SHORTCUTS FOR THE CONSTRUCTION OF SUB-ANNUAL LIFE TABLES

SUPPLEMENTARY MATERIAL

(STATISTICAL AND GRAPHICAL APPENDIX)

SUPPLEMENTARY MATERIAL of the paper:

"Shortcuts for the construction of sub-annual life tables"

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Section S1. Graphical representations of differences for the range of ages 0-100.

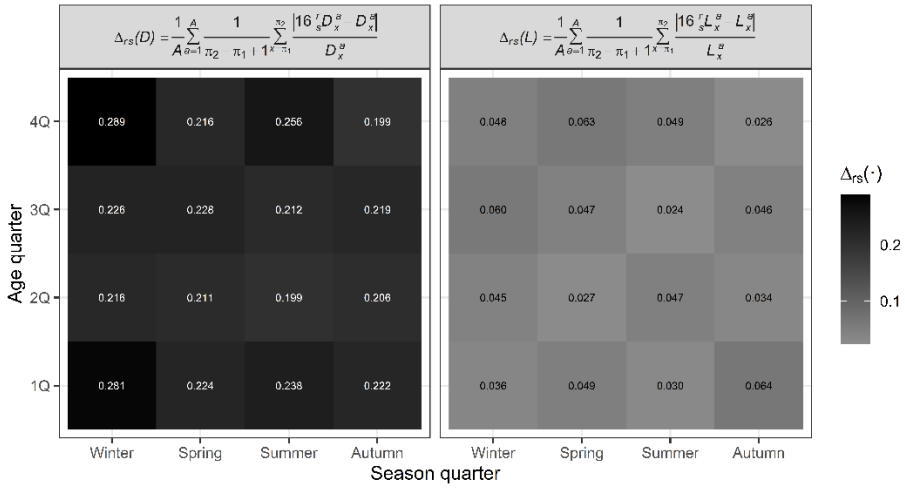

Figure S1. Average of relative differences for deaths (left panel) and exposed-to-risk (right panel) between actual statistics and their corresponding expected values under the hypothesis of a uniform distribution of deaths and exposed-to-risk among ageing-seasonal quarters. The range of ages covers from $\pi_1 = 0$ to $\pi_2 = 100$. The results have been computed for each age-quarter (1Q, 2Q, 3Q and 4Q) and season-quarter: Winter (January, February and March), Spring (April, May and June), Summer (July, August and September) and Autumn (October, November and December) using detailed demographic data from Spain for the years 2005, 2006, 2007 and 2008 ($A = 4$).

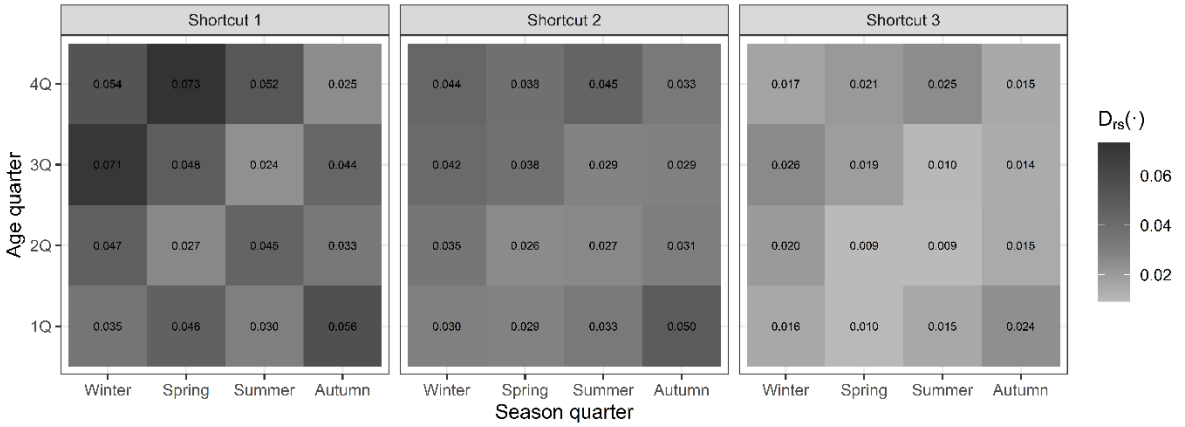

Figure S2. Average of relative differences for exposed-to-risk between actual statistics and corresponding estimated figures obtained using, respectively, uniform hypothesis (left panel), equation (7) (middle panel) and equation (9) (right panel). The results have been computed for each age-quarter (1Q, 2Q, 3Q and 4Q) and season-quarter (Winter, Spring, Summer and Autumn) using detailed demographic data from Spain for years 2005, 2006, 2007 and 2008 ($A = 4$) and for the range of ages from $\pi_1 = 0$ to $\pi_2 = 100$.

Section S2. Quarterly death probabilities

Table S1. Quarterly death probabilities (x 100,000) by subscription age (rounded to quarters) and calendar season for Spain using as reference the PASEM2019_second_order table (BOE, 2020). Men.

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates				Shortcut 2 death rates				Shortcut 3 death rates			
Age	**UDD**	**cte ux**	**Balducci**	**Winter**	**Spring**	**Summer**	**Autumn**	**Winter**	**Spring**	**Summer**	**Autumn**	**Winter**	**Spring**	**Summer**	**Autumn**	**Winter**	**Spring**	**Summer**	**Autumn**
18.00	5.6194	5.6199	5.6204	5.4664	5.7425	6.0697	5.2070	5.2155	5.5889	6.0811	5.2574	5.2981	5.7170	6.1724	5.3354	5.4493	5.7551	6.0362	5.2651
18.25	5.6197	5.6199	5.6201	5.7649	5.7257	6.0394	5.0802	5.8708	5.5441	5.9301	5.1653	5.7912	5.5620	6.0298	5.2379	5.8102	5.6788	6.0377	5.0874
18.50	5.6201	5.6199	5.6197	5.5650	5.4598	6.0769	5.4552	5.7148	5.6082	5.9400	5.4198	5.6279	5.5018	5.9295	5.4903	5.5588	5.4880	6.0227	5.4772
18.75	5.6204	5.6199	5.6194	5.8217	5.7235	5.8850	4.8357	5.8208	5.8872	6.0700	4.8044	5.7359	5.7847	5.9482	4.7563	5.8325	5.6900	5.9066	4.8230
19.00	5.7342	5.7347	5.7352	5.5943	5.8568	6.1739	5.3129	5.3512	5.7084	6.1854	5.3707	5.4283	5.8287	6.2719	5.4449	5.5770	5.8693	6.1374	5.3727
19.25	5.7345	5.7347	5.7349	5.8849	5.8335	6.1487	5.1910	5.9916	5.6551	6.0420	5.2748	5.9160	5.6716	6.1366	5.3438	5.9333	5.7862	6.1466	5.1954
19.50	5.7349	5.7347	5.7345	5.6970	5.5649	6.1832	5.5758	5.8378	5.7119	6.0473	5.5419	5.7554	5.6113	6.0376	5.6087	5.6888	5.5957	6.1286	5.5978
19.75	5.7352	5.7347	5.7342	5.9624	5.8375	5.9869	4.9513	5.9561	5.9918	6.1691	4.9198	5.8757	5.8949	6.0543	4.8752	5.9746	5.8021	6.0107	4.9389
20.00	5.8756	5.8761	5.8766	5.7488	5.9983	6.3058	5.4436	5.5131	5.8547	6.3176	5.5092	5.5847	5.9672	6.3993	5.5797	5.7313	6.0105	6.2661	5.5053
20.25	5.8759	5.8761	5.8763	6.0324	5.9680	6.2859	5.3262	6.1403	5.7921	6.1815	5.4090	6.0686	5.8073	6.2712	5.4744	6.0840	5.9201	6.2833	5.3277
20.50	5.8763	5.8761	5.8759	5.8562	5.6956	6.3175	5.7227	5.9882	5.8416	6.1821	5.6901	5.9102	5.7468	6.1732	5.7535	5.8460	5.7292	6.2621	5.7449
20.75	5.8766	5.8761	5.8756	6.1319	5.9784	6.1158	5.0906	6.1198	6.1235	6.2959	5.0589	6.0437	6.0322	6.1878	5.0177	6.1455	5.9410	6.1421	5.0784
21.00	6.0263	6.0268	6.0274	5.9133	6.1491	6.4467	5.5828	5.6852	6.0105	6.4587	5.6568	5.7511	6.1150	6.5354	5.7233	5.8955	6.1611	6.4036	5.6466
21.25	6.0266	6.0268	6.0270	6.1895	6.1115	6.4324	5.4701	6.2987	5.9383	6.3304	5.5520	6.2311	5.9520	6.4148	5.6137	6.2447	6.0630	6.4293	5.4686
21.50	6.0270	6.0268	6.0266	6.0256	5.8349	6.4609	5.8791	6.1484	5.9801	6.3260	5.8480	6.0749	5.8912	6.3178	5.9078	6.0132	5.8716	6.4047	5.9015
21.75	6.0274	6.0268	6.0263	6.3121	6.1287	6.2534	5.2388	6.2939	6.2641	6.4313	5.2068	6.2225	6.1787	6.3303	5.1692	6.3272	6.0891	6.2823	5.2269
22.00	6.2015	6.2021	6.2027	6.1028	6.3248	6.6128	5.7447	5.8822	6.1911	6.6250	5.8277	5.9422	6.2874	6.6967	5.8903	6.0848	6.3366	6.5659	5.8109
22.25	6.2019	6.2021	6.2023	6.3720	6.2794	6.6043	5.6368	6.4828	6.1085	6.5045	5.7178	6.4194	6.1208	6.5837	5.7758	6.4310	6.2301	6.6007	5.6321
22.50	6.2023	6.2021	6.2019	6.2206	5.9977	6.6297	6.0600	6.3340	6.1423	6.4948	6.0304	6.2652	6.0594	6.4875	6.0865	6.2059	6.0377	6.5724	6.0826
22.75	6.2027	6.2021	6.2015	6.5194	6.3038	6.4155	5.4094	6.4947	6.4294	6.5915	5.3769	6.4280	6.3498	6.4978	5.3431	6.5361	6.2618	6.4472	5.3977
23.00	6.3612	6.3618	6.3624	6.2779	6.4844	6.7611	5.8922	6.0660	6.3564	6.7735	5.9844	6.1195	6.4437	6.8396	6.0426	6.2596	6.4959	6.7104	5.9606
23.25	6.3616	6.3618	6.3620	6.5387	6.4309	6.7587	5.7897	6.6507	6.2632	6.6618	5.8695	6.5919	6.2739	6.7351	5.9233	6.6015	6.3810	6.7547	5.7817
23.50	6.3620	6.3618	6.3616	6.4011	6.1450	6.7807	6.2262	6.5040	6.2884	6.6465	6.1982	6.4404	6.2123	6.6401	6.2502	6.3840	6.1883	6.7226	6.2490

