FIND THE HEALTHY LIFE YEARS LOST (HLYL)

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Abstract

We are happy that today we can present an advanced form of a study including new findings based on MC Wolfson paper. A first approach was based on the Laditka-Wolf (1998) results. For more information consult Janssen & Skiadas 1995, Skiadas & Skiadas 2010, 2014, 2018 a,b and 2020 a,b,c, Skiadas 2023, Dimotikalis & Skiadas 2023, Skiadas & Dimotikalis 2023.

Following the Michael C. Wolfson (1996) study for Canada 1990-1992 an interesting finding emerged. The Healthy Life Years Lost (HLYL) for Canada are calculated for males, females and both sexes. Though the Michael C. Wolfson paper was formed in order to find-estimate the Healthy Life Expectancy (HLE), he also provides hints on estimating the HLYL.

We also have provided a methodology to estimate the HLYL via the formula:

$$HLYL = b_x = max \frac{xq_x}{\int_0^x q_s ds}$$

In all applications for males, females and both sexes our and Wolfson estimates coincide to the same maximum for HLYL.

See https://link.springer.com/book/10.1007/978-3-031-28697-1 for details and ask about the related programs in Excel from the authors.

Key words: Life Expectancy, Healthy Life Expectancy, Life Tables, Health Parameters, Heathy Life Years Lost.

JEL Code: I15, I18, J1

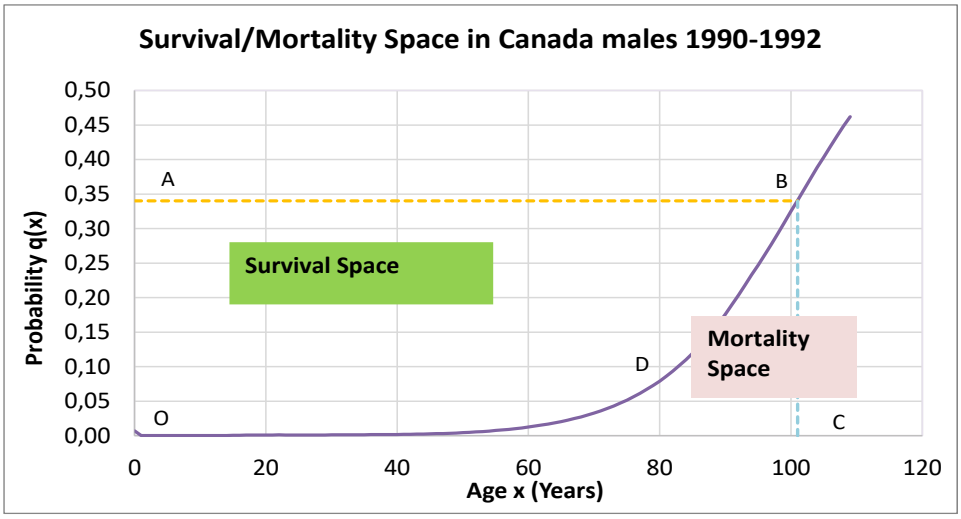
The HLYL Estimation

Based on: "Direct Healthy Life Expectancy Estimates from Life Tables with a Sullivan Extension: The case of Brazil 2003" https://osf.io/preprints/socarxiv/4x5et/

The "Direct" Healthy Life Years Lost (HLYL) methodology Skiadas and Skiadas (2018 a,b, 2020 a,b,c) was based on averaging the Health State of a Population by taking into account

the deaths/population from the mortality q_x and the alive part of the population. A geometric approach of the methodology is presented in the following graph of mortality spaces where both mortality and survival are presented as corresponding areas.

Fig. 1. Healthy Life Years Lost Estimates Survival vs Mortality space graph



Source: author´s own processing

We use the Life Tables provided from the Human Mortality Database or any other related data base. Mortality is expressed by q_x in these tables. In the above graph data from 1990-1992 for males in Canada (Michael C. Wolfson (1996)) was used. q_x is shown as the blue exponential curve. The main forms of Life Tables start with q_x and then the survival forms of the population are estimated. This methodology leads to the calculation of a probability measure termed as life expectancy at age x or life expectancy at birth when considering the total life time. There are several differences between the graph with the survival space above and the survival curves methodology. First of all, the vertical axis in the Survival-Mortality Space (SMS) diagram is the probability q_x. Instead in the survival diagram the vertical axis represent population (usually it starts from 100.000 in most life tables and gradually slow down until the end). By the SMS diagram we have probability spaces for both survival and mortality. For the age x, the total space is (ABCOA) in the SMS diagrams, that is (OC).(BC)=$x\,q_x$. The mortality space is the sum S(q_x) while the survival space is ($x\,q_x$ -S(q_x)). Accordingly, the important measure of the Health State is simply the fraction (ABDOA)/(BCODB). It is simpler to use the fraction (ABCOA)/(BCODB)=$x\,q_x$ /S(q_x) that can be estimated from mx for every age x of the population.

In modeling the healthy life years lost to disability some important issues should be realized. Mortality expressed by qx is important for modeling disability but more important is the cumulative mortality S (qx) which, as an additive process, is more convenient for the estimation of the healthy life years lived with disability and the deterioration process causing deaths. The estimates for this type of mortality are included in the term bxS (qx).

The approach in previous publications (Skiadas and Skiadas (2018 a,b,c, 2020 a,b,c)) was to set a time-varying fraction b_x for Health/Mortality of the form:

$$HLYL = b_x = max \frac{xq_x}{\int_0^x q_s ds} \quad (1)$$

This formula is immediately provided from figure 1 by considering the fraction:

$$b_x = \frac{Total\ Space}{Mortality\ Space} = \frac{OABCO}{ODBCO} = \frac{xq_x}{\int_0^x q_s ds}$$

The main hypothesis is that the population involved in the deterioration process is a fraction of the total population at age *x* determined by the level of mortality m_x at age *x*. Accordingly, the mortality process will have two alternatives expressed by the simple equation:

$$xq_x = b_x \int_0^x q_s ds \approx b_x \sum_0^x q_x \quad (2)$$

Clearly, when collecting data by asking people to respond to disability related questions, the answers is expected to be influenced from the previous experience from 0 to x years of age including dead and alive. People comment on their disability in connection to their knowledge from the environment around. In a way, they respond after summarizing, averaging and assessing their knowledge in a way similar to the above methodology. Accordingly, it is not surprising to have similar results for Healthy Life Expectancy and Healthy Life Years Lost from both methods as the "Direct" and Health Adjusted Life Expectancy (HALE) applied by the World Health Organization (WHO). In the latter morbidity is adjusted by a specific parameter for every appropriate cause thus making the final estimate quite complicated. However, several decades of collecting data and applying data sets make HALE a classical tool for estimating the Health State of a Population. However, the HALE methodology turns only few decade years back as far as health data are already collected. For more unexplored health state periods in countries and territories the Direct methodology is appropriate as far as Life Table Data exist.

Tab. 1: HLYL in Canada for males, females and both sexes from 1990-1992

Age	Males	Females	Both Sexes
Year	LE-HALE	LE-HALE	LE-HALE
15	6,6	9,2	7,7
25	6	8,4	7,4
35	5,3	7,6	7,1
45	4,6	6,8	6,4
55	3,8	5,6	5,5
65	2,9	4,5	4,3
75	2,1	3,5	3
85	1,6	2,5	1,8

Source: author´s own processing

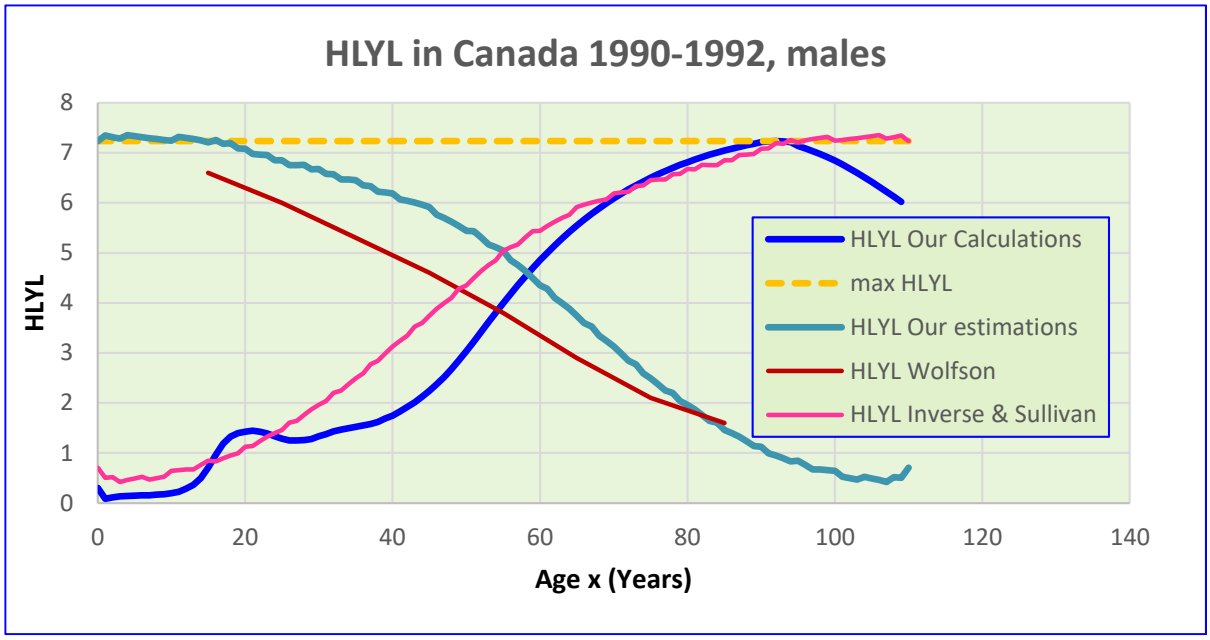
An important transformation to the data provided in Table 1 of Wolfson was to take the inverse LE-HALE providing figures close to the estimated for the max(HLYL) from our methodology. This is demonstrated in Fig. 2, Fig. 3 and Fig.4 for males, females and both sexes respectively. The important measure needed is the maximum of HLYL.

The Wolfson estimate for males is 6,6 years of age at 85 years. Our estimate is 7,24 years for the max(HLYL) that is 0,64 years less. However, the Wolfson estimate (red curve) can be extended to our estimates. See figure 2.

The Wolfson estimate for females in Canada 1990-1992 is 9,2 years compared to 8,91 years for our estimate for maximum HLYL (see Figure 3).

