

Bigger, Joseph W./ O'Meara, Robert A.Q. (1930) : Irish Life Tables, Nos. 1 and 2, for the years 1911 and 1926, and some of the more important deductions from them, In: American Journal of Epidemiology, Jan. 1932, 15: 138 – 162.

IRISH LIFE TABLE NO. 1.

Males (1911)

Age	l_x	d_x	p_x	q_x	L_x	T_x	e_x°	Age
0	100000	9976	.90024	.09976	92338	5285209	52.85	0
1	90024	2351	.97389	.02611	88849	5192871	57.68	1
2	87673	1156	.98682	.01318	87095	5104022	58.22	2
3	86517	662	.99235	.00765	86186	5016927	57.99	3
4	85855	495	.99423	.00577	85608	4930741	57.43	4
5	85360	387	.99547	.00453	85167	4845133	56.76	5
6	84973	303	.99643	.00357	84822	4759966	56.02	6
7	84670	242	.99714	.00286	84549	4675144	55.22	7
8	84428	201	.99762	.00238	84328	4590595	54.37	8
9	84227	177	.99790	.00210	84139	4506267	53.50	9
10	84050	168	.99800	.00200	83966	4422128	52.61	10
11	83882	171	.99796	.00204	83797	4338162	51.72	11
12	83711	185	.99779	.00221	83619	4254365	50.82	12
13	83526	207	.99752	.00248	83423	4170746	49.93	13
14	83319	235	.99718	.00282	83202	4087323	49.06	14
15	83084	266	.99680	.00320	82951	4004121	48.19	15
16	82818	299	.99639	.00361	82669	3921170	47.35	16
17	82519	331	.99599	.00401	82354	3838501	46.52	17
18	82188	360	.99562	.00438	82008	3756147	45.70	18
19	81828	390	.99523	.00477	81633	3674139	44.90	19
20	81438	419	.99485	.00515	81229	3592506	44.11	20
21	81019	446	.99450	.00550	80796	3511277	43.34	21
22	80573	467	.99420	.00580	80340	3430481	42.58	22
23	80106	483	.99397	.00603	79865	3350141	41.82	23
24	79623	494	.99379	.00621	79376	3270276	41.07	24
25	79129	503	.99364	.00636	78878	3190900	40.33	25
26	78626	512	.99349	.00651	78370	3112022	39.58	26
27	78114	521	.99333	.00667	77854	3033652	38.84	27
28	77593	532	.99314	.00686	77327	2955798	38.09	28
29	77061	543	.99295	.00705	76790	2878471	37.35	29
30	76518	554	.99276	.00724	76241	2801681	36.61	30
31	75964	564	.99257	.00743	75682	2725440	35.88	31
32	75400	572	.99241	.00759	75114	2649758	35.14	32
33	74828	578	.99228	.00772	74539	2574644	34.41	33
34	74250	581	.99218	.00782	73960	2500105	33.67	34
35	73669	583	.99209	.00791	73378	2426145	32.93	35
36	73086	586	.99198	.00802	72793	2352767	32.19	36
37	72500	592	.99183	.00817	72204	2279974	31.45	37
38	71908	600	.99165	.00835	71608	2207770	30.70	38
39	71308	610	.99145	.00855	71003	2136162	29.96	39
40	70698	621	.99122	.00878	70388	2065159	29.21	40
41	70077	635	.99094	.00906	69760	1994771	28.47	41
42	69442	653	.99059	.00941	69116	1925011	27.72	42

