

PRUDENTIAL MORTALITY EXPERIENCE BY SEX

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IN A recently completed mortality investigation of its standard Ordinary business, the Prudential obtained its experience for males and females separately. The results of this study may be of interest to members of the Society.

Scope of the Study

The study covers all standard regular Ordinary issues of 1919 through 1951 exposed between 1948 and 1952 anniversaries. Monthly Debit Ordinary and Group and term conversions were excluded.

Results were obtained by number of policies and amount of insurance for the following categories: (1) female lives, amounts under \$5,000; (2) female lives, amounts \$5,000 and over; (3) male lives, amounts under \$5,000; and (4) male lives, amounts \$5,000 and over. Deaths due to war were excluded.

Expected Deaths

The expected deaths are based upon graduated rates which were obtained from the experience between 1948 and 1951 anniversaries for all classes combined. The select rates, by 5-year age groups at issue and policy year, are given in Table 6. The ultimate rates, by individual attained age, are given in Table 7.

Form of the Results

Experience in the first 10 policy years is given in Tables 1-4. Actual claims and ratios of actual to expected claims are shown by 5-year age groups at issue for policy years 1-2, 3-5, 6-10 and 1-10.

In Table 5, actual claims and ratios for policy years 11 and up are shown by 5-year attained age groups.

Over-all Results

There were 88,528 actual claims for \$256,339,000, of which 13,968 for \$19,603,000 were on female lives and 74,560 for \$236,736,000 were on male lives. The over-all ratios of actual to expected deaths were 69% by policies and 67% by amounts for females and 107% by policies and 103% by amounts for males. The results for all ages combined, broken down

into amounts under \$5,000 and amounts \$5,000 and over and into duration groups, are shown below.

POLICY YEARS	ACTUAL CLAIMS				RATIO OF ACTUAL TO EXPECTED			
	Under \$5,000		\$5,000 and over		Under \$5,000		\$5,000 and over	
	Number	Amount in 1,000's	Number	Amount in 1,000's	By Number	By Amount	By Number	By Amount
MALE LIVES								
1- 2...	1,584	\$ 2,447	1,189	\$ 8,687	118%	112%	108%	100%
3- 5...	2,471	3,728	1,812	12,600	111	108	104	98
6-10...	5,196	7,319	2,611	18,577	104	104	102	103
11 and up	43,141	59,986	16,556	123,392	109	109	102	100
All..	52,392	\$73,480	22,168	\$163,256	109%	108%	103%	100%
FEMALE LIVES								
1- 2...	775	\$ 891	29	\$ 218	81%	82%	64%	62%
3- 5...	998	1,148	54	434	70	70	71	77
6-10...	1,605	1,759	55	417	61	60	51	48
11 and up	10,011	11,170	441	3,568	69	69	71	62
All..	13,389	\$14,968	579	\$ 4,635	69%	69%	68%	61%

Female Ultimate Mortality Compared with Male Ultimate

As shown in Table 10, the female mortality ratios are less than 50% of male ratios prior to attained age 25. After age 25, ratios of female to male rates increase sharply with age, reaching a maximum of 83% at ages 30-34. The ratios then decrease with age, reaching a low of 55-60% at about age 60. From that point on, the relative difference between male and female rates decreases with increasing age.

Female Select Mortality Compared with Male Select

In the select data the relationship of female to male mortality is similar to that found in the ultimate. However, at the early durations the ratios of female to male rates at attained ages 25-44 are generally higher than in the ultimate data, and over age 45 the ratios are lower than those obtained from the ultimate data. These results could be explained by more effective antiselection by females at the younger adult ages and very careful underwriting, especially with regard to speculation, at the older ages. Even at the juvenile ages female mortality is appreciably better than that of male lives.

