

TRANSACTIONS OF SOCIETY OF ACTUARIES 1983 REPORTS

REPORT OF THE COMMITTEE ON GROUP ANNUITIES

GROUP ANNUITY MORTALITY

The last published report of insured group annuity mortality experience appeared in the *1975 Reports* covering calendar years 1969–71. Our Committee was hampered by data collection problems during the subsequent ten years: several companies discontinued experience submissions, and several others submitted data which were inconsistent or riddled with reporting errors.

A new data reporting format was designed in 1980 to be used for gathering mortality experience beginning with calendar year 1981 data. Eight major pension insurers have submitted data under this new format.

This report presents 1981 and 1982 calendar year experience of retired individuals who are covered under insured pension plans in the United States and Canada. The report includes experience of contracts providing insurer-guaranteed annuity benefits to ongoing pension plans and experience of contracts covering closed groups of lives for which purchases are made by a single payment at issue (single-premium close-out business); it excludes contracts which do not contain insurer guarantees of future payments (immediate participation guarantee contract direct-payment benefits).

The total data reported in this study include all annuities where a benefit, once commenced, is to continue for the future lifetime of the annuitant. In cases of joint and survivor status, only the mortality and income of the original annuitant are included. Annuities having benefits limited to a specific number of years and those where a contingent annuitant is receiving 100 percent of the payments are excluded from the study.

The annual contributions are reported in sufficient detail to allow the committee to break the total experience into subsets based on a single parameter or a combination of parameters. The committee was faced with two problems: (1) selection of study parameters which produced data cells which were small enough to be relatively homogeneous yet large enough to be credible, and (2) development of tables which facilitated the analysis of the data. We believe that the following series of tables fulfills these two objectives.

FORMAT OF STUDY

Table 1 summarizes 1981 calendar year exposures and deaths in five-year age groups. Male and female data are displayed by number of lives and amount of income. Table 2 displays similar data for calendar year 1982.

COMMITTEE ON GROUP ANNUITIES

TABLE 1
 CALENDAR YEAR 1981
 SUMMARY OF EXPOSURES AND ACTUAL DEATHS

ATTAINED AGE	LIVES					
	MALES		FEMALES		TOTAL	
	Exposure	Deaths	Exposure	Deaths	Exposure	Deaths
Under 45	190.94	3.00	150.80	1.00	341.74	4.00
45-49	509.27	13.00	230.27	4.00	739.54	17.00
50-54	2,217.10	30.00	1,299.06	10.00	3,516.16	40.00
55-59	26,599.21	440.00	11,124.59	99.00	37,723.80	539.00
60-64	82,756.29	1,568.00	32,978.18	347.00	115,734.47	1,915.00
65-69	185,232.93	4,924.00	73,727.06	1,003.00	258,959.99	5,927.00
70-74	157,276.45	6,571.00	68,210.94	1,397.00	225,487.39	7,968.00
75-79	97,763.34	6,189.00	42,614.73	1,347.00	140,378.07	7,536.00
80-84	48,755.90	4,727.00	20,588.86	1,093.00	69,344.76	5,820.00
85-89	19,601.58	2,719.00	7,936.75	681.00	27,538.33	3,400.00
90-94	4,980.49	990.00	2,087.62	294.00	7,068.11	1,284.00
95 and over	813.13	203.00	336.39	71.00	1,149.52	274.00
Total	626,696.63	28,377.00	261,285.25	6,347.00	887,981.88	34,724.00

ATTAINED AGE	INCOME					
	MALES		FEMALES		TOTAL	
	Exposure	Deaths	Exposure	Deaths	Exposure	Deaths
Under 45	\$ 892,506	\$ 2,469	\$ 399,310	\$ 1,337	\$ 1,291,816	\$ 3,806
45-49	2,463,203	33,912	430,120	2,727	2,893,323	36,639
50-54	8,066,693	72,877	2,280,557	27,543	10,347,250	100,420
55-59	63,888,377	929,290	14,918,561	132,753	78,806,938	1,062,043
60-64	242,241,643	3,892,183	44,193,213	524,573	286,434,856	4,416,756
65-69	453,649,355	11,018,280	86,694,089	1,318,320	540,343,444	12,336,600
70-74	324,724,929	12,970,811	66,096,398	1,431,220	390,821,327	14,402,031
75-79	165,755,944	10,201,802	33,997,961	1,081,909	199,753,905	11,283,711
80-84	71,659,551	6,750,704	14,513,112	817,719	86,172,663	7,568,423
85-89	25,243,937	3,493,925	4,957,300	469,703	30,201,237	3,963,628
90-94	5,463,206	1,060,398	1,208,179	175,680	6,671,385	1,236,078
95 and over	827,963	228,676	227,924	43,296	1,055,887	271,972
Total	\$1,364,877,307	\$50,655,327	\$269,916,724	\$6,026,780	\$1,634,794,031	\$56,682,107

Tables 3-32 make extensive use of ratios of actual to expected deaths as a tool to assist analysis. Expected deaths are calculated on two mortality bases: the 1971 Group Annuity Mortality Table without projection and the 1983 Group Annuity Mortality Table without projection. Expected deaths for females are based on the female mortality tables (as opposed to the standard six-year age setback in male mortality tables) except for Tables 27-32 which are based on male mortality with no age setback.

Tables 3-26 have a similar format. Total data are divided into classification groups based on a single parameter (e.g., whether a form of benefit contains a refund or certain feature). Each table displays exposure and ratio of actual to expected deaths for each classification group and the total data in the study (equaling totals shown in Table 1 and 2) by five-year age bracket. (By definition, the sum of exposures in all classification groups equals the total exposure.)

GROUP ANNUITY MORTALITY

TABLE 2
CALENDAR YEAR 1982
SUMMARY OF EXPOSURES AND ACTUAL DEATHS

ATTAINED AGE	LIVES					
	MALES		FEMALES		TOTAL	
	Exposure	Deaths	Exposure	Deaths	Exposure	Deaths
Under 45	178.41	3.00	207.49	1.00	385.90	4.00
45-49	399.67	7.00	263.80	1.00	663.47	8.00
50-54	2,058.88	38.00	1,353.00	7.00	3,411.88	45.00
55-59	28,631.53	453.00	11,754.62	92.00	40,386.15	545.00
60-64	89,455.43	1,753.00	35,433.49	336.00	124,888.92	2,089.00
65-69	192,308.39	5,097.00	75,640.56	985.00	267,948.95	6,082.00
70-74	162,420.78	6,740.00	72,661.69	1,354.00	235,082.47	8,094.00
75-79	103,419.33	6,465.00	48,058.37	1,540.00	151,477.70	8,005.00
80-84	52,549.11	4,861.00	23,671.10	1,231.00	76,220.21	6,092.00
85-89	21,392.48	2,989.00	9,443.51	832.00	30,835.99	3,821.00
90-94	5,716.77	1,082.00	2,526.42	322.00	8,243.19	1,404.00
95 and over	941.97	203.00	431.82	75.00	1,373.79	278.00
Total	659,472.75	29,691.00	281,445.87	6,776.00	940,918.62	36,467.00
	INCOME					
Under 45	\$ 912,269	\$ 2,555	\$ 403,402	\$ 924	\$ 1,315,671	\$ 3,479
45-49	2,241,231	20,870	533,379	590	2,774,610	21,460
50-54	8,425,016	89,830	2,471,863	14,904	10,896,879	104,734
55-59	74,353,233	994,745	16,905,033	111,978	91,258,266	1,106,723
60-64	282,453,648	4,518,300	51,913,794	463,917	334,367,442	4,982,217
65-69	499,265,100	11,499,500	95,039,864	1,206,822	594,304,964	12,706,322
70-74	352,808,738	13,226,032	74,409,002	1,420,695	427,217,740	14,646,727
75-79	188,695,951	11,051,544	40,324,728	1,252,211	229,020,679	12,303,755
80-84	81,353,984	7,234,846	17,161,122	880,449	98,515,106	8,115,295
85-89	29,233,654	4,143,816	6,103,381	537,348	35,337,035	4,681,164
90-94	6,678,585	1,327,121	1,440,904	208,364	8,119,489	1,535,485
95 and over	993,872	185,756	286,876	50,441	1,280,748	236,197
Total	\$1,527,415,281	\$54,294,915	\$306,993,348	\$6,148,643	\$1,834,408,629	\$60,443,558

The amount of exposure provides a key to the credibility of the data in each classification age cell and for the classification group in total. Mortality ratios are extremely useful in highlighting significant differences between classifications.

Tables 3-14 display total study data grouped by retirement class for calendar year 1981, calendar year 1982, and calendar years 1981 and 1982 combined. Each table is identified by study period, mortality table used in calculating expected deaths, and annuitant sex. Retirement classes are defined as follows:

1. *Retirement prior to normal retirement date (NRD).*—This class consists of employees who retired before the NRD under a plan.
2. *Retirement on or after NRD.*—This class consists of employees who retire on or after the NRD specified by the plan. The data include employees who are receiving pay-

TABLE 3

CALENDAR YEAR 1981
 EXPECTED MORTALITY BASIS - 1983 GROUP ANNUITY MORTALITY
 EXPERIENCE BY RETIREMENT CLASS

ATTAINED AGE	MATH LIVES									
	PRIOR TO NRD		ON AFTER NRD		NO STATED NRD		PAST NRD WITH NO PAYMENT		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
		Expected		Expected		Expected		Expected		
Under 45	81.07		28.71	29.82	80.16	18.91	1.00		190.94	11.84
45-49	217.80	7.67	47.64		242.83	11.09	1.00		509.27	8.56
50-54	1,266.94	1.88	195.00	3.10	754.07	3.97	1.09		2,217.10	2.69
55-59	15,319.86	1.98	1,977.89	2.75	9,222.47	2.52	78.99		26,599.21	2.22
60-64	48,839.31	1.50	8,289.35	1.86	25,404.14	1.73	223.49	0.78	82,756.29	1.60
65-69	68,498.00	1.27	63,608.86	1.27	52,628.46	1.45	497.61	1.78	185,232.93	1.32
70-74	37,806.52	1.30	66,737.63	1.22	52,354.83	1.28	377.47	0.72	157,276.45	1.26
75-79	17,108.44	1.18	45,659.83	1.17	34,756.56	1.18	238.51	0.63	97,763.34	1.17
80-84	6,207.26	1.16	25,522.54	1.14	16,917.10	1.05	109.00	0.94	48,755.90	1.11
85-89	1,757.00	0.95	10,521.51	1.08	7,263.91	1.07	59.16	0.40	19,601.58	1.07
90-94	293.00	0.90	2,830.77	1.07	1,838.72	1.14	18.00	0.64	4,980.49	1.09
95 and over	53.59	1.09	481.56	0.86	274.98	1.10	3.00	1.37	813.13	0.96
Total	197,448.79	1.27	225,901.29	1.18	201,738.23	1.23	1,608.32	0.87	626,696.63	1.22
ATTAINED AGE	MATH INCOME									
	PRIOR TO NRD		ON AFTER NRD		NO STATED NRD		PAST NRD WITH NO PAYMENT		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
		Expected		Expected		Expected		Expected		
Under 45	\$ 303,781		\$ 191,760	0.80	\$ 390,965	5.34	\$ 6,000		\$ 892,506	2.43
45-49	1,055,612	4.58	314,643		1,092,563	6.06	385		2,463,203	4.62
50-54	4,490,148	0.86	651,804	10.24	2,922,506	1.47	2,235		8,066,693	1.81
55-59	36,461,649	1.66	4,270,949	2.11	23,061,466	2.39	94,313		63,888,377	1.95
60-64	122,288,220	1.22	30,338,004	1.67	89,297,712	1.46	317,707	0.74	242,241,643	1.36
65-69	151,473,398	1.14	145,342,075	1.19	155,815,070	1.34	1,018,812	1.04	453,649,355	1.22
70-74	68,180,320	1.29	139,480,952	1.13	116,456,555	1.27	607,102	0.82	324,724,929	1.21
75-79	24,200,288	1.21	81,168,065	1.15	59,859,137	1.12	528,454	0.75	165,755,944	1.15
80-84	6,918,692	1.22	41,058,471	1.11	23,526,949	1.01	155,439	1.01	71,659,551	1.09
85-89	1,563,822	0.91	15,058,040	1.06	8,509,751	1.11	112,324	0.19	25,243,937	1.07
90-94	217,889	0.99	3,418,314	1.09	1,806,644	1.03	20,359	0.19	5,463,206	1.06
95 and over	68,174	1.13	472,283	0.99	282,355	1.18	5,151	1.66	827,963	1.07
Total	\$417,221,993	1.21	\$461,765,360	1.14	\$483,021,673	1.23	\$2,868,281	0.77	\$1,364,877,307	1.19