IRISH LIFE TABLE NO. 1. *Males (1911)—Continued*

Age	l_x	d_x	p_x	q_x	L_x	T_x	e_x°	Age
43	68789	676	.99017	.00983	68451	1855895	26.98	43
44	68113	702	.98970	.01030	67762	1787444	26.24	44
45	67411	730	.98917	.01083	67046	1719682	25.51	45
46	66681	761	.98858	.01142	66301	1652636	24.78	46
47	65920	794	.98795	.01205	65523	1586335	24.06	47
48	65126	827	.98730	.01270	64713	1520812	23.35	48
49	64299	859	.98664	.01336	63870	1456099	22.65	49
50	63440	895	.98590	.01410	62993	1392229	21.95	50
51	62545	936	.98504	.01496	62077	1329236	21.25	51
52	61609	986	.98400	.01600	61116	1267159	20.57	52
53	60623	1048	.98271	.01729	60099	1206043	19.89	53
54	59575	1121	.98119	.01881	59015	1145944	19.24	54
55	58454	1195	.97955	.02045	57857	1086929	18.59	55
56	57259	1268	.97786	.02214	56625	1029072	17.97	56
57	55991	1331	.97623	.02377	55326	972447	17.37	57
58	54660	1386	.97464	.02536	53967	917121	16.78	58
59	53274	1436	.97304	.02696	52556	863154	16.20	59
60	51838	1480	.97144	.02856	51098	810598	15.64	60
61	50358	1518	.96985	.03015	49599	759500	15.08	61
62	48840	1548	.96830	.03170	48066	709901	14.54	62
63	47292	1565	.96691	.03309	46510	661835	13.99	63
64	45727	1569	.96568	.03432	44943	615325	13.46	64
65	44158	1572	.96441	.03559	43372	570382	12.92	65
66	42586	1579	.96292	.03708	41797	527010	12.38	66
67	41007	1600	.96098	.03902	40207	485213	11.83	67
68	39407	1629	.95866	.04134	38593	445006	11.30	68
69	37778	1659	.95608	.04392	36949	406413	10.76	69
70	36119	1694	.95310	.04690	35272	369464	10.23	70
71	34425	1735	.94959	.05041	33558	334192	9.71	71
72	32690	1785	.94539	.05461	31798	300634	9.20	72
73	30905	1848	.94021	.05979	29981	268836	8.70	73
74	29057	1916	.93405	.06595	28099	238855	8.22	74
75	27141	1976	.92719	.07281	26153	210756	7.77	75
76	25165	2014	.91996	.08004	24158	184603	7.34	76
77	23151	2020	.91274	.08726	22141	160445	6.93	77
78	21131	1989	.90586	.09414	20137	138304	6.55	78
79	19142	1931	.89910	.10090	18177	118167	6.17	79
80	17211	1859	.89199	.10801	16282	99990	5.81	80
81	15352	1781	.88398	.11602	14462	83708	5.45	81
82	13571	1704	.87445	.12555	12719	69246	5.10	82
83	11867	1628	.86282	.13718	11053	56527	4.76	83
84	10239	1544	.84919	.15081	9467	45474	4.44	84
85	8695	1443	.83402	.16598	7974	36007	4.14	85
86	7252	1321	.81787	.18213	6592	28033	3.87	86

IRISH LIFE TABLE NO. 1. *Males (1911)—Continued*

Age	l_x	d_x	p_x	q_x	L_x	T_x	e_x°	Age
87	5931	1177	.80148	.19852	5343	21441	3.62	87
88	4754	1026	.78413	.21587	4241	16098	3.39	88
89	3728	875.5	.76516	.23484	3290.3	11857.4	3.18	89
90	2852.5	725.2	.74575	.25425	2489.9	8567.1	3.00	90
91	2127.3	580.0	.72735	.27265	1837.3	6077.2	2.86	91
92	1547.3	446.1	.71170	.28830	1324.3	4239.9	2.74	92
93	1101.2	330.8	.69961	.30039	935.8	2915.6	2.65	93
94	770.4	238.0	.69107	.30893	651.4	1979.8	2.57	94
95	532.4	167.5	.68535	.31465	448.7	1328.4	2.49	95
96	364.9	116.4	.68099	.31901	306.7	879.7	2.41	96
97	248.5	80.6	.67583	.32417	208.2	573.0	2.31	97
98	167.9	55.9	.66700	.33300	140.0	364.8	2.17	98
99	112.0	39.1	.65110	.34890	92.5	224.8	2.01	99
100	72.9	27.4	.62451	.37549	59.2	132.3	1.81	100
101	45.5	18.9	.58406	.41594	36.1	73.1	1.60	101
102	26.6	12.6	.52789	.47211	20.3	37.0	1.39	102
103	14.0	7.6	.45653	.54347	10.2	16.7	1.19	103
104	6.4	4.0	.37357	.62643	4.4	6.5	1.00	104
105	2.4	1.7	.28575	.71425	1.6	2.1	0.85	105
106	0.7	0.5	.20157	.79843	0.5	0.5	0.71	106

(2). For a more detailed discussion of the value of this method, reference is made to the original paper. Suffice it to mention here that the method is particularly suited to subdividing with small error larger groups of deaths into lesser when the age constitution of the population has been modified by influences which render direct application of the graphical and formula methods impracticable. In the present instance it has enabled us to obtain a curve which is not only of smooth graduation but which appears, so far as can be judged, to adhere very closely to the original data.

The central populations for the year 1911 and the deaths for the three years 1910-11-12 were then available in five-year age-groups from age 5 upwards. One third of the deaths in each age-group were taken and graduated quinquennial values for the populations and deaths for ages 12, 17, etc. to 97 were prepared by the well known formula of King:

$$U_7 = .2W_5 - .008\Delta^2W_0.$$

From the graduated quinquennial values for the populations and deaths, quinquennial pivotal values of q_x were obtained by the relation

$$q_x = \frac{d_x}{P_x + \frac{1}{2}d_x}$$

IRISH LIFE TABLE NO. 1.