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates				Shortcut 2 death rates				Shortcut 3 death rates			
Age	UDD	cte ux	Balducci	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn
23.75	6.3624	6.3618	6.3612	6.7115	6.4628	6.5604	5.5673	6.6801	6.5776	6.7338	5.5345	6.6186	6.5046	6.6480	5.5048	6.7299	6.4185	6.5949	5.5559
24.00	6.5057	6.5063	6.5069	6.4389	6.6284	6.8922	6.0257	6.2370	6.5069	6.9048	6.1271	6.2835	6.5843	6.9648	6.1804	6.4204	6.6397	6.8378	6.0961
24.25	6.5061	6.5063	6.5065	6.6898	6.5667	6.8964	5.9291	6.8028	6.4028	6.8027	6.0074	6.7490	6.4119	6.8695	6.0566	6.7564	6.5162	6.8918	5.9177
24.50	6.5065	6.5063	6.5061	6.5673	6.2773	6.9146	6.3781	6.6589	6.4189	6.7816	6.3519	6.6009	6.3501	6.7762	6.3994	6.5478	6.3239	6.8559	6.4009
24.75	6.5069	6.5063	6.5057	6.8888	6.6063	6.6887	5.7128	6.8505	6.7092	6.8586	5.6799	6.7947	6.6434	6.7816	5.6545	6.9089	6.5597	6.7260	5.7019
25.00	6.6129	6.6136	6.6142	6.5637	6.7343	6.9830	6.1246	6.3735	6.6203	6.9957	6.2350	6.4125	6.6871	7.0489	6.2829	6.5452	6.7452	6.9251	6.1967
25.25	6.6134	6.6136	6.6138	6.8028	6.6644	6.9939	6.0350	6.9159	6.5057	6.9042	6.1110	6.8678	6.5130	6.9639	6.1552	6.8728	6.6138	6.9888	6.0199
25.50	6.6138	6.6136	6.6134	6.6967	6.3734	7.0082	6.4938	6.7759	6.5122	6.8773	6.4697	6.7242	6.4515	6.8730	6.5122	6.6747	6.4232	6.9491	6.5166
25.75	6.6142	6.6136	6.6129	7.0276	6.7119	6.7779	5.8264	6.9823	6.8018	6.9431	5.7934	6.9328	6.7439	6.8756	5.7728	7.0493	6.6631	6.8179	5.8159
26.00	6.6428	6.6435	6.6442	6.6122	6.7614	6.9916	6.1518	6.4362	6.6565	7.0043	6.2701	6.4670	6.7115	7.0500	6.3119	6.5938	6.7718	6.9308	6.2249
26.25	6.6433	6.6435	6.6437	6.8362	6.6840	7.0092	6.0704	6.9482	6.5325	6.9247	6.1433	6.9064	6.5378	6.9765	6.1818	6.9090	6.6338	7.0037	6.0519
26.50	6.6437	6.6435	6.6433	6.7481	6.3948	7.0194	6.5338	6.8138	6.5291	6.8921	6.5121	6.7691	6.4774	6.8890	6.5490	6.7240	6.4472	6.9607	6.5562
26.75	6.6442	6.6435	6.6428	7.0847	6.7389	6.7873	5.8722	7.0329	6.8145	6.9458	5.8397	6.9904	6.7653	6.8889	5.8241	7.1078	6.6885	6.8296	5.8623
27.00	6.6001	6.6007	6.6014	6.5882	6.7145	6.9238	6.1118	6.4284	6.6198	6.9363	6.2365	6.4507	6.6624	6.9740	6.2719	6.5703	6.7242	6.8607	6.1849
27.25	6.6005	6.6007	6.6009	6.7948	6.6305	6.9480	6.0393	6.9045	6.4877	6.8696	6.1084	6.8694	6.4910	6.9127	6.1407	6.8695	6.5812	6.9420	6.0176
27.50	6.6009	6.6007	6.6005	6.7257	6.3462	6.9538	6.5023	6.7772	6.4746	6.8316	6.4833	6.7399	6.4324	6.8297	6.5141	6.6997	6.4007	6.8961	6.5241
27.75	6.6014	6.6007	6.6001	7.0642	6.6921	6.7226	5.8537	7.0065	6.7526	6.8726	5.8220	6.9714	6.7126	6.8268	5.8116	7.0885	6.6408	6.7667	5.8445
28.00	6.4900	6.4906	6.4913	6.4967	6.5992	6.7859	6.0094	6.3543	6.5155	6.7981	6.1393	6.3680	6.5456	6.8276	6.1678	6.4793	6.6082	6.7213	6.0818
28.25	6.4904	6.4906	6.4909	6.6841	6.5096	6.8162	5.9465	6.7903	6.3769	6.7446	6.0111	6.7623	6.3783	6.7790	6.0371	6.7599	6.4618	6.8099	5.9219
28.50	6.4909	6.4906	6.4904	6.6343	6.2331	6.8177	6.4042	6.6713	6.3544	6.7019	6.3880	6.6417	6.3219	6.7011	6.4127	6.6066	6.2890	6.7617	6.4253
28.75	6.4913	6.4906	6.4900	6.9712	6.5772	6.5898	5.7751	6.9082	6.6223	6.7299	5.7444	6.8808	6.5918	6.6955	5.7393	6.9964	6.5254	6.6352	5.7667
29.00	6.3275	6.3281	6.3287	6.3519	6.4308	6.5942	5.8585	6.2274	6.3582	6.6059	5.9921	6.2328	6.3762	6.6272	6.0140	6.3351	6.4390	6.5286	5.9296
29.25	6.3279	6.3281	6.3283	6.5193	6.3365	6.6300	5.8053	6.6212	6.2147	6.5655	5.8650	6.6001	6.2141	6.5912	5.8847	6.5955	6.2905	6.6234	5.7782
29.50	6.3283	6.3281	6.3279	6.4884	6.0699	6.6275	6.2540	6.5111	6.1833	6.5186	6.2406	6.4892	6.1605	6.5189	6.2591	6.4594	6.1267	6.5734	6.2741
29.75	6.3287	6.3281	6.3275	6.8208	6.4093	6.4046	5.6490	6.7533	6.4392	6.5340	5.6197	6.7335	6.4180	6.5109	5.6196	6.8465	6.3575	6.4508	5.6415
30.00	6.1921	6.1927	6.1933	6.2334	6.2900	6.4316	5.7327	6.1257	6.2280	6.4430	5.8703	6.1232	6.2342	6.4567	5.8858	6.2173	6.2975	6.3650	5.8028
30.25	6.1925	6.1927	6.1929	6.3822	6.1910	6.4730	5.6887	6.4805	6.0792	6.4151	5.7438	6.4659	6.0768	6.4325	5.7576	6.4591	6.1467	6.4661	5.6589