TABLE 4

CALENDAR YEAR 1981
 EXPECTED MORTALITY BASIS—1971 GROUP ANNUITY MORTALITY
 EXPERIENCE BY RETIREMENT CLASS

ATTAINED Age	MALE LIVES									
	PRIOR TO NRD		ON/AFTR NRD		NO STATED NRD		PAST NRD WITH NO PAYMENT		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	81.07		28.71	22.50	80.16	14.30	1.00		190.94	8.94
45-49	217.80	5.69	47.64		242.83	8.24	1.00		509.27	6.36
50-54	1,266.94	1.37	195.00	2.26	754.07	2.90	1.09		2,217.10	1.97
55-59	15,319.86	1.41	1,977.89	1.95	9,222.47	1.79	78.99		26,599.21	1.57
60-64	48,839.31	1.06	8,289.35	1.32	25,404.14	1.23	223.49	0.55	82,756.29	1.14
65-69	68,498.00	0.95	63,608.86	0.96	52,628.46	1.10	497.61	1.34	185,232.93	1.00
70-74	37,806.52	0.99	66,737.63	0.94	52,354.83	0.99	377.47	0.55	157,276.45	0.97
75-79	17,108.44	0.97	45,659.83	0.97	34,756.56	0.97	238.51	0.52	97,763.34	0.97
80-84	6,207.26	0.99	25,522.54	0.98	16,917.10	0.91	109.00	0.81	48,755.90	0.96
85-89	1,757.00	0.86	10,521.51	0.97	7,263.91	0.96	59.16	0.36	19,601.58	0.96
90-94	293.00	0.84	2,830.77	1.01	1,838.72	1.07	18.00	0.60	4,980.49	1.02
95 and over	53.59	1.05	481.56	0.84	274.98	1.06	3.00	1.33	813.13	0.93
Total	197,448.79	0.99	225,901.29	0.97	201,738.23	1.01	1,608.32	0.71	626,696.63	0.99
	MALE INCOME									
Under 45	\$ 303,781		\$ 191,760	0.60	\$ 390,965	4.05	\$ 6,000		\$ 892,506	1.84
45-49	1,055,612	3.40	314,643		1,092,563	4.50	385		2,463,203	3.43
50-54	4,490,148	0.63	651,804	7.50	2,922,506	1.07	2,235		8,066,693	1.32
55-59	36,461,649	1.17	4,270,949	1.49	23,061,466	1.69	94,313		63,888,377	1.38
60-64	122,288,220	0.87	30,338,004	1.18	89,297,712	1.03	317,707	0.53	242,241,643	0.97
65-69	151,473,398	0.85	145,342,075	0.89	155,815,070	1.01	1,018,812	0.78	453,649,355	0.92
70-74	68,180,320	0.99	139,480,952	0.87	116,456,555	0.98	607,102	0.63	324,724,929	0.93
75-79	24,200,288	1.00	81,168,065	0.95	59,859,137	0.93	528,454	0.62	165,755,944	0.95
80-84	6,918,692	1.05	41,058,471	0.95	23,526,949	0.87	155,439	0.87	71,659,551	0.93
85-89	1,563,822	0.82	15,058,040	0.95	8,509,751	1.00	112,324	0.17	25,243,937	0.96
90-94	217,889	0.94	3,418,314	1.02	1,806,644	0.97	20,359	0.18	5,463,206	1.00
95 and over	68,174	1.10	472,283	0.96	282,355	1.14	5,151	1.61	827,963	1.04
Total	\$417,221,993	0.93	\$461,765,360	0.93	\$483,021,673	0.98	\$2,868,281	0.62	\$1,364,877,307	0.94

TABLE 5

CALENDAR YEAR 1981
 EXPECTED MORTALITY BASIS--1983 GROUP ANNUITY MORTALITY
 EXPERIENCE BY RETIREMENT CLASS

ATTAINED AGE	FEMALE LIVES									
	PRIOR TO SRD		ON AFTER SRD		NO STATE SRD		W/STATED SRD		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	22.91		42.49		85.40	17.84			150.80	10.20
45-49	40.38	19.46	50.00	15.48	139.89	11.05			230.27	13.47
50-54	692.93	5.54	169.54	2.90	434.59	1.12	2.00		1,299.06	3.73
55-59	6,608.03	2.89	1,089.73	2.54	3,409.09	2.41	17.74		11,124.59	2.71
60-64	18,704.50	1.96	4,596.73	1.54	9,617.14	2.04	59.81		32,978.18	1.92
65-69	22,098.89	1.64	29,316.06	1.51	22,133.66	1.42	178.45	4.38	73,727.06	1.53
70-74	11,844.42	1.58	28,719.82	1.31	27,443.04	1.09	203.66	0.59	68,210.94	1.26
75-79	5,307.25	1.16	18,042.16	1.15	19,053.24	0.92	212.08	1.86	42,614.73	1.05
80-84	2,025.00	1.06	9,246.08	1.14	9,219.45	0.92	98.33	1.56	20,588.86	1.04
85-89	567.00	1.24	3,880.06	1.12	3,449.69	0.95	40.00	0.96	7,936.75	1.05
90-94	113.00	0.83	1,078.11	1.27	888.51	0.88	8.00	3.94	2,087.62	1.10
95 and over	22.75	1.07	160.40	1.12	153.24	0.76			336.39	0.95
Total	68,047.06	1.50	96,391.18	1.23	96,026.94	1.04	820.07	1.71	261,285.25	1.20
	FEMALE INCOME									
Under 45	\$ 76,836		\$ 60,640		\$ 261,834	8.79			\$ 399,310	6.04
45-49	69,965	4.80	53,449	3.50	306,706	5.10			430,120	4.86
50-54	973,797	11.87	236,469	5.23	1,068,257	0.47	\$ 2,034		2,280,557	5.90
55-59	7,922,391	3.49	1,158,698	2.49	5,817,808	1.68	19,664		14,918,561	2.70
60-64	22,940,928	2.26	5,215,483	1.57	15,993,671	2.25	43,131		44,193,213	2.17
65-69	23,523,070	2.03	31,576,377	1.70	31,376,132	1.52	218,510	3.03	86,694,089	1.72
70-74	9,672,979	1.81	28,551,612	1.31	27,509,282	1.26	362,525	0.84	66,096,398	1.35
75-79	3,079,874	1.01	15,689,652	1.14	14,858,372	0.97	370,063	2.08	33,997,961	1.06
80-84	979,216	0.98	7,316,761	1.14	6,107,028	1.06	110,107	2.27	14,513,112	1.11
85-89	298,551	1.06	2,605,952	1.18	2,010,305	1.19	42,492	0.33	4,957,300	1.17
90-94	61,656	0.54	643,892	1.32	496,203	0.91	6,428	3.59	1,208,179	1.13
95 and over	16,373	0.93	114,556	1.03	96,995	0.56			227,924	0.83
Total	\$69,615,636	1.84	\$93,223,541	1.28	\$105,902,593	1.22	\$1,174,954	1.75	\$269,916,724	1.34

TABLE 6
CALENDAR YEAR 1981
EXPECTED MORTALITY BASIS—1971 GROUP ANNUITY MORTALITY
EXPERIENCE BY RETIREMENT CLASS

ATTAINED AGE	FEMALE LIVES									
	PRIOR TO NRD		ON/AFTER NRD		NO STATED NRD		PAST NRD WITH NO PAYMENT		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	22.91		42.49		85.40	12.72			150.80	7.27
45-49	40.38	14.59	50.00	11.63	139.89	8.31			230.27	10.12
50-54	692.93	4.29	169.54	2.24	434.59	0.87	2.00		1,299.06	2.88
55-59	6,608.03	2.27	1,089.73	1.99	3,409.09	1.89	17.74		11,124.59	2.12
60-64	18,704.50	1.48	4,596.73	1.15	9,617.14	1.54	59.81		32,978.18	1.45
65-69	22,098.89	1.22	29,316.06	1.13	22,133.66	1.07	178.45	3.28	73,727.06	1.14
70-74	11,844.42	1.17	28,719.82	0.97	27,443.04	0.81	203.66	0.44	68,210.94	0.94
75-79	5,307.25	0.87	18,042.16	0.86	19,053.24	0.69	212.08	1.40	42,614.73	0.79
80-84	2,025.00	0.82	9,246.08	0.88	9,219.45	0.71	98.33	1.21	20,588.86	0.80
85-89	567.00	0.98	3,880.06	0.88	3,449.69	0.75	40.00	0.75	7,936.75	0.83
90-94	113.00	0.68	1,078.11	1.04	888.51	0.72	8.00	3.22	2,087.62	0.90
95 and over	22.75	0.91	160.40	0.97	153.24	0.66			336.39	0.82
Total	68,047.06	1.14	96,391.18	0.94	96,026.94	0.79	820.07	1.30	261,285.25	0.91
	FEMALE INCOME:									
Under 45	\$ 76,836		\$ 60,640		\$ 261,834	6.29			\$ 399,310	4.33
45-49	69,965	3.59	53,449	2.63	306,706	3.84			430,120	3.65
50-54	973,797	9.19	236,469	4.05	1,068,257	0.36	\$ 2,034		2,280,557	4.56
55-59	7,922,391	2.73	1,158,698	1.95	5,817,808	1.32	19,664		14,918,561	2.11
60-64	22,940,928	1.70	5,215,483	1.18	15,993,671	1.69	43,131		44,193,213	1.63
65-69	23,523,070	1.51	31,576,377	1.27	31,376,132	1.13	218,510	2.26	86,694,089	1.29
70-74	9,672,979	1.34	28,551,612	0.97	27,509,282	0.93	362,525	0.62	66,096,398	1.00
75-79	3,079,874	0.76	15,689,652	0.86	14,858,372	0.73	370,063	1.56	33,997,961	0.80
80-84	979,216	0.76	7,316,761	0.88	6,107,028	0.82	110,107	1.76	14,513,112	0.86
85-89	298,551	0.84	2,605,952	0.93	2,010,305	0.94	42,492	0.26	4,957,300	0.92
90-94	61,656	0.44	643,892	1.08	496,203	0.75	6,428	2.92	1,208,179	0.92
95 and over	16,373	0.80	114,556	0.90	96,995	0.48			227,924	0.72
Total	\$69,615,636	1.38	\$93,223,541	0.98	\$105,902,593	0.93	\$1,174,954	1.33	\$269,916,724	1.02

TABLE 7

CALENDAR YEAR 1982
 EXPECTED MORTALITY BASIS—1983 GROUP ANNUITY MORTALITY
 EXPERIENCE BY RETIREMENT CLASS

ATTAINED AGE	MALL LIVES										
	PRIOR TO SRD		ON/ALTER SRD		NO STARTED SRD		PAST SRD WITH NO PAYMENT		TOTAL		
	Exposure	Actual to	Exposure	Actual to	Exposure	Actual to	Exposure	Actual to	Exposure	Actual to	
		Expected		Expected		Expected		Expected		Expected	Expected
Under 45	37.49		78.32	30.61	61.60		1.00		178.41	13.16	
45-49	172.11	7.49	82.95	4.32	143.61	4.70	1.00		399.67	5.86	
50-54	1,286.76	2.61	226.74	5.25	544.38	5.46	1.00		2,058.88	3.65	
55-59	16,493.95	2.04	2,124.69	1.68	9,953.53	2.36	59.36	2.15	28,631.53	2.12	
60-64	53,034.30	1.56	9,479.65	1.59	26,672.21	1.87	269.27	1.30	89,455.43	1.65	
65-69	80,670.40	1.27	58,217.99	1.33	52,849.29	1.40	570.71	0.78	192,308.39	1.32	
70-74	51,428.07	1.26	57,513.06	1.21	53,052.40	1.28	427.25	1.48	162,420.78	1.25	
75-79	20,028.09	1.15	44,325.55	1.14	38,799.69	1.18	266.00	0.84	103,419.33	1.16	
80-84	7,646.03	1.14	26,193.89	1.03	18,599.19	1.08	110.00	0.72	52,549.11	1.06	
85-89	2,176.38	1.13	11,377.28	1.08	7,771.82	1.06	67.00	0.23	21,392.48	1.07	
90-94	383.05	1.26	3,162.86	0.99	2,148.86	1.06	22.00	0.51	5,716.77	1.03	
95 and over	63.91	0.90	556.25	0.76	319.81	0.93	2.00		941.97	0.82	
Total	223,420.54	1.27	213,339.23	1.13	210,916.39	1.22	1,796.59	0.87	659,472.75	1.20	
	MALL INCOME										
Under 45	\$ 265,734		\$ 239,706	9.65	\$ 400,835		\$ 5,994		\$ 912,269	2.32	
45-49	911,455	4.40	340,454	2.06	988,937	2.18	385		2,241,231	3.09	
50-54	4,692,627	1.94	886,329	2.07	2,845,928	2.48	132		8,425,016	2.13	
55-59	41,255,137	1.76	4,946,841	1.74	28,056,298	1.85	94,957	0.56	74,353,233	1.79	
60-64	141,513,727	1.27	38,282,384	1.09	102,331,845	1.57	325,692	1.21	282,453,648	1.35	
65-69	187,542,638	1.11	143,519,948	1.13	166,925,471	1.25	1,277,043	0.59	499,265,100	1.16	
70-74	102,466,700	1.15	123,394,593	1.09	126,168,882	1.17	778,563	1.37	352,808,738	1.13	
75-79	31,587,226	1.07	84,387,985	1.07	72,154,917	1.13	565,823	0.52	188,695,951	1.09	
80-84	9,523,759	1.05	43,946,580	1.00	27,740,180	1.06	143,465	0.79	81,353,984	1.03	
85-89	2,174,893	1.09	17,559,275	1.07	9,359,159	1.14	140,327	0.44	29,233,654	1.09	
90-94	381,575	1.20	4,105,951	1.04	2,164,075	1.15	26,984	0.69	6,678,585	1.09	
95 and over	117,435	0.94	579,046	0.64	294,327	0.79	3,064		993,872	0.72	
Total	\$522,432,906	1.15	\$462,189,092	1.07	\$539,430,854	1.19	\$3,362,429	0.75	\$1,527,415,281	1.13	