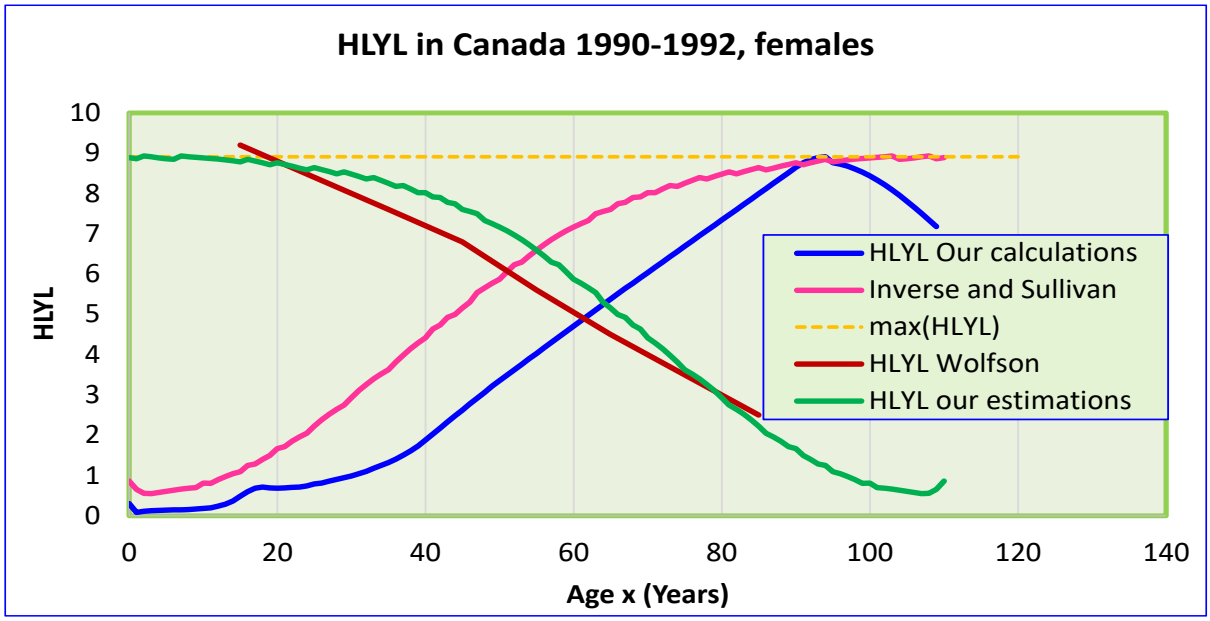
The Wolfson estimate for both sexes in Canada 1990-1992 is 7,7 years compared to 7,82 years for our estimate for maximum HLYL (see Figure 4).

Fig. 2: HLYL in Canada, males, from Wolfson and our calculations, 1990 to 1992



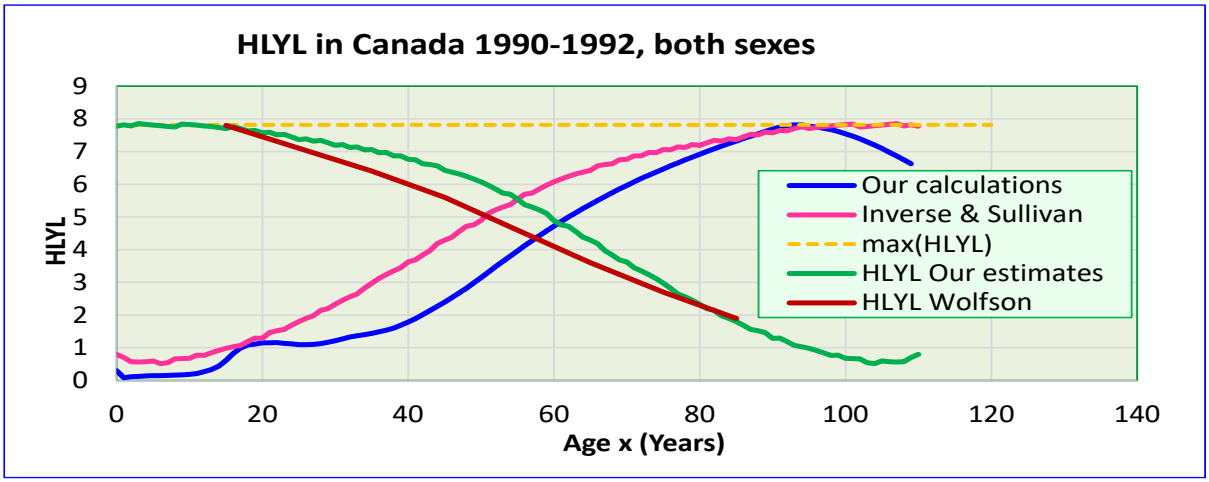
Source: author´s own processing

Fig. 3: HLYL in Canada, females, from Wolfson and our calculations, 1990 to 1992



Source: author´s own processing

Fig. 4. HLYL in Canada, both sexes, from Wolfson and our calculations, 1990 to 1992



Source: author´s own processing

The main procedure is to find the Disability Parameter Dx in order to have the HLE(0)=LE(0)-max(HLYL)=74,5-7,24=67,26 years of age. The related factor is Dx=0,0375 for Canada males in 1990-1992 and Dx=0,0372 for both sexes. It is Dx=0,0383 for Canada females.

Our calculations (blue line in figures 2, 3, and 4) provide orange colored graphs with max(HLYL). The task is to find Dx in order to approach the green curve for inverse and Sullivan (1971) estimates (see also Jagger et al (1999).

The total estimates for HLYL from 0 to 110 years are expressed by the green line in figure 2 and with a similar green line for the cases Canada females and Canada both sexes.

We succeeded to produce an Excel Template for the HLYL estimation including another ten columns at the right-hand side of the life table. The columns include: Year of age, the HLYL calculated, the maximum HLYL, the Disability parameter Dx, the total person-years, the total disability years, the DTx, the Dex=DTx/lx, the HLYL=ex-Dex, and the Inverse HLYL.

Based on the Template in TABLE II, TABLES III and IV are easily calculated presented in the appropriate Tables of this paper.

Summary and Conclusions

Our method is based on the theory presented in Skiadas, C.H. and Skiadas, C. (2018 a,b and 2020 a,b,c) and Skiadas 2023. We use the Life Tables to estimate the healthy life years lost (HLYL) by applying the appropriate formula and calculate to disability fraction and then apply the Sullivan

method to calculate the HLE. The advantage is that only the life tables are needed, thus finding health expectancy estimates for all the years where life tables are provided.

Results: A Template is developed to apply the theory and the Health Expectancies are estimated for all the years of age. The Wolfson findings are very close to our estimates as presented in the related tables and graphs.

We also give a few examples from Canada, including a Template to copy-paste to the life tables in Excel format.

Conclusions: Our method proposed and applied to the Human Mortality Database Life Tables and, to the United Nations, Population Division life tables provide HLE estimates close to the related estimates from other methodologies and from HALE measures from WHO. To estimate the HLE only the life tables are needed. Then, HLE results by expanding the life table by adding appropriate columns as in the provided template.

Tab. 2: Excel program for the estimation of the HLYL including the appropriate Dx parameter for the HLYL estimates.

