54	106	93	98	104	100	106	103	90	97	100	99	102
All ages.....	100%	80%	95%	59%	98%	63%	111%	101%	100%	103%	103%	107%	109%	97%	100%	98%	102%	102%
All ages adjusted..	97%	77%	93%	59%	96%	63%	108%	98%	100%	103%	102%	107%	105%	95%	99%	98%	102%	102%
	By Amounts of Annual Income																	
Under 60.....	128%	127%	211%	*	225%	*	148%	95%	168%	334%	180%	379%	141%	106%	180%	189%	193%	214%
60-69.....	104	123	90	66%	95	73%	133	101	127	116	135	129	123	108	115	93	122	104
70-79.....	94	83	78	71	81	77	106	128	97	101	101	109	103	118	93	92	96	99
80 and over.....	82	76	96	49	98	50	116	93	107	98	108	100	110	91	106	90	107	92
All ages.....	93%	86%	89%	58%	91%	61%	114%	105%	106%	100%	108%	103%	109%	102%	103%	91%	105%	94%
All ages adjusted..	89%	83%	90%	58%	93%	61%	114%	101%	106%	100%	107%	103%	109%	99%	103%	91%	105%	94%

\* Fewer than ten contracts terminated by death.

NOTE.—Mortality ratio in italics where 10-49 contracts terminated by death.

TABLE 5—Continued  
NONREFUND ANNUITIES—FEMALE

ATTAINED AGES	CONTRACT YEARS 1-5						CONTRACT YEARS 6 AND OVER						ALL CONTRACT YEARS					
	Without Projection				With Projection B		Without Projection				With Projection B		Without Projection				With Projection B	
	1941-48	1948-53	1953-58	1958-63	1953-58	1958-63	1941-48	1948-53	1953-58	1958-63	1953-58	1958-63	1941-48	1948-53	1953-58	1958-63	1953-58	1958-63
By Number of Contracts																		
Under 60.....	118%	98%	247%	214%	263%	238%	137%	121%	146%	134%	156%	152%	128%	114%	165%	154%	176%	174%
60-69.....	98	83	93	81	98	90	122	109	97	122	102	136	113	102	96	112	102	125
70-79.....	90	75	90	81	93	88	113	109	101	105	105	113	108	105	100	103	104	111
80 and over.....	87	61	66	77	68	79	110	101	96	102	97	104	107	99	95	102	96	104
All ages.....	93%	73%	83%	80%	86%	85%	113%	104%	97%	103%	99%	106%	109%	101%	97%	102%	99%	105%
All ages adjusted..	90%	70%	81%	80%	84%	85%	111%	103%	97%	103%	99%	106%	107%	100%	96%	102%	98%	105%
By Amounts of Annual Income																		
Under 60.....	110%	94%	111%	207%	118%	235%	175%	112%	101%	132%	108%	151%	148%	106%	103%	160%	110%	182%
60-69.....	104	93	85	59	90	66	114	109	87	127	92	141	111	104	87	102	92	114
70-79.....	100	75	86	71	89	77	124	112	100	111	104	119	119	106	98	102	102	110
80 and over.....	79	63	65	75	66	77	102	101	97	99	98	101	99	98	95	98	96	100
All ages.....	95%	73%	77%	73%	79%	77%	113%	105%	97%	102%	99%	105%	109%	101%	96%	99%	98%	102%
All ages adjusted..	90%	71%	76%	73%	77%	77%	106%	103%	97%	102%	99%	105%	103%	100%	95%	99%	97%	102%



TABLE 6

COMPARISON OF MORTALITY RATIOS ON INDIVIDUAL IMMEDIATE REFUND ANNUITIES—MALE  
EXPERIENCE BETWEEN 1941 AND 1963 ANNIVERSARIES  
Expected Deaths Based on Annuity Table for 1949 Ultimate

ATTAINED AGES	CONTRACT YEARS 1-5						CONTRACT YEARS 6 AND OVER						ALL CONTRACT YEARS					
	Without Projection				With Projection B		Without Projection				With Projection B		Without Projection				With Projection B	
	1941-48	1948-53	1953-58	1958-63	1953-58	1958-63	1941-48	1948-53	1953-58	1958-63	1953-58	1958-63	1941-48	1948-53	1953-58	1958-63	1953-58	1958-63
By Number of Contracts																		
88 Under 60.....	135%	136%	185%	170%	197%	192%	148%	128%	134%	102%	143%	116%	142%	130%	142%	115%	152%	131%
60-69.....	126	121	112	102	119	114	136	128	140	119	149	133	132	126	134	113	142	126
70-79.....	108	110	117	90	122	98	121	122	120	110	124	118	118	120	119	108	124	117
80 and over.....	104	94	75	83	76	86	109	97	101	100	102	102	108	97	100	99	101	101
All ages.....	114%	110%	105%	93%	109%	100%	120%	111%	111%	104%	114%	109%	118%	111%	111%	103%	114%	108%
All ages adjusted..	112%	108%	103%	93%	107%	100%	115%	107%	109%	104%	111%	109%	113%	107%	109%	103%	111%	108%
By Amounts of Annual Income																		
Under 60.....	166%	215%	241%	127%	257%	144%	170%	154%	178%	125%	190%	142%	168%	171%	189%	126%	201%	143%
60-69.....	124	140	114	102	121	114	159	138	134	138	142	155	145	139	129	121	136	135
70-79.....	118	110	110	98	114	107	139	128	117	115	122	124	133	124	116	111	120	120
80 and over.....	100	109	92	86	94	89	121	100	107	103	108	106	116	101	105	101	107	104
All ages.....	117%	122%	108%	96%	112%	103%	136%	116%	114%	109%	117%	114%	130%	117%	113%	107%	116%	112%
All ages adjusted..	114%	119%	108%	96%	111%	103%	129%	112%	113%	109%	116%	114%	125%	113%	112%	107%	115%	112%