TABLE 8

CALENDAR YEAR 1982
 EXPECTED MORTALITY BASIS—1971 GROUP ANNUITY MORTALITY
 EXPERIENCE BY RETIREMENT CLASS

ATTAINED AGE	MALE LIVES									
	PRIOR TO NRD		ON/AFTER NRD		NO STATED NRD		PAST NRD WITH NO PAYMENT		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	37.49		78.32	23.13	61.60		1.00		178.41	9.94
45-49	172.11	5.56	82.95	3.21	143.61	3.49	1.00		399.67	4.35
50-54	1,286.76	1.90	226.74	3.83	544.38	3.99	1.00		2,058.88	2.66
55-59	16,493.95	1.45	2,124.69	1.19	9,953.53	1.67	59.36	1.52	28,631.53	1.51
60-64	53,034.30	1.11	9,479.65	1.13	26,672.21	1.33	269.27	0.92	89,455.43	1.18
65-69	80,670.40	0.96	58,217.99	1.00	52,849.29	1.05	570.71	0.59	192,308.39	1.00
70-74	51,428.07	0.96	57,513.06	0.93	53,052.40	0.98	427.25	1.14	162,420.78	0.96
75-79	20,028.09	0.95	44,325.55	0.94	38,799.69	0.97	266.00	0.69	103,419.33	0.96
80-84	7,646.03	0.98	26,193.89	0.88	18,599.19	0.93	110.00	0.62	52,549.11	0.91
85-89	2,176.38	1.01	11,377.28	0.97	7,771.82	0.95	67.00	0.21	21,392.48	0.96
90-94	383.05	1.18	3,162.86	0.93	2,148.86	1.00	22.00	0.48	5,716.77	0.97
95 and over	63.91	0.87	556.25	0.73	319.81	0.90	2.00		941.97	0.80
Total	233,420.54	0.99	213,339.23	0.94	210,916.39	1.00	1,796.59	0.71	659,472.75	0.97
	MALE INCOME									
Under 45	\$ 265,734		\$ 239,706	7.29	\$ 400,835		\$ 5,994		\$ 912,269	1.75
45-49	911,455	3.27	340,454	1.53	988,937	1.62	385		2,241,231	2.29
50-54	4,692,627	1.41	886,329	1.51	2,845,928	1.81	132		8,425,016	1.56
55-59	41,255,137	1.25	4,946,841	1.23	28,056,298	1.31	94,957	0.40	74,353,233	1.27
60-64	141,513,727	0.90	38,282,384	0.77	102,331,845	1.12	325,692	0.86	282,453,648	0.96
65-69	187,542,638	0.83	143,519,948	0.85	166,925,471	0.94	1,277,043	0.44	499,265,100	0.87
70-74	102,466,700	0.88	123,394,593	0.84	126,168,882	0.90	778,563	1.05	352,808,738	0.87
75-79	31,587,226	0.88	84,387,985	0.89	72,154,917	0.93	565,823	0.43	188,695,951	0.90
80-84	9,523,759	0.90	43,946,580	0.86	27,740,180	0.91	143,465	0.68	81,353,984	0.88
85-89	2,174,893	0.97	17,559,275	0.96	9,359,159	1.03	140,327	0.39	29,233,654	0.98
90-94	381,575	1.12	4,105,951	0.98	2,146,075	1.08	26,984	0.65	6,678,585	1.02
95 and over	117,435	0.91	579,046	0.62	294,327	0.77	3,064		993,872	0.69
Total	\$522,432,906	0.89	\$462,189,092	0.87	\$539,430,854	0.95	\$3,362,429	0.61	\$1,527,415,281	0.90

TABLE 9

CALENDAR YEAR 1982
 EXPECTED MORTALITY BASIS—1983 GROUP ANNUITY MORTALITY
 EXPERIENCE BY RETIREMENT CLASS

ATTAINED AGE	FEMALE LIVES									
	PRIOR TO NRJ		ON AFTER NRJ		NO STATED NRJ		PAST NRJ WITH NO PAYMENT		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	16.32		114.11		77.06	19.48			207.49	7.55
45-49	41.58		77.56		144.66	5.42			263.80	2.92
50-54	736.54	1.29	195.68	4.97	418.20	3.53	2.58		1,353.00	2.49
55-59	6,954.73	2.36	1,212.09	2.00	3,568.54	2.47	19.26	15.28	11,754.62	2.38
60-64	20,551.16	1.71	4,402.32	2.02	10,422.26	1.67	57.75		35,433.49	1.73
65-69	30,397.37	1.45	22,911.62	1.67	22,134.48	1.24	197.09	1.68	75,640.56	1.46
70-74	19,361.61	1.21	25,270.44	1.28	27,838.88	0.99	190.76	0.94	72,661.69	1.15
75-79	7,072.54	1.32	18,692.39	1.17	22,082.44	0.89	211.00	0.77	48,058.37	1.06
80-84	2,735.84	1.12	9,981.36	1.18	10,844.90	0.84	109.00	0.90	23,671.10	1.02
85-89	782.52	1.28	4,395.16	1.26	4,212.83	0.85	53.00	1.66	9,443.51	1.08
90-94	156.32	0.86	1,226.91	1.10	1,137.19	0.89	6.00	1.32	2,526.42	0.99
95 and over	31.25	0.46	203.75	0.93	196.32	0.69	0.50		431.82	0.79
Total	88,837.78	1.34	88,683.39	1.25	103,077.76	0.94	846.94	1.11	281,445.87	1.14
	FEMALE INCOME									
Under 45	\$ 80,009		\$ 103,380		\$ 220,013	6.85			\$ 403,402	3.83
45-49	90,248		94,244		348,887	1.33			533,379	0.86
50-54	1,081,191	1.00	282,453	10.77	1,104,240	2.85	\$ 3,979		2,471,863	2.93
55-59	9,062,498	2.50	1,434,155	0.66	6,385,560	1.60	22,820	5.86	16,905,033	2.01
60-64	27,736,532	1.60	5,379,045	1.80	18,755,157	1.63	43,060		51,913,794	1.63
65-69	32,641,054	1.49	28,738,522	1.72	33,392,365	1.15	267,923	0.67	95,039,864	1.44
70-74	17,134,621	1.23	27,042,180	1.22	29,903,112	1.14	329,089	0.34	74,409,002	1.19
75-79	4,595,463	1.19	17,358,843	1.10	18,001,805	0.94	368,617	0.84	40,324,728	1.04
80-84	1,472,333	1.10	8,421,226	1.05	7,139,475	0.94	128,088	0.57	17,161,122	1.01
85-89	442,640	1.30	3,230,495	1.18	2,367,145	0.91	63,101	1.44	6,103,381	1.09
90-94	93,281	0.85	787,141	1.21	555,973	1.06	4,509	0.33	1,440,904	1.13
95 and over	22,857	0.13	151,268	0.77	112,729	0.93	22		286,876	0.78
Total	\$94,452,727	1.38	\$93,022,952	1.21	\$118,286,461	1.06	\$1,231,208	0.77	\$306,993,348	1.18

TABLE 10
 CALENDAR YEAR 1982
 EXPECTED MORTALITY BASIS—1971 GROUP ANNUITY MORTALITY
 EXPERIENCE BY RETIREMENT CLASS

ATTAINED AGE	FEMALE LIVES									
	PRIOR TO NRJ		ON AFTER NRJ		NO STATED NRJ		PAST NRJ WITH NO PAYMENT		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	16.32		114.11		77.06	13.87			207.49	5.39
45-49	41.58		77.56		144.66	4.07			263.80	2.20
50-54	736.54	1.00	195.68	3.85	418.20	2.73	2.58		1,353.00	1.93
55-59	6,954.73	1.84	1,212.09	1.57	3,568.54	1.93	19.26	11.96	11,754.62	1.86
60-64	20,551.16	1.28	4,402.32	1.52	10,422.26	1.26	57.75		35,433.49	1.30
65-69	30,397.37	1.08	22,911.62	1.25	22,134.48	0.93	197.09	1.26	75,640.56	1.09
70-74	19,361.61	0.90	25,270.44	0.94	27,838.88	0.73	190.76	0.69	72,661.69	0.85
75-79	7,072.54	1.00	18,692.39	0.88	22,082.44	0.67	211.00	0.58	48,058.37	0.80
80-84	2,735.84	0.86	9,981.36	0.91	10,844.90	0.65	109.00	0.70	23,671.10	0.79
85-89	782.52	1.01	4,395.16	1.00	4,212.83	0.67	53.00	1.31	9,443.51	0.85
90-94	156.32	0.70	1,226.91	0.90	1,137.19	0.73	6.00	1.08	2,526.42	0.81
95 and over	31.25	0.40	203.75	0.81	196.32	0.60	0.50		431.82	0.68
Total	88,837.78	1.01	88,683.39	0.96	103,077.76	0.72	846.94	0.85	281,445.87	0.87
	FEMALE INCOME									
Under 45	\$ 80,009		\$ 103,380		\$ 220,013	4.90			\$ 403,402	2.75
45-49	90,248		94,244		348,887	1.00			533,379	0.64
50-54	1,081,191	0.78	282,453	8.33	1,104,240	2.21	\$ 3,979		2,471,863	2.27
55-59	9,062,498	1.95	1,434,155	0.52	6,385,560	1.25	22,820	4.59	16,905,033	1.57
60-64	27,736,532	1.21	5,379,045	1.35	18,755,157	1.23	43,060		51,913,794	1.23
65-69	32,641,054	1.11	28,738,522	1.29	33,392,365	0.86	267,923	0.50	95,039,864	1.07
70-74	17,134,621	0.91	27,042,180	0.91	29,903,112	0.84	329,089	0.25	74,409,002	0.88
75-79	4,595,463	0.90	17,358,843	0.83	18,001,805	0.71	368,617	0.63	40,324,728	0.78
80-84	1,472,333	0.85	8,421,226	0.81	7,139,475	0.73	128,088	0.44	17,161,122	0.78
85-89	442,640	1.03	3,230,495	0.93	2,367,145	0.72	63,101	1.13	6,103,381	0.86
90-94	93,281	0.70	787,141	0.99	555,973	0.87	4,509	0.27	1,440,904	0.92
95 and over	22,857	0.12	151,268	0.67	112,729	0.81	22		286,876	0.68
Total	\$94,452,727	1.04	\$93,022,952	0.93	\$118,286,461	0.81	\$1,231,208	0.58	\$306,993,348	0.90

TABLE II
 CALENDAR YEARS 1981 AND 1982
 EXPECTED MORTALITY BASIS 1983 GROUP ANNUITY MORTALITY
 EXPERIENCE BY RETIREMENT CLASS

ATTAINED Age	MALL LIVES									
	PRIOR TO SRD		ON AFTER SRD		NO SCHEDULED SRD		FIRST SRD WITH NO PAYMENT		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	118.56		107.03	30.41	141.76	10.88	2.00		369.35	12.46
45-49	389.91	7.59	130.59	2.67	386.44	8.72	2.00		908.94	7.37
50-54	2,553.70	2.25	421.74	4.26	1,298.45	4.60	2.09		4,275.98	3.15
55-59	31,813.81	2.01	4,102.58	2.19	19,176.00	2.43	138.35	0.92	55,230.74	2.17
60-64	101,873.61	1.53	17,769.00	1.71	52,076.35	1.80	492.76	1.06	172,211.72	1.63
65-69	149,168.40	1.27	121,826.85	1.30	105,477.75	1.42	1,068.32	1.25	377,541.32	1.32
70-74	89,234.59	1.27	124,250.69	1.21	105,407.23	1.28	804.72	1.12	319,697.23	1.25
75-79	37,136.53	1.16	89,985.38	1.15	73,556.25	1.18	504.51	0.74	201,182.67	1.16
80-84	13,853.29	1.15	51,716.43	1.09	35,516.29	1.07	219.00	0.83	101,305.01	1.09
85-89	3,933.38	1.05	21,898.79	1.08	15,035.73	1.07	126.16	0.31	40,994.06	1.07
90-94	676.05	1.10	5,993.63	1.03	3,987.58	1.10	40.00	0.57	10,697.26	1.06
95 and over	117.50	0.98	1,037.81	0.81	594.79	1.01	5.00	0.80	1,755.10	0.89
Total	430,869.33	1.27	439,240.52	1.15	412,654.62	1.23	3,404.91	0.87	1,286,169.38	1.21
	MALL INCOME									
Under 45	\$ 569,515		\$ 431,466	5.93	\$ 791,800	2.58	\$ 11,994		\$ 1,804,775	2.37
45-49	1,967,067	4.50	655,097	1.09	2,081,500	4.22	770		4,704,434	3.89
50-54	9,182,775	1.41	1,538,133	5.46	5,768,434	1.97	2,367		16,491,709	1.97
55-59	77,716,786	1.71	9,217,790	1.91	51,117,764	2.09	189,270	0.27	138,241,610	1.86
60-64	263,801,947	1.24	68,620,388	1.34	191,629,557	1.52	643,399	0.97	524,695,291	1.36
65-69	339,016,036	1.12	288,862,023	1.16	322,740,541	1.29	2,295,855	0.79	952,914,455	1.19
70-74	170,647,020	1.21	262,875,545	1.11	242,625,437	1.22	1,385,665	1.12	677,533,667	1.17
75-79	55,787,514	1.13	165,556,050	1.11	132,014,054	1.12	1,094,277	0.63	354,451,895	1.12
80-84	16,442,451	1.12	85,005,051	1.05	51,267,129	1.04	298,904	0.91	153,013,535	1.05
85-89	3,738,715	1.01	32,617,315	1.07	17,868,910	1.13	252,651	0.33	54,477,591	1.08
90-94	599,464	1.12	7,524,265	1.06	3,970,719	1.10	47,343	0.48	12,141,791	1.07
95 and over	185,609	1.01	1,051,329	0.79	576,682	0.98	8,215	1.02	1,821,835	0.88
Total	\$939,654,899	1.18	\$923,954,452	1.11	\$1,022,452,527	1.21	\$6,230,710	0.76	\$2,892,292,588	1.16