TABLE 1
POLICY YEARS 1-2

AGES AT ISSUE	ACTUAL CLAIMS				RATIO OF ACTUAL TO EXPECTED CLAIMS			
	Under \$5,000		\$5,000 and over		Under \$5,000		\$5,000 and over	
	Number	Amount in 1,000's	Number	Amount in 1,000's	By Number	By Amount	By Number	By Amount
MALE LIVES								
0- 4.....	610	\$ 643	12	\$ 60	105%	104%	118%	115%
5- 9.....	17	19	1	5	171	167	*	*
10-14.....	21	24	5	25	137	138	99	89
15-19.....	78	102	82	439	146	149	128	129
20-24.....	103	186	170	987	140	131	109	105
25-29.....	76	176	183	1,242	86	82	95	90
30-34.....	105	247	156	1,271	124	114	97	96
35-39.....	95	194	135	1,164	98	85	89	88
40-44.....	109	237	138	1,065	113	108	104	91
45-49.....	121	226	121	880	135	119	119	94
50-54.....	123	226	98	798	166	161	149	134
55-59.....	59	81	64	487	128	116	158	113
60-64.....	38	49	21	245	143	129	156	217
65 and over..	29	38	3	18	310	287	*	*
All Ages..	1,584	\$2,447	1,189	\$8,687	118%	112%	108%	100%
FEMALE LIVES								
0- 4.....	426	\$ 438	1	\$ 5	89%	87%	*	*
5- 9.....	16	16	0	0	222	201	.....	.....
10-14.....	4	4	1	5	*	*	*	*
15-19.....	32	37	1	5	60	62	*	*
20-24.....	57	74	3	15	60	66	*	*
25-29.....	40	49	4	33	71	70	*	*
30-34.....	34	52	3	35	87	102	*	*
35-39.....	50	63	10	64	109	105	178%	153%
40-44.....	42	56	3	18	87	88	*	*
45-49.....	23	31	2	18	55	54	*	*
50-54.....	20	35	1	20	56	76	*	*
55-59.....	18	21	0	0	77	76	.....	.....
60-64.....	8	10	0	0	63	70	.....	.....
65 and over..	5	6	0	0	141	133	.....	.....
All Ages..	775	\$ 891	29	\$ 218	81%	82%	64%	62%

* Ratio not shown—less than five deaths.

TABLE 2
POLICY YEARS 3-5

AGES AT ISSUE	ACTUAL CLAIMS				RATIO OF ACTUAL TO EXPECTED CLAIMS			
	Under \$5,000		\$5,000 and over		Under \$5,000		\$5,000 and over	
	Number	Amount in 1,000's	Number	Amount in 1,000's	By Number	By Amount	By Number	By Amount
MALE LIVES								
0-4.....	356	\$ 376	2	\$ 10	114%	114%	*	*
5-9.....	21	26	0	0	83	94	.....	.....
10-14.....	58	72	9	45	111	122	94%	84%
15-19.....	157	201	105	574	127	130	164	171
20-24.....	137	210	199	1,106	76	71	97	97
25-29.....	155	258	222	1,422	91	83	98	101
30-34.....	198	354	219	1,460	117	112	98	93
35-39.....	285	489	286	2,029	124	119	108	100
40-44.....	302	512	275	2,011	121	115	104	96
45-49.....	244	412	243	2,009	97	97	111	110
50-54.....	246	383	136	880	119	115	93	67
55-59.....	182	263	78	694	122	124	92	94
60-64.....	100	135	31	285	131	135	107	113
65 and over..	30	39	7	76	152	140	165	113
All Ages.	2,471	\$3,728	1,812	\$12,600	111%	108%	104%	98%
FEMALE LIVES								
0-4.....	216	\$ 224	1	\$ 5	85%	85%	*	*
5-9.....	10	10	1	5	58	55	*	*
10-14.....	24	24	0	0	79	74	.....	.....
15-19.....	66	73	1	5	54	55	*	*
20-24.....	125	142	2	10	59	60	*	*
25-29.....	97	113	8	46	76	77	151%	131%
30-34.....	79	98	6	40	83	85	97	102
35-39.....	124	144	5	25	100	96	47	34
40-44.....	82	105	13	104	65	67	90	102
45-49.....	74	98	6	58	63	66	45	50
50-54.....	51	66	8	75	52	55	94	117
55-59.....	29	32	3	60	47	43	*	*
60-64.....	11	11	0	0	36	31	.....	.....
65 and over..	10	10	0	0	107	103	.....	.....
All Ages.	998	\$1,148	54	\$ 434	70%	70%	71%	77%

* Ratio not shown—less than five deaths.