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates				Shortcut 2 death rates				Shortcut 3 death rates			
Age	UDD	cte ux	Balducci	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn
30.50	6.1929	6.1927	6.1925	6.3693	5.9331	6.4665	6.1301	6.3786	6.0392	6.3640	6.1193	6.3639	6.0255	6.3654	6.1320	6.3390	5.9909	6.4142	6.1493
30.75	6.1933	6.1927	6.1921	6.6984	6.2690	6.2478	5.5463	6.6265	6.2845	6.3674	5.5181	6.6138	6.2722	6.3549	5.5228	6.7248	6.2170	6.2950	5.5395
31.00	6.0990	6.0995	6.1001	6.1569	6.1923	6.3138	5.6461	6.0646	6.1400	6.3250	5.7883	6.0545	6.1351	6.3312	5.7978	6.1412	6.1992	6.2457	5.7156
31.25	6.0994	6.0995	6.0997	6.2887	6.0882	6.3607	5.6105	6.3839	5.9853	6.3088	5.6617	6.3756	5.9811	6.3183	5.6698	6.3666	6.0451	6.3535	5.5781
31.50	6.0997	6.0995	6.0994	6.2929	5.8370	6.3503	6.0476	6.2893	5.9368	6.2534	6.0393	6.2815	5.9319	6.2558	6.0465	6.2612	5.8962	6.2995	6.0662
31.75	6.1001	6.0995	6.0990	6.6209	6.1716	6.1343	5.4807	6.5443	6.1733	6.2453	5.4535	6.5384	6.1694	6.2430	5.4628	6.6481	6.1192	6.1828	5.4746
32.00	6.0972	6.0977	6.0983	6.1723	6.1874	6.2909	5.6440	6.0939	6.1438	6.3019	5.7929	6.0761	6.1279	6.3010	5.7966	6.1568	6.1937	6.2204	5.7140
32.25	6.0975	6.0977	6.0979	6.2893	6.0767	6.3439	5.6163	6.3830	5.9810	6.2971	5.6643	6.3806	5.9750	6.2990	5.6670	6.3693	6.0342	6.3363	5.5808
32.50	6.0979	6.0977	6.0975	6.3105	5.8285	6.3296	6.0556	6.2941	5.9235	6.2366	6.0496	6.2929	5.9271	6.2401	6.0514	6.2768	5.8898	6.2793	6.0737
32.75	6.0983	6.0977	6.0972	6.6422	6.1666	6.1131	5.4969	6.5597	6.1548	6.2171	5.4702	6.5605	6.1592	6.2247	5.4843	6.6706	6.1130	6.1634	5.4914
33.00	6.2444	6.2450	6.2456	6.3390	6.3336	6.4213	5.7799	6.2729	6.2981	6.4325	5.9393	6.2468	6.2704	6.4243	5.9372	6.3234	6.3396	6.3465	5.8521
33.25	6.2448	6.2450	6.2452	6.4437	6.2135	6.4818	5.7596	6.5381	6.1230	6.4392	5.8055	6.5418	6.1150	6.4334	5.8026	6.5279	6.1706	6.4736	5.7201
33.50	6.2452	6.2450	6.2448	6.4828	5.9622	6.4632	6.2118	6.4530	6.0548	6.3720	6.2080	6.4586	6.0671	6.3767	6.2045	6.4464	6.0273	6.4123	6.2300
33.75	6.2456	6.2450	6.2444	6.8264	6.3124	6.2408	5.6480	6.7360	6.2864	6.3402	5.6211	6.7436	6.2994	6.3583	5.6405	6.8568	6.2562	6.2943	5.6429
34.00	6.5902	6.5909	6.5915	6.7087	6.6811	6.7541	6.0996	6.6538	6.6530	6.7658	6.2751	6.6180	6.6119	6.7495	6.2666	6.6924	6.6868	6.6726	6.1763
34.25	6.5906	6.5909	6.5911	6.8032	6.5471	6.8246	6.0866	6.9012	6.4594	6.7852	6.1316	6.9116	6.4490	6.7709	6.1227	6.8945	6.5025	6.8155	6.0416
34.50	6.5911	6.5909	6.5906	6.8629	6.2851	6.8007	6.5664	6.8175	6.3776	6.7088	6.5649	6.8306	6.3998	6.7149	6.5554	6.8223	6.3561	6.7477	6.5851
34.75	6.5915	6.5909	6.5902	7.2296	6.6586	6.5654	5.9801	7.1279	6.6166	6.6629	5.9523	7.1431	6.6392	6.6927	5.9778	7.2629	6.5980	6.6240	5.9754
35.00	7.1441	7.1449	7.1457	7.2928	7.2391	7.2972	6.6119	7.2496	7.2190	7.3098	6.8100	7.2017	7.1614	7.2837	6.7940	7.2754	7.2446	7.2060	6.6956
35.25	7.1446	7.1449	7.1452	7.3779	7.0861	7.3808	6.6069	7.4824	6.9995	7.3441	6.6521	7.5007	6.9861	7.3197	6.6361	7.4795	7.0385	7.3705	6.5545
35.50	7.1452	7.1449	7.1446	7.4626	6.8054	7.3503	7.1298	7.3985	6.9003	7.2553	7.1309	7.4204	6.9342	7.2632	7.1143	7.4164	6.8850	7.2936	7.1496
35.75	7.1457	7.1449	7.1441	7.8646	7.2147	7.0945	6.5037	7.7475	7.1533	7.1921	6.4742	7.7718	7.1875	7.2362	6.5074	7.9021	7.1476	7.1603	6.4993
36.00	7.8283	7.8292	7.8301	8.0134	7.9284	7.9690	7.2446	7.9838	7.9177	7.9827	7.4703	7.9215	7.8404	7.9449	7.4454	7.9946	7.9338	7.8659	7.3370
36.25	7.8289	7.8292	7.8295	8.0877	7.7523	8.0685	7.2492	8.2002	7.6667	8.0349	7.2946	8.2280	7.6497	7.9984	7.2701	8.2018	7.7009	8.0567	7.1879
36.50	7.8295	7.8292	7.8289	8.2023	7.4484	8.0301	7.8251	8.1156	7.5463	7.9310	7.8293	8.1482	7.5944	7.9410	7.8043	8.1492	7.5384	7.9687	7.8463
36.75	7.8301	7.8292	7.8283	8.6477	7.9017	7.7490	7.1495	8.5119	7.8170	7.8471	7.1179	8.5470	7.8651	7.9082	7.1603	8.6903	7.8265	7.8235	7.1455
37.00	8.5971	8.5983	8.5994	8.8248	8.7028	8.7221	7.9556	8.8118	8.7035	8.7370	8.2131	8.7326	8.6030	8.6855	8.1775	8.8045	8.7081	8.6054	8.0579

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates				Shortcut 2 death rates				Shortcut 3 death rates			
Age	UDD	cte ux	Balducci	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn
37.25	8.5979	8.5983	8.5986	8.8856	8.5001	8.8401	7.9718	9.0070	8.4164	8.8103	8.0172	9.0460	8.3951	8.7595	7.9826	9.0140	8.4445	8.8265	7.9001
37.50	8.5986	8.5983	8.5979	9.0354	8.1705	8.7923	8.6076	8.9222	8.2713	8.6891	8.6154	8.9674	8.3362	8.7016	8.5805	8.9744	8.2724	8.7257	8.6302
37.75	8.5994	8.5983	8.5971	9.5299	8.6735	8.4828	7.8770	9.3726	8.5614	8.5807	7.8430	9.4205	8.6259	8.6619	7.8963	9.5784	8.5892	8.5673	7.8734
38.00	9.4058	9.4071	9.4085	9.6816	9.5168	9.5102	8.7034	9.6887	9.5310	9.5263	8.9955	9.5902	9.4040	9.4589	8.9477	9.6597	9.5217	9.3787	8.8161
38.25	9.4067	9.4071	9.4076	9.7252	9.2848	9.6487	8.7332	9.8557	9.2043	9.6240	8.7780	9.9077	9.1783	9.5567	8.7318	9.8692	9.2248	9.6331	8.6500
38.50	9.4076	9.4071	9.4067	9.9154	8.9286	9.5904	9.4324	9.7718	9.0316	9.4835	9.4446	9.8315	9.1157	9.4989	9.3980	9.8457	9.0435	9.5184	9.4565
38.75	9.4085	9.4071	9.4058	10.4623	9.4847	9.2508	8.6456	10.2812	9.3412	9.3473	8.6092	10.3439	9.4244	9.4515	8.6748	10.5172	9.3905	9.3462	8.6426
39.00	10.2563	10.2579	10.2595	10.5861	10.3722	10.3348	9.4899	10.6172	10.4025	10.3522	9.8196	10.4968	10.2455	10.2667	9.7578	10.5627	10.3767	10.1874	9.6135
39.25	10.2573	10.2579	10.2584	10.6089	10.1082	10.4961	9.5356	10.7486	10.0326	10.4779	9.5791	10.8153	10.0011	10.3918	9.5195	10.7695	10.0438	10.4785	9.4396
39.50	10.2584	10.2579	10.2573	10.8449	9.7245	10.4260	10.3018	10.6668	9.8290	10.3162	10.3190	10.7431	9.9350	10.3347	10.2593	10.7656	9.8535	10.3485	10.3275
39.75	10.2595	10.2579	10.2563	11.4476	10.3372	10.0547	9.4575	11.2404	10.1580	10.1483	9.4187	11.3198	10.2627	10.2787	9.4982	11.5095	10.2325	10.1620	9.4552
40.00	11.2052	11.2070	11.2089	11.5973	11.3263	11.2524	10.3672	11.6567	11.3756	11.2712	10.7399	11.5111	11.1836	11.1647	10.6617	11.5721	11.3302	11.0868	10.5032
40.25	11.2064	11.2070	11.2077	11.5950	11.0257	11.4399	10.4316	11.7449	10.9564	11.4294	10.4733	11.8288	10.9187	11.3214	10.3982	11.7746	10.9564	11.4199	10.3210
40.50	11.2077	11.2070	11.2064	11.8841	10.6118	11.3560	11.2729	11.6661	10.7173	11.2434	11.2960	11.7616	10.8487	11.2655	11.2210	11.7940	10.7568	11.2725	11.3003
40.75	11.2089	11.2070	11.2052	12.5496	11.2880	10.9493	10.3655	12.3125	11.0673	11.0389	10.3240	12.4115	11.1969	11.1997	10.4195	12.6194	11.1713	11.0701	10.3641
41.00	12.3059	12.3082	12.3104	12.7716	12.4329	12.3154	11.3850	12.8647	12.5048	12.3359	11.8079	12.6893	12.2717	12.2045	11.7103	12.7443	12.4361	12.1287	11.5354
41.25	12.3074	12.3082	12.3089	12.7392	12.0894	12.5338	11.4715	12.9007	12.0279	12.5326	11.5110	13.0050	11.9829	12.3986	11.4175	12.9408	12.0145	12.5110	11.3439
41.50	12.3089	12.3082	12.3074	13.0910	11.6407	12.4338	12.4002	12.8258	11.7470	12.3180	12.4302	12.9441	11.9085	12.3445	12.3371	12.9881	11.8043	12.3433	12.4294
41.75	12.3104	12.3082	12.3059	13.8296	12.3908	11.9859	11.4200	13.5574	12.1211	12.0703	11.3754	13.6795	12.2801	12.2671	11.4899	13.9086	12.2602	12.1224	11.4196
42.00	14.2526	14.2557	14.2587	14.8326	14.3929	14.2148	13.1855	14.9729	14.4967	14.2383	13.6910	14.7518	14.2008	14.0695	13.5645	14.8016	14.3954	13.9928	13.3609
42.25	14.2546	14.2557	14.2567	14.7606	13.9796	14.4821	13.3040	14.9441	13.9253	14.4927	13.3423	15.0790	13.8689	14.3198	13.2214	14.9993	13.8943	14.4547	13.1490
42.50	14.2567	14.2557	14.2546	15.2078	13.4666	14.3570	14.3851	14.8707	13.5788	14.2322	14.4252	15.0234	13.7856	14.2654	14.3049	15.0842	13.6613	14.2537	14.4179
42.75	14.2587	14.2557	14.2526	16.0721	14.3441	13.8369	13.2687	15.7433	14.0001	13.9185	13.2183	15.9002	14.2036	14.1698	13.3620	16.1664	14.1900	13.9995	13.2697
43.00	16.7424	16.7466	16.7509	17.4717	16.8993	16.6408	15.4884	17.6745	17.0454	16.6682	16.1007	17.3937	16.6675	16.4502	15.9362	17.4359	16.9008	16.3733	15.6957
43.25	16.7452	16.7466	16.7480	17.3465	16.3957	16.9716	15.6492	17.5579	16.3518	16.9982	15.6855	17.7328	16.2806	16.7742	15.5285	17.6330	16.2971	16.9384	15.4586
43.50	16.7480	16.7466	16.7452	17.9186	15.8010	16.8140	16.9255	17.4875	15.9198	16.6782	16.9790	17.6851	16.1861	16.7202	16.8230	17.7681	16.0357	16.6942	16.9629
43.75	16.7509	16.7466	16.7424	18.9443	16.8420	16.2014	15.6363	18.5420	16.4008	16.2782	15.5785	18.7447	16.6624	16.6009	15.7603	19.0584	16.6575	16.3976	15.6390