Females (1911)

Age	l_x	d_x	p_x	q_x	L_x	T_x	e_x°	Age
0	100000	8257	.91743	.08257	93758	5357640	53.58	0
1	91743	2383	.97402	.02598	90552	5263882	57.38	1
2	89360	1158	.98704	.01296	88781	5173330	57.89	2
3	88202	748	.99152	.00848	87828	5084549	57.65	3
4	87454	531	.99393	.00607	87189	4996721	57.14	4
5	86923	425	.99511	.00489	86711	4909532	56.48	5
6	86498	347	.99599	.00401	86325	4822821	55.76	6
7	86151	291	.99662	.00338	86006	4736496	54.98	7
8	85860	256	.99702	.00298	85732	4650490	54.16	8
9	85604	238	.99722	.00278	85485	4564758	53.32	9
10	85366	235	.99725	.00275	85249	4479273	52.47	10
11	85131	243	.99714	.00286	85010	4394024	51.61	11
12	84888	261	.99692	.00308	84758	4309014	50.76	12
13	84627	286	.99662	.00338	84484	4224256	49.92	13
14	84341	314	.99628	.00372	84184	4139772	49.08	14
15	84027	344	.99591	.00409	83855	4055588	48.27	15
16	83683	372	.99556	.00444	83497	3971733	47.46	16
17	83311	396	.99525	.00475	83113	3888236	46.67	17
18	82915	414	.99501	.00499	82708	3805123	45.89	18
19	82501	429	.99480	.00520	82287	3722415	45.12	19
20	82072	442	.99462	.00538	81851	3640128	44.35	20
21	81630	454	.99444	.00556	81403	3558277	43.59	21
22	81176	467	.99425	.00575	80943	3476874	42.83	22
23	80709	481	.99404	.00596	80469	3395931	42.08	23
24	80228	495	.99383	.00617	79981	3315462	41.33	24
25	79733	509	.99361	.00639	79479	3235481	40.58	25
26	79224	523	.99340	.00660	78963	3156002	39.84	26
27	78701	536	.99319	.00681	78433	3077039	39.10	27
28	78165	548	.99299	.00701	77891	2998606	38.36	28
29	77617	560	.99278	.00722	77337	2920715	37.63	29
30	77057	572	.99258	.00742	76771	2843378	36.90	30
31	76485	582	.99239	.00761	76194	2766607	36.17	31
32	75903	591	.99221	.00779	75608	2690413	35.45	32
33	75312	598	.99206	.00794	75013	2614805	34.72	33
34	74714	603	.99193	.00807	74413	2539792	33.99	34
35	74111	607	.99181	.00819	73808	2465379	33.27	35
36	73504	612	.99167	.00833	73198	2391571	32.54	36
37	72892	620	.99149	.00851	72582	2318373	31.81	37
38	72272	631	.99127	.00873	71957	2245791	31.07	38
39	71641	642	.99104	.00896	71320	2173834	30.34	39
40	70999	655	.99077	.00923	70672	2102514	29.61	40
41	70344	670	.99048	.00952	70009	2031842	28.88	41
42	69674	686	.99015	.00985	69331	1961833	28.16	42