TABLE 12

CALENDAR YEARS 1981 AND 1982
 EXPECTED MORTALITY BASIS—1971 GROUP ANNUITY MORTALITY
 EXPERIENCE BY RETIREMENT CLASS

ATTAINED AGE	MALE LIVES									
	PRIOR TO NRD		ON/AFTR NRD		NO STATED NRD		PAST NRD WITH NO PAYMNT		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45 ...	118.56		107.03	22.97	141.76	8.21	2.00		369.35	9.41
45-49 ...	389.91	5.63	130.59	1.98	386.44	6.48	2.00		908.94	5.47
50-54 ...	2,553.70	1.64	421.74	3.11	1,298.45	3.36	2.09		4,275.98	2.30
55-59 ...	31,813.81	1.43	4,102.58	1.56	19,176.00	1.73	138.35	0.65	55,230.74	1.54
60-64 ...	101,873.61	1.09	17,769.00	1.22	52,076.35	1.28	492.76	0.75	172,211.72	1.16
65-69 ...	149,168.40	0.96	121,826.85	0.98	105,477.75	1.07	1,068.32	0.94	377,541.32	1.00
70-74 ...	89,234.59	0.98	124,250.69	0.93	105,407.23	0.99	804.72	0.86	319,697.23	0.96
75-79 ...	37,136.53	0.96	89,985.38	0.95	73,556.25	0.97	504.51	0.61	201,182.67	0.96
80-84 ...	13,853.29	0.98	51,716.43	0.93	35,516.29	0.92	219.00	0.71	101,305.01	0.94
85-89 ...	3,933.38	0.94	21,898.79	0.97	15,035.73	0.96	126.16	0.28	40,994.06	0.96
90-94 ...	676.05	1.04	5,993.63	0.97	3,987.58	1.03	40.00	0.53	10,697.26	0.99
95 and over ...	117.50	0.95	1,037.81	0.78	594.79	0.98	5.00	0.78	1,755.10	0.86
Total ...	430,869.33	0.99	439,240.52	0.95	412,654.62	1.00	3,404.91	0.71	1,286,169.38	0.98
	MALE INCOME									
Under 45 ...	\$ 569,515		\$ 431,466	4.48	\$ 791,800	1.95	\$ 11,994		\$ 1,804,775	1.79
45-49 ...	1,967,067	3.34	655,097	0.81	2,081,500	3.13	770		4,704,434	2.89
50-54 ...	9,182,775	1.03	1,538,133	3.99	5,768,434	1.44	2,367		16,491,709	1.44
55-59 ...	77,716,786	1.21	9,217,790	1.35	51,117,764	1.48	189,270	0.19	138,241,610	1.32
60-64 ...	263,801,947	0.88	68,620,388	0.95	191,629,557	1.08	643,399	0.69	524,695,291	0.96
65-69 ...	339,016,036	0.84	288,862,023	0.87	322,740,541	0.97	2,295,855	0.59	952,914,455	0.90
70-74 ...	170,647,020	0.93	262,875,545	0.85	242,625,437	0.93	1,385,665	0.86	677,533,667	0.90
75-79 ...	55,787,514	0.93	165,556,050	0.92	132,014,054	0.93	1,094,277	0.52	354,451,895	0.92
80-84 ...	16,442,451	0.96	85,005,051	0.91	51,267,129	0.89	298,904	0.78	153,013,535	0.91
85-89 ...	3,738,715	0.91	32,617,315	0.96	17,868,910	1.01	252,651	0.30	54,477,591	0.97
90-94 ...	599,464	1.06	7,524,265	1.00	3,970,719	1.03	47,343	0.45	12,141,791	1.01
95 and over ...	185,609	0.98	1,051,329	0.77	576,682	0.95	8,215	0.99	1,821,835	0.85
Total ...	\$939,654,899	0.90	\$923,954,452	0.90	\$1,022,452,527	0.96	\$6,230,710	0.61	\$2,892,292,588	0.92

TABLE 13
 CALENDAR YEARS 1981 AND 1982
 EXPECTED MORTALITY BASIS—1983 GROUP ANNUITY MORTALITY
 EXPERIENCE BY RETIREMENT CLASS

ATTAINED Age	FEMALE LIVES									
	PRIOR TO NRJ		ON/AFTR NRJ		NO STATED NRJ		FAST NRJ WITH NO PAYMENT		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	39.23		156.60		162.46	18.62			358.29	8.68
45-49	81.96	9.17	127.56	6.07	284.55	8.21			494.07	7.82
50-54	1,429.47	3.34	365.22	4.02	852.79	2.30	4.58		2,652.06	3.10
55-59	13,562.76	2.62	2,301.82	2.26	6,977.63	2.44	37.00	8.08	22,879.21	2.54
60-64	39,255.66	1.83	8,999.05	1.77	20,039.40	1.85	117.56	0.00	68,411.67	1.82
65-69	52,496.26	1.53	52,227.68	1.58	44,268.14	1.33	375.54	2.96	149,367.62	1.49
70-74	31,206.03	1.36	53,990.26	1.29	55,281.92	1.04	394.42	0.76	140,872.63	1.20
75-79	12,379.79	1.25	36,734.55	1.16	41,135.68	0.90	423.08	1.32	90,673.10	1.06
80-84	4,760.84	1.09	19,227.44	1.16	20,064.35	0.88	207.33	1.22	44,259.96	1.02
85-89	1,349.52	1.27	8,275.22	1.20	7,662.52	0.89	93.00	1.36	17,380.26	1.07
90-94	269.32	0.85	2,305.02	1.18	2,025.70	0.89	14.00	2.82	4,614.04	1.04
95 and over	54.00	0.72	364.15	1.02	349.56	0.72	0.50	0.00	768.21	0.86
Total	156,884.84	1.41	185,074.57	1.24	199,104.70	0.99	1,667.01	1.40	542,731.12	1.17
	FEMALE INCOME									
Under 45	\$ 156,845		\$ 164,020		\$ 481,847	7.88			\$ 802,712	4.89
45-49	160,213	1.99	147,693	1.26	655,593	3.13			963,499	2.65
50-54	2,054,988	6.13	518,922	8.26	2,172,497	1.68	\$ 6,013		4,752,420	4.35
55-59	16,984,889	2.96	2,592,853	1.48	12,203,368	1.64	42,484	3.26	31,823,594	2.33
60-64	50,677,460	1.90	10,594,528	1.69	34,748,828	1.92	86,191		96,107,007	1.88
65-69	56,164,124	1.71	60,314,899	1.71	64,768,497	1.32	486,433	1.72	181,733,953	1.57
70-74	26,807,600	1.44	55,593,792	1.27	57,412,394	1.20	691,614	0.60	140,505,400	1.27
75-79	7,675,337	1.12	33,048,495	1.12	32,860,177	0.96	738,680	1.45	74,322,689	1.05
80-84	2,451,549	1.05	15,737,987	1.09	13,246,503	1.00	238,195	1.37	31,674,234	1.05
85-89	741,191	1.21	5,836,447	1.18	4,377,450	1.04	105,593	1.00	11,060,681	1.12
90-94	154,937	0.73	1,431,033	1.26	1,052,176	0.99	10,937	2.24	2,649,083	1.13
95 and over	39,230	0.47	265,824	0.88	209,724	0.76	22		514,800	0.80
Total	\$164,068,363	1.56	\$186,246,493	1.25	\$224,189,054	1.14	\$2,406,162	1.24	\$576,910,072	1.26

TABLE 14

CALENDAR YEARS 1981 AND 1982
 EXPECTED MORTALITY BASIS—1971 GROUP ANNUITY MORTALITY
 EXPERIENCE BY RETIREMENT CLASS

ATTAINED AGE	FEMALE LIVES									
	PRIOR TO NRD		ON/AFTER NRD		NO STATE NRD		FAST NRD WITH NO PAYMENT		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	39.23		156.60		162.46	13.27			358.29	6.19
45-49	81.96	6.92	127.56	4.56	284.55	6.16			494.07	5.88
50-54	1,429.47	2.59	365.22	3.11	852.79	1.78	4.58		2,652.06	2.40
55-59	13,562.76	2.05	2,301.82	1.77	6,977.63	1.91	37.00	6.32	22,879.21	1.99
60-64	39,255.66	1.37	8,999.05	1.33	20,039.40	1.39	117.56		68,411.67	1.37
65-69	52,496.26	1.14	52,227.68	1.18	44,268.14	1.00	375.54	2.21	149,367.62	1.12
70-74	31,206.03	1.01	53,990.26	0.96	55,281.92	0.77	394.42	0.56	140,872.63	0.89
75-79	12,379.79	0.94	36,734.55	0.87	41,135.68	0.68	423.08	0.99	90,673.10	0.79
80-84	4,760.84	0.85	19,227.44	0.90	20,064.35	0.68	207.33	0.94	44,259.96	0.79
85-89	1,349.52	1.00	8,275.22	0.94	7,662.52	0.71	93.00	1.07	17,380.26	0.84
90-94	269.32	0.69	2,305.02	0.97	2,025.70	0.73	14.00	2.30	4,614.04	0.85
95 and over	54.00	0.61	364.15	0.88	349.56	0.63	0.50		768.21	0.74
Total	156,884.84	1.06	185,074.57	0.95	199,104.70	0.75	1,667.01	1.07	542,731.12	0.89
	FEMALE INCOME									
Under 45	\$ 156,845		\$ 164,020		\$ 481,847	5.64			\$ 802,712	3.50
45-49	160,213	1.50	147,693	0.95	655,593	2.35			963,499	2.00
50-54	2,054,988	4.75	518,922	6.39	2,172,497	1.30	\$ 6,013		4,752,420	3.37
55-59	16,984,889	2.31	2,592,853	1.16	12,203,368	1.28	42,484	2.55	31,823,594	1.83
60-64	50,677,460	1.43	10,594,528	1.27	34,748,828	1.44	86,191		96,107,007	1.41
65-69	56,164,124	1.28	60,314,899	1.28	64,768,497	0.99	486,433	1.29	181,733,953	1.18
70-74	26,807,600	1.07	55,593,792	0.94	57,412,394	0.89	691,614	0.44	140,505,400	0.94
75-79	7,675,337	0.84	33,048,495	0.84	32,860,177	0.72	738,680	1.09	74,322,689	0.79
80-84	2,451,549	0.81	15,737,987	0.85	13,246,503	0.77	238,195	1.06	31,674,234	0.81
85-89	741,191	0.95	5,836,447	0.93	4,377,450	0.82	105,593	0.79	11,060,681	0.89
90-94	154,937	0.59	1,431,033	1.03	1,052,176	0.81	10,937	1.82	2,649,083	0.92
95 and over	39,230	0.40	265,824	0.77	209,724	0.65	22		514,800	0.70
Total	\$164,068,363	1.18	\$186,246,493	0.95	\$224,189,054	0.86	\$2,406,162	0.94	\$576,910,072	0.95

TABLE 15
 COMBINED YEARS 1981 AND 1982
 EXPECTED MORTALITY BASIS - 1983 GROUP ANNUITY MORTALITY
 EXPERIENCE BY BENEFIT CLASS