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates				Shortcut 2 death rates				Shortcut 3 death rates			
Age	UDD	cte ux	Balducci	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn
44.00	19.7542	19.7600	19.7659	20.6714	19.9302	19.5669	18.2741	20.9555	20.1310	19.5989	19.0184	20.5993	19.6493	19.3186	18.8055	20.6298	19.9302	19.2434	18.5204
44.25	19.7581	19.7600	19.7620	20.4758	19.3145	19.9771	18.4892	20.7203	19.2862	20.0252	18.5218	20.9461	19.1962	19.7362	18.3189	20.8209	19.2002	19.9366	18.2543
44.50	19.7620	19.7600	19.7581	21.2059	18.6221	19.7784	20.0027	20.6558	18.7471	19.6311	20.0733	20.9105	19.0888	19.6840	19.8720	21.0221	18.9062	19.6390	20.0455
44.75	19.7659	19.7600	19.7542	22.4285	19.8625	19.0536	18.5078	21.9350	19.2980	19.1219	18.4413	22.1955	19.6335	19.5350	18.6712	22.5670	19.6408	19.2914	18.5129
45.00	23.2574	23.2655	23.2737	24.4042	23.4540	22.9578	21.5145	24.7916	23.7241	22.9950	22.4164	24.3429	23.1146	22.6378	22.1437	24.3561	23.4521	22.5675	21.8063
45.25	23.2628	23.2655	23.2682	24.1175	22.7039	23.4642	21.7976	24.3996	22.6983	23.5403	21.8239	24.6884	22.5854	23.1711	21.5643	24.5323	22.5716	23.4149	21.5093
45.50	23.2682	23.2655	23.2628	25.0420	21.8997	23.2152	23.5884	24.3457	22.0288	23.0569	23.6804	24.6708	22.4636	23.1233	23.4230	24.8183	22.2425	23.0534	23.6373
45.75	23.2737	23.2655	23.2574	26.4960	23.3743	22.3596	21.8593	25.8927	22.6581	22.4137	21.7829	26.2249	23.0846	22.9381	22.0717	26.6636	23.1086	22.6469	21.8676
46.00	27.3124	27.3236	27.3348	28.7380	27.5311	26.8678	25.2653	29.2550	27.8876	26.9111	26.3547	28.6937	27.1223	26.4596	26.0086	28.6825	27.5264	26.3985	25.6103
46.25	27.3199	27.3236	27.3273	28.3351	26.6205	27.4900	25.6330	28.6596	26.6464	27.6024	25.6497	29.0257	26.5057	27.1348	25.3205	28.8321	26.4679	27.4302	25.2806
46.50	27.3273	27.3236	27.3199	29.4971	25.6890	27.1800	27.7465	28.6220	25.8195	27.0118	27.8649	29.0337	26.3682	27.0946	27.5387	29.2257	26.1014	26.9927	27.8021
46.75	27.3348	27.3236	27.3124	31.2216	27.4374	26.1726	25.7521	30.4871	26.5356	26.2051	25.6648	30.9068	27.0736	26.8657	26.0251	31.4238	27.1199	26.5185	25.7646
47.00	32.0595	32.0749	32.0904	33.8259	32.3022	31.4292	29.6567	34.5055	32.7670	31.4794	30.9709	33.8062	31.8105	30.9118	30.5341	33.7619	32.2940	30.8654	30.0642
47.25	32.0698	32.0749	32.0801	33.2752	31.1986	32.1917	30.1295	33.6481	31.2670	32.3507	30.1325	34.1094	31.0923	31.7619	29.7175	33.8702	31.0225	32.1194	29.6996
47.50	32.0801	32.0749	32.0698	34.7286	30.1202	31.8073	32.6226	33.6342	30.2487	31.6306	32.7738	34.1524	30.9375	31.7334	32.3629	34.3999	30.6159	31.5906	32.6857
47.75	32.0904	32.0749	32.0595	36.7730	32.1922	30.6215	30.3242	35.8801	31.0624	30.6233	30.2244	36.4077	31.7374	31.4513	30.6723	37.0166	31.8129	31.0377	30.3419
48.00	37.3955	37.4165	37.4375	39.5646	37.6627	36.5340	34.5931	40.4423	38.2587	36.5920	36.1674	39.5795	37.0751	35.8861	35.6225	39.4913	37.6498	35.8614	35.0716
48.25	37.4095	37.4165	37.4235	38.8316	36.3347	37.4611	35.1928	39.2573	36.4589	37.6781	35.1769	39.8322	36.2441	36.9446	34.6593	39.5392	36.1330	37.3743	34.6723
48.50	37.4235	37.4165	37.4095	40.6313	35.0944	36.9886	38.1152	39.2763	35.2154	36.8069	38.3057	39.9216	36.0710	36.9333	37.7938	40.2362	35.6862	36.7395	38.1863
48.75	37.4375	37.4165	37.3955	43.0394	37.5342	35.6018	35.4838	41.9621	36.1333	35.5615	35.3706	42.6184	36.9714	36.5886	35.9221	43.3309	37.0842	36.0990	35.5081
49.00	43.4058	43.4341	43.4624	46.0503	43.6979	42.2597	40.1539	47.1677	44.4524	42.3264	42.0293	46.1115	42.9996	41.4562	41.3555	45.9668	43.6791	41.4615	40.7128
49.25	43.4247	43.4341	43.4436	45.0942	42.1093	43.3796	40.9058	45.5775	42.3050	43.6680	40.8648	46.2876	42.0427	42.7626	40.2253	45.9313	41.8794	43.2759	40.2797
49.50	43.4436	43.4341	43.4247	47.3044	40.6901	42.8032	44.3146	45.6405	40.7970	42.6204	44.5523	46.4369	41.8506	42.7748	43.9200	46.8320	41.3926	42.5184	44.3943
49.75	43.4624	43.4341	43.4058	50.1267	43.5487	41.1891	41.3179	48.8348	41.8262	41.0932	41.1901	49.6438	42.8578	42.3565	41.8640	50.4736	43.0175	41.7800	41.3503
50.00	50.0121	50.0497	50.0873	53.2056	50.3282	48.5236	46.2666	54.6067	51.2697	48.5996	48.4828	53.3267	49.5050	47.5383	47.6590	53.1112	50.3023	47.5838	46.9147
50.25	50.0372	50.0497	50.0622	51.9826	48.4434	49.8644	47.1974	52.5270	48.7285	50.2388	47.1242	53.3945	48.4113	49.1332	46.3427	52.9653	48.1835	49.7415	46.4506
50.50	50.0622	50.0497	50.0372	54.6689	46.8318	49.1680	51.1443	52.6468	46.9163	48.9899	51.4372	53.6189	48.2001	49.1765	50.6649	54.1089	47.6593	48.8448	51.2328