TABLE 3
POLICY YEARS 6-10

AGES AT ISSUE	ACTUAL CLAIMS				RATIO OF ACTUAL TO EXPECTED CLAIMS			
	Under \$5,000		\$5,000 and over		Under \$5,000		\$5,000 and over	
	Number	Amount in 1,000's	Number	Amount in 1,000's	By Number	By Amount	By Number	By Amount
MALE LIVES								
0- 4	204	\$ 206	0	\$ 0	115%	114%		
5- 9	57	62	0	0	124	131		
10-14	142	154	13	65	124	125		
15-19	281	320	64	336	101	98	108%	100%
20-24	266	368	102	592	98	101	79	82
25-29	358	539	224	1,445	118	120	109	121
30-34	498	760	333	2,241	110	110	100	107
35-39	669	1,041	471	3,226	108	110	104	107
40-44	692	1,036	481	3,549	92	92	102	106
45-49	713	1,046	442	3,235	100	100	108	102
50-54	669	937	275	2,217	110	109	107	104
55-59	404	532	153	1,246	99	94	95	96
60-64	185	250	39	331	85	91	82	63
65 and over..	58	70	14	94	134	122	95	66
All Ages.	5,196	\$7,319	2,611	\$18,577	104%	104%	102%	103%
FEMALE LIVES								
0- 4	126	\$ 126	1	\$ 5	87%	86%	*	*
5- 9	8	8	0	0	25	25		
10-14	42	42	0	0	64	60		
15-19	117	120	1	5	50	49	*	*
20-24	218	232	1	5	58	58	*	*
25-29	184	195	4	21	85	83	*	*
30-34	179	204	5	34	82	83	67%	69%
35-39	216	241	13	160	73	72	90	176
40-44	170	188	8	41	53	51	40	29
45-49	134	156	9	60	46	46	47	36
50-54	98	115	9	65	44	44	53	48
55-59	71	91	4	20	49	56	*	*
60-64	32	31	0	0	58	50		
65 and over..	10	10	0	0	56	61		
All Ages.	1,605	\$1,759	55	\$ 417	61%	60%	51%	48%

* Ratio not shown—less than five deaths.

TABLE 4
POLICY YEARS 1-10

AGES AT ISSUE	ACTUAL CLAIMS				RATIO OF ACTUAL TO EXPECTED CLAIMS			
	Under \$5,000		\$5,000 and over		Under \$5,000		\$5,000 and over	
	Number	Amount in 1,000's	Number	Amount in 1,000's	By Number	By Amount	By Number	By Amount
MALE LIVES								
0- 4.....	1,170	\$ 1,224	14	\$ 70	109%	109%	112%	109%
5- 9.....	95	106	1	5	117	124	*	*
10-14.....	221	250	27	135	121	125	102	92
15-19.....	516	623	251	1,349	113	113	133	136
20-24.....	506	764	471	2,685	97	95	96	96
25-29.....	589	974	629	4,110	105	100	100	103
30-34.....	801	1,360	708	4,973	113	111	99	99
35-39.....	1,049	1,723	892	6,419	111	109	103	101
40-44.....	1,103	1,785	894	6,626	101	100	103	100
45-49.....	1,078	1,684	806	6,124	102	102	110	103
50-54.....	1,038	1,546	509	3,894	117	116	109	96
55-59.....	645	876	295	2,427	106	103	103	98
60-64.....	323	433	91	861	101	105	101	96
65 and over.	117	147	24	187	162	150	115	79
All Ages	9,251	\$13,494	5,612	\$39,864	108%	106%	104%	101%
FEMALE LIVES								
0- 4.....	768	\$ 788	3	\$ 15	87%	86%	*	*
5- 9.....	34	34	1	5	61	58	*	*
10-14.....	70	70	1	5	66	62	*	*
15-19.....	215	229	3	15	52	52	*	*
20-24.....	400	448	6	30	58	60	53%	45%
25-29.....	321	357	16	100	80	79	116	107
30-34.....	292	354	14	109	83	86	78	94
35-39.....	390	447	28	249	84	82	91	121
40-44.....	294	349	24	164	59	59	58	56
45-49.....	231	285	17	137	51	52	44	39
50-54.....	169	217	18	160	47	50	60	67
55-59.....	118	144	7	80	51	55	43	57
60-64.....	51	51	0	0	52	47	.....	.....
65 and over.	25	25	0	0	81	84	.....	.....
All Ages	3,378	\$ 3,798	138	\$ 1,068	67%	67%	60%	60%

* Ratio not shown—less than five deaths.

