

**MORTALITY EXPERIENCED DURING THE PERIOD 1967-70  
BY PURCHASERS OF RETIREMENT ANNUITIES UNDER  
THE PROVISIONS OF THE FINANCE ACT, 1956**

THIS is the third report on the mortality experienced by purchasers of retirement annuities under the provisions of the Finance Act, 1956, the first two relating to the periods 1958-62 and 1963-66 respectively.

Considering first the experiences during the period of deferment, the expected deaths for 1958-62 had been calculated on the  $\alpha(55)$  ultimate table for both sexes, and on the A 1949-52 table for males. For 1963-66 the E.L.T. No. 12 was employed as an additional basis. The following table demonstrates that, for the males, the mortality experienced in 1967-70 was actually higher than that experienced by assured lives during the same period, except at ages 51 to 60 where there was no significant difference between the two experiences, and at ages over 60 where the retirement annuity experience had presumably been affected by the reverse selection resulting from transfer from 'deferment' to 'in course of payment' on early retirement through ill-health.

*Comparison of actual and expected deaths by the A 1949-52 table (medical and non-medical combined), 1967-70*

Age group (nearest ages)	100 A/E (assured lives durms. 2 and over)	100 A/E (retirement annuities, males, during deferment)
-30	63	75
31-35	58	82
36-40	72	85
41-45	81	93
46-50	81	89
51-55	80	79
56-60	82	84
61-65	85	76
66-70	85	65

The true difference between the two experiences may be even more marked, when it is remembered that the assured lives' data are believed to be subject to selective withdrawal by surrender whereas the retirement annuitants' data are not. In fact the retirement annuity male mortality starts, at the youngest ages, about midway between the mortality of assured lives in the same period and the E.L.T. 12 male mortality, and as age increases the experience moves

Table 1. *Mortality under retirement annuities during the period of deferment. Comparison of actual deaths 1967-70 with expected deaths on two bases*

Age group (nearest ages)	Actual deaths 1967-70	Expected deaths 1967-70	Basis for expected deaths					
			A 1949-52 ultimate			E.L.T. No. 12		
			100 A/E 1967-70	100 A/E 1963	100 A/E 1958	Expected deaths 1967-70	100 A/E 1967	100 A/E 1963
Non-medical data, male lives								
-30	11	14.63	75	147	112	13.62	81	157
31-35	25	30.18	83	90	102	33.14	75	82
36-40	60	72.50	83	96	106	89.51	67	78
41-45	165	175.64	94	91	95	216.49	76	74
46-50	378	418.21	90	90	85	504.99	75	74
51-55	714	889.83	80	97	84	1116.73	64	78
56-60	1347	1593.73	85	86	81	2097.32	64	66
61-65	1264	1653.89	76	86	83	2186.52	58	65
66-70	355	542.25	65	72	67	688.82	52	56
Up to 50	639	711.16	90	92	91	857.75	74	76
51 & over	3680	4679.70	79	87	81	6089.39	60	67
All ages	4319	5390.86	80	88	83	6947.14	62	69
Medical data, male lives								
Up to 50	8	14.24	56	61	*	17.22	46	51
51 & over	45	93.25	48	60	*	121.25	37	46
All ages	53	107.49	49	60	*	138.47	38	47
Non-medical data, female lives†								
-40	4					4.92	81	206
41-45	10					11.56	87	74
46-50	19					29.10	65	84
51-55	49					57.81	85	53
56-60	69					99.73	69	89
61-65	56					85.84	65	65
66-70	12					22.46	53	57
Up to 50	33					45.58	72	96
51 & over	186					265.84	70	71
All ages	219					311.42	70	75

\* Not available.

† The A 1949-52 table is not appropriate to female lives and no calculations have been made on that basis.

closer to the assured lives' experience. This seems to demonstrate the unsuitability of a table as light as the  $\alpha(55)$  for comparing mortality under retirement annuities during deferment, and accordingly comparison on this table has been discontinued.

Table 1 shows the experience during the period of deferment, non-medical and medical data shown separately, compared with the A 1949-52 table for males and with E.L.T. No. 12 for both sexes; no figures, however, are shown for the female medical data, where there were only 124 years of life exposed to risk during 1967-70, with one death. The male non-medical experience was broadly similar to the experience of 1958-62, and mortality was generally lower than in 1963-66, as was mortality in the rather scanty male medical data and the female data. The female mortality was nearer to the national table than the male mortality at all age groups except 46-50.

Table 2. *Mortality under non-medical retirement annuities in course of payment (excluding retirements before age 60). Comparisons of actual deaths 1967-70 with expected deaths according to the  $\alpha(55)$  ultimate table*

Age group (nearest ages)	Males				Females			
	Actual deaths	Expected deaths	100 A/E 1967-70	100 A/E 1963-66	Actual deaths	Expected deaths	100 A/E 1967-70	100 A/E 1963-66
-65	265	241.72	110	131	32	33.09	97	134
66-70	725	731.20	99	101	37	55.49	67	93
71-75	423	523.16	81	80	20	30.02	67	48
76-	141	189.41	74	85	4	5.73		
All ages	1554	1685.49	92	97	93	124.33	75	100

When the report on 1963-66 was prepared, it was observed that the mortality experienced tended at many ages to be higher than in 1959-62, and it was inferred that duration since entry might be an important factor. The present report shows a reversal of this trend, mortality having fallen since 1963-66, and the suggestion concerning duration since entry appears to be invalidated.

Table 2 shows the experience in respect of retirement annuities in course of payment, excluding the medical data which were so scanty that only 18 deaths occurred at all ages and both sexes; and excluding also early retirements where there were 28 deaths before and 23 after age 60. Mortality has generally been lighter than in 1963-66 at those ages where there is any significant difference between the two periods.

In view of the selective transfers from the deferred period experience to the annuities in course of payment, the data have again been merged as they were in the previous report, but this time the comparison has been on the basis of E.L.T. No. 12. The results are given in Table 3 and show that mortality diverges from the national table with advancing age.

It is difficult to summarize, or to draw any firm conclusions. Presumably the medical data are cases where dependants' benefits are insured, whereas only a proportion of the non-medical data would cover these benefits. It would therefore seem reasonable to regard the experience during deferment as if it

Table 3. *Mortality under retirement annuities, combining the data during deferment and after retirement (including retirements before age 60) for both medical and non-medical sections. Comparison of actual deaths 1967-70 with expected deaths*

Age group (nearest ages)	Actual deaths	Expected deaths (E.L.T. 12)	100 A/E
<b>Male lives</b>			
41-45	167	221.11	76
46-50	383	515.70	74
51-55	729	1141.87	64
56-60	1395	2156.73	65
61-65	1554	2619.61	59
66-70	1099	1850.87	59
71-75	427	767.70	56
76-80	132	236.44	56
81-85	9	18.65	48
41-85	5895	9528.68	62
<b>Female lives</b>			
41-45	11	11.61	95
46-50	19	29.18	65
51-55	49	58.03	84
56-60	72	110.33	65
61-65	87	127.51	68
66-70	49	96.39	51
71-75	21	41.31	51
76-80	4	7.71	52
41-80	312	482.07	65

were an assured lives' experience, and the fact that this would tend to underestimate mortality at the younger ages may be on the safe side from the office's point of view. After normal retirement the experience tends toward that of immediate annuitants in the ultimate period, but with relatively scanty data (particularly for the females) comparisons are hard to make. It will be interesting to test the experiences against any new standard tables which might be compiled.