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates				Shortcut 2 death rates				Shortcut 3 death rates			
Age	UDD	cte ux	Balducci	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn
50.75	50.0873	50.0497	50.0121	57.9522	50.1562	47.3032	47.7578	56.4157	48.0603	47.1360	47.6148	57.4024	49.3169	48.6736	48.4302	58.3616	49.5340	47.9998	47.8000
51.00	55.3901	55.4362	55.4823	59.0882	55.7165	53.5544	51.2424	60.7659	56.8393	53.6378	53.7582	59.2784	54.7841	52.3974	52.7932	58.9856	55.6830	52.4913	51.9648
51.25	55.4208	55.4362	55.4515	57.5993	53.5689	55.0953	52.3446	58.1884	53.9504	55.5566	52.2348	59.2038	53.5827	54.2630	51.3198	58.7077	53.2865	54.9555	51.4893
51.50	55.4515	55.4362	55.4208	60.7292	51.8100	54.2883	56.7372	58.3733	51.8608	54.1270	57.0826	59.5105	53.3599	54.3434	56.1788	60.0914	52.7465	53.9358	56.8315
51.75	55.4823	55.4362	55.3901	64.4002	55.5259	52.2175	53.0600	62.6456	53.0815	51.9694	52.9063	63.7987	54.5484	53.7632	53.8525	64.8646	54.8256	53.0064	53.1121
52.00	61.1081	61.1642	61.2204	65.3661	61.4425	58.8769	56.5331	67.3560	62.7694	58.9678	59.3764	65.6378	60.3910	57.5277	58.2537	65.2552	61.4002	57.6794	57.3352
52.25	61.1455	61.1642	61.1829	63.5753	59.0067	60.6384	57.8278	64.2100	59.5003	61.1988	57.6750	65.3905	59.0764	59.6955	56.6109	64.8203	58.7012	60.4800	56.8533
52.50	61.1829	61.1642	61.1455	67.1990	57.0950	59.7087	62.6974	64.4717	57.1038	59.5705	63.1017	65.7930	58.8430	59.8199	62.0511	66.4761	58.1503	59.3258	62.7973
52.75	61.2204	61.1642	61.1081	71.2873	61.2321	57.4180	58.7217	69.2931	58.3995	57.0750	58.5573	70.6319	60.1007	59.1543	59.6488	71.8116	60.4470	58.3078	58.7852
53.00	67.1592	67.2270	67.2948	72.0350	67.4986	64.4808	62.1325	74.3746	69.0539	64.5797	65.3317	72.4016	66.3180	62.9182	64.0340	71.9156	67.4464	63.1377	63.0195
53.25	67.2043	67.2270	67.2495	69.9038	64.7487	66.4845	63.6419	70.5848	65.3710	67.1570	63.4390	71.9483	64.8851	65.4210	62.2096	71.2965	64.4195	66.3059	62.5368
53.50	67.2495	67.2270	67.2043	74.0741	62.6793	65.4194	69.0196	70.9357	62.6370	65.3112	69.4895	72.4611	64.6422	65.5971	68.2760	73.2584	63.8634	65.0053	69.1249
53.75	67.2948	67.2270	67.1592	78.6093	67.2673	62.8952	64.7392	76.3533	64.0048	62.4421	64.5643	77.8979	65.9657	64.8374	65.8161	79.1987	66.3908	63.8943	64.8155
54.00	73.5674	73.6487	73.7301	79.1238	73.9090	70.3860	68.0629	81.8539	75.7189	70.4931	71.6488	79.5999	72.5882	68.5869	70.1574	78.9957	73.8454	68.8852	69.0406
54.25	73.6216	73.6487	73.6758	76.6107	70.8166	72.6551	69.8111	77.3383	71.5858	73.4538	69.5507	78.9046	71.0317	71.4604	68.1382	78.1630	70.4633	72.4545	68.5632
54.50	73.6758	73.6487	73.6216	81.3845	68.5843	71.4409	75.7302	77.7921	68.4812	71.3702	76.2730	79.5435	70.7805	71.6963	74.8793	80.4677	69.9080	70.9945	75.8407
54.75	73.7301	73.6487	73.5674	86.3986	73.6554	68.6685	71.1391	83.8570	69.9180	68.0887	70.9537	85.6291	72.1659	70.8333	72.3822	87.0587	72.6803	69.7862	71.2298
55.00	80.3791	80.4762	80.5734	86.6858	80.7197	76.6332	74.3673	89.8514	82.8133	76.7490	78.3744	87.2873	79.2465	74.5719	76.6684	86.5487	80.6432	74.9610	75.4422
55.25	80.4437	80.4762	80.5085	83.7449	77.2536	79.1935	76.3811	84.5198	78.1896	80.1339	76.0547	86.3104	77.5602	77.8556	74.4397	85.4701	76.8754	78.9689	74.9768
55.50	80.5085	80.4762	80.4437	89.1853	74.8524	77.8151	82.8792	85.0915	74.6775	77.7901	83.5028	87.0929	77.3020	78.1604	81.9096	88.1583	76.3277	77.3353	82.9945
55.75	80.5734	80.4762	80.3791	94.7142	80.4424	74.7779	77.9696	91.8602	76.1802	74.0531	77.7738	93.8842	78.7454	77.1838	79.3972	95.4511	79.3607	76.0244	78.0766
56.00	87.6581	87.7736	87.8892	94.7938	87.9947	83.2792	81.1052	98.4455	90.4046	83.4041	85.5724	95.5386	86.3553	80.9269	83.6285	94.6475	87.9037	81.4203	82.2847
56.25	87.7350	87.7736	87.8121	91.3738	84.1193	86.1599	83.4143	92.1971	85.2443	87.2594	83.0129	94.2363	84.5318	84.6653	81.1732	93.2871	83.7155	85.9090	81.8384
56.50	87.8121	87.7736	87.7350	97.5520	81.5419	84.6000	90.5348	92.9033	81.2834	84.6298	91.2482	95.1817	84.2680	85.0491	89.4339	96.4042	83.1825	84.0855	90.6546
56.75	87.8892	87.7736	87.6581	103.6365	87.6921	81.2790	85.2968	100.4402	82.8488	80.3891	85.0908	102.7431	85.7654	83.9473	86.9294	104.4575	86.4946	82.6662	85.4220
57.00	95.4599	95.5969	95.7341	103.5124	95.7891	90.3720	88.3281	107.7063	98.5515	90.5065	93.2987	104.4201	93.9682	87.6968	91.0910	103.3565	95.6818	88.3092	89.6204
57.25	95.5511	95.5969	95.6425	99.5561	91.4649	93.6054	90.9658	100.4289	92.8037	94.8834	90.4790	102.7439	91.9992	91.9391	88.3902	101.6744	91.0345	93.3258	89.2010

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates				Shortcut 2 death rates				Shortcut 3 death rates			
Age	UDD	cte ux	Balducci	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn
57.50	95.6425	95.5969	95.5511	106.5512	88.7030	91.8452	98.7569	101.2881	88.3476	91.9396	99.5701	103.8736	91.7313	92.4130	97.5107	105.2710	90.5243	91.2942	98.8810
57.75	95.7341	95.5969	95.4599	113.2372	95.4594	88.2190	93.1793	109.6650	89.9726	87.1415	92.9630	112.2769	93.2785	91.1731	95.0397	114.1500	94.1359	89.7597	93.3250
58.00	103.8250	103.9871	104.1494	112.8904	104.1434	97.9448	96.0737	117.6880	107.2980	98.0894	101.5951	113.9828	102.1240	94.9115	99.0952	112.7246	104.0177	95.6593	97.4879
58.25	103.9329	103.9871	104.0410	108.3352	99.3272	101.5664	99.0764	109.2587	100.9068	103.0440	98.4931	111.8791	100.0009	99.7120	96.1283	110.6769	98.8693	101.2553	97.1043
58.50	104.0410	103.9871	103.9329	116.2337	96.3720	99.5849	107.5904	110.2912	95.9052	99.7551	108.5145	113.2168	99.7306	100.2883	106.1836	114.8085	98.3905	98.9959	107.7185
58.75	104.1494	103.9871	103.8250	123.5709	103.7846	95.6304	101.6619	119.5862	97.5858	94.3406	101.4354	122.5403	101.3224	98.8961	103.7749	124.5841	102.3239	97.3391	101.8304
59.00	112.7809	112.9722	113.1638	122.9632	113.0847	106.0180	104.3679	128.4314	116.6745	106.1733	110.4907	124.2641	110.8489	102.5888	107.6679	122.7872	112.9383	103.4899	105.9135
59.25	112.9082	112.9722	113.0359	117.7410	107.7301	110.0660	107.7751	118.7162	109.5803	111.7662	107.0828	121.6739	108.5626	108.0059	104.4131	120.3258	107.2438	109.7204	105.5755
59.50	113.0359	112.9722	112.9082	126.6365	104.5730	107.8407	117.0673	119.9442	103.9787	108.0990	118.1140	123.2455	108.2918	108.6979	115.4831	125.0527	106.8066	107.2120	117.1989
59.75	113.1638	112.9722	112.7809	134.6775	112.6947	103.5337	110.7769	130.2410	105.7099	102.0045	110.5404	133.5730	109.9223	107.1384	113.1697	135.8002	111.0850	105.4255	110.9709
60.00	122.3402	122.5654	122.7909	133.7501	122.6252	114.5979	113.2227	139.9603	126.6963	114.7643	120.0004	135.2853	120.1541	110.7322	116.8218	133.5636	122.4558	111.8061	114.9094
60.25	122.4901	122.5654	122.6403	127.7880	116.6835	119.1127	117.0767	128.8154	118.8361	121.0602	116.2621	132.1447	117.6957	116.8283	113.2565	130.6364	116.1680	118.7295	114.6284
60.50	122.6403	122.5654	122.4901	137.7799	113.3162	116.6197	127.2039	130.2631	112.5768	116.9795	128.3859	133.9780	117.4267	117.6507	125.4247	136.0231	115.7835	115.9497	127.3384
60.75	122.7909	122.5654	122.3402	146.5795	122.2019	111.9352	120.5426	141.6496	114.3524	110.1374	120.2964	145.3976	119.0883	115.9075	123.2439	147.8214	120.4308	114.0261	120.7650
61.00	132.5218	132.7861	133.0508	145.2775	132.7835	123.6961	122.6559	152.3064	137.3851	123.8743	130.1449	147.0749	130.0570	119.3507	126.5756	145.0803	132.5885	120.6184	124.4941
61.25	132.6977	132.7861	132.8740	138.4971	126.2027	128.7207	127.0017	139.5770	128.6924	130.9423	126.0504	143.3143	127.4174	126.1924	122.6761	141.6308	125.6573	128.2967	124.2822
61.50	132.8740	132.7861	132.6977	149.6916	122.6175	125.9345	138.0233	141.2704	121.7140	126.4105	139.3542	145.4395	127.1529	127.1609	136.0303	147.7466	125.3382	125.2219	138.1602
61.75	133.0508	132.7861	132.5218	159.3070	132.3246	120.8467	130.9833	153.8398	123.5265	118.7486	130.7279	158.0444	128.8369	125.2170	134.0241	160.6784	130.3791	123.1537	131.2372
62.00	143.3890	143.6984	144.0085	157.6211	143.6227	133.3658	132.7267	165.5530	148.8093	133.5563	140.9893	159.7112	140.6189	128.4931	136.9906	157.4129	143.3993	129.9778	134.7276
62.25	143.5949	143.6984	143.8014	149.9359	136.3458	138.9476	137.6142	151.0687	139.2105	141.4724	136.5102	155.2543	137.7882	136.1536	132.7307	153.3789	135.7698	138.4791	134.5986
62.50	143.8014	143.6984	143.5949	162.4501	132.5340	135.8402	149.5953	153.0365	131.4453	136.4486	151.0900	157.7044	137.5310	137.2857	147.3677	160.3002	135.5298	135.0833	149.7338
62.75	144.0085	143.6984	143.3890	172.9444	143.1259	130.3204	142.1682	166.8912	133.2865	127.8873	141.9040	171.5973	139.2276	135.1221	145.5824	174.4564	140.9915	132.8621	142.4568
63.00	155.0447	155.4066	155.7692	170.9011	155.2457	143.6962	143.5312	179.8311	161.0785	143.8996	152.6379	173.3184	151.9395	138.2424	148.1664	170.6816	154.9907	139.9700	145.7076
63.25	155.2854	155.4066	155.5269	162.2140	147.2081	149.8886	149.0162	163.4003	150.4905	152.7498	147.7419	168.0795	148.9061	146.8045	143.5161	165.9934	146.6005	149.3715	145.6766
63.50	155.5269	155.4066	155.2854	176.1799	143.1592	146.4283	162.0318	165.6747	141.8619	147.1871	163.7071	170.8919	148.6595	148.1196	159.5461	173.8061	146.4549	145.6252	162.1712
63.75	155.7692	155.4066	155.0447	187.6250	154.7082	140.4440	154.2065	180.9310	143.7230	137.6367	153.9340	186.1891	150.3583	145.7149	158.0324	189.2905	152.3686	143.2415	154.5337
64.00	167.6381	168.0613	168.4855	185.2906	167.8021	154.8179	155.2084	195.3280	174.3515	155.0352	165.2416	188.0742	164.1644	148.7210	160.2469	185.0593	167.5118	150.7211	157.5757