TABLE 5
POLICY YEARS 11 AND UP

ATTAINED AGES	ACTUAL CLAIMS				RATIO OF ACTUAL TO EXPECTED CLAIMS			
	Under \$5,000		\$5,000 and over		Under \$5,000		\$5,000 and over	
	Number	Amount in 1,000's	Number	Amount in 1,000's	By Number	By Amount	By Number	By Amount
MALE LIVES								
10-14	32	\$ 32	0	\$ 0	129%	129%		
15-19	24	24	0	0	188	187		
20-24	128	126	3	15	128	125	*	*
25-29	368	393	31	165	112	113	102%	103%
30-34	666	743	102	517	104	102	83	77
35-39	1,437	1,766	323	1,807	120	118	93	94
40-44	2,494	3,310	890	5,331	109	105	102	104
45-49	3,808	5,254	1,713	10,535	104	100	104	102
50-54	5,189	7,369	2,489	17,115	101	99	98	101
55-59	6,738	9,655	3,130	22,786	107	106	102	103
60-64	7,341	10,833	3,079	22,969	107	110	106	101
65-69	6,372	8,953	2,342	19,505	110	111	101	100
70-74	4,627	6,458	1,532	13,772	115	120	105	107
75-79	2,651	3,440	668	5,746	122	123	97	82
80-84	1,062	1,370	211	2,696	134	125	93	95
85-89	188	233	36	360	88	78	73	47
90-94	15	25	7	74	103	138	255	327
95-99	1	1	0	0	*	*		
All Ages.	43,141	\$59,986	16,556	\$123,392	109%	109%	102%	100%
FEMALE LIVES								
10-14	9	\$ 9	0	\$ 0	45%	45%		
15-19	6	6	0	0	63	63		
20-24	36	35	0	0	58	56		
25-29	128	131	1	5	68	69	*	*
30-34	322	332	1	5	83	83	*	*
35-39	587	624	2	10	87	88	*	*
40-44	766	834	9	65	71	70	47%	45%
45-49	984	1,090	38	372	64	64	78	120
50-54	1,235	1,387	53	325	59	59	61	50
55-59	1,429	1,645	93	835	61	62	78	92
60-64	1,317	1,484	73	546	62	61	69	54
65-69	1,161	1,287	65	495	70	70	66	42
70-74	994	1,126	53	375	82	82	73	47
75-79	669	746	30	312	92	91	65	56
80-84	298	350	16	121	112	122	127	99
85-89	60	72	7	102	110	111	253	460
90-94	9	9	0	0	76	76		
95-99	1	4	0	0	*	*		
All Ages.	10,011	\$11,170	441	\$ 3,568	69%	69%	71%	62%

* Ratio not shown—less than five deaths.

TABLE 6
GRADUATED MORTALITY RATES PER 1,000
MALES AND FEMALES COMBINED

AGES AT ISSUE	POLICY YEAR									
	1	2	3	4	5	6	7	8	9	10
0	3.23	1.09	.82	.71	.61	.53	.47	.41	.37	.35
1	.80	.73	.66	.59	.53	.47	.41	.37	.35	.38
2	.57	.57	.55	.51	.47	.41	.37	.35	.38	.45
3	.40	.45	.45	.44	.41	.37	.35	.38	.45	.51
4	.30	.37	.40	.39	.37	.35	.38	.45	.51	.56
5-9	.25	.29	.33	.37	.44	.51	.56	.64	.72	.78
10-14	.37	.46	.58	.69	.77	.79	.81	.84	.89	.97
15-19	.59	.68	.76	.84	.93	1.00	1.06	1.11	1.15	1.19
20-24	.68	.78	.87	.93	1.00	1.07	1.12	1.16	1.18	1.20
25-29	.80	.90	.98	1.02	1.05	1.09	1.15	1.24	1.36	1.55
30-34	.82	.94	1.05	1.19	1.40	1.57	1.83	2.08	2.39	2.70
35-39	1.00	1.34	1.60	1.94	2.31	2.83	3.34	3.82	4.24	4.67
40-44	1.45	2.08	2.63	3.08	3.59	4.40	5.45	6.50	7.38	8.33
45-49	1.98	3.37	4.31	5.11	5.94	7.28	8.55	9.60	10.68	12.00
50-54	2.80	5.00	6.29	7.33	8.50	10.15	12.50	14.62	16.32	18.37
55-59	4.43	7.72	9.63	11.13	13.60	16.50	19.45	21.80	24.12	26.65
60-64	6.63	11.57	14.25	16.39	19.40	23.60	28.80	32.10	35.36	38.80
65 and over	8.87	15.27	18.88	21.39	24.75	30.00	36.80	42.00	46.56	50.80