ATTAINED AGE	MALE LIVES							
	LIFE		LIFE AND CERTAIN		MODIFIED CASH REFUND		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	208.76	18.04	105.93	7.50	54.66		369.35	12.46
45-49	467.56	9.30	318.96	3.18	122.42	10.77	908.94	7.37
50-54	2,390.20	3.40	1,228.47	3.75	657.31	1.19	4,275.98	3.15
55-59	34,084.28	2.27	10,616.01	2.19	10,530.45	1.84	55,230.74	2.17
60-64	98,847.72	1.63	36,043.88	1.66	37,320.12	1.61	172,211.72	1.63
65-69	208,960.36	1.39	89,755.02	1.24	78,825.94	1.23	377,541.32	1.32
70-74	170,624.63	1.32	81,537.49	1.16	67,535.11	1.19	319,697.23	1.25
75-79	117,469.64	1.21	45,460.63	1.06	38,252.40	1.14	201,182.67	1.16
80-84	63,869.86	1.12	18,091.63	1.03	19,343.52	1.03	101,305.01	1.09
85-89	26,869.60	1.08	5,884.15	1.01	8,240.31	1.06	40,994.06	1.07
90-94	7,513.67	1.08	1,504.83	0.85	1,678.76	1.13	10,697.26	1.06
95 and over	1,268.79	0.92	280.40	0.50	205.91	1.23	1,755.10	0.89
Total	732,575.07	1.24	290,827.40	1.14	262,766.91	1.17	1,286,169.38	1.21
	MALE FSCOM							
Under 45	\$ 447,199	5.84	\$ 1,021,945	1.54	\$ 335,631		\$ 1,804,775	2.37
45-49	1,335,459	8.52	2,408,762	0.90	960,213	4.75	4,704,434	3.89
50-54	8,483,989	2.03	4,754,680	2.81	3,253,040	0.61	16,491,709	1.97
55-59	87,454,167	1.85	24,852,535	1.87	25,934,908	1.90	138,241,610	1.86
60-64	317,915,413	1.34	95,388,442	1.47	111,391,436	1.32	524,695,291	1.36
65-69	562,698,900	1.22	209,545,916	1.17	180,669,639	1.12	952,914,455	1.19
70-74	378,542,826	1.23	170,315,289	1.10	128,675,552	1.10	677,533,667	1.17
75-79	211,193,511	1.16	81,233,858	1.03	62,024,526	1.09	354,451,895	1.12
80-84	99,466,105	1.07	26,208,742	1.04	27,338,688	1.01	153,013,535	1.05
85-89	38,052,735	1.08	6,222,167	1.08	10,202,689	1.08	54,477,591	1.08
90-94	9,184,612	1.10	1,372,945	0.71	1,584,234	1.26	12,141,791	1.07
95 and over	1,425,055	0.91	229,002	0.35	167,778	1.32	1,821,835	0.88
Total	\$1,716,199,971	1.18	\$623,554,283	1.12	\$552,538,334	1.12	\$2,892,292,588	1.16

TABLE 16
 COMBINED YEARS 1981 AND 1982
 EXPECTED MORTALITY BASIS—1971 GROUP ANNUITY MORTALITY
 EXPERIENCE BY BENEFIT CLASS

ATTAINED AGE	MALE LIVES							
	LIFE		LIFE AND CERTAIN		MODIFIED CASH REFUND		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	208.76	13.62	105.93	5.66	54.66		369.35	9.41
45-49	467.56	6.91	318.96	2.36	122.42	8.00	908.94	5.47
50-54	2,390.20	2.48	1,228.47	2.74	657.31	0.87	4,275.98	2.30
55-59	34,084.28	1.61	10,616.01	1.55	10,530.45	1.30	55,230.74	1.54
60-64	98,847.72	1.15	36,043.88	1.18	37,320.12	1.14	172,211.72	1.16
65-69	208,960.36	1.05	89,755.02	0.94	78,825.94	0.93	377,541.32	1.00
70-74	170,624.63	1.02	81,537.49	0.89	67,535.11	0.91	319,697.23	0.96
75-79	117,469.64	1.00	45,460.63	0.88	38,252.40	0.94	201,182.67	0.96
80-84	63,869.86	0.96	18,091.63	0.89	19,343.52	0.89	101,305.01	0.94
85-89	26,869.60	0.97	5,884.15	0.91	8,240.31	0.95	40,994.06	0.96
90-94	7,513.67	1.02	1,504.83	0.80	1,678.76	1.06	10,697.26	0.99
95 and over	1,268.79	0.89	280.40	0.49	205.91	1.20	1,755.10	0.86
Total	732,575.07	1.02	290,827.40	0.92	262,766.91	0.94	1,286,169.38	0.98
	MALE INCOME							
Under 45	\$ 447,199	4.41	\$ 1,021,945	1.16	\$ 335,631		\$ 1,804,775	1.79
45-49	1,335,459	6.33	2,408,762	0.67	960,213	3.53	4,704,434	2.89
50-54	8,483,989	1.48	4,754,680	2.06	3,253,040	0.45	16,491,709	1.44
55-59	87,454,167	1.31	24,852,535	1.33	25,934,908	1.35	138,241,610	1.32
60-64	317,915,413	0.95	95,388,442	1.04	111,391,436	0.94	524,695,291	0.96
65-69	562,698,900	0.92	209,545,916	0.88	180,669,639	0.84	952,914,455	0.90
70-74	378,542,826	0.94	170,315,289	0.85	128,675,552	0.84	677,533,667	0.90
75-79	211,193,511	0.96	81,233,858	0.85	62,024,526	0.90	354,451,895	0.92
80-84	99,466,105	0.92	26,208,742	0.90	27,338,688	0.87	153,013,535	0.91
85-89	38,052,735	0.97	6,222,167	0.97	10,202,689	0.97	54,477,591	0.97
90-94	9,184,612	1.03	1,372,945	0.66	1,584,234	1.18	12,141,791	1.01
95 and over	1,425,055	0.88	229,002	0.34	167,778	1.28	1,821,835	0.85
Total	\$1,716,199,971	0.95	\$623,554,283	0.88	\$552,538,334	0.89	\$2,892,292,588	0.92

TABLE 17
 COMBINED YEARS 1981 AND 1982
 EXPECTED MORTALITY BASIS—1983 GROUP ANNUITY MORTALITY
 EXPERIENCE BY BENEFIT CLASS

ATTAINED AGE	FEMALE LIVES							
	LIFE		LIFE AND CERTAIN		MODIFIED CASH REFUND		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	225.15	6.97	103.39		29.75	46.87	358.29	8.68
45-49	267.71	5.82	147.04	10.43	79.32	9.62	494.07	7.82
50-54	1,485.33	3.26	590.04	4.95	576.69	0.83	2,652.06	3.10
55-59	13,136.22	2.52	4,362.93	2.86	5,380.06	2.31	22,879.21	2.54
60-64	39,162.10	1.74	12,546.31	1.99	16,703.26	1.89	68,411.67	1.82
65-69	83,382.02	1.52	30,427.48	1.35	35,558.12	1.55	149,367.62	1.49
70-74	76,748.60	1.37	31,193.57	0.97	32,930.46	1.03	140,872.63	1.20
75-79	53,839.58	1.20	16,741.49	0.76	20,092.03	0.91	90,673.10	1.06
80-84	28,470.29	1.13	6,319.26	0.76	9,470.41	0.89	44,259.96	1.02
85-89	12,155.79	1.13	1,532.80	0.93	3,691.67	0.92	17,380.26	1.07
90-94	3,497.60	1.06	293.87	1.03	822.57	0.94	4,614.04	1.04
95 and over	640.88	0.85	37.83	1.09	89.50	0.87	768.21	0.86
Total	313,011.27	1.25	104,296.01	0.99	125,423.84	1.06	542,731.12	1.17
	FEMALE INCOME							
Under 45	\$ 329,478	4.36	\$ 412,157		\$ 61,077	30.81	\$ 802,712	4.89
45-49	425,874	1.24	319,496	2.56	218,129	5.36	963,499	2.65
50-54	2,448,707	5.05	1,095,517	7.35	1,208,196	0.23	4,752,420	4.35
55-59	17,458,139	2.25	5,887,034	3.14	8,478,421	1.96	31,823,594	2.33
60-64	53,616,976	1.86	17,674,586	2.11	24,815,445	1.76	96,107,007	1.88
65-69	99,012,533	1.59	37,972,107	1.45	44,749,313	1.65	181,733,953	1.57
70-74	79,109,238	1.33	30,201,501	1.14	31,194,661	1.22	140,505,400	1.27
75-79	46,484,611	1.14	13,173,845	0.79	14,664,233	0.98	74,322,689	1.05
80-84	22,287,130	1.09	4,012,445	0.83	5,374,659	1.05	31,674,234	1.05
85-89	8,478,694	1.17	882,719	0.84	1,699,268	1.05	11,060,681	1.12
90-94	2,141,574	1.13	152,558	0.96	354,951	1.19	2,649,083	1.13
95 and over	452,016	0.81	18,720	0.92	44,064	0.68	514,800	0.80
Total	\$332,244,970	1.28	\$111,802,685	1.16	\$132,862,417	1.26	\$576,910,072	1.26

TABLE 18
 COMBINED YEARS 1981 AND 1982
 EXPECTED MORTALITY BASIS—1971 GROUP ANNUITY MORTALITY
 EXPERIENCE BY BENEFIT CLASS

ATTAINED AGE	FEMALE LIVES							
	LIFE		LIFE AND CERTAIN		MODIFIED CASH REFUND		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	225.15	4.97	103.39		29.75	33.32	358.29	6.19
45-49	267.71	4.37	147.04	7.85	79.32	7.24	494.07	5.88
50-54	1,485.33	2.53	590.04	3.83	576.69	0.64	2,652.06	2.40
55-59	13,136.22	1.97	4,362.93	2.24	5,380.06	1.81	22,879.21	1.99
60-64	39,162.10	1.31	12,546.31	1.50	16,703.26	1.42	68,411.67	1.37
65-69	83,382.02	1.14	30,427.48	1.01	35,558.12	1.16	149,367.62	1.12
70-74	76,748.60	1.01	31,193.57	0.72	32,930.46	0.77	140,872.63	0.89
75-79	53,839.58	0.90	16,741.49	0.57	20,092.03	0.68	90,673.10	0.79
80-84	28,470.29	0.87	6,319.26	0.58	9,470.41	0.69	44,259.96	0.79
85-89	12,155.79	0.89	1,532.80	0.74	3,691.67	0.73	17,380.26	0.84
90-94	3,497.60	0.87	293.87	0.84	822.57	0.77	4,614.04	0.85
95 and over	640.88	0.73	37.83	0.94	89.50	0.75	768.21	0.74
Total	313,011.27	0.96	104,296.01	0.75	125,423.84	0.81	542,731.12	0.89
FEMALE INCOME								
Under 45	\$ 329,478	3.11	\$ 412,157		\$ 61,077	21.90	\$ 802,712	3.50
45-49	425,874	0.93	319,496	1.93	218,129	4.05	963,499	2.00
50-54	2,448,707	3.91	1,095,517	5.68	1,208,196	0.18	4,752,420	3.37
55-59	17,458,139	1.76	5,887,034	2.46	8,478,421	1.53	31,823,594	1.83
60-64	53,616,976	1.40	17,674,586	1.59	24,815,445	1.32	96,107,007	1.41
65-69	99,012,533	1.19	37,972,107	1.08	44,749,313	1.23	181,733,953	1.18
70-74	79,109,238	0.99	30,201,501	0.85	31,194,661	0.90	140,505,400	0.94
75-79	46,484,611	0.86	13,173,845	0.59	14,664,233	0.74	74,322,689	0.79
80-84	22,287,130	0.85	4,012,445	0.64	5,374,659	0.81	31,674,234	0.81
85-89	8,478,694	0.92	882,719	0.66	1,699,268	0.83	11,060,681	0.89
90-94	2,141,574	0.92	152,558	0.79	354,951	0.98	2,649,083	0.92
95 and over	452,016	0.70	18,720	0.79	44,064	0.59	514,800	0.70
Total	\$332,244,970	0.98	\$111,802,685	0.87	\$132,862,417	0.95	\$576,910,072	0.95

TABLE 19
 COMBINED YEARS 1981 AND 1982
 EXPECTED MORTALITY BASIS—1983 GROUP ANNUITY MORTALITY
 EXPERIENCE BY SURVIVOR STATUS

ATTAINED AGE	MALE LIVES					
	SINGLE LIFE		JOINT LIFE		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	319.76	12.10	49.59	14.66	369.35	12.46
45-49	741.74	8.56	167.20	2.03	908.94	7.37
50-54	3,401.60	3.32	874.38	2.51	4,275.98	3.15
55-59	44,316.72	2.13	10,914.02	2.35	55,230.74	2.17
60-64	137,382.81	1.63	34,828.91	1.62	172,211.72	1.63
65-69	310,281.20	1.34	67,260.12	1.24	377,541.32	1.32
70-74	283,914.25	1.27	35,782.98	1.10	319,697.23	1.25
75-79	182,751.34	1.17	18,431.33	1.11	201,182.67	1.16
80-84	92,461.78	1.10	8,843.23	1.00	101,305.01	1.09
85-89	38,205.83	1.07	2,788.23	1.07	40,994.06	1.07
90-94	10,164.63	1.05	532.63	1.15	10,697.26	1.06
95 and over	1,706.44	0.87	48.66	1.31	1,755.10	0.89
Total	1,105,648.10	1.21	180,521.28	1.18	1,286,169.38	1.21
	MALE INCOME					
	\$		\$		\$	
Under 45	1,531,508	2.80	273,267	0.40	1,804,775	2.37
45-49	3,344,763	4.92	1,359,671	1.25	4,704,434	3.89
50-54	11,194,571	2.27	5,297,138	1.35	16,491,709	1.97
55-59	101,443,316	1.79	36,798,294	2.08	138,241,610	1.86
60-64	376,847,947	1.33	147,847,344	1.42	524,695,291	1.36
65-69	708,469,275	1.21	244,445,180	1.12	952,914,455	1.19
70-74	555,086,848	1.20	122,446,819	1.02	677,533,667	1.17
75-79	301,931,103	1.12	52,520,792	1.10	354,451,895	1.12
80-84	131,013,512	1.07	22,000,023	0.95	153,013,535	1.05
85-89	47,468,947	1.07	7,008,644	1.13	54,477,591	1.08
90-94	10,877,200	1.05	1,264,591	1.25	12,141,791	1.07
95 and over	1,756,148	0.85	65,687	1.60	1,821,835	0.88
Total	\$2,250,965,138	1.17	\$641,327,450	1.12	\$2,892,292,588	1.16