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates				Shortcut 2 death rates				Shortcut 3 death rates			
Age	UDD	cte ux	Balducci	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn
64.25	167.9196	168.0613	168.2021	175.4899	158.9284	161.6832	161.3558	176.7309	162.6773	164.9185	159.8906	181.9560	160.9142	158.2804	155.1712	179.6375	158.2879	161.1127	157.6594
64.50	168.2021	168.0613	167.9196	191.0601	154.6293	157.8333	175.4941	179.3485	153.0967	158.7629	177.3694	185.1731	160.6815	159.8007	172.7231	188.4403	158.2537	156.9814	175.6335
64.75	168.4855	168.0613	167.6381	203.5407	167.2205	151.3456	167.2554	196.1420	154.9688	148.1195	166.9750	202.0105	162.3715	157.1302	171.5373	205.3745	164.6566	154.4236	167.6256
65.00	181.3600	181.8554	182.3521	201.0104	181.4826	166.8981	167.9363	212.2830	188.8311	167.1303	178.9928	204.2059	177.4790	160.0855	173.4162	200.7668	181.1528	162.3925	170.5126
65.25	181.6895	181.8554	182.0202	189.9658	171.6842	174.5093	174.8215	191.2633	175.9564	178.1629	173.1419	197.0957	173.9947	170.7541	167.8734	194.5192	171.0091	173.8798	170.7300
65.50	182.0202	181.8554	181.6895	207.3193	167.1183	170.2267	190.1881	194.2668	165.3197	171.3507	192.2862	200.7670	173.7797	172.5053	187.1001	204.4276	171.1054	169.3230	190.3269
65.75	182.3521	181.8554	181.3600	220.9362	180.8530	163.1892	181.5156	212.7576	167.1932	159.4926	181.2275	219.3048	175.4493	169.5398	186.3050	222.9558	178.0420	166.5769	181.9337
66.00	196.4323	197.0137	197.5967	218.3192	196.5098	180.1307	181.9223	230.9769	204.7540	180.3791	194.1168	221.9798	192.0995	172.5170	187.8891	218.0625	196.1355	175.1709	184.7292
66.25	196.8189	197.0137	197.2070	205.8782	185.6821	188.5738	189.6340	207.2347	190.5439	192.6974	187.7124	213.7465	188.3602	184.4264	181.8296	210.8819	184.9702	187.8787	185.1021
66.50	197.2070	197.0137	196.8189	225.2253	180.8288	183.8079	206.3549	210.6737	178.7283	185.1534	208.7024	217.9296	188.1672	186.4386	202.9124	222.0308	185.2189	182.8484	206.4920
66.75	197.5967	197.0137	196.4323	240.0982	195.8274	176.1650	197.2219	231.0511	180.5932	171.9374	196.9266	238.3574	189.8036	183.1439	202.5797	242.3245	192.7425	179.8969	197.6940
67.00	213.1243	213.8090	214.4957	237.5316	213.1537	194.7501	197.4180	251.7515	222.4078	195.0162	210.8868	241.7198	208.2882	186.2344	203.9262	237.2608	212.7289	189.2821	200.4814
67.25	213.5795	213.8090	214.0366	223.5139	201.1722	204.1272	206.0612	224.9326	206.7018	208.7818	203.8652	232.2090	204.2686	199.5404	197.2909	229.0208	200.4207	203.3585	201.0352
67.50	214.0366	213.8090	213.5795	245.1036	196.0065	198.8180	224.2871	228.8657	193.5620	200.4168	226.9155	236.9722	204.1025	201.8489	220.4459	241.5700	200.8474	197.7979	224.4215
67.75	214.4957	213.8090	213.1243	261.3756	212.4127	190.5033	214.6604	251.3546	195.4069	185.6734	214.3580	259.5151	205.6912	198.1843	220.6584	263.8331	209.0218	194.6203	215.1934
68.00	231.7452	232.5552	233.3677	259.0106	231.7243	211.0242	214.7129	275.0025	242.1236	211.3098	229.6178	263.8003	226.3462	201.4867	221.8272	258.7246	231.2422	204.9841	218.0636
68.25	232.2835	232.5552	232.8243	243.2027	218.4416	221.4564	224.4118	244.6878	224.7314	226.7142	221.9030	252.8300	222.0161	216.3741	214.5457	249.2759	217.6472	220.6048	218.8281
68.50	232.8243	232.5552	232.2835	267.3304	212.9331	215.5327	244.3220	249.1842	210.0951	217.4225	247.2688	258.2536	221.8825	219.0207	240.0296	263.4143	218.2817	214.4463	244.4527
68.75	233.3677	232.5552	231.7452	285.1713	230.9180	206.4669	234.1612	274.0516	211.9071	200.9506	233.8521	283.1791	223.4070	214.9379	240.8845	287.8894	227.1831	211.0178	234.7635
69.00	252.6340	253.5970	254.5633	283.1576	252.5621	229.2447	234.1251	301.1686	264.2664	229.5521	250.6566	288.6360	246.6038	218.5445	241.9218	282.8549	252.0146	222.5571	237.7993
69.25	253.2738	253.5970	253.9169	265.3079	237.8045	240.8748	245.0263	266.8640	244.9636	246.8209	242.1594	275.9912	241.9276	235.2309	233.9113	272.0213	236.9632	239.9291	238.8098
69.50	253.9169	253.5970	253.2738	292.3215	231.9176	234.2527	266.8318	272.0054	228.6274	236.4778	270.1409	282.1701	241.8332	238.2648	262.0264	287.9719	237.8410	233.0931	266.9573
69.75	254.5633	253.5970	252.6340	311.9315	251.6825	224.3427	256.0897	299.5658	230.3913	218.0406	255.7741	309.7931	243.2738	233.7071	263.6386	314.9445	247.5588	229.3847	256.7710
70.00	276.1872	277.3389	278.4947	310.4441	276.0662	249.7523	256.0275	330.7666	289.2640	250.0839	274.4105	316.7145	269.4477	237.7224	264.5963	310.1233	275.4436	242.3280	260.0679
70.25	276.9521	277.3389	277.7213	290.2551	259.6285	262.7486	268.3043	291.8877	267.7860	269.4839	265.0256	302.1405	264.3838	256.4652	255.7592	297.6962	258.7359	261.6959	261.3663
70.50	277.7213	277.3389	276.9521	320.5656	253.3219	255.3290	292.2533	297.7706	249.5101	257.9422	295.9769	309.1872	264.3367	259.9448	286.8618	315.7223	259.8990	254.0885	292.3720
70.75	278.4947	277.3389	276.1872	342.1803	275.1038	244.4652	280.8754	328.3950	251.2070	237.2597	280.5538	339.8792	265.6695	254.8451	289.3685	345.5289	270.5385	250.0659	281.6473