NOTE.—Mortality ratio in italics where 10-49 contracts terminated by death.

TABLE 6—Continued  
REFUND ANNUITIES—FEMALE

ATTAINED AGES	CONTRACT YEARS 1-5						CONTRACT YEARS 6 AND OVER						ALL CONTRACT YEARS					
	Without Projection				With Projection B		Without Projection				With Projection B		Without Projection				With Projection B	
	1941-48	1948-53	1953-58	1958-63	1953-58	1958-63	1941-48	1948-53	1953-58	1958-63	1953-58	1958-63	1941-48	1948-53	1953-58	1958-63	1953-58	1958-63
By Number of Contracts																		
Under 60.....	136%	93%	104%	149%	111%	168%	172%	172%	160%	171%	171%	194%	156%	152%	151%	166%	161%	188%
60-69.....	114	125	100	82	106	91	127	125	113	120	120	134	122	125	111	112	118	125
70-79.....	106	95	82	91	85	99	118	114	110	104	115	112	115	111	108	103	113	111
80 and over.....	108	96	72	98	73	101	110	107	101	102	102	104	110	106	100	102	101	104
All ages.....	110%	102%	82%	93%	85%	100%	117%	112%	105%	103%	107%	107%	115%	111%	104%	103%	106%	107%
All ages adjusted..	109%	101%	82%	93%	84%	100%	113%	109%	104%	103%	106%	107%	112%	108%	103%	103%	105%	107%
By Amounts of Annual Income																		
Under 60.....	147%	92%	92%	113%	98%	128%	179%	186%	183%	179%	196%	204%	167%	160%	164%	157%	175%	179%
60-69.....	119	135	106	83	112	93	122	119	118	118	125	132	121	122	115	108	122	120
70-79.....	107	93	117	103	121	112	122	120	112	107	117	115	118	116	113	107	117	115
80 and over.....	106	99	82	92	83	95	114	106	104	105	105	107	113	106	103	104	104	106
All ages.....	111%	103%	101%	96%	105%	102%	120%	113%	108%	106%	110%	110%	118%	112%	107%	105%	110%	110%
All ages adjusted..	110%	102%	101%	96%	104%	102%	117%	110%	107%	106%	109%	110%	115%	110%	107%	105%	109%	110%

The tables show mortality ratios on the *a*-1949 Table without projection and with Projection B. Since exposures were not available to calculate exact expected deaths for the period between 1941 and 1948 anniversaries, the expected deaths previously calculated on the 1937 Standard Annuity Table were converted to the *a*-1949 Table by assuming that the ratio of expected deaths on the two tables in each age-duration group was the same as that which was available from the study for the period between 1953 and 1958 anniversaries.

Since the distribution of the exposures by attained age and duration has changed markedly from the earlier to the later periods, "adjusted" mortality ratios were computed for all ages combined. The adjusted ratio for all ages combined within a particular duration group is the weighted average of the ratios for component age groups, the weights being the corresponding expected deaths in the 1958-63 experience. These adjusted ratios in effect represent what the mortality ratios for all ages combined would have been if the distribution of exposures by the four attained age groups had been the same in the earlier periods as in the 1958-63 period.

The following comments are based on the mortality ratios on the *a*-1949 Table without projection for all contract years combined:

*Male nonrefund.*—Though the ratios by number of contracts for all ages combined have leveled off over the last three study periods, there has been continued improvement in mortality at ages 60-79. The ratio by amounts of annual income at ages 60-69 declined markedly in the 1958-63 period; the ratio at ages 80 and over also declined as compared with 1953-58, but was about the same as in 1948-53.

*Female nonrefund.*—Ratios at ages 60 and over, both by contracts and amounts, increased in 1958-63 over 1953-58 to a level about equal to that in 1948-53.

*Male refund.*—Ratios at ages under 80, both by number and amounts, were lower in 1958-63 than in any preceding period.

*Female refund.*—Ratios by number in 1958-63 were about the same as in 1953-58. Ratios by amounts dropped slightly at ages under 80.

On the whole, there has been little change in the level of annuitant mortality over the last 10-15 years.