Table II. Complete life tables - Template
1990 to 1992

Age	l_x	d_x	q_x	m.e.(q_x)	p_x	L_x	T_x	e_x	m.e.(e_x)	year	HLYL	HLYL	Dx	total	Total years	DTx	Dex	HLYL	Inverse
		number		probability			number		year	number	estimated	maximum	disability	person years	with disability			calculated	HLYL
0 year	100.000	836	0,00836	0,00173	0,99164	99.253	7.371.136	73,7	0,3	0	0,300	6,987	0,0373	29776	1110	6.671.254	66,7	7,0	0,8
1 year	99.164	158	0,00159	0,00073	0,99841	99.029	7.271.883	73,3	0,3	1	0,208	6,987	0,0373	20572	767	6.573.111	66,3	7,0	0,5
2 years	99.006	86	0,00087	0,00054	0,99913	98.941	7.172.854	72,5	0,3	2	0,185	6,987	0,0373	18298	682	6.474.849	65,4	7,1	0,4
3 years	98.920	53	0,00053	0,00042	0,99947	98.894	7.073.913	71,5	0,3	3	0,154	6,987	0,0373	15239	568	6.376.590	64,5	7,0	0,5
4 years	98.867	36	0,00036	0,00034	0,99964	98.858	6.975.019	70,6	0,3	4	0,132	6,987	0,0373	13069	487	6.278.264	63,5	7,1	0,4
5 years	98.832	27	0,00027	0,00029	0,99973	98.818	6.876.160	69,6	0,3	5	0,119	6,987	0,0373	11804	440	6.179.892	62,5	7,1	0,4
6 years	98.805	22	0,00022	0,00026	0,99978	98.794	6.777.342	68,6	0,3	6	0,114	6,987	0,0373	11224	418	6.081.514	61,6	7,0	0,5
7 years	98.783	20	0,00021	0,00024	0,99979	98.773	6.678.548	67,6	0,3	7	0,124	6,987	0,0373	12201	455	5.983.138	60,6	7,0	0,5
8 years	98.763	21	0,00021	0,00024	0,99979	98.752	6.579.775	66,6	0,3	8	0,138	6,987	0,0373	13639	508	5.884.820	59,6	7,0	0,5
9 years	98.742	23	0,00024	0,00026	0,99976	98.730	6.481.023	65,6	0,3	9	0,174	6,987	0,0373	17136	639	5.786.577	58,6	7,0	0,6
10 years	98.719	28	0,00028	0,00028	0,99972	98.705	6.382.293	64,7	0,3	10	0,219	6,987	0,0373	21664	808	5.688.485	57,6	7,1	0,6
11 years	98.691	33	0,00033	0,00030	0,99967	98.674	6.283.588	63,7	0,3	11	0,277	6,987	0,0373	27317	1018	5.590.588	56,6	7,1	0,6
12 years	98.658	38	0,00039	0,00032	0,99961	98.639	6.184.914	62,7	0,3	12	0,346	6,987	0,0373	34139	1273	5.492.932	55,7	7,0	0,6
13 years	98.620	44	0,00045	0,00034	0,99955	98.598	6.086.275	61,7	0,3	13	0,418	6,987	0,0373	41238	1537	5.395.566	54,7	7,0	0,6
14 years	98.576	50	0,00051	0,00035	0,99949	98.551	5.987.677	60,7	0,3	14	0,492	6,987	0,0373	48497	1808	5.298.505	53,8	6,9	0,7
15 years	98.525	57	0,00058	0,00037	0,99942	98.497	5.889.126	59,8	0,3	15	0,576	6,987	0,0373	56757	2116	5.201.762	52,8	7,0	0,7
16 years	98.468	64	0,00065	0,00038	0,99935	98.436	5.790.629	58,8	0,3	16	0,660	6,987	0,0373	64980	2422	5.105.381	51,8	7,0	0,8
17 years	98.404	72	0,00073	0,00041	0,99927	98.368	5.692.193	57,9	0,3	17	0,753	6,987	0,0373	74034	2760	5.009.367	50,9	7,0	0,8
18 years	98.332	79	0,00081	0,00043	0,99919	98.292	5.593.826	56,9	0,3	18	0,843	6,987	0,0373	82830	3088	4.913.759	50,0	6,9	0,9
19 years	98.252	86	0,00088	0,00045	0,99912	98.209	5.495.533	55,9	0,3	19	0,920	6,987	0,0373	90308	3366	4.818.554	49,0	6,9	0,9
20 years	98.166	92	0,00094	0,00046	0,99906	98.120	5.397.324	55,0	0,3	20	0,983	6,987	0,0373	96462	3596	4.723.711	48,1	6,9	1,0
21 years	98.074	95	0,00097	0,00048	0,99903	98.027	5.299.204	54,0	0,3	21	1,014	6,987	0,0373	99379	3704	4.629.187	47,2	6,8	1,1
22 years	97.979	97	0,00099	0,00050	0,99901	97.931	5.201.177	53,1	0,3	22	1,033	6,987	0,0373	101171	3771	4.534.865	46,3	6,8	1,1
23 years	97.882	96	0,00098	0,00050	0,99902	97.835	5.103.247	52,1	0,3	23	1,022	6,987	0,0373	99954	3726	4.440.706	45,4	6,7	1,2
24 years	97.787	92	0,00095	0,00050	0,99905	97.741	5.005.412	51,2	0,3	24	0,991	6,987	0,0373	96839	3610	4.346.597	44,4	6,8	1,2
25 years	97.694	89	0,00091	0,00049	0,99909	97.650	4.907.671	50,2	0,3	25	0,951	6,987	0,0373	92862	3462	4.252.466	43,5	6,7	1,3
26 years	97.605	87	0,00089	0,00048	0,99911	97.562	4.810.022	49,3	0,3	26	0,933	6,987	0,0373	90981	3391	4.158.278	42,6	6,7	1,4
27 years	97.519	86	0,00088	0,00048	0,99912	97.476	4.712.460	48,3	0,3	27	0,925	6,987	0,0373	90137	3360	4.064.108	41,7	6,6	1,5
28 years	97.433	86	0,00088	0,00048	0,99912	97.390	4.614.984	47,4	0,3	28	0,927	6,987	0,0373	90298	3366	3.969.992	40,7	6,7	1,6
29 years	97.347	87	0,00089	0,00048	0,99911	97.304	4.517.594	46,4	0,3	29	0,940	6,987	0,0373	91438	3408	3.875.968	39,8	6,6	1,7
30 years	97.261	89	0,00091	0,00049	0,99909	97.216	4.420.289	45,5	0,3	30	0,962	6,987	0,0373	93529	3486	3.782.071	38,9	6,6	1,8
31 years	97.172	92	0,00095	0,00050	0,99905	97.126	4.323.073	44,5	0,3	31	1,004	6,987	0,0373	97536	3636	3.688.342	38,0	6,5	1,9
32 years	97.080	96	0,00098	0,00051	0,99902	97.032	4.225.947	43,5	0,3	32	1,035	6,987	0,0373	100407	3743	3.594.852	37,0	6,5	2,0
33 years	96.984	100	0,00103	0,00052	0,99897	96.935	4.128.915	42,6	0,3	33	1,085	6,987	0,0373	105148	3920	3.501.562	36,1	6,5	2,1
34 years	96.885	105	0,00108	0,00054	0,99892	96.832	4.031.980	41,6	0,3	34	1,133	6,987	0,0373	109696	4089	3.408.547	35,2	6,4	2,3
35 years	96.780	110	0,00114	0,00055	0,99886	96.725	3.935.148	40,7	0,3	35	1,189	6,987	0,0373	115024	4288	3.315.804	34,3	6,4	2,3
36 years	96.670	117	0,00121	0,00057	0,99879	96.612	3.838.423	39,7	0,3	36	1,253	6,987	0,0373	121070	4513	3.223.367	33,3	6,4	2,4
37 years	96.553	124	0,00128	0,00058	0,99872	96.491	3.741.812	38,8	0,3	37	1,314	6,987	0,0373	126806	4727	3.131.269	32,4	6,4	2,6
38 years	96.429	132	0,00137	0,00061	0,99863	96.363	3.645.320	37,8	0,3	38	1,392	6,987	0,0373	134118	4999	3.039.504	31,5	6,3	2,7
39 years	96.297	142	0,00147	0,00063	0,99853	96.226	3.548.957	36,9	0,3	39	1,475	6,987	0,0373	141922	5290	2.948.140	30,6	6,3	2,8
40 years	96.155	153	0,00159	0,00066	0,99841	96.079	3.452.731	35,9	0,3	40	1,572	6,987	0,0373	151042	5630	2.857.204	29,7	6,2	2,9
41 years	96.003	165	0,00172	0,00070	0,99828	95.920	3.356.652	35,0	0,3	41	1,672	6,987	0,0373	160400	5979	2.766.756	28,8	6,2	3,1
42 years	95.838	179	0,00187	0,00074	0,99813	95.748	3.260.731	34,0	0,3	42	1,784	6,987	0,0373	170773	6366	2.676.814	27,9	6,1	3,2
43 years	95.659	195	0,00204	0,00078	0,99796	95.561	3.164.983	33,1	0,3	43	1,904	6,987	0,0373	181959	6783	2.587.432	27,0	6,1	3,4
44 years	95.463	214	0,00224	0,00082	0,99776	95.356	3.069.422	32,2	0,3	44	2,041	6,987	0,0373	194579	7253	2.498.653	26,2	6,0	3,5
45 years	95.249	236	0,00247	0,00090	0,99753	95.132	2.974.065	31,2	0,3	45	2,190	6,987	0,0373	208306	7765	2.410.550	25,3	5,9	3,7
46 years	95.014	260	0,00274	0,00098	0,99726	94.884	2.878.934	30,3	0,3	46	2,356	6,987	0,0373	223573	8334	2.323.184	24,5	5,8	3,7
47 years	94.754	289	0,00305	0,00109	0,99695	94.609	2.784.050	29,4	0,3	47	2,536	6,987	0,0373	239915	8943	2.236.634	23,6	5,8	3,9
48 years	94.465	322	0,00340	0,00118	0,99660	94.304	2.689.441	28,5	0,3	48	2,724	6,987	0,0373	256869	9575	2.150.968	22,8	5,7	4,1
49 years	94.143	360	0,00382	0,00129	0,99618	93.963	2.595.137	27,6	0,3	49	2,938	6,987	0,0373	276021	10289	2.066.239	21,9	5,7	4,2
50 years	93.783	404	0,00431	0,00141	0,99569	93.581	2.501.173	26,7	0,3	50	3,169	6,987	0,0373	296517	11053	1.982.564	21,1	5,6	4,4
51 years	93.379	454	0,00487	0,00152	0,99513	93.152	2.407.592	25,8	0,3	51	3,409	6,987	0,0373	317537	11837	1.900.036	20,3	5,5	4,5
52 years	92.925	510	0,00549	0,00164	0,99451	92.670	2.314.440	24,9	0,3	52	3,645	6,987	0,0373	337751	12590	1.818.721	19,6	5,3	4,6