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates				Shortcut 2 death rates				Shortcut 3 death rates			
Age	UDD	cte ux	Balducci	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn
71.00	302.8623	304.2480	305.6393	341.4170	302.6973	272.9383	280.8511	364.3964	317.6115	273.2972	301.3506	348.6016	295.3245	259.3819	290.2974	341.0761	301.9881	264.6727	285.3078
71.25	303.7824	304.2480	304.7080	318.5366	284.3377	287.4997	294.7081	320.2517	293.6463	295.1434	290.9542	331.7966	289.8242	280.4848	280.5190	326.8083	283.3884	286.3246	286.9442
71.50	304.7080	304.2480	303.7824	352.6295	277.5634	279.1657	321.0925	326.9907	273.1474	282.2295	325.2920	339.8439	289.8341	284.4793	315.0286	347.2216	284.8872	277.8350	321.2023
71.75	305.6393	304.2480	302.8623	376.5259	301.6411	267.2194	309.0164	361.1163	274.7545	258.9711	308.6894	374.0426	291.0301	278.7585	318.5937	380.2581	296.5720	273.4586	309.8926
72.00	333.1816	334.8598	336.5455	376.7044	332.9828	299.2487	309.0895	402.7489	349.8770	299.6383	332.0173	384.9482	324.7449	283.9330	319.5367	376.3414	332.1734	290.0184	314.0213
72.25	334.2954	334.8598	335.4167	350.7167	312.4163	315.6097	324.7685	352.5207	323.0573	324.3027	320.4641	365.5539	318.7518	307.7550	308.6824	359.9399	311.4047	314.2940	316.0555
72.50	335.4167	334.8598	334.2954	389.1647	305.1193	306.2231	353.9298	360.2515	300.0013	309.8120	358.6780	374.7595	318.8305	312.3464	347.0917	383.1086	313.2994	304.7919	354.0283
72.75	336.5455	334.8598	333.1816	415.6676	331.8199	293.0438	341.0854	398.3926	301.4900	283.5874	340.7539	412.9798	319.8540	305.9110	351.9125	419.8397	326.1739	300.0153	342.0821
73.00	367.6875	369.7330	371.7885	416.9669	367.4724	329.1430	341.2579	446.5539	386.6546	329.5672	366.9768	426.4401	358.2408	311.7962	352.8487	416.5797	366.5469	318.8047	346.7326
73.25	369.0444	369.7330	370.4114	387.3848	344.3677	347.5768	359.0417	389.2843	356.5534	357.4843	354.0984	404.0351	351.6906	338.7564	340.7625	397.6999	343.2872	346.0995	349.2360
73.50	370.4114	369.7330	369.0444	430.8565	336.4861	336.9767	391.3740	398.1663	330.5507	341.1785	396.7557	414.5839	351.8521	344.0412	383.6428	424.0551	345.6498	335.4332	391.4581
73.75	371.7885	369.7330	367.6875	460.3417	366.1880	322.3907	377.6854	440.9206	331.8853	311.5323	377.3508	457.4241	352.6590	336.7822	389.9556	465.0191	359.8803	330.2035	378.8215
74.00	406.9453	409.4532	411.9748	462.9014	406.7413	363.0971	377.8963	496.5847	428.5689	363.5602	406.8239	473.8025	396.3677	343.4042	390.7935	462.4876	405.6812	351.4859	383.9914
74.25	408.6081	409.4532	410.2845	429.1594	380.7161	383.9193	398.1125	431.1607	394.6940	395.2332	392.4272	447.8945	389.1882	373.9880	377.2968	440.7278	379.5601	382.2560	387.0486
74.50	410.2845	409.4532	408.6081	478.4283	372.1822	371.9193	434.0657	441.3796	365.2945	376.8374	440.1793	460.0017	389.4499	380.0785	425.3040	470.7697	382.4759	370.2508	434.1315
74.75	411.9748	409.4532	406.9453	511.3258	405.3184	355.7289	419.4533	489.4350	366.4302	343.2423	419.1174	508.1503	389.9855	371.8702	433.3904	516.5840	398.2517	364.5084	420.7509
75.00	451.5315	454.6224	457.7319	515.2294	451.3796	401.5933	419.5594	553.6453	476.2632	402.1000	452.1720	527.7878	439.6953	379.1927	433.9469	514.7866	450.1635	388.5212	426.3626
75.25	453.5796	454.6224	455.6463	476.6768	421.9977	425.1648	442.5844	478.7853	438.0532	438.1062	436.0381	497.8066	431.8065	413.9569	418.8374	489.6820	420.7591	423.2879	430.0731
75.50	455.6463	454.6224	453.5796	532.6295	412.7383	411.5516	482.6665	490.5559	404.7416	417.3060	489.6248	511.7207	432.1889	420.9834	472.7165	523.9860	424.3289	409.7443	482.7091
75.75	457.7319	454.6224	451.5315	569.4262	449.7992	393.5339	467.0493	544.6963	405.6226	379.1574	466.7149	565.9623	432.3864	411.6816	482.9105	575.3510	441.8628	403.4232	468.5337
76.00	502.0660	505.8920	509.7438	574.7351	502.0252	445.1491	466.8476	618.6118	530.4350	445.7048	503.6864	589.2147	488.8386	419.6274	482.9324	574.2608	500.6286	430.4030	474.4575
76.25	504.5994	505.8920	507.1585	530.6260	468.7904	471.8815	493.1123	532.8459	487.2519	486.7039	485.5677	554.5024	480.1524	459.2086	465.9816	545.2759	467.4622	469.7595	478.9380
76.50	507.1585	505.8920	504.5994	594.2749	458.7274	456.4115	537.8937	546.4154	449.4407	463.1414	545.8259	570.5092	480.6801	467.3211	526.5755	584.5012	471.8041	454.4507	537.9073
76.75	509.7438	505.8920	502.0660	635.5195	500.2660	436.3164	521.1913	607.5304	449.9983	419.7490	520.8621	631.7339	480.4580	456.7614	539.2705	642.2084	491.3346	447.4779	522.8916
77.00	559.2556	564.0092	568.7987	642.3180	559.4096	494.3577	520.4497	692.4900	591.8841	494.9680	562.1301	659.0227	544.5029	465.2415	538.4651	641.8099	557.8044	477.6952	528.9776
77.25	562.4008	564.0092	565.5817	591.7971	521.7570	524.7204	550.4472	594.1311	543.0022	541.7149	541.7464	618.8206	534.9220	510.3679	519.4144	608.3278	520.3321	522.3173	534.3642
77.50	565.5817	564.0092	562.4008	664.2992	510.8063	507.1152	600.5709	609.7843	500.0205	514.9821	609.6246	637.2488	535.6241	519.7393	587.6786	653.2302	525.5844	504.9854	600.5484

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates				Shortcut 2 death rates				Shortcut 3 death rates			
Age	UDD	cte ux	Balducci	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn
77.75	568.7987	564.0092	559.2556	710.6117	557.4479	484.6615	582.7035	678.8850	500.1710	465.5565	582.3844	706.4682	534.8841	507.7341	603.3371	718.1755	547.3794	497.2798	584.6532
78.00	623.8666	629.7912	635.7656	718.9650	624.3320	549.8628	581.1186	776.3852	661.4863	550.5340	628.3387	738.2438	607.4583	516.6122	601.3267	718.4208	622.4859	531.0093	590.6896
78.25	627.7831	629.7912	631.7492	661.0545	581.6200	584.3900	615.4119	663.5033	606.0820	603.8897	605.3739	691.6794	596.8754	568.1145	579.8847	679.7331	580.0913	581.6652	597.1411
78.50	631.7492	629.7912	627.7831	743.7280	569.6920	564.3326	671.5999	681.5668	557.1662	573.5228	681.9439	712.9057	597.7864	578.9434	656.8992	731.1762	586.4153	562.0173	671.5328
78.75	635.7656	629.7912	623.8666	795.8066	622.1410	539.2049	652.4908	759.7992	556.8084	517.1639	652.1878	791.2662	596.4107	565.2790	676.0625	804.3707	610.7747	553.4894	654.7281
79.00	696.7528	704.1555	711.6277	805.7860	697.6891	612.3849	649.6997	871.5416	740.2253	613.1238	703.2512	828.0387	678.5686	574.3836	672.3953	805.2033	695.5650	591.0290	660.4546
79.25	701.6415	704.1555	706.5993	739.3685	649.1895	651.6841	688.9314	741.9306	677.3643	674.0700	677.3482	774.1099	666.8656	633.2090	648.2332	760.4971	647.5499	648.5913	668.1554
79.50	706.5993	704.1555	701.6415	833.7147	636.1886	628.8134	751.9945	762.7791	621.6455	639.5419	763.8210	798.5660	668.0260	645.7236	735.2185	819.4674	655.1335	626.2950	751.8726
79.75	711.6277	704.1555	696.7528	892.3458	695.2389	600.6579	731.5711	851.4414	620.6580	575.2242	731.2919	887.3659	665.8740	630.1568	758.5184	902.0523	682.3931	616.8459	734.1396

Table S2. Quarterly death probabilities (x 100,000) by subscription age (rounded to quarters) and calendar season for Spain using as reference the PASEM2019_second_order table (BOE, 2020). Women.