#### SELECT MORTALITY

In order to assemble a substantial volume of data in the select period, Tables 7 and 8 were prepared by combining the experience by amounts of annual income from 1948 to 1963 anniversaries on nonrefund and refund annuities, respectively. The effect of self-selection by both male and female buyers of nonrefund annuities was marked; it persisted in some

degree for 3-4 contract years at ages 60-69, for at least 5 contract years at ages 70-79, and for an apparently even longer period at ages 80 and over. Self-selection had a much smaller effect on the experience under refund annuities, and mortality generally reached the ultimate level after the second contract year.

IMPROVEMENT RATES AND PROJECTION FACTORS  
ACCORDING TO PROJECTION B

Expected deaths on the *a*-1949 Table with Projection B were calculated from those on the *a*-1949 Table without projection by multiplying the latter by projection factors reflecting the improvement in mortality,

TABLE 7  
INDIVIDUAL IMMEDIATE NONREFUND ANNUITIES  
ISSUES OF 1931 TO 1962  
EXPERIENCE BETWEEN 1948 AND 1963 ANNIVERSARIES  
MORTALITY RATIOS ON ANNUITY TABLE FOR 1949 ULTIMATE  
By Amounts of Annual Income

ATTAINED AGES	CONTRACT YEARS							ALL YEARS
	1	2	3	4	5	1-5	6 and Over	
Male								
Under 50.....	*	*	*	*	*	*	143%	237%
50-59.....	*	*	*	*	*	97%	162	140
60-69.....	93%	65%	76%	139%	105%	93	114	106
70-79.....	80	57	95	60	94	77	110	102
80 and over.....	51	56	80	71	81	69	100	96
All ages....	70%	58%	86%	74%	89%	76%	104%	99%
Female								
Under 50.....	*	*	*	*	*	*	*	175%
50-59.....	*	*	122%	60%	*	93%	118%	110
60-69.....	72%	63%	65	64	147%	81	104	98
70-79.....	48	84	78	75	97	76	107	102
80 and over.....	66	47	80	75	71	69	99	97
All ages....	59%	67%	78%	75%	89%	74%	101%	98%

\* Fewer than ten contracts terminated by death.

NOTE.—Mortality ratio in italics where 10-49 contracts terminated by death.

according to Projection B, through the period covered by the present study.

In calculating the projection factors, the assumptions detailed in the paper, "A New Mortality Basis for Annuities" (TSA, I, 424), were followed. Briefly, it was assumed that the mortality rates of the *a*-1949 Table continued throughout the calendar year 1950 and that the first decrease in mortality occurred at the beginning of 1951. Since the present study covers the period from 1958 to 1963 anniversaries, the average improvement was assumed to be

$$\frac{1}{10} \left[ \left( 1 - \frac{S_x}{100} \right)^{1958-1950} + \left( 1 - \frac{S_x}{100} \right)^{1963-1950} \right] + \frac{1}{5} \sum_{t=1959}^{t=1962} \left( 1 - \frac{S_x}{100} \right)^{t-1950}$$

TABLE 8  
INDIVIDUAL IMMEDIATE REFUND ANNUITIES  
ISSUES OF 1931 TO 1962  
EXPERIENCE BETWEEN 1948 AND 1963 ANNIVERSARIES  
MORTALITY RATIOS ON ANNUITY TABLE FOR 1949 ULTIMATE  
By Amounts of Annual Income

ATTAINED AGES	CONTRACT YEARS							ALL YEARS
	1	2	3	4	5	1-5	6 and Over	
Male								
Under 50.....	*	*	*	*	*	223%	217%	218%
50-59.....	<i>121%</i>	<i>303%</i>	<i>190%</i>	<i>169%</i>	<i>189%</i>	193	147	159
60-69.....	103	119	127	128	124	119	137	130
70-79.....	79	113	117	106	113	106	120	117
80 and over.....	76	98	105	98	92	94	104	103
All ages....	87%	116%	118%	111%	110%	108%	113%	112%
Female								
Under 50.....	*	*	*	*	*	114%	281%	242%
50-59.....	<i>67%</i>	<i>127%</i>	<i>70%</i>	<i>112%</i>	<i>111%</i>	96	169	149
60-69.....	101	89	117	112	133	110	118	116
70-79.....	90	99	110	108	108	103	113	112
80 and over.....	61	86	112	91	100	91	105	104
All ages....	82%	93%	111%	102%	109%	100%	109%	108%

\* Fewer than ten contracts terminated by death.

NOTE.—Mortality ratio in italics where 10-49 contracts terminated by death.

where  $S_x$  is defined as the annual rate of decrease in the mortality rate, expressed in per cent.

As a practical matter, the formula

$$\frac{1}{2} \left[ \left( 1 - \frac{S_x}{100} \right)^{1958-1960} + \left( 1 - \frac{S_x}{100} \right)^{1962-1960} \right]$$

was used to represent the average improvement factor for the experience from 1958 to 1963 anniversaries. While it would have been desirable to apply projection factors separately to each calendar year's experience, the form of the data precluded such a procedure.

The accompanying tabulation shows the annual rates of improvement in mortality according to Projection B and the projection factors which were applied to expected deaths for the 1958-63 experience. Factors at ages not shown were calculated by interpolation.