IRISH LIFE TABLE NO. 1. *Females (1911)*.—Continued

Age	l_x	d_x	p_x	q_x	L_x	T_x	e_x°	Age
43	68988	704	.98979	.01021	68636	1892502	27.43	43
44	68284	723	.98941	.01059	67923	1823866	26.71	44
45	67561	751	.98889	.01111	67186	1755943	25.99	45
46	66810	766	.98854	.01146	66427	1688757	25.28	46
47	66044	791	.98803	.01197	65649	1622330	24.56	47
48	65253	813	.98754	.01246	64847	1556681	23.86	48
49	64440	834	.98706	.01294	64023	1491834	23.15	49
50	63606	858	.98651	.01349	63177	1427811	22.45	50
51	62748	892	.98579	.01421	62302	1364634	21.75	51
52	61856	940	.98481	.01519	61386	1302333	21.05	52
53	60916	1007	.98347	.01653	60413	1240946	20.37	53
54	59909	1090	.98181	.01819	59364	1180533	19.71	54
55	58819	1178	.97998	.02002	58230	1121169	19.06	55
56	57641	1261	.97812	.02188	57011	1062939	18.44	56
57	56380	1331	.97639	.02361	55715	1005928	17.84	57
58	55049	1389	.97476	.02524	54355	950213	17.26	58
59	53660	1442	.97312	.02688	52939	895858	16.70	59
60	52218	1486	.97154	.02846	51475	842919	16.14	60
61	50732	1519	.97006	.02994	49973	791444	15.60	61
62	49213	1538	.96874	.03126	48444	741471	15.07	62
63	47675	1536	.96779	.03221	46907	693027	14.54	63
64	46139	1514	.96718	.03282	45382	646120	14.00	64
65	44625	1490	.96661	.03339	43880	600738	13.46	65
66	43135	1476	.96578	.03422	42397	556858	12.91	66
67	41659	1484	.96438	.03562	40917	514461	12.35	67
68	40175	1508	.96246	.03754	39421	473544	11.79	68
69	38667	1539	.96020	.03980	37898	434123	11.23	69
70	37128	1578	.95749	.04251	36339	396225	10.67	70
71	35550	1629	.95419	.04581	34736	359886	10.12	71
72	33921	1691	.95015	.04985	33076	325150	9.59	72
73	32230	1773	.94500	.05500	31344	292074	9.06	73
74	30457	1866	.93873	.06127	29524	260730	8.56	74
75	28591	1953	.93169	.06831	27615	231206	8.09	75
76	26638	2015	.92435	.07565	25631	203591	7.64	76
77	24623	2039	.91721	.08279	23604	177960	7.23	77
78	22584	2016	.91072	.08928	21576	154356	6.83	78
79	20568	1962	.90460	.09540	19587	132780	6.46	79
80	18606	1893	.89825	.10175	17660	113193	6.08	80
81	16713	1821	.89102	.10898	15803	95533	5.72	81
82	14892	1755	.88214	.11786	14015	79730	5.35	82
83	13137	1697	.87086	.12914	12289	65715	5.00	83
84	11440	1632	.85736	.14264	10624	53426	4.67	84
85	9808	1547	.84228	.15772	9035	42802	4.36	85
86	8261	1434	.82644	.17356	7544	33767	4.09	86

IRISH LIFE TABLE NO. 1. *Females (1911)—Continued*

Age	l_x	d_x	p_x	q_x	L_x	T_x	e_x°	Age
87	6827	1291	.81090	.18910	6182	26223	3.84	87
88	5536	1133	.79538	.20462	4970	20041	3.62	88
89	4403	972.3	.77917	.22083	3916.8	15071.1	3.42	89
90	3430.6	813.1	.76299	.23701	3024.1	11154.3	3.25	90
91	2617.5	660.4	.74769	.25231	2287.3	8130.2	3.11	91
92	1957.1	520.1	.73425	.26575	1697.1	5842.9	2.99	92
93	1437.0	397.8	.72315	.27685	1238.1	4145.8	2.88	93
94	1039.2	296.8	.71443	.28557	890.8	2907.7	2.80	94
95	742.4	217.0	.70772	.29228	633.9	2016.9	2.72	95
96	525.4	156.4	.70226	.29774	447.2	1383.0	2.63	96
97	369.0	111.8	.69691	.30309	313.1	935.8	2.54	97
98	257.2	79.7	.69014	.30986	217.4	622.7	2.42	98
99	177.5	56.8	.68007	.31993	149.1	405.3	2.28	99
100	120.7	40.5	.66462	.33538	100.5	256.2	2.12	100
101	80.2	28.8	.64157	.35843	65.8	155.7	1.94	101
102	51.4	20.1	.60894	.39106	41.4	89.9	1.75	102
103	31.3	13.6	.56534	.43466	24.5	48.5	1.55	103
104	17.7	8.7	.51042	.48958	13.4	24.0	1.35	104
105	9.0	5.0	.44531	.55469	6.5	10.6	1.17	105
106	4.0	2.5	.37280	.62720	2.8	4.1	1.00	106
107	1.5	1.1	.29722	.70278	1.0	1.3	0.83	107

for the corresponding ages. The intervening values of q_x from age 17 to 92 were filled in by osculatory interpolation using the function $\log(q_x + .1)$. The values of q_x for ages 0-4 were calculated from the births and deaths using a procedure similar to that employed by Watson in preparing English Life Table no. 9 (3), and to complete the curve at this point the formula suggested by Watson was applied with success to the values of q_x for ages 4, 12, 17 and 18. To continue the curve at great ages the procedure of King was followed, a constant fourth difference of $\log p_x$ being derived from the values for ages 89, 90, 91, 92 and 97, and the table completed by the summation of differences. The remaining columns of the table were filled in by the customary procedure, allowance being made in calculating the Expectation of Life at birth for the heavier mortality in the first six months of life than in the remainder of the year of age 0-1.

Irish Life Table, No. 2.

(a) *Data.*

Population: The numbers of persons of each sex in Ireland as ascertained by the censuses of the Irish Free State and Northern Ireland in 1926 for each year of age from 0-99 and above 99 in one group were