53 years	92.415	571	0,00618	0,00177	0,99382	92.129	2.221.770	24,0	0,3	53	3,877	6,987	0,0373	357189	13315	1.738.641	18,8	5,2	4,7
54 years	91.843	638	0,00695	0,00191	0,99305	91.524	2.129.641	23,2	0,3	54	4,106	6,987	0,0373	375800	14009	1.659.827	18,1	5,1	4,9
55 years	91.205	712	0,00781	0,00206	0,99219	90.849	2.038.117	22,4	0,3	55	4,331	6,987	0,0373	393472	14667	1.582.311	17,3	5,1	5,1
56 years	90.493	792	0,00875	0,00220	0,99125	90.097	1.947.268	21,5	0,3	56	4,542	6,987	0,0373	409183	15253	1.506.130	16,6	4,9	5,1
57 years	89.701	879	0,00980	0,00234	0,99020	89.261	1.857.171	20,7	0,2	57	4,748	6,987	0,0373	423807	15798	1.431.286	16,0	4,7	5,2
58 years	88.821	974	0,01096	0,00249	0,98904	88.335	1.767.910	19,9	0,2	58	4,944	6,987	0,0373	436766	16281	1.357.823	15,3	4,6	5,3
59 years	87.848	1.075	0,01224	0,00264	0,98776	87.310	1.679.575	19,1	0,2	59	5,131	6,987	0,0373	447956	16698	1.285.769	14,6	4,5	5,5
60 years	86.772	1.185	0,01365	0,00280	0,98635	86.180	1.592.265	18,4	0,2	60	5,306	6,987	0,0373	457287	17046	1.215.157	14,0	4,4	5,6
61 years	85.588	1.301	0,01520	0,00303	0,98480	84.937	1.506.085	17,6	0,2	61	5,471	6,987	0,0373	464660	17321	1.146.023	13,4	4,2	5,7
62 years	84.286	1.425	0,01691	0,00326	0,98309	83.574	1.421.148	16,9	0,2	62	5,627	6,987	0,0373	470248	17529	1.078.407	12,8	4,1	5,7
63 years	82.861	1.556	0,01877	0,00346	0,98123	82.084	1.337.575	16,1	0,2	63	5,768	6,987	0,0373	473434	17648	1.012.363	12,2	3,9	5,8
64 years	81.306	1.693	0,02082	0,00361	0,97918	80.460	1.255.491	15,4	0,2	64	5,902	6,987	0,0373	474887	17702	947.927	11,7	3,7	5,8
65 years	79.613	1.835	0,02305	0,00386	0,97695	78.696	1.175.031	14,8	0,2	65	6,024	6,987	0,0373	474048	17671	885.169	11,1	3,7	5,9
66 years	77.778	1.983	0,02549	0,00418	0,97451	76.787	1.096.336	14,1	0,2	66	6,137	6,987	0,0373	471270	17567	824.145	10,6	3,5	6,0
67 years	75.795	2.133	0,02815	0,00450	0,97185	74.729	1.019.549	13,5	0,2	67	6,242	6,987	0,0373	466455	17388	764.926	10,1	3,4	6,1
68 years	73.662	2.286	0,03104	0,00469	0,96896	72.519	944.820	12,8	0,2	68	6,337	6,987	0,0373	459550	17130	707.584	9,6	3,2	6,1
69 years	71.376	2.439	0,03418	0,00495	0,96582	70.156	872.302	12,2	0,2	69	6,424	6,987	0,0373	450673	16800	652.197	9,1	3,1	6,2
70 years	68.936	2.591	0,03758	0,00517	0,96242	67.641	802.146	11,6	0,2	70	6,502	6,987	0,0373	439810	16395	598.840	8,7	2,9	6,2
71 years	66.346	2.738	0,04127	0,00564	0,95873	64.977	734.505	11,1	0,2	71	6,574	6,987	0,0373	427182	15924	547.594	8,3	2,8	6,3
72 years	63.608	2.878	0,04525	0,00606	0,95475	62.169	669.528	10,5	0,2	72	6,638	6,987	0,0373	412699	15384	498.541	7,8	2,7	6,3
73 years	60.730	3.009	0,04954	0,00666	0,95046	59.225	607.359	10,0	0,2	73	6,695	6,987	0,0373	396524	14781	451.756	7,4	2,6	6,4
74 years	57.721	3.127	0,05417	0,00726	0,94583	56.157	548.134	9,5	0,2	74	6,747	6,987	0,0373	378889	14124	407.312	7,1	2,4	6,4
75 years	54.594	3.229	0,05915	0,00775	0,94085	52.979	491.976	9,0	0,2	75	6,793	6,987	0,0373	359878	13415	365.278	6,7	2,3	6,4
76 years	51.365	3.313	0,06450	0,00832	0,93550	49.708	438.997	8,6	0,2	76	6,833	6,987	0,0373	339675	12662	325.713	6,3	2,3	6,4
77 years	48.052	3.375	0,07023	0,00893	0,92977	46.364	389.289	8,1	0,2	77	6,868	6,987	0,0373	318438	11870	288.667	6,0	2,1	6,5
78 years	44.677	3.411	0,07636	0,00974	0,92364	42.971	342.924	7,7	0,2	78	6,898	6,987	0,0373	296411	11049	254.173	5,7	2,0	6,5
79 years	41.266	3.421	0,08291	0,01066	0,91709	39.555	299.953	7,3	0,2	79	6,923	6,987	0,0373	273842	10208	222.251	5,4	1,9	6,5
80 years	37.844	3.402	0,08989	0,01179	0,91011	36.144	260.398	6,9	0,2	80	6,943	6,987	0,0373	250960	9355	192.904	5,1	1,8	6,6
81 years	34.443	3.352	0,09733	0,01324	0,90267	32.766	224.254	6,5	0,2	81	6,960	6,987	0,0373	228052	8501	166.115	4,8	1,7	6,6
82 years	31.090	3.272	0,10524	0,01500	0,89476	29.454	191.488	6,2	0,3	82	6,973	6,987	0,0373	205377	7656	141.850	4,6	1,6	6,7
83 years	27.818	3.161	0,11362	0,01694	0,88638	26.238	162.034	5,8	0,3	83	6,981	6,987	0,0373	183166	6828	120.051	4,3	1,5	6,6
84 years	24.658	3.021	0,12251	0,01956	0,87749	23.147	135.796	5,5	0,3	84	6,986	6,987	0,0373	161710	6028	100.641	4,1	1,4	6,7
85 years	21.637	2.854	0,13190	0,02167	0,86810	20.210	112.648	5,2	0,3	85	6,987	6,987	0,0373	141217	5264	83.521	3,9	1,3	6,7
86 years	18.783	2.664	0,14181	0,02516	0,85819	17.451	92.438	4,9	0,3	86	6,985	6,987	0,0373	121901	4544	68.575	3,7	1,2	6,8
87 years	16.119	2.454	0,15226	0,02779	0,84774	14.892	74.987	4,7	0,3	87	6,980	6,987	0,0373	103951	3875	55.668	3,5	1,2	6,7
88 years	13.665	2.231	0,16324	0,03195	0,83676	12.550	60.095	4,4	0,3	88	6,972	6,987	0,0373	87496	3262	44.651	3,3	1,1	6,8
89 years	11.434	1.998	0,17477	0,03573	0,82523	10.435	47.545	4,2	0,3	89	6,960	6,987	0,0373	72631	2707	35.363	3,1	1,1	6,8
90 years	9.436	1.763	0,18685	0,04158	0,81315	8.554	37.110	3,9	0,4	90	6,946	6,987	0,0373	59416	2215	27.635	2,9	1,0	6,9
91 years	7.673	1.530	0,19942	0,04761	0,80058	6.908	28.556	3,7	0,4	91	6,927	6,987	0,0373	47850	1784	21.296	2,8	0,9	6,9
92 years	6.143	1.305	0,21238	0,05462	0,78762	5.490	21.648	3,5	0,4	92	6,900	6,987	0,0373	37882	1412	16.172	2,6	0,9	6,9
93 years	4.838	1.092	0,22571	0,06322	0,77429	4.292	16.158	3,3	0,4	93	6,867	6,987	0,0373	29474	1099	12.094	2,5	0,8	7,0
94 years	3.746	897	0,23936	0,07428	0,76064	3.298	11.865	3,2	0,5	94	6,828	6,987	0,0373	22517	839	8.899	2,4	0,8	7,0
95 years	2.849	723	0,25379	0,08783	0,74621	2.488	8.568	3,0	0,5	95	6,794	6,987	0,0373	16904	630	6.442	2,3	0,7	7,0
96 years	2.126	569	0,26764	0,10504	0,73236	1.842	6.080	2,9	0,6	96	6,734	6,987	0,0373	12404	462	4.584	2,2	0,7	6,9
97 years	1.557	439	0,28174	0,12355	0,71826	1.338	4.238	2,7	0,7	97	6,671	6,987	0,0373	8926	333	3.204	2,1	0,6	7,0
98 years	1.118	331	0,29603	0,15075	0,70397	953	2.900	2,6	0,8	98	6,606	6,987	0,0373	6295	235	2.199	2,0	0,6	7,0
99 years	787	244	0,31046	0,18477	0,68954	665	1.947	2,5	0,9	99	6,538	6,987	0,0373	4347	162	1.481	1,9	0,6	7,1
100 years	543	176	0,32498	0,20869	0,67502	455	1.282	2,4	1,0	100	6,467	6,987	0,0373	2942	110	978	1,8	0,6	7,1
101 years	366	124	0,33953	0,33216	0,66047	304	828	2,3	1,2	101	6,393	6,987	0,0373	1943	72	633	1,7	0,6	7,0
102 years	242	86	0,35405	0,33397	0,64595	199	523	2,2	1,3	102	6,316	6,987	0,0373	1257	47	401	1,7	0,5	7,0
103 years	156	58	0,36850	0,47433	0,63150	128	324	2,1	1,5	103	6,238	6,987	0,0373	798	30	249	1,6	0,5	7,0
104 years	99	38	0,38281	0,49461	0,61719	80	196	2,0	1,5	104	6,156	6,987	0,0373	493	18	151	1,5	0,5	7,0
105 years	61	24	0,39694	0,47687	0,60306	49	117	1,9	1,4	105	6,073	6,987	0,0373	298	11	90	1,5	0,4	7,1
106 years	37	15	0,41084	0,49627	0,58916	29	68	1,8	1,4	106	5,988	6,987	0,0373	174	6	52	1,4	0,4	7,1
107 years	22	9	0,42445	0,49642	0,57555	17	39	1,8	1,3	107	5,901	6,987	0,0373	100	4	29	1,3	0,5	7,0
108 years	12	5	0,43775	0,49617	0,56225	10	22	1,7	1,2	108	5,813	6,987	0,0373	58	2	16	1,3	0,4	7,1
109 years	7	3	0,45069	0,49556	0,54931	5	12	1,7	1,1	109	5,724	6,987	0,0373	29	1	8	1,2	0,5	7,0
110 years	4	4	1,00000	0,00000	0,00000	6	6	1,7	...	110	11,482	6,987	0,0373	69	3	3	0,9	0,8	7,0

