CONTINUOUS MORTALITY INVESTIGATION: ASSURED LIVES 1939–43

STATISTICS have recently been published for the 5-year period 1939–43 of the exposed to risk and deaths at each age for each year of duration 0–4 and for durations 5 and over. The particulars are given separately for the medical and non-medical sections and for each of the four classes of assurance and are in similar form to those published for the previous 15 years of the investigation. Copies have been sent to the contributing offices and a supply is available for reference at the Institute and at the Faculty of Actuaries. A few copies are available for sale at 5s. each.

Tables are appended to this note showing the rates of mortality in 5-year age groups for durations 0, 1 and 2 years and for combined durations 3 years and over. The deaths are also shown in order that the tables may be consistent with those previously published (*J.I.A.* Vol. LXXI, p. 264 and *T.F.A.* Vol. XVII, p. 81) covering the 15 years 1924–38. The purpose of tabulating the deaths is to provide some idea of the weight of the statistics on which the rates of mortality are based.

The table on the opposite page shows the ratios of the actual deaths to those expected by the A 1924–29 table in each of the five calendar years 1939–43 for various classes of assurance and for various combinations of durations and ages. This table is similar in form to that given in *J.I.A.* Vol. LXXI, pp. 272–3 and in *T.F.A.* Vol. XVII, pp. 94–5, covering the previous 15 years of the investigation. Caution is needed in interpreting these percentages owing to the effect of the war and the varying age incidence in different classes. The time-lag in intimating deaths has probably varied from year to year, especially during the period now under review.

CHILDREN'S DEFERRED ASSURANCES

Particulars of the mortality experienced in this class are brought up to date in the table below, which shows the exposed to risk and deaths and those expected by the A 1924–29 ultimate table. The final column shows the ratio of the actual less the expected deaths to the expected deaths, expressed as a percentage.

Children's deferred assurances

Calendar year	Exposed to risk	Actual deaths	Expected deaths	(A − E)/E %
1939	13297½	34	36·24	− 6
1940	16025½	96	43·71	+120
1941	17610½	174	48·38	+260
1942	19539	199	54·03	+268
1943	21519½	254	59·95	+324
1939–43	87992	757	242·31	+212

The figures in this table, as also those in the note previously published (*J.I.A.* Vol. LXXI, pp. 261–3 and *T.F.A.* Vol. XVII, pp. 83–5), relate to vested assurances only.

APPENDIX

Table of ratios of actual deaths to those expected by the A 1924–29 table

Class and duration	Calendar year				
	1939	1940	1941	1942	1943
All classes and durations (Medical and Non-medical)	·887	1·015	1·027	·976	·960
All classes and durations (Medical)	·886	·984	·978	·922	·893
All classes and durations (Non-medical)	·889	1·097	1·149	1·107	1·120
Life P—all durations (Medical)	·938	·997	·969	·890	·870
Life N—all durations (Medical)	·901	·970	·969	·891	·834
E.A.P.—all durations (Medical)	·819	·978	1·003	·980	·956
E.A.N.—all durations (Medical)	·746	·903	·921	·917	·826
Life P—all durations (Non-medical)	1·020	1·155	1·049	1·043	1·119
Life N—all durations (Non-medical)	1·004	·978	1·284	1·177	1·049
E.A.P.—all durations (Non-medical)	·882	1·096	1·154	1·111	1·121
E.A.N.—all durations (Non-medical)	·731	1·100	1·142	1·102	1·143
All classes—durations 0–2 (Medical and Non-medical)	·788	1·205	1·389	1·241	1·101
All classes—durations 0–2 (Medical)	·742	1·050	1·197	1·063	·945
All classes—durations 0–2 (Non-medical)	·841	1·386	1·614	1·440	1·264
Life classes—durations 3 and over (Medical)	·937	·989	·962	·885	·861
E.A. classes—durations 3 and over (Medical)	·820	·964	·975	·967	·940
Life classes—durations 3 and over (Non-medical)	1·024	1·081	1·053	1·033	1·063
E.A. classes—durations 3 and over (Non-medical)	·877	1·054	1·101	1·078	1·106
All classes and all ages—durations 5 and over (Medical and Non-medical)	·908	1·001	·984	·932	·925
All classes ages up to 50—durations 5 and over (Medical and Non-medical)	·799	1·056	1·186	1·183	1·250
All classes ages from 51–70—durations 5 and over (Medical and Non-medical)	·946	1·005	·926	·876	·818
All classes ages from 71—durations 5 and over (Medical and Non-medical)	·921	·962	·936	·845	·851