PROJECTION B IMPROVEMENT FACTORS

Attained Age	Rate of Decrease per Year in Mortality Rate $S_x$	Reduction in Mortality Rate from 1950 through 1958-63
10-50.....	1.25%	12.33%
60.....	1.20	11.87
65.....	1.10	10.93
70.....	0.95	9.51
75.....	0.75	7.58
80.....	0.50	5.12
85.....	0.25	2.59
90.....	0.00	0.00

## APPENDIX

### TABLE A

CONTRIBUTING COMPANIES  
PROPORTION OF TOTAL EXPOSURES CONTRIBUTED BY EACH

COMPANY	NONREFUND ANNUITIES				REFUND ANNUITIES			
	Males		Females		Males		Females	
	Con- tracts	Amounts	Con- tracts	Amounts	Con- tracts	Amounts	Con- tracts	Amounts
Equitable, N.Y.	19.9%	15.0%	25.4%	19.5%	32.2%	27.2%	34.9%	26.9%
Prudential	8.1	10.0	5.3	6.9	4.4	4.7	4.6	5.8
John Hancock Mutual	7.3	7.0	6.3	7.1	6.9	7.0	5.5	6.4
New York Life	7.2	6.4	9.1	8.4	5.8	5.6	8.5	8.3
Mass. Mutual	6.1	6.2	6.6	7.1	3.7	5.7	4.5	5.4
Mutual Life, N.Y.	5.9	6.9	5.1	5.8	4.3	4.6	4.4	4.5
Northwestern Mutual	5.5	4.2	4.7	4.5	6.0	5.0	4.9	4.7
Metropolitan	5.2	5.3	3.3	4.0	4.5	5.6	4.2	6.7
Conn. Mutual	4.6	7.2	4.5	5.9	5.8	7.2	4.5	5.9
Aetna Life	4.2	3.8	3.4	3.6	4.0	3.3	3.7	3.5
Penn Mutual	3.8	3.4	5.5	4.5	4.5	4.0	4.4	3.8
Travelers	3.4	4.0	3.4	4.3	1.6	2.9	1.0	2.0
New England Mutual	3.1	2.2	3.7	3.2	2.3	1.7	2.3	2.0
Sun Life, Canada	3.0	2.7	2.2	2.1	2.2	2.3	1.9	2.0
Phoenix Mutual	2.5	2.3	2.6	2.5	2.0	1.7	1.6	1.4
National Life	2.4	2.6	2.0	2.9	2.0	2.0	2.0	2.5
Canada Life	2.2	4.5	0.8	1.3	1.8	3.3	0.9	1.9
Provident Mutual	1.9	1.8	2.6	2.3	1.7	1.8	1.9	1.8
Conn. General	1.9	2.6	1.8	2.1	1.7	1.9	2.0	2.0
Union Central	1.8	1.9	1.7	2.0	2.6	2.5	2.3	2.5
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

**TABLE B**  
**EXPOSURES AND DEATHS UNDER INDIVIDUAL IMMEDIATE ANNUITIES**  
**ISSUES OF 1931 TO 1962**  
**EXPERIENCE BETWEEN 1958 AND 1963 ANNIVERSARIES**

CONTRACT YEARS	NONREFUND ANNUITIES		REFUND ANNUITIES	
	Number of Contracts	Amounts of Annual Income	Number of Contracts	Amounts of Annual Income
Exposures				
<b>Males:</b>				
1-5 .....	10,980	\$ 9,140,315	21,759	\$ 14,230,090
6 and over .....	48,895	22,336,476	109,607	37,768,593
All contract years.	59,875	\$31,476,791	131,366	\$ 51,998,683
<b>Females:</b>				
1-5 .....	16,962	\$11,810,584	34,415	\$ 19,033,530
6 and over .....	169,738	50,603,547	343,164	91,871,968
All contract years.	186,700	\$62,414,131	377,579	\$110,905,498
Deaths				
<b>Males:</b>				
1-5 .....	353	\$ 341,364	846	\$ 594,458
6 and over .....	4,464	2,112,421	8,293	2,983,059
All contract years.	4,817	\$ 2,453,785	9,139	\$ 3,577,517
<b>Females:</b>				
1-5 .....	487	\$ 350,176	887	\$ 518,281
6 and over .....	13,532	4,064,108	22,360	5,736,295
All contract years.	14,019	\$ 4,414,284	23,247	\$ 6,254,576



TABLE C  
INDIVIDUAL IMMEDIATE ANNUITIES  
ISSUES OF 1931 TO 1962  
EXPERIENCE BETWEEN 1958 AND 1963 ANNIVERSARIES  
NONREFUND—MALE LIVES  
Expected Deaths on  $\alpha$ -1949 Ultimate Table