Source: author´s own processing

Tab. 3: Excel program for the estimation of the HLYL for males in Canada 1990-1992

TABLE III. Complete life tables, males, Canada																			
1990 to 1992																			
Age	l_x	d_x	q_x	m.e.(q_x)	p_x	L_x	T_x	e_x	m.e.(e_x)	year	HLYL	HLYL	Dx	total	Total years	DTx	Dex	HLYL	Inverse
	number	number	probability			number			year	number	estimated	maximum	disability	person years	with disability			calculated	HLYL
0 year	100.000	709	0,00709	0,00021	0,99291	99.380	7.453.028	74,5	0,1	0	0,300	7,239	0,0375	29814	1117	6.726.113	67,3	7,2	0,7
1 year	99.291	49	0,00049	0,00006	0,99951	99.264	7.353.648	74,1	0,0	1	0,084	7,239	0,0375	8342	313	6.627.851	66,8	7,3	0,5
2 years	99.242	39	0,00040	0,00005	0,99960	99.220	7.254.384	73,1	0,0	2	0,115	7,239	0,0375	11439	429	6.528.899	65,8	7,3	0,5
3 years	99.203	32	0,00033	0,00005	0,99967	99.186	7.155.164	72,1	0,0	3	0,131	7,239	0,0375	12998	487	6.430.108	64,8	7,3	0,4
4 years	99.170	28	0,00028	0,00004	0,99972	99.156	7.055.977	71,2	0,0	4	0,140	7,239	0,0375	13898	521	6.331.408	63,8	7,4	0,5
5 years	99.143	24	0,00024	0,00004	0,99976	99.130	6.956.822	70,2	0,0	5	0,144	7,239	0,0375	14280	535	6.232.774	62,9	7,3	0,5
6 years	99.118	22	0,00022	0,00004	0,99978	99.108	6.857.691	69,2	0,0	6	0,153	7,239	0,0375	15178	569	6.134.178	61,9	7,3	0,5
7 years	99.097	20	0,00020	0,00004	0,99980	99.087	6.758.583	68,2	0,0	7	0,158	7,239	0,0375	15640	586	6.035.639	60,9	7,3	0,5
8 years	99.077	19	0,00019	0,00004	0,99981	99.068	6.659.497	67,2	0,0	8	0,167	7,239	0,0375	16550	620	5.937.140	59,9	7,3	0,5
9 years	99.058	18	0,00018	0,00003	0,99982	99.049	6.560.429	66,2	0,0	9	0,174	7,239	0,0375	17236	646	5.838.692	58,9	7,3	0,5
10 years	99.040	19	0,00019	0,00003	0,99981	99.030	6.461.380	65,2	0,0	10	0,199	7,239	0,0375	19756	740	5.740.289	58,0	7,2	0,6
11 years	99.021	20	0,00020	0,00004	0,99980	99.011	6.362.350	64,3	0,0	11	0,226	7,239	0,0375	22354	838	5.641.999	57,0	7,3	0,7
12 years	99.001	23	0,00024	0,00004	0,99976	98.989	6.263.339	63,3	0,0	12	0,288	7,239	0,0375	28509	1069	5.543.826	56,0	7,3	0,7
13 years	98.978	29	0,00029	0,00004	0,99971	98.963	6.164.349	62,3	0,0	13	0,366	7,239	0,0375	36214	1357	5.445.905	55,0	7,3	0,7
14 years	98.949	37	0,00038	0,00005	0,99962	98.930	6.065.386	61,3	0,0	14	0,498	7,239	0,0375	49229	1845	5.348.299	54,1	7,2	0,8
15 years	98.912	52	0,00053	0,00006	0,99947	98.886	5.966.455	60,3	0,0	15	0,708	7,239	0,0375	70032	2625	5.251.213	53,1	7,2	0,8
16 years	98.860	71	0,00072	0,00007	0,99928	98.824	5.867.570	59,4	0,0	16	0,964	7,239	0,0375	95300	3572	5.154.953	52,1	7,3	0,8
17 years	98.788	89	0,00090	0,00008	0,99910	98.744	5.768.746	58,4	0,0	17	1,191	7,239	0,0375	117632	4409	5.059.701	51,2	7,2	0,9
18 years	98.699	101	0,00102	0,00008	0,99898	98.649	5.670.002	57,5	0,0	18	1,325	7,239	0,0375	130687	4898	4.965.366	50,3	7,2	1,0
19 years	98.598	108	0,00110	0,00008	0,99890	98.544	5.571.354	56,5	0,0	19	1,398	7,239	0,0375	137728	5162	4.871.616	49,4	7,1	1,0
20 years	98.490	113	0,00115	0,00008	0,99885	98.433	5.472.810	55,6	0,0	20	1,429	7,239	0,0375	140631	5271	4.778.235	48,5	7,1	1,1
21 years	98.377	117	0,00119	0,00008	0,99881	98.318	5.374.376	54,6	0,0	21	1,446	7,239	0,0375	142160	5328	4.685.072	47,6	7,0	1,1
22 years	98.260	118	0,00120	0,00009	0,99880	98.201	5.276.058	53,7	0,0	22	1,429	7,239	0,0375	140302	5259	4.592.082	46,7	7,0	1,2
23 years	98.142	117	0,00119	0,00008	0,99881	98.083	5.177.857	52,8	0,0	23	1,392	7,239	0,0375	136523	5117	4.499.140	45,8	7,0	1,3
24 years	98.025	114	0,00116	0,00008	0,99884	97.968	5.079.774	51,8	0,0	24	1,337	7,239	0,0375	131002	4910	4.406.174	44,9	6,9	1,4
25 years	97.911	111	0,00113	0,00008	0,99887	97.855	4.981.807	50,9	0,0	25	1,287	7,239	0,0375	125960	4721	4.313.117	44,1	6,8	1,5
26 years	97.800	109	0,00111	0,00008	0,99889	97.746	4.883.951	49,9	0,0	26	1,252	7,239	0,0375	122363	4586	4.219.982	43,1	6,8	1,6
27 years	97.691	109	0,00112	0,00007	0,99888	97.637	4.786.206	49,0	0,0	27	1,251	7,239	0,0375	122150	4578	4.126.823	42,2	6,8	1,6
28 years	97.582	111	0,00114	0,00007	0,99886	97.527	4.688.569	48,1	0,0	28	1,261	7,239	0,0375	123003	4610	4.033.764	41,3	6,8	1,8
29 years	97.471	114	0,00117	0,00008	0,99883	97.414	4.591.043	47,1	0,0	29	1,282	7,239	0,0375	124839	4679	3.940.849	40,4	6,7	1,9
30 years	97.357	120	0,00123	0,00008	0,99877	97.297	4.493.628	46,2	0,0	30	1,332	7,239	0,0375	129598	4857	3.848.113	39,5	6,7	2,0
31 years	97.237	126	0,00129	0,00008	0,99871	97.175	4.396.331	45,2	0,0	31	1,379	7,239	0,0375	134050	5024	3.755.673	38,6	6,6	2,0
32 years	97.112	132	0,00136	0,00008	0,99864	97.046	4.299.157	44,3	0,0	32	1,434	7,239	0,0375	139178	5217	3.663.524	37,7	6,6	2,2
33 years	96.980	137	0,00141	0,00008	0,99859	96.911	4.202.111	43,3	0,0	33	1,465	7,239	0,0375	142018	5323	3.571.694	36,8	6,5	2,2
34 years	96.843	142	0,00146	0,00009	0,99854	96.772	4.105.199	42,4	0,0	34	1,495	7,239	0,0375	144661	5422	3.480.105	35,9	6,5	2,4
35 years	96.701	146	0,00151	0,00009	0,99849	96.628	4.008.427	41,5	0,0	35	1,523	7,239	0,0375	147117	5514	3.388.755	35,0	6,5	2,5
36 years	96.555	150	0,00156	0,00009	0,99844	96.480	3.911.799	40,5	0,0	36	1,548	7,239	0,0375	149398	5600	3.297.641	34,2	6,3	2,6
37 years	96.405	156	0,00162	0,00009	0,99838	96.327	3.815.319	39,6	0,0	37	1,582	7,239	0,0375	152413	5713	3.206.761	33,3	6,3	2,8
38 years	96.249	163	0,00169	0,00010	0,99831	96.167	3.718.993	38,6	0,0	38	1,623	7,239	0,0375	156083	5850	3.116.148	32,4	6,2	2,8
39 years	96.085	172	0,00179	0,00010	0,99821	96.000	3.622.826	37,7	0,0	39	1,688	7,239	0,0375	162067	6074	3.025.831	31,5	6,2	3,0
40 years	95.914	182	0,00189	0,00011	0,99811	95.823	3.526.826	36,8	0,0	40	1,749	7,239	0,0375	167552	6280	2.935.905	30,6	6,2	3,1
41 years	95.732	193	0,00202	0,00011	0,99798	95.635	3.431.003	35,8	0,0	41	1,830	7,239	0,0375	175043	6561	2.846.362	29,7	6,1	3,2
42 years	95.539	207	0,00217	0,00011	0,99783	95.435	3.335.368	34,9	0,0	42	1,922	7,239	0,0375	183457	6876	2.757.288	28,9	6,0	3,3
43 years	95.332	222	0,00233	0,00012	0,99767	95.221	3.239.932	34,0	0,0	43	2,015	7,239	0,0375	191828	7190	2.668.728	28,0	6,0	3,5
44 years	95.110	240	0,00252	0,00013	0,99748	94.990	3.144.712	33,1	0,0	44	2,122	7,239	0,0375	201603	7556	2.580.698	27,1	6,0	3,6
45 years	94.870	260	0,00274	0,00014	0,99726	94.740	3.049.722	32,2	0,0	45	2,243	7,239	0,0375	212492	7964	2.493.264	26,3	5,9	3,7
46 years	94.610	283	0,00299	0,00015	0,99701	94.468	2.954.982	31,2	0,0	46	2,373	7,239	0,0375	224205	8403	2.406.489	25,4	5,8	3,9
47 years	94.327	309	0,00328	0,00016	0,99672	94.172	2.860.514	30,3	0,0	47	2,518	7,239	0,0375	237140	8888	2.320.424	24,6	5,7	4,0
48 years	94.017	340	0,00361	0,00017	0,99639	93.847	2.766.342	29,4	0,0	48	2,673	7,239	0,0375	250896	9404	2.235.141	23,8	5,6	4,1
49 years	93.678	375	0,00400	0,00018	0,99600	93.490	2.672.495	28,5	0,0	49	2,849	7,239	0,0375	266343	9983	2.150.698	23,0	5,5	4,3
50 years	93.303	415	0,00445	0,00020	0,99555	93.096	2.579.004	27,6	0,0	50	3,038	7,239	0,0375	282858	10602	2.067.189	22,2	5,4	4,4
51 years	92.888	460	0,00495	0,00021	0,99505	92.658	2.485.909	26,8	0,0	51	3,230	7,239	0,0375	299276	11217	1.984.696	21,4	5,4	4,5