TABLE 7
GRADUATED RATES PER 1,000
MALES AND FEMALES COMBINED
POLICY YEARS 11 AND UP

Attained Age	Mortality Rate	Attained Age	Mortality Rate	Attained Age	Mortality Rate
10.....	.48	40.....	2.39	70.....	41.60
11.....	.48	41.....	2.73	71.....	45.10
12.....	.51	42.....	3.15	72.....	48.90
13.....	.56	43.....	3.55	73.....	52.80
14.....	.64	44.....	3.91	74.....	56.75
15.....	.72	45.....	4.28	75.....	60.90
16.....	.78	46.....	4.72	76.....	65.30
17.....	.80	47.....	5.43	77.....	70.70
18.....	.82	48.....	6.35	78.....	76.40
19.....	.84	49.....	7.26	79.....	83.40
20.....	.89	50.....	8.01	80.....	91.00
21.....	.97	51.....	8.68	81.....	99.90
22.....	1.03	52.....	9.32	82.....	109.00
23.....	1.09	53.....	10.12	83.....	119.10
24.....	1.13	54.....	11.03	84.....	129.50
25.....	1.17	55.....	12.02	85.....	140.50
26.....	1.19	56.....	13.10	86.....	153.00
27.....	1.20	57.....	14.28	87.....	167.00
28.....	1.21	58.....	15.75	88.....	182.00
29.....	1.21	59.....	17.20	89.....	197.50
30.....	1.21	60.....	18.55	90.....	214.00
31.....	1.21	61.....	20.30	91.....	231.50
32.....	1.21	62.....	22.10	92.....	249.98
33.....	1.23	63.....	24.10	93.....	269.11
34.....	1.27	64.....	26.27	94.....	288.47
35.....	1.37	65.....	28.46	95.....	308.57
36.....	1.55	66.....	30.68	96.....	328.84
37.....	1.72	67.....	32.95	97.....	349.77
38.....	1.89	68.....	35.70	98.....	518.48
39.....	2.10	69.....	38.50	99.....	1,000.00

TABLE 8

FEMALE EXPOSURE AS PERCENTAGE OF TOTAL EXPOSURE BY AMOUNTS

AGES AT ISSUE	POLICY YEAR										
	1	2	3	4	5	6	7	8	9	10	1-10
0.....	43.7	44.9	44.7	44.5	44.5	44.7	45.1	45.5	45.8	45.8	44.7
1.....	41.0	42.7	42.8	43.0	44.1	44.6	45.7	45.7	44.9	45.4	43.5
2.....	40.4	42.4	41.8	42.8	41.8	42.2	42.5	42.5	44.3	42.6	42.1
3.....	40.8	42.1	43.8	43.8	43.2	42.6	41.8	40.0	42.1	41.2	42.4
4.....	35.0	38.3	40.9	40.4	41.0	43.0	42.5	45.3	45.6	43.6	40.6
5-9.....	31.5	34.1	35.2	35.9	37.2	38.0	39.0	39.5	41.6	42.3	36.3
10-14.....	22.4	24.3	23.9	24.6	25.7	25.9	27.3	28.5	28.1	31.2	25.9
15-19.....	13.5	15.6	19.3	22.7	26.4	30.6	31.3	29.7	26.0	23.4	22.1
20-24.....	10.3	11.6	11.9	15.5	20.1	25.2	42.9	33.1	24.9	20.6	17.3
25-29.....	5.4	6.7	7.5	9.7	12.4	14.2	19.2	14.9	11.8	11.0	9.4
30-34.....	4.5	5.2	6.1	7.5	9.2	10.0	11.1	9.9	8.5	8.8	7.1
35-39.....	5.7	6.5	7.2	8.4	9.6	9.8	10.5	9.9	9.2	9.3	8.0
40-44.....	7.1	7.7	8.3	9.2	10.1	10.2	10.7	10.3	9.7	10.6	8.9
45-49.....	9.4	10.3	10.4	10.5	10.7	10.6	10.2	11.1	11.1	10.9	10.4
50-54.....	11.0	10.2	10.9	9.5	9.7	10.0	10.5	12.3	11.8	14.5	10.7
55-59.....	8.8	8.7	11.1	12.3	11.7	11.3	10.5	10.4	9.4	13.2	10.5
60-64.....	12.0	12.5	12.1	13.3	12.4	12.4	14.3	13.7	19.6	18.7	13.7
65 and over.....	28.7	26.1	14.5	21.6	27.5	22.1	31.0	26.5	26.7	31.3	24.9
All Ages.....	10.0	11.5	12.6	14.9	17.2	18.8	22.0	19.8	17.0	15.9	14.6