ATTAINED AGES BY CONTRACT YEAR	EXPOSURES		ACTUAL DEATHS		EXPECTED DEATHS		MORTALITY RATIO	
	Number of Contracts	Amounts of Annual Income	Number of Contracts	Amounts of Annual Income	Number of Contracts	Amounts of Annual Income	Number of Contracts	Amounts of Annual Income
Year 1:								
00-49 . . . . .	31	\$ 24,374	0	\$ 0	.08	\$ 91	*	*
50-59 . . . . .	200	104,551	0	0	2.21	1,235	*	*
60-69 . . . . .	976	678,456	10	6,107	23.39	16,553	43%	37%
70-79 . . . . .	899	930,304	35	51,409	46.05	48,681	76	106
80 and over . . . . .	389	515,969	26	24,806	45.90	60,740	57	41
All ages . . . . .	2,495	\$ 2,253,654	71	\$ 82,322	117.63	\$ 127,300	60%	65%
Year 2:								
00-49 . . . . .	31	\$ 18,027	0	\$ 0	.07	\$ 68	*	*
50-59 . . . . .	156	60,285	0	0	1.75	847	*	*
60-69 . . . . .	824	551,495	8	2,423	20.23	13,842	*	*
70-79 . . . . .	781	738,415	23	16,098	39.87	38,550	58%	42%
80 and over . . . . .	403	476,810	28	27,423	48.75	57,427	57	47
All ages . . . . .	2,195	\$ 1,856,709	59	\$ 45,944	110.67	\$ 111,779	53%	41%
Year 3:								
00-49 . . . . .	20	\$ 8,419	0	\$ 0	.06	\$ 34	*	*
50-59 . . . . .	131	60,285	1	283	1.48	716	*	*
60-69 . . . . .	690	390,482	10	4,514	17.07	9,830	59%	46%
70-79 . . . . .	780	783,147	34	28,971	40.82	41,161	83	70
80 and over . . . . .	431	444,868	28	25,102	53.06	58,339	53	43
All ages . . . . .	2,052	\$ 1,687,201	73	\$ 58,870	112.49	\$ 110,080	65%	53%
Year 4:								
00-49 . . . . .	17	\$ 8,982	0	\$ 0	.06	\$ 38	*	*
50-59 . . . . .	120	56,915	0	0	1.36	677	*	*
60-69 . . . . .	666	352,155	17	21,922	16.44	8,784	103%	250%
70-79 . . . . .	811	737,606	31	19,615	42.81	39,502	72	50
80 and over . . . . .	498	490,871	26	29,583	61.65	64,958	42	46
All ages . . . . .	2,112	\$ 1,646,529	74	\$ 71,120	122.32	\$ 113,959	60%	62%
Year 5:								
00-49 . . . . .	11	\$ 7,372	0	\$ 0	.03	\$ 33	*	*
50-59 . . . . .	101	48,281	0	0	1.16	574	*	*
60-69 . . . . .	612	301,175	5	2,239	15.32	7,609	*	*
70-79 . . . . .	864	816,516	32	34,355	45.55	44,316	70%	78%
80 and over . . . . .	538	522,878	39	46,514	68.51	70,343	57	66
All ages . . . . .	2,126	\$ 1,696,222	76	\$ 83,108	130.57	\$ 122,875	58%	68%
Years 1-5:								
00-49 . . . . .	110	\$ 67,174	0	\$ 0	.30	\$ 264	*	*
50-59 . . . . .	708	341,994	1	283	7.96	4,049	*	*
60-69 . . . . .	3,768	2,273,763	50	37,205	92.45	56,618	54%	66%
70-79 . . . . .	4,135	4,005,988	155	150,448	215.10	212,210	72	71
80 and over . . . . .	2,259	2,451,396	147	153,428	277.87	312,852	53	49
All ages . . . . .	10,980	\$ 9,140,315	353	\$ 341,364	593.68	\$ 585,993	59%	58%
Years 6 and over:								
00-49 . . . . .	417	\$ 108,724	6	\$ 1,878	1.52	\$ 446	*	*
50-59 . . . . .	1,612	429,137	42	16,205	19.23	4,971	218%	326%
60-69 . . . . .	7,580	2,718,236	181	79,317	186.52	68,482	97	116
70-79 . . . . .	18,136	8,319,987	1,024	479,122	1,018.62	472,059	101	101
80 and over . . . . .	21,150	10,760,392	3,211	1,535,899	3,087.76	1,572,875	104	98
All ages . . . . .	48,895	\$22,336,476	4,464	\$2,112,421	4,313.65	\$2,118,833	103%	100%
All years:								
00-49 . . . . .	527	\$ 175,898	6	\$ 1,878	1.82	\$ 710	*	*
50-59 . . . . .	2,320	771,131	43	16,488	27.19	9,020	158%	183%
60-69 . . . . .	11,348	4,991,999	231	116,522	278.97	125,100	83	93
70-79 . . . . .	22,271	12,325,975	1,179	629,570	1,233.72	684,269	96	92
80 and over . . . . .	23,409	13,211,788	3,358	1,689,327	3,365.63	1,885,727	100	90
All ages . . . . .	59,875	\$31,476,791	4,817	\$2,453,785	4,907.33	\$2,704,826	98%	91%

\* Fewer than ten contracts terminated by death.

NOTE.—Mortality ratio in italics where 10-49 contracts terminated by death.