52 years	92.428	509	0,00551	0,00023	0,99449	92.174	2.393.250	25,9	0,0	52	3,425	7,239	0,0375	315726	11834	1.903.254	20,6	5,3	4,6
53 years	91.919	563	0,00613	0,00024	0,99387	91.637	2.301.077	25,0	0,0	53	3,620	7,239	0,0375	331714	12433	1.822.915	19,8	5,2	4,8
54 years	91.356	622	0,00681	0,00026	0,99319	91.045	2.209.439	24,2	0,0	54	3,809	7,239	0,0375	346831	13000	1.743.710	19,1	5,1	4,9
55 years	90.734	686	0,00756	0,00028	0,99244	90.391	2.118.395	23,4	0,0	55	3,996	7,239	0,0375	361174	13537	1.665.666	18,4	5,0	5,0
56 years	90.048	755	0,00839	0,00029	0,99161	89.670	2.028.004	22,5	0,0	56	4,179	7,239	0,0375	374768	14047	1.588.812	17,6	4,9	5,1
57 years	89.293	830	0,00930	0,00031	0,99070	88.878	1.938.334	21,7	0,0	57	4,357	7,239	0,0375	387199	14513	1.513.189	16,9	4,8	5,2
58 years	88.463	911	0,01029	0,00033	0,98971	88.007	1.849.456	20,9	0,0	58	4,524	7,239	0,0375	398130	14922	1.438.823	16,3	4,6	5,3
59 years	87.552	997	0,01139	0,00034	0,98861	87.053	1.761.449	20,1	0,0	59	4,690	7,239	0,0375	408319	15304	1.365.739	15,6	4,5	5,4
60 years	86.555	1.090	0,01260	0,00036	0,98740	86.009	1.674.396	19,3	0,0	60	4,852	7,239	0,0375	417292	15641	1.293.990	14,9	4,4	5,4
61 years	85.464	1.189	0,01392	0,00038	0,98608	84.870	1.588.386	18,6	0,0	61	5,004	7,239	0,0375	424696	15918	1.223.621	14,3	4,3	5,5
62 years	84.275	1.295	0,01536	0,00041	0,98464	83.628	1.503.517	17,8	0,0	62	5,148	7,239	0,0375	430525	16137	1.154.670	13,7	4,1	5,6
63 years	82.980	1.406	0,01695	0,00043	0,98305	82.277	1.419.889	17,1	0,0	63	5,290	7,239	0,0375	435231	16313	1.087.178	13,1	4,0	5,7
64 years	81.574	1.524	0,01868	0,00046	0,98132	80.812	1.337.612	16,4	0,0	64	5,422	7,239	0,0375	438198	16424	1.021.214	12,5	3,9	5,8
65 years	80.051	1.646	0,02057	0,00049	0,97943	79.227	1.256.800	15,7	0,0	65	5,549	7,239	0,0375	439604	16477	956.826	12,0	3,7	5,9
66 years	78.404	1.774	0,02263	0,00052	0,97737	77.517	1.177.572	15,0	0,0	66	5,668	7,239	0,0375	439364	16468	894.075	11,4	3,6	6,0
67 years	76.630	1.907	0,02488	0,00056	0,97512	75.676	1.100.055	14,4	0,0	67	5,782	7,239	0,0375	437562	16400	833.026	10,9	3,5	6,0
68 years	74.723	2.042	0,02733	0,00059	0,97267	73.702	1.024.379	13,7	0,0	68	5,890	7,239	0,0375	434100	16271	773.750	10,4	3,3	6,0
69 years	72.681	2.181	0,03000	0,00063	0,97000	71.590	950.677	13,1	0,0	69	5,993	7,239	0,0375	429020	16080	716.319	9,9	3,2	6,1
70 years	70.500	2.320	0,03291	0,00068	0,96709	69.340	879.087	12,5	0,0	70	6,091	7,239	0,0375	422355	15830	660.809	9,4	3,1	6,2
71 years	68.180	2.459	0,03606	0,00074	0,96394	66.951	809.747	11,9	0,0	71	6,182	7,239	0,0375	413898	15513	607.299	8,9	3,0	6,2
72 years	65.721	2.595	0,03949	0,00082	0,96051	64.424	742.796	11,3	0,0	72	6,270	7,239	0,0375	403924	15140	555.862	8,5	2,8	6,2
73 years	63.126	2.727	0,04320	0,00089	0,95680	61.763	678.372	10,8	0,0	73	6,351	7,239	0,0375	392267	14703	506.577	8,0	2,8	6,3
74 years	60.399	2.853	0,04723	0,00096	0,95277	58.973	616.610	10,2	0,0	74	6,429	7,239	0,0375	379156	14211	459.518	7,6	2,6	6,3
75 years	57.546	2.969	0,05159	0,00102	0,94841	56.062	557.637	9,7	0,0	75	6,503	7,239	0,0375	364556	13664	414.756	7,2	2,5	6,5
76 years	54.577	3.073	0,05631	0,00109	0,94369	53.041	501.575	9,2	0,0	76	6,572	7,239	0,0375	348607	13066	372.358	6,8	2,4	6,5
77 years	51.504	3.163	0,06141	0,00117	0,93859	49.923	448.535	8,7	0,0	77	6,638	7,239	0,0375	331391	12421	332.384	6,5	2,2	6,5
78 years	48.341	3.235	0,06692	0,00129	0,93308	46.724	398.612	8,3	0,0	78	6,700	7,239	0,0375	313061	11734	294.882	6,1	2,2	6,6
79 years	45.106	3.286	0,07286	0,00142	0,92714	43.463	351.888	7,8	0,0	79	6,758	7,239	0,0375	293742	11010	259.892	5,8	2,0	6,6
80 years	41.820	3.315	0,07926	0,00156	0,92074	40.163	308.425	7,4	0,0	80	6,813	7,239	0,0375	273637	10256	227.439	5,4	2,0	6,7
81 years	38.506	3.318	0,08616	0,00173	0,91384	36.847	268.262	7,0	0,0	81	6,865	7,239	0,0375	252966	9481	197.532	5,1	1,9	6,7
82 years	35.188	3.293	0,09358	0,00192	0,90642	33.542	231.415	6,6	0,0	82	6,914	7,239	0,0375	231913	8692	170.166	4,8	1,8	6,8
83 years	31.895	3.239	0,10156	0,00214	0,89844	30.276	197.874	6,2	0,0	83	6,960	7,239	0,0375	210730	7898	145.318	4,6	1,6	6,8
84 years	28.656	3.156	0,11013	0,00240	0,88987	27.078	167.598	5,9	0,0	84	7,004	7,239	0,0375	189645	7108	122.940	4,3	1,6	6,8
85 years	25.500	3.043	0,11932	0,00270	0,88068	23.979	140.520	5,5	0,0	85	7,044	7,239	0,0375	168909	6331	102.970	4,0	1,5	6,8
86 years	22.457	2.901	0,12918	0,00304	0,87082	21.007	116.541	5,2	0,0	86	7,082	7,239	0,0375	148779	5576	85.322	3,8	1,4	6,9
87 years	19.556	2.733	0,13974	0,00343	0,86026	18.190	95.534	4,9	0,0	87	7,118	7,239	0,0375	129479	4853	69.892	3,6	1,3	7,0
88 years	16.824	2.541	0,15103	0,00390	0,84897	15.553	77.344	4,6	0,0	88	7,151	7,239	0,0375	111222	4169	56.555	3,4	1,2	7,0
89 years	14.283	2.330	0,16311	0,00447	0,83689	13.118	61.791	4,3	0,0	89	7,182	7,239	0,0375	94219	3531	45.170	3,2	1,1	7,0
90 years	11.953	2.104	0,17602	0,00520	0,82398	10.901	48.673	4,1	0,1	90	7,212	7,239	0,0375	78615	2947	35.584	3,0	1,1	7,1
91 years	9.849	1.867	0,18961	0,00602	0,81039	8.915	37.772	3,8	0,1	91	7,232	7,239	0,0375	64477	2417	27.629	2,8	1,0	7,1
92 years	7.982	1.626	0,20370	0,00703	0,79630	7.169	28.857	3,6	0,1	92	7,239	7,239	0,0375	51895	1945	21.131	2,6	1,0	7,2
93 years	6.356	1.387	0,21824	0,00824	0,78176	5.662	21.688	3,4	0,1	93	7,232	7,239	0,0375	40947	1535	15.907	2,5	0,9	7,2
94 years	4.969	1.159	0,23320	0,00972	0,76680	4.389	16.026	3,2	0,1	94	7,213	7,239	0,0375	31658	1187	11.780	2,4	0,8	7,3
95 years	3.810	940	0,24674	0,01153	0,75326	3.340	11.636	3,1	0,1	95	7,135	7,239	0,0375	23832	893	8.576	2,3	0,8	7,2
96 years	2.870	752	0,26185	0,01379	0,73815	2.494	8.296	2,9	0,1	96	7,089	7,239	0,0375	17679	663	6.130	2,1	0,8	7,2
97 years	2.118	587	0,27729	0,01660	0,72271	1.825	5.802	2,7	0,1	97	7,036	7,239	0,0375	12841	481	4.298	2,0	0,7	7,3
98 years	1.531	449	0,29297	0,02021	0,70703	1.307	3.978	2,6	0,1	98	6,977	7,239	0,0375	9119	342	2.956	1,9	0,7	7,3
99 years	1.082	334	0,30883	0,02463	0,69117	915	2.671	2,5	0,1	99	6,913	7,239	0,0375	6325	237	1.990	1,8	0,7	7,3
100 years	748	243	0,32481	0,03079	0,67519	627	1.755	2,4	0,1	100	6,842	7,239	0,0375	4290	161	1.311	1,8	0,6	7,2
101 years	505	172	0,34083	0,03934	0,65917	419	1.129	2,2	0,2	101	6,767	7,239	0,0375	2835	106	846	1,7	0,5	7,3
102 years	333	119	0,35681	0,04412	0,64319	274	710	2,1	0,2	102	6,687	7,239	0,0375	1832	69	534	1,6	0,5	7,3
103 years	214	80	0,37269	0,06399	0,62731	174	436	2,0	0,2	103	6,602	7,239	0,0375	1149	43	328	1,5	0,5	7,3
104 years	134	52	0,38839	0,07500	0,61161	108	262	2,0	0,3	104	6,513	7,239	0,0375	703	26	197	1,5	0,5	7,3
105 years	82	33	0,40384	0,09159	0,59616	66	154	1,9	0,4	105	6,420	7,239	0,0375	424	16	116	1,4	0,5	7,3
106 years	49	21	0,41897	0,15040	0,58103	39	88	1,8	0,6	106	6,324	7,239	0,0375	247	9	66	1,3	0,5	7,4
107 years	28	12	0,43374	0,24178	0,56626	22	49	1,7	0,8	107	6,225	7,239	0,0375	137	5	36	1,3	0,4	7,3
108 years	16	7	0,44809	0,38291	0,55191	13	27	1,7	1,0	108	6,124	7,239	0,0375	80	3	19	1,2	0,5	7,3
109 years	9	4	0,46197	0,49474	0,53803	7	15	1,6	1,0	109	6,021	7,239	0,0375	42	2	10	1,1	0,5	7,3
110 years	5	5	1,00000	0,00000	0,00000	8	8	1,6	...	110	11,751	7,239	0,0375	94	4	4	0,9	0,7	7,2