TABLE 9

FEMALE EXPOSURE AS PERCENTAGE OF
TOTAL EXPOSURE BY AMOUNTS
Policy Years 11 and Up

Attained Ages	Percentage	Attained Ages	Percentage
10-14.....	44.7%	60-64.....	9.4%
15-19.....	42.7	65-69.....	9.8
20-24.....	36.2	70-74.....	10.5
25-29.....	27.9	75-79.....	12.4
30-34.....	22.9	80-84.....	9.5
35-39.....	18.4	85-89.....	7.7
40-44.....	14.0	90-94.....	22.4
45-49.....	11.6	95-99.....	79.1
50-54.....	11.0		
55-59.....	10.3	All Ages.....	14.0%

TABLE 10

PRUDENTIAL 1948-1952 EXPERIENCE POLICY YEARS 11 AND UP		UNITED STATES WHITE POPULATION EXPERIENCE, 1949*	
Attained Ages	Ratio of Female Ratios of Actual to Expected Deaths by Policies to Corresponding Male Ratios	Age	Ratio of Female Mortality Rate to Male Mortality Rate
10-14	.35	12	.62
15-19	.34	17	.50
20-24	.45	22	.47
25-29	.61	27	.59
30-34	.83	32	.67
35-39	.76	37	.64
40-44	.65	42	.60
45-49	.63	47	.57
50-54	.59	52	.55
55-59	.59	57	.55
60-64	.58	62	.56
65-69	.65	67	.64

* Obtained from Statistical Bulletin, Metropolitan Life Insurance Co., Nov. 1951.

TABLE 11
TOTAL TERMINATIONS IN CALENDAR YEAR AS PERCENTAGE OF IN-FORCE
AT BEGINNING OF CALENDAR YEAR
By Number of Policies

AGES AT ISSUE	CALENDAR YEAR										
	1	2	3	4	5	6	7	8	9	10	
0- 9	Male	1.1	5.0	3.5	2.9	2.7	2.2	2.1	1.6	1.3	1.0
	Female	1.2	5.1	3.7	3.0	2.6	2.5	2.0	1.5	1.4	1.1
10-19	Male	2.8	7.1	4.0	3.1	3.0	2.9	2.9	3.3	3.5	2.9
	Female	1.9	6.9	4.9	3.5	3.1	3.4	2.9	2.9	3.0	2.5
20-29	Male	6.7	14.0	8.1	5.6	4.6	6.5	3.3	3.0	2.5	2.0
	Female	2.6	8.1	5.0	4.2	3.3	3.2	2.9	2.6	1.8	1.6
30-39	Male	4.5	10.7	6.1	4.2	3.6	4.8	2.7	2.5	2.1	1.8
	Female	2.5	6.8	4.0	2.7	2.6	2.2	1.9	2.1	1.6	1.5
40-49	Male	3.0	7.5	4.8	3.1	2.7	3.6	2.4	1.8	1.5	1.3
	Female	2.3	4.8	3.8	1.9	2.5	1.8	1.9	1.5	1.6	1.5
50 and over	Male	2.6	5.9	3.2	3.0	2.4	3.4	1.7	2.1	2.2	1.8
	Female	2.2	4.8	2.5	3.0	1.9	2.8	1.9	1.1	2.2	2.8
All	Male	4.3	9.9	5.7	4.2	3.5	4.3	2.6	2.4	2.3	2.0
	Female	1.9	6.3	4.2	3.3	2.9	2.8	2.5	2.2	1.9	1.7