TABLE C—Continued  
NONREFUND—FEMALE LIVES

ATTAINED AGES BY CONTRACT YEAR	EXPOSURES		ACTUAL DEATHS		EXPECTED DEATHS		MORTALITY RATIO	
	Number of Contracts	Amounts of Annual Income	Number of Contracts	Amounts of Annual Income	Number of Contracts	Amounts of Annual Income	Number of Contracts	Amounts of Annual Income
Year 1:								
00-49.....	36	\$ 24,812	1	\$ 156	.05	\$ 58	*	*
50-59.....	243	145,365	1	554	1.31	766	*	*
60-69.....	1,424	1,014,745	5	1,905	18.59	13,563	*	*
70-79.....	1,601	1,506,648	24	21,293	54.61	53,450	44%	40%
80 and over	500	536,852	24	31,530	42.38	45,645	57	69
All ages...	3,804	\$ 3,228,422	55	\$ 55,438	116.94	\$ 113,482	47%	49%
Year 2:								
00-49.....	26	\$ 14,814	1	\$ 1,281	.04	\$ 32	*	*
50-59.....	185	110,291	1	900	.99	572	*	*
60-69.....	1,155	693,957	13	5,602	15.48	9,460	84%	59%
70-79.....	1,440	1,150,087	43	31,835	49.82	40,740	86	78
80 and over	527	526,489	37	31,389	46.00	45,790	80	69
All ages...	3,333	\$ 2,495,638	95	\$ 71,007	112.33	\$ 96,594	85%	74%
Year 3:								
00-49.....	25	\$ 11,390	1	\$ 108	.04	\$ 24	*	*
50-59.....	156	100,766	1	187	.85	522	*	*
60-69.....	1,003	519,978	13	3,337	13.79	7,328	94%	46%
70-79.....	1,410	988,475	42	31,324	49.04	35,884	86	87
80 and over	553	502,573	49	47,377	50.05	45,681	98	104
All ages...	3,147	\$ 2,123,182	106	\$ 82,333	113.77	\$ 89,439	93%	92%
Year 4:								
00-49.....	22	\$ 9,817	2	\$ 2,246	.03	\$ 21	*	*
50-59.....	134	85,303	2	561	.74	467	*	*
60-69.....	974	464,942	16	7,494	13.58	6,633	118%	113%
70-79.....	1,541	954,348	46	24,775	53.86	34,763	85	71
80 and over	621	514,340	50	44,099	57.36	48,238	87	91
All ages...	3,292	\$ 2,028,750	116	\$ 79,175	125.57	\$ 90,122	92%	88%
Year 5:								
00-49.....	16	\$ 6,932	0	\$ 0	.02	\$ 13	*	*
50-59.....	114	75,876	0	0	.61	418	*	*
60-69.....	920	424,747	13	7,121	12.92	6,135	101%	116%
70-79.....	1,646	868,731	60	30,153	57.12	31,082	105	97
80 and over	690	558,306	42	24,949	66.35	55,059	63	45
All ages...	3,386	\$ 1,934,592	115	\$ 62,223	137.02	\$ 92,707	84%	67%
Years 1-5:								
00-49.....	125	\$ 67,765	5	\$ 3,791	.18	\$ 148	*	*
50-59.....	832	517,601	5	2,202	4.50	2,745	*	*
60-69.....	5,476	3,118,369	60	25,459	74.36	43,119	81%	51%
70-79.....	7,638	5,468,289	215	139,380	264.45	195,919	81	79
80 and over	2,891	2,638,560	202	179,344	262.14	240,413	77	75
All ages...	16,962	\$11,810,584	487	\$ 350,176	605.63	\$ 482,344	80%	73%
Years 6 and over:								
00-49.....	698	\$ 204,486	0	\$ 0	1.34	\$ 400	*	*
50-59.....	2,414	846,894	19	6,497	12.82	4,505	148%	144%
60-69.....	16,733	5,326,915	290	94,841	237.47	74,910	122	127
70-79.....	63,193	18,515,097	2,528	775,099	2,400.79	698,389	105	111
80 and over	86,700	25,710,155	10,695	3,187,671	10,455.52	3,205,348	102	99
All ages...	169,738	\$50,603,547	13,532	\$4,064,108	13,107.94	\$3,983,552	103%	102%
All years:								
00-49.....	823	\$ 272,251	5	\$ 3,791	1.52	\$ 548	*	*
50-59.....	3,246	1,364,495	24	8,699	17.32	7,250	139%	120%
60-69.....	22,209	8,445,284	350	120,300	311.83	118,029	112	102
70-79.....	70,831	23,983,386	2,743	914,479	2,665.24	894,308	103	102
80 and over	89,591	28,348,715	10,897	3,367,015	10,717.66	3,445,761	102	98
All ages...	186,700	\$62,414,131	14,019	\$4,414,284	13,713.57	\$4,465,896	102%	99%