Tables of deaths and group rates of mortality

Age group	Actual deaths				Rate of mortality			
	Duration 0	Duration 1	Duration 2	Durations 3 and over	Duration 0	Duration 1	Duration 2	Durations 3 and over
Life—with profits								
20½–24½	13	18	39	164	·00502	·00535	·01102	·01479
25½–29½	13	22	44	326	·00359	·00434	·00686	·00857
30½–34½	6	17	12	317	·00207	·00450	·00247	·00534
35½–39½	3	11	11	263	·00131	·00384	·00323	·00410
40½–44½	3	7	9	286	·00165	·00320	·00335	·00424
45½–49½	6	6	20	508	·00287	·00263	·00759	·00629
50½–54½	13	27	25	966	·00494	·00889	·00731	·00999
55½–59½	32	32	40	2127	·01097	·00968	·01016	·01540
60½–64½	21	55	45	3933	·00849	·01787	·01225	·02380
65½–69½	27	35	51	6119	·02924	·02415	·02675	·03688
70½–74½	1	3	11	8040	·01739	·01974	·04143	·05895
75½–79½	—	—	1	8710	—	—	·00000	·09306
80½–84½	—	—	—	7255	—	—	·66667	·14711
85½–89½	—	—	—	3830	—	—	—	·20741
90½–94½	—	—	—	1112	—	—	—	·27936
95½–99½	—	—	—	174	—	—	—	·36326
100½–	—	—	—	5	—	—	—	·23256
Life—without profits								
20½–24½	14	18	32	50	·00487	·00681	·01490	·01389
25½–29½	18	18	37	121	·00312	·00255	·00501	·00609
30½–34½	12	21	38	177	·00234	·00313	·00475	·00419
35½–39½	9	16	32	192	·00222	·00310	·00519	·00381
40½–44½	8	16	18	211	·00264	·00433	·00404	·00419
45½–49½	13	11	21	310	·00514	·00360	·00601	·00604
50½–54½	12	22	21	500	·00486	·00751	·00627	·00896
55½–59½	18	24	44	945	·00843	·00964	·01570	·01608
60½–64½	14	18	25	1209	·01080	·01068	·01220	·02214
65½–69½	6	16	16	1517	·01446	·02450	·01886	·03377
70½–74½	1	7	9	1622	·01170	·04473	·04265	·05723
75½–79½	—	—	2	1374	—	—	·06780	·09395
80½–84½	—	—	—	789	—	—	—	·12983
85½–89½	—	—	—	363	—	—	—	·18209
90½–94½	—	—	—	102	—	—	—	·16873
95½–99½	—	—	—	16	—	—	—	·12167
100½–	—	—	—	1	—	—	—	·09524

Endowment Assurance—with profits

Age								
20½-24½	70	123	187	745	·00293	·00492	·00733	·00942
25½-29½	56	98	203	1657	·00179	·00261	·00467	·00588
30½-34½	51	82	114	1826	·00161	·00220	·00259	·00353
35½-39½	60	64	102	2038	·00209	·00198	·00271	·00316
40½-44½	58	78	105	2519	·00237	·00292	·00345	·00401
45½-49½	81	129	132	3214	·00316	·00488	·00489	·00546
50½-54½	90	153	138	4343	·00446	·00681	·00581	·00843
55½-59½	47	109	128	5331	·00522	·01003	·01006	·01345
60½-64½	23	56	66	4118	·00798	·01481	·01412	·02036
65½-69½	7	19	25	1812	·00987	·01865	·01875	·03094
70½-74½	—	2	7	510	—	·03125	·06140	·04765
75½-79½	—	—	—	80	—	—	—	·07820
80½-	—	—	—	8	—	—	—	·07080

Endowment Assurance—without profits

Age								
20½-24½	18	17	24	80	·00367	·00436	·00810	·01274
25½-29½	26	27	39	131	·00271	·00298	·00491	·00568
30½-34½	21	27	39	187	·00164	·00210	·00322	·00338
35½-39½	20	31	27	220	·00155	·00240	·00221	·00268
40½-44½	21	31	27	335	·00200	·00295	·00274	·00368
45½-49½	29	40	22	448	·00314	·00456	·00284	·00515
50½-54½	31	28	45	573	·00404	·00424	·00783	·00797
55½-59½	14	25	25	628	·00515	·00840	·00916	·01285
60½-64½	9	9	9	407	·01078	·00914	·01226	·01868
65½-69½	—	—	3	108	—	—	·02083	·02122
70½-74½	—	—	—	34	—	—	—	·03782
75½-	—	—	—	3	—	—	—	·01500

(N.B. In each column the last rate of mortality shown is the group rate applicable to all ages for which there are exposed to risk from the earliest age in the group upwards.)