Source: author´s own processing

Tab. 4: Excel program for the estimation of the HLYL for females in Canada 1990-1992

Table IV. Complete life tables, females, Canada
1990 to 1992

Age	l_x	d_x	q_x	m.e.(q_x)	p_x	L_x	T_x	e_x	m.e.(e_x)	year	HLYL	HLYL	Dx	total	Total years	DTx	Dex	HLYL	Inverse
		number		probability			number		year	number	estimated	maximum	disability	person years	with disability			calculated	HLYL
0 year	100.000	576	0,00576	0,00019	0,99424	99.497	8.086.307	80,9	0,1	0	0,300	8,908	0,0383	29849	1142	7.199.223	72,0	8,9	0,8
1 year	99.424	38	0,00039	0,00005	0,99961	99.403	7.986.809	80,3	0,0	1	0,082	8,908	0,0383	8195	314	7.100.867	71,4	8,9	0,7
2 years	99.385	31	0,00031	0,00005	0,99969	99.371	7.887.406	79,4	0,0	2	0,110	8,908	0,0383	10968	420	7.001.778	70,5	8,9	0,5
3 years	99.354	26	0,00026	0,00004	0,99974	99.342	7.788.035	78,4	0,0	3	0,128	8,908	0,0383	12684	485	6.902.827	69,5	8,9	0,5
4 years	99.329	22	0,00022	0,00004	0,99978	99.316	7.688.693	77,4	0,0	4	0,136	8,908	0,0383	13538	518	6.803.970	68,5	8,9	0,6
5 years	99.307	19	0,00019	0,00004	0,99981	99.297	7.589.377	76,4	0,0	5	0,141	8,908	0,0383	14024	537	6.705.172	67,5	8,9	0,6
6 years	99.288	17	0,00017	0,00003	0,99983	99.279	7.490.079	75,4	0,0	6	0,147	8,908	0,0383	14565	557	6.606.411	66,5	8,9	0,6
7 years	99.271	15	0,00015	0,00003	0,99985	99.263	7.390.800	74,5	0,0	7	0,147	8,908	0,0383	14590	558	6.507.689	65,6	8,9	0,7
8 years	99.256	14	0,00014	0,00003	0,99986	99.249	7.291.536	73,5	0,0	8	0,153	8,908	0,0383	15195	582	6.408.984	64,6	8,9	0,7
9 years	99.241	14	0,00014	0,00003	0,99986	99.234	7.192.288	72,5	0,0	9	0,168	8,908	0,0383	16714	640	6.310.317	63,6	8,9	0,7
10 years	99.228	14	0,00014	0,00003	0,99986	99.221	7.093.053	71,5	0,0	10	0,183	8,908	0,0383	18180	696	6.211.722	62,6	8,9	0,8
11 years	99.214	14	0,00014	0,00003	0,99986	99.207	6.993.833	70,5	0,0	11	0,198	8,908	0,0383	19594	750	6.113.198	61,6	8,9	0,8
12 years	99.200	16	0,00016	0,00003	0,99984	99.192	6.894.626	69,5	0,0	12	0,241	8,908	0,0383	23893	914	6.014.741	60,6	8,9	0,9
13 years	99.184	18	0,00018	0,00004	0,99982	99.175	6.795.434	68,5	0,0	13	0,287	8,908	0,0383	28434	1088	5.916.463	59,7	8,8	1,0
14 years	99.166	22	0,00022	0,00004	0,99978	99.155	6.696.259	67,5	0,0	14	0,367	8,908	0,0383	36399	1393	5.818.376	58,7	8,8	1,0
15 years	99.144	28	0,00028	0,00004	0,99972	99.130	6.597.104	66,5	0,0	15	0,484	8,908	0,0383	47986	1837	5.720.614	57,7	8,8	1,1
16 years	99.117	34	0,00034	0,00005	0,99966	99.100	6.497.974	65,6	0,0	16	0,603	8,908	0,0383	59762	2287	5.623.321	56,7	8,9	1,3
17 years	99.083	38	0,00038	0,00005	0,99962	99.064	6.398.874	64,6	0,0	17	0,687	8,908	0,0383	68051	2604	5.526.508	55,8	8,8	1,3
18 years	99.045	38	0,00039	0,00005	0,99961	99.025	6.299.811	63,6	0,0	18	0,717	8,908	0,0383	70958	2716	5.430.050	54,8	8,8	1,4
19 years	99.006	37	0,00037	0,00005	0,99963	98.988	6.200.785	62,6	0,0	19	0,691	8,908	0,0383	68429	2619	5.333.739	53,9	8,7	1,5
20 years	98.970	36	0,00036	0,00005	0,99964	98.952	6.101.797	61,7	0,0	20	0,684	8,908	0,0383	67647	2589	5.237.370	52,9	8,8	1,7
21 years	98.934	35	0,00036	0,00005	0,99964	98.916	6.002.846	60,7	0,0	21	0,694	8,908	0,0383	68641	2627	5.141.008	52,0	8,7	1,7
22 years	98.898	35	0,00036	0,00005	0,99964	98.881	5.903.930	59,7	0,0	22	0,704	8,908	0,0383	69572	2663	5.044.719	51,0	8,7	1,9
23 years	98.863	36	0,00036	0,00005	0,99964	98.845	5.805.049	58,7	0,0	23	0,713	8,908	0,0383	70443	2696	4.948.501	50,1	8,6	2,0
24 years	98.827	37	0,00037	0,00005	0,99963	98.809	5.706.204	57,7	0,0	24	0,741	8,908	0,0383	73179	2801	4.852.352	49,1	8,6	2,1
25 years	98.790	38	0,00039	0,00005	0,99961	98.771	5.607.395	56,8	0,0	25	0,787	8,908	0,0383	77779	2977	4.756.344	48,1	8,7	2,2
26 years	98.752	40	0,00040	0,00005	0,99960	98.732	5.508.624	55,8	0,0	26	0,814	8,908	0,0383	80330	3074	4.660.549	47,2	8,6	2,4
27 years	98.713	41	0,00042	0,00005	0,99958	98.692	5.409.891	54,8	0,0	27	0,859	8,908	0,0383	84764	3244	4.564.891	46,2	8,6	2,5
28 years	98.671	43	0,00044	0,00005	0,99956	98.650	5.311.199	53,8	0,0	28	0,903	8,908	0,0383	89078	3409	4.469.443	45,3	8,5	2,6
29 years	98.628	45	0,00046	0,00005	0,99954	98.606	5.212.549	52,9	0,0	29	0,946	8,908	0,0383	93264	3569	4.374.202	44,4	8,5	2,8
30 years	98.583	48	0,00048	0,00005	0,99952	98.559	5.113.944	51,9	0,0	30	0,987	8,908	0,0383	97314	3724	4.279.166	43,4	8,5	2,9
31 years	98.535	51	0,00051	0,00005	0,99949	98.510	5.015.385	50,9	0,0	31	1,047	8,908	0,0383	103183	3949	4.184.332	42,5	8,4	3,1
32 years	98.485	54	0,00054	0,00005	0,99946	98.458	4.916.875	49,9	0,0	32	1,105	8,908	0,0383	108828	4165	4.089.771	41,5	8,4	3,3
33 years	98.431	57	0,00058	0,00005	0,99942	98.402	4.818.417	49,0	0,0	33	1,181	8,908	0,0383	116170	4446	3.995.478	40,6	8,4	3,4
34 years	98.374	61	0,00062	0,00006	0,99938	98.343	4.720.015	48,0	0,0	34	1,252	8,908	0,0383	123166	4714	3.901.522	39,7	8,3	3,5
35 years	98.313	65	0,00066	0,00006	0,99934	98.280	4.621.671	47,0	0,0	35	1,321	8,908	0,0383	129803	4968	3.807.892	38,7	8,3	3,6
36 years	98.248	70	0,00071	0,00006	0,99929	98.213	4.523.391	46,0	0,0	36	1,405	8,908	0,0383	137942	5279	3.714.580	37,8	8,2	3,8
37 years	98.178	76	0,00077	0,00006	0,99923	98.140	4.425.178	45,1	0,0	37	1,502	8,908	0,0383	147420	5642	3.621.646	36,9	8,2	4,0
38 years	98.102	83	0,00084	0,00007	0,99916	98.061	4.327.038	44,1	0,0	38	1,612	8,908	0,0383	158057	6049	3.529.148	36,0	8,1	4,2
39 years	98.019	91	0,00092	0,00007	0,99908	97.974	4.228.978	43,1	0,0	39	1,732	8,908	0,0383	169653	6493	3.437.137	35,1	8,0	4,3
40 years	97.929	100	0,00102	0,00008	0,99898	97.879	4.131.004	42,2	0,0	40	1,877	8,908	0,0383	183718	7031	3.345.656	34,2	8,0	4,4
41 years	97.829	110	0,00113	0,00008	0,99887	97.774	4.033.125	41,2	0,0	41	2,026	8,908	0,0383	198134	7583	3.254.809	33,3	7,9	4,6
42 years	97.718	122	0,00125	0,00009	0,99875	97.657	3.935.352	40,3	0,0	42	2,178	8,908	0,0383	212669	8139	3.164.618	32,4	7,9	4,7
43 years	97.596	134	0,00138	0,00009	0,99862	97.529	3.837.694	39,3	0,0	43	2,329	8,908	0,0383	227114	8692	3.075.100	31,5	7,8	4,9
44 years	97.462	148	0,00152	0,00010	0,99848	97.388	3.740.165	38,4	0,0	44	2,477	8,908	0,0383	241270	9234	2.986.263	30,6	7,8	5,0
45 years	97.314	163	0,00167	0,00011	0,99833	97.232	3.642.777	37,4	0,0	45	2,622	8,908	0,0383	254964	9758	2.898.109	29,8	7,6	5,2
46 years	97.151	179	0,00184	0,00012	0,99816	97.061	3.545.545	36,5	0,0	46	2,776	8,908	0,0383	269430	10312	2.810.635	28,9	7,6	5,3
47 years	96.972	196	0,00202	0,00012	0,99798	96.874	3.448.483	35,6	0,0	47	2,921	8,908	0,0383	282969	10830	2.723.884	28,1	7,5	5,5
48 years	96.776	215	0,00222	0,00013	0,99778	96.668	3.351.610	34,6	0,0	48	3,070	8,908	0,0383	296746	11357	2.637.841	27,3	7,3	5,7
49 years	96.561	235	0,00244	0,00014	0,99756	96.443	3.254.941	33,7	0,0	49	3,219	8,908	0,0383	310445	11881	2.552.529	26,4	7,3	5,8
50 years	96.325	257	0,00267	0,00015	0,99733	96.197	3.158.498	32,8	0,0	50	3,354	8,908	0,0383	322661	12349	2.467.968	25,6	7,2	5,9
51 years	96.069	280	0,00292	0,00016	0,99708	95.928	3.062.301	31,9	0,0	51	3,487	8,908	0,0383	334489	12802	2.384.120	24,8	7,1	6,1
52 years	95.788	306	0,00320	0,00018	0,99680	95.635	2.966.373	31,0	0,0	52	3,626	8,908	0,0383	346739	13270	2.300.993	24,0	7,0	6,2