TABLE C—Continued

## REFUND—MALE LIVES

ATTAINED AGES BY CONTRACT YEAR	EXPOSURES		ACTUAL DEATHS		EXPECTED DEATHS		MORTALITY RATIO	
	Number of Contracts	Amounts of Annual Income	Number of Contracts	Amounts of Annual Income	Number of Contracts	Amounts of Annual Income	Number of Contracts	Amounts of Annual Income
Year 1:								
0-49.....	161	\$ 69,586	0	\$ 0	43	\$ 217	*	*
50-59.....	535	389,907	7	3,232	5 92	4,341	*	*
60-69.....	2,967	2,218,542	66	36,288	69 28	52,043	95%	70%
70-79.....	1,377	1,203,327	50	43,453	67 85	60,524	74	72
80 and over.....	426	375,629	34	24,416	52 55	45,952	65	53
All ages.....	5,466	\$ 4,256,991	157	\$ 107,389	196.03	\$ 163,077	80%	66%
Year 2:								
0-49.....	139	\$ 68,480	2	\$ 1,202	36	\$ 220	*	*
50-59.....	413	255,785	8	3,859	4 67	2,876	*	*
60-69.....	2,280	1,567,766	53	40,274	55 27	38,231	96%	105%
70-79.....	1,267	974,003	75	55,714	63 36	48,942	118	114
80 and over.....	469	349,156	47	42,087	57 17	42,925	82	98
All ages.....	4,568	\$ 3,215,190	185	\$ 143,136	180 83	\$ 133,194	102%	107%
Year 3:								
0-49.....	122	\$ 54,477	0	\$ 0	34	\$ 182	*	*
50-59.....	350	161,493	10	2,893	4 01	1,841	249%	157%
60-69.....	1,829	1,097,071	50	33,981	46 35	27,880	108	122
70-79.....	1,221	841,934	46	40,326	60 68	42,367	76	93
80 and over.....	488	335,204	54	55,177	59 71	41,956	90	132
All ages.....	4,010	\$ 2,490,179	160	\$ 132,377	171 09	\$ 114,226	94%	116%
Year 4:								
0-49.....	106	\$ 54,045	1	\$ 1,058	26	\$ 159	*	*
50-59.....	274	123,240	5	2,946	3 15	1,380	*	*
60-69.....	1,680	867,904	49	26,094	44 01	22,845	111%	114%
70-79.....	1,339	852,855	58	38,015	66 61	42,729	87	89
80 and over.....	544	334,085	70	37,932	66 80	40,948	105	93
All ages.....	3,943	\$ 2,232,129	183	\$ 106,045	180 83	\$ 108,061	101%	98%
Year 5:								
0-49.....	105	\$ 54,431	0	\$ 0	27	\$ 158	*	*
50-59.....	248	105,847	5	760	2 88	1,182	*	*
60-69.....	1,354	657,044	37	25,093	35 53	17,322	104%	145%
70-79.....	1,533	893,430	72	57,379	75 35	44,794	96	128
80 and over.....	532	324,849	47	22,279	66 05	39,752	71	56
All ages.....	3,772	\$ 2,035,601	161	\$ 105,511	180 08	\$ 103,208	89%	102%
Years 1-5:								
0-49.....	633	\$ 301,019	3	\$ 2,260	1 66	\$ 936	*	*
50-59.....	1,820	1,036,272	35	13,690	20 63	11,620	170%	118%
60-69.....	10,110	6,408,327	255	161,730	250 44	158,321	102	102
70-79.....	6,737	4,765,549	301	234,887	333 85	239,356	90	98
80 and over.....	2,459	1,718,923	252	181,891	302 28	211,533	83	86
All ages.....	21,759	\$14,230,090	846	\$ 594,458	908 86	\$ 621,766	93%	96%
Years 6 and over:								
0-49.....	3,162	\$ 1,053,921	17	\$ 5,376	9 88	\$ 3,591	172%	150%
50-59.....	7,027	2,313,453	72	30,677	77 80	25,253	93	121
60-69.....	21,524	6,868,196	617	231,720	520 26	167,697	119	138
70-79.....	41,981	15,583,772	2,531	973,789	2,292 51	848,448	110	115
80 and over.....	35,913	12,049,251	5,056	1,741,497	5,081 06	1,684,896	100	103
All ages.....	109,607	\$37,868,593	8,293	\$2,983,059	7,981 51	\$2,729,885	104%	109%
All years:								
0-49.....	3,795	\$ 1,354,940	20	\$ 7,636	11 54	\$ 4,527	173%	169%
50-59.....	8,847	3,349,725	107	44,367	98 43	36,873	109	120
60-69.....	31,634	13,276,523	872	393,450	770 70	326,018	113	121
70-79.....	48,718	20,349,321	2,832	1,208,676	2,626 36	1,087,804	108	111
80 and over.....	38,372	13,768,174	5,308	1,923,388	5,383 34	1,896,429	99	101
All ages.....	131,366	\$52,098,683	9,139	\$3,577,517	8,890 37	\$3,351,651	103%	107%

\* Fewer than ten contracts terminated by death.

NOTE.—Mortality ratio in italics where 10-49 contracts terminated by death.