TABLE 20
 COMBINED YEARS 1981 AND 1982
 EXPECTED MORTALITY BASIS—1971 GROUP ANNUITY MORTALITY
 EXPERIENCE BY SURVIVOR STATUS

ATTAINED AGE	MALE LIVES					
	SINGLE LIFE		JOINT LIFE		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	319.76	9.14	49.59	11.07	369.35	9.41
45-49	741.74	6.36	167.20	1.51	908.94	5.47
50-54	3,401.60	2.42	874.38	1.83	4,275.98	2.30
55-59	44,316.72	1.51	10,914.02	1.66	55,230.74	1.54
60-64	137,382.81	1.16	34,828.91	1.15	172,211.72	1.16
65-69	310,281.20	1.01	67,260.12	0.93	377,541.32	1.00
70-74	283,914.25	0.98	35,782.98	0.84	319,697.23	0.96
75-79	182,751.34	0.97	18,431.33	0.91	201,182.67	0.96
80-84	92,461.78	0.94	8,843.23	0.86	101,305.01	0.94
85-89	38,205.83	0.96	2,788.23	0.96	40,994.06	0.96
90-94	10,164.63	0.99	532.63	1.08	10,697.26	0.99
95 and over	1,706.44	0.85	48.66	1.27	1,755.10	0.86
Total	1,105,648.10	0.99	180,521.28	0.94	1,286,169.38	0.98
	MALE INCOME					
Under 45	\$ 1,531,508	2.12	\$ 273,267	0.31	\$ 1,804,775	1.79
45-49	3,344,763	3.65	1,359,671	0.93	4,704,434	2.89
50-54	11,194,571	1.66	5,297,138	0.99	16,491,709	1.44
55-59	101,443,316	1.27	36,798,294	1.48	138,241,610	1.32
60-64	376,847,947	0.94	147,847,344	1.01	524,695,291	0.96
65-69	708,469,275	0.91	244,445,180	0.84	952,914,455	0.90
70-74	555,086,848	0.93	122,446,819	0.78	677,533,667	0.90
75-79	301,931,103	0.93	52,520,792	0.91	354,451,895	0.92
80-84	131,013,512	0.92	22,000,023	0.81	153,013,535	0.91
85-89	47,468,947	0.96	7,008,644	1.01	54,477,591	0.97
90-94	10,877,200	0.99	1,264,591	1.17	12,141,791	1.01
95 and over	1,756,148	0.82	65,687	1.55	1,821,835	0.85
Total	\$2,250,965,138	0.93	\$641,327,450	0.88	\$2,892,292,588	0.92

TABLE 21
 COMBINED YEARS 1981 AND 1982
 EXPECTED MORTALITY BASIS—1983 GROUP ANNUITY MORTALITY
 EXPERIENCE BY SURVIVOR STATUS

ATTAINED AGE	FEMALE LIVES					
	SINGLE LIFE		JOINT LIFE		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	347.47	8.98	10.82		358.29	8.68
45-49	479.50	8.06	14.57		494.07	7.82
50-54	2,461.37	2.75	190.69	2.66	2,652.06	3.10
55-59	21,452.50	2.53	1,426.71	2.58	22,879.21	2.54
60-64	64,963.13	1.76	3,448.54	2.98	68,411.67	1.82
65-69	144,573.96	1.47	4,793.66	2.27	149,367.62	1.49
70-74	139,283.37	1.20	1,589.26	1.80	140,872.63	1.20
75-79	90,067.66	1.05	605.44	2.11	90,673.10	1.06
80-84	43,977.06	1.02	282.90	1.34	44,259.96	1.02
85-89	17,301.44	1.07	78.82	0.93	17,380.26	1.07
90-94	4,601.54	1.04	12.50		4,614.04	1.04
95 and over	757.21	0.86	11.00	1.26	768.21	0.86
Total	530,266.21	1.16	12,464.91	2.08	542,731.12	1.17
	FEMALE INCOME					
Under 45	\$ 788,742	5.00	\$ 13,970		\$ 802,712	4.89
45-49	918,016	2.79	45,483		963,499	2.65
50-54	4,399,305	3.81	353,115	11.08	4,752,420	4.35
55-59	29,477,606	2.31	2,345,988	2.63	31,823,594	2.33
60-64	89,728,819	1.73	6,378,188	4.06	96,107,007	1.88
65-69	173,715,819	1.53	8,018,134	2.49	181,733,953	1.57
70-74	137,594,763	1.27	2,910,637	1.17	140,505,400	1.27
75-79	73,368,513	1.04	954,176	1.46	74,322,689	1.05
80-84	31,326,157	1.05	348,077	1.60	31,674,234	1.05
85-89	10,982,593	1.11	78,088	3.60	11,060,681	1.12
90-94	2,640,776	1.13	8,307		2,649,083	1.13
95 and over	507,857	0.81	6,943	0.44	514,800	0.80
Total	\$555,448,966	1.23	\$21,461,106	2.29	\$576,910,072	1.26

TABLE 22
 COMBINED YEARS 1981 AND 1982
 EXPECTED MORTALITY BASIS—1971 GROUP ANNUITY MORTALITY
 EXPERIENCE BY SURVIVOR STATUS

ATTAINED AGE	FEMALE LIVES					
	SINGLE LIFE		JOINT LIFE		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	347.47	6.41	10.82		358.29	6.19
45-49	479.50	6.06	14.57		494.07	5.88
50-54	2,461.37	2.13	190.69	5.93	2,652.06	2.40
55-59	21,452.50	1.98	1,426.71	2.02	22,879.21	1.99
60-64	64,963.13	1.33	3,448.54	2.24	68,411.67	1.37
65-69	144,573.96	1.10	4,793.66	1.69	149,367.62	1.12
70-74	139,283.37	0.89	1,589.26	1.33	140,872.63	0.89
75-79	90,067.66	0.79	605.44	1.58	90,673.10	0.79
80-84	43,977.06	0.79	282.90	1.03	44,259.96	0.79
85-89	17,301.44	0.84	78.82	0.74	17,380.26	0.84
90-94	4,601.54	0.85	12.50		4,614.04	0.85
95 and over	757.21	0.74	11.00	1.08	768.21	0.74
Total	530,266.21	0.88	12,464.91	1.57	542,731.12	0.89
	FEMALE INCOME					
Under 45	\$ 788,742	3.59	\$ 13,970		\$ 802,712	3.50
45-49	918,016	2.10	45,483		963,499	2.00
50-54	4,399,305	2.95	353,115	8.57	4,752,420	3.37
55-59	29,477,606	1.81	2,345,988	2.06	31,823,594	1.83
60-64	89,728,819	1.30	6,378,188	3.06	96,107,007	1.41
65-69	173,715,819	1.15	8,018,134	1.86	181,733,953	1.18
70-74	137,594,763	0.94	2,910,637	0.87	140,505,400	0.94
75-79	73,368,513	0.78	954,176	1.10	74,322,689	0.79
80-84	31,326,157	0.81	348,077	1.24	31,674,234	0.81
85-89	10,982,593	0.87	78,088	2.84	11,060,681	0.89
90-94	2,640,776	0.93	8,307		2,649,083	0.92
95 and over	507,857	0.70	6,943	0.38	514,800	0.70
Total	\$555,448,966	0.94	\$21,461,106	1.72	\$576,910,072	0.95

TABLE 23
 COMBINED YEARS 1981 AND 1982
 EXPECTED MORTALITY BASIS—1983 GROUP ANNUITY MORTALITY
 EXPERIENCE BY YEARS SINCE RETIREMENT

ATTAINED AGE	MALE LIVES									
	0-1		2-5		6-10		11 AND OVER		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	104.94	30.08	184.91	7.95	71.50		8.00		369.35	12.46
45-49	328.76	10.14	428.01	4.67	140.17	9.80	12.00		908.94	7.37
50-54	1,828.27	3.26	1,776.11	3.46	601.60	1.97	70.00	2.80	4,275.98	3.15
55-59	24,579.58	2.36	27,465.48	1.98	2,896.01	2.26	289.67	4.18	55,230.74	2.17
60-64	62,571.39	1.54	76,432.19	1.63	31,653.64	1.82	1,554.50	1.39	172,211.72	1.63
65-69	62,456.40	1.29	195,176.44	1.23	100,666.69	1.45	19,241.79	1.61	377,541.32	1.32
70-74	12,277.79	1.35	45,361.64	1.17	205,235.80	1.21	56,822.00	1.43	319,697.23	1.25
75-79	6,254.51	1.21	11,616.41	1.24	41,391.60	1.12	141,920.15	1.17	201,182.67	1.16
80-84	3,006.02	1.16	4,342.49	1.04	8,841.69	1.05	85,114.81	1.09	101,305.01	1.09
85-89	1,162.11	1.10	1,440.57	1.15	2,908.24	1.05	35,483.14	1.07	40,994.06	1.07
90-94	328.98	0.98	405.00	1.10	758.91	0.88	9,204.37	1.07	10,697.26	1.06
95 and over	51.37	0.63	73.00	0.81	207.00	0.65	1,423.73	0.94	1,755.10	0.89
Total	174,950.12	1.39	364,702.25	1.28	395,372.85	1.24	351,144.16	1.14	1,286,169.38	1.21
MALE INCOME										
Under 45	\$ 390,118	7.34	\$ 854,992	1.22	\$ 552,029		\$ 7,636		\$ 1,804,775	2.37
45-49	1,944,457	5.30	2,289,960	2.74	462,096	3.87	7,921		4,704,434	3.89
50-54	6,306,503	2.32	7,131,713	2.33	2,977,928	0.49	75,565	0.22	16,491,709	1.97
55-59	68,249,793	1.97	56,349,505	1.91	13,304,851	1.07	337,461	3.87	138,241,610	1.86
60-64	236,226,888	1.27	223,820,798	1.43	61,698,079	1.43	2,949,526	1.07	524,695,291	1.36
65-69	180,708,408	1.14	497,734,947	1.11	249,086,441	1.35	25,384,659	1.43	952,914,455	1.19
70-74	33,575,357	1.19	103,074,379	1.06	443,668,326	1.16	97,215,605	1.33	677,533,667	1.17
75-79	13,653,844	1.09	22,745,538	1.15	76,387,539	1.07	241,664,974	1.13	354,451,895	1.12
80-84	5,684,657	1.11	6,906,146	0.89	14,641,181	1.03	125,781,551	1.06	153,013,535	1.05
85-89	2,036,140	1.08	1,904,927	1.16	4,296,149	1.28	46,240,375	1.06	54,477,591	1.08
90-94	532,993	0.95	453,214	1.06	907,708	0.81	10,247,876	1.11	12,141,791	1.07
95 and over	80,948	0.71	91,866	0.67	268,093	0.47	1,380,928	0.98	1,821,835	0.88
Total	\$549,390,106	1.23	\$923,357,985	1.17	\$868,250,420	1.18	\$551,294,077	1.12	\$2,892,292,588	1.16

TABLE 24

COMBINED YEARS 1981 AND 1982
 EXPECTED MORTALITY BASIS—1971 GROUP ANNUITY MORTALITY
 EXPERIENCE BY YEARS SINCE RETIREMENT