53 years	95.482	334	0,00350	0,00019	0,99650	95.315	2.870.738	30,1	0,0	53	3,757	8,908	0,0383	358055	13704	2.218.629	23,2	6,9	6,3
54 years	95.148	365	0,00384	0,00020	0,99616	94.965	2.775.423	29,2	0,0	54	3,897	8,908	0,0383	370119	14165	2.137.017	22,5	6,7	6,5
55 years	94.783	399	0,00420	0,00021	0,99580	94.584	2.680.457	28,3	0,0	55	4,025	8,908	0,0383	380729	14571	2.056.216	21,7	6,6	6,6
56 years	94.384	435	0,00461	0,00022	0,99539	94.167	2.585.874	27,4	0,0	56	4,165	8,908	0,0383	392239	15012	1.976.205	20,9	6,5	6,7
57 years	93.949	475	0,00506	0,00023	0,99494	93.712	2.491.707	26,5	0,0	57	4,304	8,908	0,0383	403305	15435	1.897.049	20,2	6,3	6,9
58 years	93.474	519	0,00555	0,00024	0,99445	93.215	2.397.995	25,7	0,0	58	4,437	8,908	0,0383	413619	15830	1.818.773	19,5	6,2	7,0
59 years	92.955	566	0,00609	0,00025	0,99391	92.672	2.304.781	24,8	0,0	59	4,571	8,908	0,0383	423583	16211	1.741.389	18,7	6,1	7,1
60 years	92.389	618	0,00669	0,00026	0,99331	92.080	2.212.109	23,9	0,0	60	4,707	8,908	0,0383	433439	16589	1.664.928	18,0	5,9	7,2
61 years	91.771	675	0,00735	0,00027	0,99265	91.433	2.120.029	23,1	0,0	61	4,842	8,908	0,0383	442725	16944	1.589.437	17,3	5,8	7,3
62 years	91.096	736	0,00808	0,00029	0,99192	90.728	2.028.596	22,3	0,0	62	4,978	8,908	0,0383	451607	17284	1.514.948	16,6	5,7	7,3
63 years	90.360	803	0,00888	0,00031	0,99112	89.959	1.937.868	21,5	0,0	63	5,110	8,908	0,0383	459652	17592	1.441.504	16,0	5,5	7,5
64 years	89.557	875	0,00977	0,00032	0,99023	89.120	1.847.909	20,6	0,0	64	5,245	8,908	0,0383	467408	17889	1.369.137	15,3	5,3	7,6
65 years	88.682	953	0,01075	0,00034	0,98925	88.206	1.758.789	19,8	0,0	65	5,378	8,908	0,0383	474362	18155	1.297.905	14,6	5,2	7,6
66 years	87.729	1.038	0,01183	0,00035	0,98817	87.210	1.670.583	19,0	0,0	66	5,509	8,908	0,0383	480481	18389	1.227.854	14,0	5,0	7,8
67 years	86.691	1.129	0,01303	0,00037	0,98697	86.126	1.583.373	18,3	0,0	67	5,643	8,908	0,0383	486039	18602	1.159.033	13,4	4,9	7,8
68 years	85.562	1.228	0,01435	0,00039	0,98565	84.948	1.497.247	17,5	0,0	68	5,774	8,908	0,0383	490503	18773	1.091.509	12,8	4,7	7,9
69 years	84.334	1.334	0,01581	0,00042	0,98419	83.667	1.412.299	16,8	0,0	69	5,905	8,908	0,0383	494036	18908	1.025.333	12,2	4,6	7,9
70 years	83.000	1.447	0,01743	0,00045	0,98257	82.277	1.328.632	16,0	0,0	70	6,037	8,908	0,0383	496681	19009	960.574	11,6	4,4	8,0
71 years	81.554	1.568	0,01922	0,00049	0,98078	80.770	1.246.354	15,3	0,0	71	6,167	8,908	0,0383	498137	19065	897.305	11,0	4,3	8,0
72 years	79.986	1.696	0,02120	0,00053	0,97880	79.138	1.165.584	14,6	0,0	72	6,297	8,908	0,0383	498355	19073	835.600	10,4	4,2	8,1
73 years	78.290	1.832	0,02340	0,00058	0,97660	77.374	1.086.446	13,9	0,0	73	6,429	8,908	0,0383	497427	19038	775.535	9,9	4,0	8,2
74 years	76.458	1.975	0,02583	0,00062	0,97417	75.471	1.009.072	13,2	0,0	74	6,558	8,908	0,0383	494965	18943	717.198	9,4	3,8	8,2
75 years	74.483	2.125	0,02853	0,00066	0,97147	73.421	933.601	12,5	0,0	75	6,689	8,908	0,0383	491129	18797	660.671	8,9	3,6	8,3
76 years	72.358	2.281	0,03152	0,00070	0,96848	71.218	860.181	11,9	0,0	76	6,819	8,908	0,0383	485646	18587	606.047	8,4	3,5	8,3
77 years	70.077	2.441	0,03484	0,00075	0,96516	68.857	788.963	11,3	0,0	77	6,950	8,908	0,0383	478533	18314	553.416	7,9	3,4	8,4
78 years	67.636	2.605	0,03852	0,00082	0,96148	66.334	720.106	10,7	0,0	78	7,079	8,908	0,0383	469606	17973	502.873	7,4	3,3	8,4
79 years	65.031	2.770	0,04260	0,00090	0,95740	63.646	653.773	10,1	0,0	79	7,208	8,908	0,0383	458791	17559	454.513	7,0	3,1	8,4
80 years	62.261	2.935	0,04714	0,00098	0,95286	60.793	590.127	9,5	0,0	80	7,339	8,908	0,0383	446164	17076	408.426	6,6	2,9	8,5
81 years	59.326	3.095	0,05217	0,00108	0,94783	57.778	529.334	8,9	0,0	81	7,468	8,908	0,0383	431483	16514	364.709	6,1	2,8	8,5
82 years	56.230	3.249	0,05777	0,00119	0,94223	54.606	471.556	8,4	0,0	82	7,598	8,908	0,0383	414918	15880	323.444	5,8	2,6	8,5
83 years	52.982	3.391	0,06400	0,00131	0,93600	51.287	416.950	7,9	0,0	83	7,730	8,908	0,0383	396424	15172	284.718	5,4	2,5	8,6
84 years	49.591	3.517	0,07091	0,00145	0,92909	47.833	365.663	7,4	0,0	84	7,859	8,908	0,0383	375915	14387	248.603	5,0	2,4	8,6
85 years	46.075	3.622	0,07861	0,00162	0,92139	44.264	317.830	6,9	0,0	85	7,990	8,908	0,0383	353664	13535	215.157	4,7	2,2	8,7
86 years	42.453	3.701	0,08718	0,00181	0,91282	40.602	273.567	6,4	0,0	86	8,121	8,908	0,0383	329737	12620	184.430	4,3	2,1	8,6
87 years	38.752	3.748	0,09671	0,00203	0,90329	36.878	232.965	6,0	0,0	87	8,252	8,908	0,0383	304314	11647	156.447	4,0	2,0	8,6
88 years	35.004	3.757	0,10733	0,00230	0,89267	33.125	196.087	5,6	0,0	88	8,384	8,908	0,0383	277704	10628	131.216	3,7	1,9	8,7
89 years	31.247	3.723	0,11916	0,00260	0,88084	29.385	162.961	5,2	0,0	89	8,515	8,908	0,0383	250224	9577	108.718	3,5	1,7	8,7
90 years	27.524	3.642	0,13234	0,00300	0,86766	25.703	133.576	4,9	0,0	90	8,647	8,908	0,0383	222263	8506	88.910	3,2	1,7	8,8
91 years	23.881	3.503	0,14670	0,00344	0,85330	22.130	107.873	4,5	0,0	91	8,762	8,908	0,0383	193897	7421	71.713	3,0	1,5	8,7
92 years	20.378	3.300	0,16195	0,00397	0,83805	18.728	85.744	4,2	0,0	92	8,842	8,908	0,0383	165589	6337	57.005	2,8	1,4	8,8
93 years	17.078	3.041	0,17804	0,00460	0,82196	15.558	67.016	3,9	0,0	93	8,889	8,908	0,0383	138301	5293	44.615	2,6	1,3	8,8
94 years	14.037	2.736	0,19493	0,00537	0,80507	12.669	51.458	3,7	0,0	94	8,908	8,908	0,0383	112853	4319	34.350	2,4	1,3	8,9
95 years	11.301	2.361	0,20894	0,00627	0,79106	10.120	38.789	3,4	0,0	95	8,762	8,908	0,0383	88672	3394	26.000	2,3	1,1	8,8
96 years	8.940	2.024	0,22641	0,00738	0,77359	7.928	28.669	3,2	0,1	96	8,725	8,908	0,0383	69172	2647	19.273	2,2	1,0	8,8
97 years	6.916	1.691	0,24456	0,00877	0,75544	6.070	20.741	3,0	0,1	97	8,674	8,908	0,0383	52648	2015	13.993	2,0	1,0	8,8
98 years	5.224	1.376	0,26330	0,01047	0,73670	4.537	14.671	2,8	0,1	98	8,608	8,908	0,0383	39054	1495	9.938	1,9	0,9	8,9
99 years	3.849	1.087	0,28251	0,01263	0,71749	3.305	10.134	2,6	0,1	99	8,529	8,908	0,0383	28187	1079	6.895	1,8	0,8	8,9
100 years	2.761	834	0,30207	0,01545	0,69793	2.344	6.829	2,5	0,1	100	8,436	8,908	0,0383	19775	757	4.669	1,7	0,8	8,9
101 years	1.927	620	0,32185	0,01980	0,67815	1.617	4.485	2,3	0,1	101	8,332	8,908	0,0383	13472	516	3.082	1,6	0,7	8,9
102 years	1.307	447	0,34171	0,02502	0,65829	1.084	2.868	2,2	0,1	102	8,216	8,908	0,0383	8906	341	1.981	1,5	0,7	8,9
103 years	860	311	0,36151	0,03224	0,63849	705	1.784	2,1	0,1	103	8,089	8,908	0,0383	5703	218	1.238	1,4	0,7	8,9
104 years	549	209	0,38112	0,04255	0,61888	445	1.079	2,0	0,2	104	7,954	8,908	0,0383	3540	135	751	1,4	0,6	8,9
105 years	340	136	0,40039	0,05317	0,59961	272	634	1,9	0,2	105	7,811	8,908	0,0383	2124	81	441	1,3	0,6	8,9
106 years	204	85	0,41921	0,06723	0,58079	161	363	1,8	0,3	106	7,660	8,908	0,0383	1233	47	252	1,2	0,6	8,9
107 years	118	52	0,43746	0,13130	0,56254	93	201	1,7	0,4	107	7,505	8,908	0,0383	698	27	137	1,2	0,5	8,9
108 years	67	30	0,45504	0,14910	0,54496	51	109	1,6	0,4	108	7,345	8,908	0,0383	375	14	71	1,1	0,5	8,9
109 years	36	17	0,47187	0,23165	0,52813	28	57	1,6	0,5	109	7,182	8,908	0,0383	201	8	34	0,9	0,7	8,9
110 years	19	19	1,00000	0,00000	0,00000	30	30	1,6	...	110	13,482	8,908	0,0383	404	15	15	0,8	0,8	8,9

Source: author´s own processing

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