TABLE C—Continued  
REFUND—FEMALE LIVES

ATTAINED AGES BY CONTRACT YEAR	EXPOSURES		ACTUAL DEATHS		EXPECTED DEATHS		MORTALITY RATIO	
	Number of Contracts	Amounts of Annual Income	Number of Contracts	Amounts of Annual Income	Number of Contracts	Amounts of Annual Income	Number of Contracts	Amounts of Annual Income
Year 1:								
0-49 .....	345	\$ 232,672	1	\$ 556	.63	\$ 418	*	*
50-59 .....	1,129	820,700	4	1,541	5.86	4,267	*	*
60-69 .....	3,524	2,098,303	34	26,583	44.10	26,481	77%	100%
70-79 .....	2,552	1,734,422	57	64,231	85.19	58,342	67	110
80 and over .....	636	505,916	46	30,820	52.78	44,745	87	69
All ages...	8,186	\$ 5,392,013	142	\$ 123,731	188.56	\$ 134,253	75%	92%
Year 2:								
0-49 .....	237	\$ 145,636	3	\$ 360	.40	\$ 269	*	*
50-59 .....	841	548,841	13	6,646	4.32	2,831	301%	235%
60-69 .....	2,840	1,563,814	26	15,113	36.76	20,161	71	75
70-79 .....	2,305	1,353,809	68	39,083	78.05	46,017	87	85
80 and over .....	669	447,994	46	35,574	57.37	41,430	80	86
All ages...	6,892	\$ 4,060,094	156	\$ 96,776	176.90	\$ 110,708	88%	87%
Year 3:								
0-49 .....	196	\$ 92,465	0	\$ 0	.34	\$ 178	*	*
50-59 .....	706	408,045	3	1,764	3.60	2,070	*	*
60-69 .....	2,437	1,223,976	25	8,328	32.24	16,007	78%	52%
70-79 .....	2,242	1,186,697	85	56,361	76.21	40,297	112	140
80 and over .....	720	382,701	64	30,522	64.04	35,828	100	85
All ages...	6,301	\$ 3,293,884	177	\$ 96,975	176.43	\$ 94,380	100%	103%
Year 4:								
0-49 .....	171	\$ 72,555	0	\$ 0	.27	\$ 139	*	*
50-59 .....	645	363,518	3	2,030	3.31	1,840	*	*
60-69 .....	2,393	1,155,265	28	14,681	32.32	15,571	87%	94%
70-79 .....	2,375	1,146,658	78	36,989	80.98	39,458	96	94
80 and over .....	849	444,544	83	38,640	77.89	42,166	107	92
All ages...	6,433	\$ 3,182,540	192	\$ 92,340	194.77	\$ 99,174	99%	93%
Year 5:								
0-49 .....	178	\$ 65,610	1	\$ 341	.30	\$ 121	*	*
50-59 .....	597	338,267	5	2,420	3.05	1,709	*	*
60-69 .....	2,268	1,040,867	32	12,030	30.79	14,035	104%	86%
70-79 .....	2,553	1,167,454	82	34,952	86.44	39,740	95	88
80 and over .....	1,007	492,801	100	58,716	93.31	46,922	107	125
All ages...	6,603	\$ 3,104,999	220	\$ 108,459	213.89	\$ 102,527	103%	106%
Years 1-5:								
0-49 .....	1,127	\$ 608,938	5	\$ 1,257	1.94	\$ 1,125	*	*
50-59 .....	3,918	2,479,371	28	14,401	20.14	12,717	139%	113%
60-69 .....	13,462	7,082,225	145	76,735	176.21	92,255	82	83
70-79 .....	12,027	6,589,040	370	231,616	406.87	223,854	91	103
80 and over .....	3,881	2,273,956	339	194,272	345.39	211,091	98	92
All ages...	34,415	\$ 19,033,530	887	\$ 518,281	950.55	\$ 541,042	93%	96%
Years 6 and over:								
0-49 .....	6,134	\$ 2,062,106	34	\$ 14,798	11.22	\$ 3,825	303%	387%
50-59 .....	13,509	4,913,806	102	36,475	68.51	24,867	149	147
60-69 .....	53,294	16,193,259	882	259,928	737.66	220,877	120	118
70-79 .....	134,446	35,441,183	5,150	1,387,131	4,966.01	1,290,898	104	107
80 and over .....	135,781	33,261,614	16,192	4,037,963	15,874.54	3,858,004	102	105
All ages...	343,164	\$ 91,871,968	22,360	\$ 5,736,295	21,657.94	\$ 5,398,471	103%	106%
All years:								
0-49 .....	7,261	\$ 2,671,044	39	\$ 16,055	13.16	\$ 4,950	296%	324%
50-59 .....	17,427	7,393,177	130	50,876	88.65	37,584	147	135
60-69 .....	66,756	23,275,484	1,027	336,663	913.87	313,132	112	108
70-79 .....	146,473	42,030,223	5,520	1,618,747	5,372.88	1,514,752	103	107
80 and over .....	139,662	35,535,570	16,531	4,232,235	16,219.93	4,069,995	102	104
All ages...	377,579	\$110,905,498	23,247	\$6,254,576	22,608.49	\$5,939,513	103%	105%