ATTAINED Age	MALE LIVES									
	0-1		2-5		6-10		11 AND OVER		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	104.94	22.71	184.91	6.01	71.50	8.00	8.00	369.35	9.41	
45-49	328.76	7.53	428.01	3.47	140.17	7.28	12.00	908.94	5.47	
50-54	1,828.27	2.38	1,776.11	2.53	601.60	1.44	70.00	4,275.98	2.30	
55-59	24,579.58	1.68	27,465.48	1.40	2,896.01	1.60	289.67	55,230.74	1.54	
60-64	62,571.39	1.09	76,432.19	1.16	31,653.64	1.29	1,554.50	172,211.72	1.16	
65-69	62,456.40	0.96	195,176.44	0.93	100,666.69	1.10	19,241.79	377,541.32	1.00	
70-74	12,277.79	1.03	45,361.64	0.90	205,235.80	0.93	56,822.00	319,697.23	0.96	
75-79	6,254.51	1.00	11,616.41	1.03	41,391.60	0.92	141,920.15	201,182.67	0.96	
80-84	3,006.02	1.00	4,342.49	0.90	8,841.69	0.90	85,114.81	101,305.01	0.94	
85-89	1,162.11	0.99	1,440.57	1.03	2,908.24	0.94	35,483.14	40,994.06	0.96	
90-94	328.98	0.92	405.00	1.03	758.91	0.83	9,204.37	10,697.26	0.99	
95 and over	51.37	0.61	73.00	0.79	207.00	0.63	1,423.73	1,755.10	0.86	
Total	174,950.12	1.06	364,702.25	0.98	395,372.85	0.97	351,144.16	1,286,169.38	0.98	
	MALE INCOME									
Under 45	\$ 390,118	5.54	\$ 854,992	0.92	\$ 552,029	\$ 7.636	\$ 1,804,775	1.79		
45-49	1,944,457	3.94	2,289,960	2.03	462,096	2.87	7,921	4,704,434	2.89	
50-54	6,306,503	1.70	7,131,713	1.71	2,977,928	0.36	75,565	16,491,709	1.44	
55-59	68,249,793	1.40	56,349,505	1.35	13,304,851	0.76	337,461	138,241,610	1.32	
60-64	236,226,888	0.90	223,820,798	1.02	61,698,079	1.02	2,949,526	524,695,291	0.96	
65-69	180,708,408	0.85	497,734,947	0.83	249,086,441	1.02	25,384,659	952,914,455	0.90	
70-74	33,575,357	0.91	103,074,379	0.82	443,668,326	0.89	97,215,605	677,533,667	0.90	
75-79	13,653,844	0.90	22,745,538	0.94	76,387,539	0.88	241,664,974	354,451,895	0.92	
80-84	5,684,657	0.95	6,906,146	0.77	14,641,181	0.89	125,781,551	153,013,535	0.91	
85-89	2,036,140	0.97	1,904,927	1.04	4,296,149	1.15	46,240,375	54,477,591	0.97	
90-94	532,993	0.89	453,214	0.99	907,708	0.76	10,247,876	12,141,791	1.01	
95 and over	80,948	0.69	91,866	0.65	268,093	0.46	1,380,928	1,821,835	0.85	
Total	\$549,390,106	0.92	\$923,357,985	0.88	\$868,250,420	0.92	\$551,294,077	\$2,892,292,588	0.92	

TABLE 25

COMBINED YEARS 1981 AND 1982
 EXPECTED MORTALITY BASIS—1983 GROUP ANNUITY MORTALITY
 EXPERIENCE BY YEARS SINCE RETIREMENT

ATTAINED AGE	FEMALE LIVES									
	0-1		2-5		6-10		11 AND OVER		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	136.29		153.50	10.46	51.50	30.59	17.00		358.29	8.68
45-49	189.65	8.13	195.00	7.86	82.42	9.52	27.00		494.07	7.82
50-54	1,129.48	4.75	1,245.49	2.29	230.09		47.00		2,652.06	3.10
55-59	8,804.38	2.71	11,662.73	2.43	2,240.10	2.25	172.00	5.38	22,879.21	2.54
60-64	22,433.59	1.88	31,437.25	1.77	13,299.00	1.82	1,241.83	2.17	68,411.67	1.82
65-69	23,535.77	1.60	78,253.49	1.37	39,815.10	1.62	7,763.26	1.75	149,367.62	1.49
70-74	5,055.49	1.47	22,613.15	1.26	87,257.47	1.12	25,946.52	1.36	140,872.63	1.20
75-79	2,392.00	1.22	5,946.14	1.22	20,621.85	1.05	61,713.11	1.04	90,673.10	1.06
80-84	1,194.78	1.21	2,319.83	1.28	4,296.46	1.06	36,448.89	1.00	44,259.96	1.02
85-89	574.99	1.23	701.41	1.23	1,371.92	1.25	14,731.94	1.04	17,380.26	1.07
90-94	134.69	1.53	169.58	1.57	314.91	1.13	3,994.86	0.99	4,614.04	1.04
95 and over	26.39	0.46	42.00	1.01	72.00	0.55	627.82	0.91	768.21	0.86
Total	65,607.50	1.58	154,739.57	1.39	169,652.82	1.19	152,731.23	1.05	542,731.12	1.17
FEMALE INCOME										
Under 45	\$ 208,660		\$ 429,456	3.85	\$ 143,085	18.36	\$ 21,511		\$ 802,712	4.89
45-49	412,355	4.08	419,895	1.33	104,350	3.20	26,899		963,499	2.65
50-54	1,967,413	6.34	2,268,502	3.63	490,018		26,487		4,752,420	4.35
55-59	13,758,485	2.83	14,371,996	2.16	3,550,532	1.09	142,581	4.88	31,823,594	2.33
60-64	38,965,304	2.04	42,015,415	1.73	14,183,533	1.76	942,755	4.14	96,107,007	1.88
65-69	36,047,363	1.69	96,444,106	1.48	43,912,471	1.65	5,330,013	1.88	181,733,953	1.57
70-74	7,377,435	1.31	25,343,969	1.20	87,627,732	1.24	20,156,264	1.42	140,505,400	1.27
75-79	2,790,840	1.21	5,947,035	1.06	18,318,603	0.95	47,266,211	1.07	74,322,689	1.05
80-84	1,112,539	0.94	2,151,382	1.20	3,835,687	1.01	24,574,626	1.05	31,674,234	1.05
85-89	524,813	1.34	596,912	1.18	1,138,381	1.29	8,800,575	1.09	11,060,681	1.12
90-94	94,023	1.20	136,826	1.40	217,197	1.20	2,201,037	1.10	2,649,083	1.13
95 and over	46,903	0.16	37,791	1.53	57,862	0.65	372,244	0.84	514,800	0.80
Total	\$103,306,133	1.67	\$190,163,285	1.42	\$173,579,451	1.24	\$109,861,203	1.11	\$576,910,072	1.26

TABLE 26

COMBINED YEARS 1981 AND 1982
 EXPECTED MORTALITY BASIS—1971 GROUP ANNUITY MORTALITY
 EXPERIENCE BY YEARS SINCE RETIREMENT

ATTAINED AGE	FEMALE LIVES									
	0-1		2-5		6-10		11 AND OVER		TOTAL	
	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected	Exposure	Actual to Expected
Under 45	136.29		153.50	7.47	51.50	21.83	17.00		358.29	6.19
45-49	189.65	6.11	195.00	5.91	82.42	7.14	27.00		494.07	5.88
50-54	1,129.48	3.67	1,245.49	1.77	230.09		47.00		2,652.06	2.40
55-59	8,804.38	2.12	11,662.73	1.90	2,240.10	1.76	172.00	4.22	22,879.21	1.99
60-64	22,433.59	1.42	31,437.25	1.33	13,299.00	1.37	1,241.83	1.63	68,411.67	1.37
65-69	23,535.77	1.19	78,253.49	1.02	39,815.10	1.22	7,763.26	1.31	149,367.62	1.12
70-74	5,055.49	1.09	22,613.15	0.94	87,257.47	0.83	25,946.52	1.01	140,872.63	0.89
75-79	2,392.00	0.92	5,946.14	0.92	20,621.85	0.79	61,713.11	0.78	90,673.10	0.79
80-84	1,194.78	0.94	2,319.83	0.99	4,296.46	0.82	36,448.89	0.77	44,259.96	0.79
85-89	574.99	0.97	701.41	0.97	1,371.92	0.99	14,731.94	0.82	17,380.26	0.84
90-94	134.69	1.25	169.58	1.28	314.91	0.92	3,994.86	0.81	4,614.04	0.85
95 and over	26.39	0.40	42.00	0.86	72.00	0.48	627.82	0.78	768.21	0.74
Total	65,607.50	1.19	154,739.57	1.05	169,652.82	0.89	152,731.23	0.81	542,731.12	0.89
	FEMALE INCOME									
Under 45	\$ 208,660		\$ 429,456	2.76	\$ 143,085	13.22	\$ 21,511		\$ 802,712	3.50
45-49	412,355	3.07	419,895	1.00	104,350	2.40	26,899		963,499	2.00
50-54	1,967,413	4.90	2,268,502	2.81	490,018		26,487		4,752,420	3.37
55-59	13,758,485	2.22	14,371,996	1.69	3,550,532	0.85	142,581	3.82	31,823,594	1.83
60-64	38,965,304	1.53	42,015,415	1.30	14,183,533	1.33	942,755	3.11	96,107,007	1.41
65-69	36,047,363	1.25	96,444,106	1.11	43,912,471	1.23	5,330,013	1.41	181,733,953	1.18
70-74	7,377,435	0.97	25,343,969	0.89	87,627,732	0.92	20,156,264	1.05	140,505,400	0.94
75-79	2,790,840	0.91	5,947,035	0.80	18,318,603	0.71	47,266,211	0.81	74,322,689	0.79
80-84	1,112,539	0.73	2,151,382	0.93	3,835,687	0.78	24,574,626	0.81	31,674,234	0.81
85-89	524,813	1.06	596,912	0.93	1,138,381	1.02	8,800,575	0.86	11,060,681	0.89
90-94	94,023	0.98	136,826	1.14	217,197	0.98	2,201,037	0.90	2,649,083	0.92
95 and over	46,903	0.14	37,791	1.32	57,862	0.56	372,244	0.73	514,800	0.70
Total	\$103,306,133	1.26	\$190,163,285	1.06	\$173,579,451	0.93	\$109,861,203	0.85	\$576,910,072	0.95

TABLE 28
 CALENDAR YEAR 1981
 EXPECTED MORTALITY BASIS—1971 GROUP ANNUITY MORTALITY
 COMPARISON OF MALE AND FEMALE MORTALITY EXPERIENCE

ATTAINED AGE	LIVES					INCOME				
	EXPOSURE		ACTUAL TO EXPECTED RATIO*		RATIO OF FEMALE TO MALE MORTALITY	EXPOSURE		ACTUAL TO EXPECTED RATIO*		RATIO OF FEMALE TO MALE MORTALITY
	Male	Female	Male	Female		Male	Female	Male	Female	
Under 45	190.94	150.80	8.94	3.95	0.44	\$ 892,506	\$ 399,310	1.84	2.38	1.30
45-49	509.27	230.27	6.36	4.40	0.69	2,463,203	430,120	3.43	1.58	0.46
50-54	2,217.10	1,299.06	1.97	1.12	0.57	8,066,693	2,280,557	1.32	1.77	1.34
55-59	26,599.21	11,124.59	1.57	0.85	0.54	63,888,377	14,918,561	1.38	0.85	0.61
60-64	82,756.29	32,978.18	1.14	0.63	0.56	242,241,643	44,193,213	0.97	0.72	0.74
65-69	185,232.93	73,727.06	1.00	0.51	0.51	453,649,355	86,694,089	0.92	0.57	0.62
70-74	157,276.45	68,210.94	0.97	0.47	0.49	324,724,929	66,096,398	0.93	0.50	0.54
75-79	97,763.34	42,614.73	0.97	0.48	0.50	165,755,944	33,997,961	0.95	0.49	0.52
80-84	48,755.90	20,588.86	0.96	0.53	0.55	71,659,551	14,513,112	0.93	0.56	0.60
85-89	19,601.58	7,936.75	0.96	0.59	0.62	25,243,937	4,957,300	0.96	0.66	0.69
90-94	4,980.49	2,087.62	1.02	0.72	0.71	5,463,206	1,208,179	1.00	0.75	0.75
95 and over	813.13	336.39	0.93	0.77	0.83	827,963	227,924	1.04	0.68	0.66
Total	626,696.63	261,285.25	0.99	0.52	0.53	\$1,364,877,307	\$269,916,724	0.94	0.56	0.59

*Expected deaths for both males and females using male mortality.