Female Data As a Proportion of the Total Data

Female exposures as percentages of total exposures are shown in Tables 8 and 9. The high proportion of issues on female lives at ages 15-39 during World War II show up in our study primarily in policy years 5-9. For issue ages 20-24, the exposure is 42.9% female in policy year 7 compared to only 10.3% in policy year 1 and 20.6% in policy year 10. Consequently, the combined experience was far from homogeneous. It is possible that some of the fluctuations we remove in graduating a combined experience are caused by sharply varying proportions of female data in the experience. Although the proportion of our business issued on female lives was higher before the war than it was after the war, the difference is not

TABLE 12
PERCENTAGE OF AMOUNTS IN FORCE ON JUNE 30, 1950
WRITTEN ON A NONMEDICAL BASIS

AGES AT ISSUE	YEAR OF ISSUE				
	1930	1935	1940	1945	1950
0-29.....	27.1*	40.4*	48.4	76.4	71.4
30-39.....	8.9	10.7	14.6	20.6	22.9

* Minimum issue age 10.

as great as indicated by Table 8 because termination rates for females are less than those for males.

Persistency

The crude total termination rates given in Table 11 show better persistency for the female business at issue ages 20-50. The male terminations for calendar year 6 may be high because of lapses of Modified 5 policies, which are written almost exclusively on male lives.

Comparison with Population Data

The relationship of female to male mortality in our experience is compared with that of recent U.S. population data in Table 10. For our data at policy years 11 and up we show ratios of female to male mortality by policies, and from 1949 U.S. population data we show ratios of white female crude rates to white male crude rates. Except below age 25 where we had few deaths, our ratios are consistently higher than the population figures. The excess is less than 6 points, except at ages 30-34 where our ratio is .83 compared to a population figure of .67 and at ages 35-39 where our ratio is .76 compared to a population .64.

General Remarks

The data are heavily weighted—about 70% of the total—by business written by our district agencies, which sell both Ordinary and Debit Insurance.

Also, a large part of the experience at the younger ages is made up of nonmedical business. The figures in Table 12 for our total standard Ordinary business (including Monthly Debit Ordinary) suggest its extent. At issue ages under 30, almost all of the select portion of the experience for amounts under \$5,000 is nonmedical and the male data at those ages in the first two policy years for amounts \$5,000 and over contain considerable nonmedical business, since our nonmedical limit for males and single females was raised to \$10,000 in April 1949.

Married women have been written nonmedically since 1943, with an amount limit one-half of that for males and single females. In other respects, too, our underwriting of married females has been somewhat stricter than for males. Insurance has usually been limited to nominal amounts and applications for larger amounts have been carefully checked for speculation. Although we are now taking a much more liberal attitude toward insurance on dependent women, coverage on term plans or for amounts over \$5,000 is granted only when the husband's program is considerably larger.

The lower mortality experienced by the \$5,000 and over amount groups compared to the under \$5,000 groups might be traced to several causes. At the younger ages the larger proportion of nonmedical business in the smaller amount group is a factor. Also, we order inspection reports only on selected cases below \$5,000. Larger amounts are subject to more careful underwriting and increased medical requirements. That the amounts under \$5,000 are drawn more frequently from social levels subject to higher mortality is suggested by the persistence of the mortality differential at durations where the effects of selection have largely worn off.

For females, the mortality differences favoring the \$5,000 and over group are not as pronounced as for males. Comparisons of select data based on ratios for all ages combined exaggerate the higher mortality of the under \$5,000 group because this group contains a much larger proportion of business at the infantile ages where the ratios are much higher than at the adult ages.

Mortality standards for each sex are useful for an intelligent interpretation of mortality results. By the use of composite standard tables for expected deaths which reflect the distribution of business by sex in each class, comparisons of mortality experience can be made without actually extracting the experience for males and females separately each time such a comparison is made.