Tables of deaths and group rates of mortality (*continued*)

1939–43

Non-medical

Age group	Actual deaths				Rate of mortality			
	Duration 0	Duration 1	Duration 2	Durations 3 and over	Duration 0	Duration 1	Duration 2	Durations 3 and over
Life—with profits								
20½–24½	16	13	20	44	·01195	·00915	·01531	·01421
25½–29½	7	12	15	147	·00343	·00465	·00500	·01009
30½–34½	7	8	8	129	·00379	·00348	·00284	·00460
35½–39½	5	7	5	122	·00320	·00383	·00238	·00391
40½–44½	2	5	6	132	·00184	·00391	·00392	·00483
45½–49½	1	4	5	177	·00140	·00459	·00449	·00694
50½–54½	5	8	10	269	·01095	·01333	·01267	·01021
55½–59½	2	5	6	378	·00835	·01582	·01420	·01590
60½–64½	4	4	1	465	·02073	·02192	·00288	·02719
65½–69½	—	3	—	521	—	·04651	—	·04406
70½–74½	—	—	—	475	—	—	—	·06078
75½–79½	—	—	—	350	—	—	—	·08627
80½–84½	—	—	—	236	—	—	—	·15937
85½–89½	—	—	—	107	—	—	—	·19705
90½–	—	—	—	43	—	—	—	·26140
Life—without profits								
20½–24½	13	13	15	47	·00829	·00775	·01023	·01682
25½–29½	8	16	27	91	·00253	·00417	·00681	·00848
30½–34½	6	12	18	75	·00187	·00291	·00384	·00359
35½–39½	7	8	13	80	·00268	·00251	·00359	·00345
40½–44½	3	10	12	82	·00157	·00410	·00433	·00193
45½–49½	5	3	12	127	·00448	·00211	·00699	·00703
50½–54½	4	4	2	128	·01083	·00787	·00263	·00849
55½–59½	3	6	3	146	·01386	·01303	·01056	·01455
60½–64½	4	—	10	163	·02920	—	·05435	·02745
65½–69½	3	—	6	129	·10345	—	·07407	·03414
70½–74½	—	—	—	105	—	—	—	·05030
75½–79½	—	—	—	76	—	—	—	·09037
80½–84½	—	—	—	42	—	—	—	·15135
85½–89½	—	—	—	14	—	—	—	·20741
90½–	—	—	—	10	—	—	—	·29851

Endowment Assurance—with profits

Age								
20½–24½	207	292	408	1411	·00411	·00534	·00716	·00752
25½–29½	136	181	277	2295	·00252	·00302	·00416	·00485
30½–34½	97	159	184	2471	·00170	·00264	·00288	·00352
35½–39½	145	188	203	2498	·00226	·00303	·00329	·00323
40½–44½	159	186	219	2848	·00294	·00330	·00389	·00413
45½–49½	99	172	219	3385	·00348	·00536	·00606	·00576
50½–54½	78	107	149	4447	·00654	·00721	·00838	·00922
55½–59½	62	84	92	4506	·00939	·01128	·01118	·01443
60½–64½	25	34	53	2938	·01251	·01294	·01602	·02234
65½–69½	1	14	11	1060	·00576	·03585	·01705	·03327
70½–74½	—	—	2	247	—	·00000	·05263	·04653
75½–79½	—	2	—	50	—	·50000	—	·09488
80½–	—	—	—	1	—	—	—	·06452

Endowment Assurance—without profits

Age								
20½–24½	20	22	33	129	·00411	·00434	·00660	·00962
25½–29½	22	23	35	188	·00289	·00284	·00420	·00485
30½–34½	17	34	38	255	·00188	·00346	·00371	·00360
35½–39½	16	21	26	268	·00179	·00224	·00266	·00300
40½–44½	15	26	37	342	·00210	·00337	·00464	·00414
45½–49½	9	20	18	359	·00272	·00491	·00387	·00558
50½–54½	3	8	6	450	·00369	·00608	·00346	·00977
55½–59½	5	3	3	341	·01873	·00847	·00664	·01354
60½–64½	1	2	1	118	·02597	·02649	·00784	·01720
65½–69½	—	—	—	29	—	—	—	·02460
70½–74½	—	—	—	4	—	—	—	·02305
75½–	—	—	—	5	—	—	—	·20408

(N.B. In each column the last rate of mortality shown is the group rate applicable to all ages for which there are exposed to risk from the earliest age in the group upwards.)