TABLE 29
 CALENDAR YEAR 1982
 EXPECTED MORTALITY BASIS--1983 GROUP ANNUITY MORTALITY
 COMPARISON OF MALE AND FEMALE MORTALITY EXPERIENCE

ATTAINED Age	LIVES					INCOME				
	EXPOSURE		ACTUAL TO EXPECTED RATIO*		RATIO OF FEMALE TO MALE MORTALITY	EXPOSURE		ACTUAL TO EXPECTED RATIO*		RATIO OF FEMALE TO MALE MORTALITY
	Male	Female	Male	Female		Male	Female	Male	Female	
Under 45	178.41	207.49	13.16	3.90	0.30	\$ 912,269	\$ 403,402	2.32	2.01	0.86
45-49	399.67	263.80	5.86	1.28	0.22	2,241,231	533,379	3.09	0.38	0.12
50-54	2,058.88	1,353.00	3.65	1.02	0.28	8,425,016	2,471,863	2.13	1.20	0.56
55-59	28,631.53	11,754.62	2.12	1.05	0.49	74,353,233	16,905,033	1.79	0.89	0.49
60-64	89,455.43	35,433.49	1.65	0.80	0.49	282,453,648	51,913,794	1.35	0.76	0.56
65-69	192,308.39	75,640.56	1.32	0.64	0.49	499,265,100	95,039,864	1.16	0.63	0.55
70-74	162,420.78	72,661.69	1.25	0.56	0.45	352,808,738	74,409,002	1.13	0.58	0.51
75-79	103,419.33	48,058.37	1.16	0.59	0.51	188,695,951	40,324,728	1.09	0.58	0.53
80-84	52,549.11	23,671.10	1.06	0.60	0.56	81,353,984	17,161,122	1.03	0.59	0.58
85-89	21,392.48	9,443.51	1.07	0.68	0.63	29,233,654	6,103,381	1.09	0.68	0.62
90-94	5,716.77	2,526.42	1.03	0.70	0.67	6,678,585	1,440,904	1.09	0.79	0.73
95 and over	941.97	431.82	0.82	0.66	0.80	993,872	286,876	0.72	0.66	0.92
Total	659,472.75	281,445.87	1.20	0.62	0.52	\$1,527,415,281	\$306,993,348	1.13	0.62	0.55

*Expected deaths for both males and females using male mortality

TABLE 30
 CALENDAR YEAR 1982
 EXPECTED MORTALITY BASIS—1971 GROUP ANNUITY MORTALITY
 COMPARISON OF MALE AND FEMALE MORTALITY EXPERIENCE

ATTAINED AGE	LIVES					INCOME				
	EXPOSURE		ACTUAL TO EXPECTED RATIO*		RATIO OF FEMALE TO MALE MORTALITY	EXPOSURE		ACTUAL TO EXPECTED RATIO*		RATIO OF FEMALE TO MALE MORTALITY
	Male	Female	Male	Female		Male	Female	Male	Female	
Under 45	178.41	207.49	9.94	2.95	0.30	\$ 912,269	\$ 403,402	1.75	1.52	0.87
45-49	399.67	263.80	4.35	0.95	0.22	2,241,231	533,379	2.29	0.28	0.12
50-54	2,058.88	1,353.00	2.66	0.75	0.28	8,425,016	2,471,863	1.56	0.88	0.56
55-59	28,631.53	11,754.62	1.51	0.74	0.49	74,353,233	16,905,033	1.27	0.63	0.49
60-64	89,455.43	35,433.49	1.18	0.57	0.49	282,453,648	51,913,794	0.96	0.54	0.56
65-69	192,308.39	75,640.56	1.00	0.48	0.49	499,265,100	95,039,864	0.87	0.48	0.55
70-74	162,420.78	72,661.69	0.96	0.43	0.45	352,808,738	74,409,002	0.87	0.44	0.51
75-79	103,419.33	48,058.37	0.96	0.49	0.51	188,695,951	40,324,728	0.90	0.48	0.53
80-84	52,549.11	23,671.10	0.91	0.51	0.56	81,353,984	17,161,122	0.88	0.51	0.58
85-89	21,392.48	9,443.51	0.96	0.61	0.63	29,233,654	6,103,381	0.98	0.61	0.62
90-94	5,716.77	2,526.42	0.97	0.65	0.67	6,678,585	1,440,904	1.02	0.74	0.73
95 and over	941.97	431.82	0.80	0.64	0.80	993,872	286,876	0.69	0.64	0.92
Total	659,472.75	281,445.87	0.97	0.51	0.52	\$1,527,415,281	\$306,993,348	0.90	0.50	0.55

*Expected deaths for both males and females using male mortality.

TABLE 31
 CALENDAR YEARS 1981 AND 1982
 EXPECTED MORTALITY BASIS—1983 GROUP ANNUITY MORTALITY
 COMPARISON OF MALE AND FEMALE MORTALITY EXPERIENCE

ATTAINED Age	LIVES					INCOME				
	EXPOSURE		ACTUAL TO EXPECTED RATIO*		RATIO OF FEMALE TO MALE MORTALITY	EXPOSURE		ACTUAL TO EXPECTED RATIO*		RATIO OF FEMALE TO MALE MORTALITY
	Male	Female	Male	Female		Male	Female	Male	Female	
Under 45	369.35	358.29	12.46	4.47	0.36	\$ 1,804,775	\$ 802,712	2.37	2.56	1.08
45-49	908.94	494.17	7.37	3.44	0.47	4,704,434	963,499	3.89	1.17	0.30
50-54	4,275.98	2,652.06	3.15	1.27	0.40	16,491,709	4,752,420	1.97	1.79	0.90
55-59	55,230.74	22,879.21	2.17	1.12	0.52	138,241,610	31,823,594	1.86	1.03	0.55
60-64	172,211.72	68,411.67	1.63	0.85	0.52	542,695,291	96,107,007	1.36	0.87	0.64
65-69	377,541.32	149,367.62	1.32	0.66	0.50	952,914,455	181,733,953	1.19	0.69	0.58
70-74	319,697.23	140,872.63	1.25	0.59	0.47	677,533,667	140,505,400	1.17	0.61	0.52
75-79	201,182.67	90,673.10	1.16	0.59	0.51	354,451,895	74,322,689	1.12	0.58	0.52
80-84	101,305.01	44,259.96	1.09	0.60	0.56	153,013,535	31,674,234	1.05	0.62	0.59
85-89	40,994.06	17,380.26	1.07	0.67	0.63	54,477,591	11,060,681	1.08	0.70	0.65
90-94	10,697.26	4,614.04	1.06	0.73	0.69	12,141,791	2,649,083	1.07	0.79	0.74
95 and over	1,755.10	768.21	0.89	0.72	0.81	1,821,835	514,800	0.88	0.68	0.78
Total	1,286,169.38	542,731.22	1.21	0.63	0.52	\$2,892,292,588	\$576,910,072	1.16	0.66	0.57

*Expected deaths for both males and females using male mortality.

TABLE 32
 CALENDAR YEARS 1981 AND 1982
 EXPECTED MORTALITY BASIS—1971 GROUP ANNUITY MORTALITY
 COMPARISON OF MALE AND FEMALE MORTALITY EXPERIENCE

ATTAINED Age	LIVES					INCOME				
	EXPOSURE		ACTUAL TO EXPECTED RATIO*		RATIO OF FEMALE TO MALE MORTALITY	EXPOSURE		ACTUAL TO EXPECTED RATIO*		RATIO OF FEMALE TO MALE MORTALITY
	Male	Female	Male	Female		Male	Female	Male	Female	
Under 45	369.35	358.29	9.41	3.38	0.36	\$ 1,804,775	\$ 802,712	1.79	1.93	1.08
45-49	908.94	494.07	5.47	2.55	0.47	4,704,434	963,499	2.89	0.87	0.30
50-54	4,275.98	2,652.06	2.30	0.93	0.40	16,491,709	4,752,420	1.44	1.30	0.90
55-59	55,230.74	22,879.21	1.54	0.79	0.52	138,241,610	31,823,594	1.32	0.73	0.55
60-64	172,211.72	68,411.67	1.16	0.60	0.52	524,695,291	96,107,007	0.96	0.62	0.64
65-69	377,541.32	149,367.62	1.00	0.50	0.50	952,914,455	181,733,953	0.90	0.52	0.58
70-74	319,697.23	140,872.63	0.96	0.45	0.47	677,533,667	140,505,400	0.90	0.47	0.52
75-79	201,182.67	90,673.10	0.96	0.49	0.51	354,451,895	74,322,689	0.92	0.48	0.52
80-84	101,305.01	44,259.96	0.94	0.52	0.56	153,013,535	31,674,234	0.91	0.53	0.59
85-89	40,994.06	17,380.26	0.96	0.60	0.63	54,477,591	11,060,681	0.97	0.63	0.65
90-94	10,697.26	4,614.04	0.99	0.69	0.69	12,141,791	2,649,083	1.01	0.74	0.74
95 and over	1,755.10	768.21	0.86	0.70	0.81	1,821,835	514,800	0.85	0.66	0.78
Total	1,286,169.38	542,731.12	0.98	0.51	0.52	\$2,892,292,588	\$576,910,072	0.92	0.53	0.57

*Expected deaths for both males and females using male mortality.

ments providing for automatic retirement at the NRD even if the employee is still employed.

3. *Retirement under a plan having no stated NRD.*—This class consists of employees retired under a plan with no stated NRD or where available information does not permit determination of whether a retirement is normal, early, or late.
4. *Past NRD, not receiving payments.*—This class consists of employees working past NRD under a plan which provides for purchase of annuities, and the contract allows the commencement of such annuities to be deferred beyond the NRD. After payments begin, the employee moves to class 2.

Tables 15–18 display total study data grouped by benefit class for calendar years 1981 and 1982 combined. Each table is identified by mortality table used in calculating expected deaths and annuitant sex. Benefit classes are defined as follows:

1. *Life annuities.*—This class consists of employees selecting a form of benefit which does not include a certain period or refund feature.
2. *Life and certain annuities.*—This class consists of employees selecting a form of benefit which guarantees a specified minimum number of payments.
3. *Modified cash refund.*—This class consists of employees selecting a form of benefit which provides for a lump-sum death benefit equal to the excess of a specified initial amount over the sum of income payments received prior to death.

Tables 19–22 display total study data grouped by survivor status for calendar years 1981 and 1982 combined. Each table is identified by mortality table used in calculating expected deaths and annuitant sex. Survivor status is defined as follows:

1. *Single life.*—This class consists of employees not electing a joint and survivor form of benefit.
2. *Joint life.*—This class consists of employees electing a joint and survivor form of benefit, measuring the experience of the original annuitant (the employee). Contingent annuitant experience (exposures and deaths) are not included in the reported data.

Tables 23–26 display total study data grouped by years since retirement for calendar years 1981 and 1982 combined. Each table is identified by mortality table used in calculating expected deaths and annuitant sex. Table format summarizes results for “select periods” 0–1, 2–5, 6–10, and 11 and more years.

Tables 27–32 display a comparison of male and female mortality experience for calendar year 1981, calendar year 1982, and calendar years 1981 and 1982 combined. These tables are developed by calculating total-study female expected deaths using male mortality (no age setback), recomputing female actual/expected mortality ratios, and comparing these female ratios to the mortality ratios for males. Each table is identified by study period and mortality table used in calculating expected deaths.

PRINCIPAL OBSERVATIONS

Comparing 1982 calendar year data against 1981 calendar year data did not reveal any distortions, major trends, or unreasonable results for total experience or experience by class (with the exception of a shift in exposure from retirement class on/after NRD in 1981 to prior to NRD in 1982). Both males and females exhibited slight mortality improvement over the two-year period, with female improvement slightly greater than male. We will have a better indication of mortality trends as future calendar years' data are added to the report.

Male ratios of actual to expected deaths were lower when based on income than on number of lives. This feature would tend to support the notion that higher income (and presumably higher socioeconomic status) exhibits slightly better mortality. However, female ratios of actual to expected deaths were exactly the opposite.

Male exposure is divided almost equally among three retirement classes: prior to NRD, on/after NRD, and no stated NRD. The mix of exposure varies with attained age: the percentage of exposure in the prior to NRD class rapidly decreases with increasing attained ages. This pattern of exposures indicates greater availability and higher utilization of early retirement options for the current generation of retirements. Those selecting the option are healthier: the mortality of the prior to NRD class has improved significantly since the 1975 report—there is no difference in overall mortality by retirement class.

When exposure is analyzed by benefit class, slightly less than 60 percent of the exposure arises from life-only annuities, the remainder are certain and life or refund annuities. This split generally holds for both males and females and for all attained ages. Males experienced slightly lower mortality for certain/refund benefits (except for age group 60–64); females experienced significantly lower mortality for certain/refund benefits (except for age group 60–64). Age group 60–64 has a high concentration of early retirements, and those with poor health would tend to select an annuity with some form of death benefit. The committee does not have enough data to explain the absence of antiselection at other attained ages: multiparameter analysis, such as benefit class subdivided by joint life status or duration, might provide insight to highly select or substandard groups included in each benefit class.

Exposure for annuitants selecting joint life forms of benefits is still a relatively small percentage of the total, even with the Employee Retirement Income Security Act of 1974 (ERISA) mandated joint life benefit options. Joint life forms account for about 20–25 percent of new retirements for male

annuitants; these forms are rarely selected by female annuitants. Overall, there is not much difference between mortality levels for single life and joint life benefit forms. There are differences by attained age: male joint life forms have lower mortality ratios for ages 65 and over and higher mortality ratios for ages 64 and under. These higher ratios at low attained ages are probably due to a small amount of antiselection in those choosing a survivor form of benefit.

When exposure is analyzed by duration (measured by years since retirement), there is no real evidence of any select period of improved mortality. If anything, the ratios indicate a reverse select period with males experiencing greater than ultimate mortality for durations 0–1, females for durations 0–5. Selection of a retirement date may be influenced by a person's health. To the extent ill health is a factor, it may be reflected in greater mortality in lower durations.

Comparing the absolute level of female mortality to male mortality demonstrates that females experience about 50–60 percent of the rates of males at all attained ages having credible amounts of exposure.

CONTRIBUTING COMPANIES

The following companies have contributed experience for the investigation covered by this report:

Aetna Life Insurance Company
Bankers Life Company
CIGNA*
John Hancock Mutual Life Insurance Company
Pacific Mutual Insurance Company
Prudential Insurance Company of America
Sun Life Assurance Company of Canada
Travelers Insurance Company

*Experience not included in this report due to problems with submission tape.