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates				Shortcut 2 death rates				Shortcut 3 death rates			
Age	**UDD**	**cte ux**	**Balducci**	**Winter**	**Spring**	**Summer**	**Autumn**	**Winter**	**Spring**	**Summer**	**Autumn**	**Winter**	**Spring**	**Summer**	**Autumn**	**Winter**	**Spring**	**Summer**	**Autumn**
18.00	2.4598	2.4599	2.4599	2.5165	2.3523	2.4595	2.4076	2.4194	2.3021	2.4588	2.4187	2.4360	2.3546	2.5019	2.4628	2.4929	2.3604	2.4537	2.4434
18.25	2.4598	2.4599	2.4599	2.4935	2.4853	2.4630	2.2694	2.5238	2.4170	2.4374	2.2950	2.4739	2.4221	2.4819	2.3337	2.4956	2.4635	2.4737	2.2779
18.50	2.4599	2.4599	2.4598	2.4200	2.4546	2.6218	2.5013	2.4746	2.5020	2.5704	2.5026	2.4218	2.4588	2.5712	2.5451	2.3990	2.4669	2.6027	2.5231
18.75	2.4599	2.4599	2.4598	2.4940	2.4462	2.4609	2.5117	2.5134	2.5011	2.5251	2.4963	2.4592	2.4597	2.4818	2.4934	2.4867	2.4284	2.4775	2.5125
19.00	2.3889	2.3889	2.3890	2.4481	2.2862	2.3846	2.3345	2.3583	2.2398	2.3839	2.3482	2.3728	2.2872	2.4230	2.3883	2.4261	2.2939	2.3777	2.3688
19.25	2.3889	2.3889	2.3890	2.4228	2.4098	2.3907	2.2057	2.4527	2.3458	2.3668	2.2295	2.4074	2.3502	2.4071	2.2647	2.4270	2.3889	2.4004	2.2122
19.50	2.3890	2.3889	2.3889	2.3576	2.3792	2.5406	2.4312	2.4064	2.4245	2.4919	2.4323	2.3584	2.3854	2.4926	2.4710	2.3376	2.3921	2.5219	2.4512
19.75	2.3890	2.3889	2.3889	2.4337	2.3751	2.3842	2.4390	2.4498	2.4240	2.4450	2.4241	2.4006	2.3866	2.4059	2.4218	2.4280	2.3575	2.4007	2.4390
20.00	2.3611	2.3612	2.3613	2.4238	2.2614	2.3530	2.3037	2.3394	2.2179	2.3522	2.3201	2.3522	2.2611	2.3883	2.3571	2.4030	2.2687	2.3450	2.3372
20.25	2.3612	2.3612	2.3612	2.3959	2.3780	2.3616	2.1817	2.4259	2.3171	2.3390	2.2042	2.3843	2.3209	2.3760	2.2367	2.4022	2.3577	2.3705	2.1864
20.50	2.3612	2.3612	2.3612	2.3375	2.3470	2.5055	2.4049	2.3816	2.3911	2.4587	2.4058	2.3373	2.3553	2.4593	2.4416	2.3181	2.3607	2.4869	2.4235
20.75	2.3613	2.3612	2.3611	2.4170	2.3470	2.3507	2.4103	2.4301	2.3910	2.4093	2.3958	2.3849	2.3567	2.3737	2.3939	2.4126	2.3292	2.3676	2.4096
21.00	2.3618	2.3619	2.3620	2.4286	2.2638	2.3497	2.3008	2.3486	2.2226	2.3490	2.3200	2.3598	2.2622	2.3824	2.3544	2.4087	2.2709	2.3406	2.3338
21.25	2.3619	2.3619	2.3619	2.3979	2.3749	2.3610	2.1840	2.4282	2.3163	2.3393	2.2055	2.3898	2.3196	2.3735	2.2356	2.4063	2.3548	2.3693	2.1870
21.50	2.3619	2.3619	2.3619	2.3455	2.3432	2.5007	2.4075	2.3855	2.3865	2.4551	2.4083	2.3443	2.3535	2.4557	2.4416	2.3265	2.3579	2.4820	2.4251
21.75	2.3620	2.3619	2.3618	2.4292	2.3471	2.3457	2.4108	2.4396	2.3868	2.4028	2.3963	2.3977	2.3552	2.3701	2.3949	2.4261	2.3290	2.3631	2.4093
22.00	2.3893	2.3894	2.3895	2.4610	2.2919	2.3731	2.3239	2.3845	2.2526	2.3723	2.3462	2.3944	2.2890	2.4034	2.3784	2.4419	2.2989	2.3627	2.3568
22.25	2.3894	2.3894	2.3894	2.4271	2.3987	2.3872	2.2111	2.4582	2.3417	2.3662	2.2318	2.4225	2.3445	2.3980	2.2599	2.4378	2.3787	2.3949	2.2125
22.50	2.3894	2.3894	2.3894	2.3802	2.3659	2.5243	2.4375	2.4164	2.4090	2.4794	2.4382	2.3780	2.3785	2.4800	2.4693	2.3614	2.3817	2.5051	2.4541
22.75	2.3895	2.3894	2.3893	2.4691	2.3739	2.3672	2.4386	2.4769	2.4097	2.4234	2.4240	2.4380	2.3804	2.3934	2.4230	2.4674	2.3553	2.3853	2.4363
23.00	2.4220	2.4221	2.4222	2.4988	2.3250	2.4015	2.3519	2.4258	2.2875	2.4007	2.3775	2.4342	2.3208	2.4295	2.4074	2.4804	2.3318	2.3897	2.3849
23.25	2.4220	2.4221	2.4221	2.4615	2.4276	2.4184	2.2430	2.4935	2.3722	2.3982	2.2629	2.4605	2.3745	2.4275	2.2890	2.4746	2.4076	2.4256	2.2427
23.50	2.4221	2.4221	2.4220	2.4202	2.3935	2.5531	2.4728	2.4527	2.4365	2.5089	2.4734	2.4169	2.4085	2.5094	2.5023	2.4015	2.4106	2.5335	2.4885
23.75	2.4222	2.4221	2.4220	2.5147	2.4058	2.3936	2.4716	2.5198	2.4376	2.4491	2.4569	2.4838	2.4107	2.4217	2.4564	2.5142	2.3865	2.4125	2.4685

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates				Shortcut 2 death rates				Shortcut 3 death rates			
Age	UDD	cte ux	Balducci	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn
24.00	2.4565	2.4566	2.4566	2.5386	2.3600	2.4316	2.3816	2.4692	2.3243	2.4307	2.4105	2.4761	2.3543	2.4572	2.4381	2.5209	2.3666	2.4185	2.4146
24.25	2.4565	2.4566	2.4566	2.4978	2.4582	2.4515	2.2767	2.5307	2.4044	2.4320	2.2958	2.5005	2.4062	2.4587	2.3198	2.5133	2.4382	2.4581	2.2745
24.50	2.4566	2.4566	2.4565	2.4623	2.4229	2.5836	2.5100	2.4909	2.4657	2.5401	2.5105	2.4579	2.4402	2.5406	2.5372	2.4437	2.4412	2.5637	2.5248
24.75	2.4566	2.4566	2.4565	2.5625	2.4395	2.4217	2.5065	2.5648	2.4672	2.4764	2.4917	2.5318	2.4428	2.4517	2.4916	2.5634	2.4196	2.4414	2.5026
25.00	2.4840	2.4841	2.4842	2.5714	2.3883	2.4547	2.4045	2.5058	2.3547	2.4538	2.4367	2.5113	2.3813	2.4778	2.4619	2.5545	2.3947	2.4402	2.4373
25.25	2.4841	2.4841	2.4842	2.5272	2.4818	2.4776	2.3039	2.5608	2.4298	2.4590	2.3222	2.5336	2.4311	2.4830	2.3441	2.5451	2.4619	2.4836	2.3000
25.50	2.4842	2.4841	2.4841	2.4976	2.4452	2.6068	2.5402	2.5222	2.4878	2.5641	2.5406	2.4921	2.4651	2.5646	2.5649	2.4792	2.4649	2.5865	2.5540
25.75	2.4842	2.4841	2.4840	2.6033	2.4662	2.4429	2.5343	2.6028	2.4898	2.4966	2.5194	2.5730	2.4679	2.4747	2.5198	2.6056	2.4458	2.4633	2.5296
26.00	2.4924	2.4925	2.4926	2.5844	2.3981	2.4588	2.4088	2.5232	2.3669	2.4579	2.4441	2.5271	2.3898	2.4791	2.4666	2.5684	2.4043	2.4430	2.4412
26.25	2.4925	2.4925	2.4925	2.5370	2.4862	2.4846	2.3134	2.5712	2.4363	2.4669	2.3307	2.5472	2.4372	2.4880	2.3501	2.5572	2.4665	2.4899	2.3077
26.50	2.4925	2.4925	2.4925	2.5137	2.4487	2.6097	2.5508	2.5340	2.4906	2.5682	2.5510	2.5072	2.4708	2.5686	2.5727	2.4956	2.4694	2.5892	2.5634
26.75	2.4926	2.4925	2.4924	2.6242	2.4739	2.4450	2.5425	2.6208	2.4930	2.4973	2.5277	2.5945	2.4739	2.4785	2.5286	2.6279	2.4531	2.4660	2.5370
27.00	2.4883	2.4884	2.4885	2.5845	2.3961	2.4507	2.4010	2.5281	2.3673	2.4497	2.4393	2.5303	2.3864	2.4681	2.4590	2.5695	2.4020	2.4337	2.4329
27.25	2.4884	2.4884	2.4885	2.5341	2.4781	2.4792	2.3114	2.5687	2.4308	2.4625	2.3275	2.5481	2.4311	2.4806	2.3445	2.5566	2.4587	2.4837	2.3039
27.50	2.4885	2.4884	2.4884	2.5173	2.4399	2.5996	2.5487	2.5332	2.4810	2.5595	2.5488	2.5097	2.4642	2.5598	2.5678	2.4996	2.4616	2.5790	2.5601
27.75	2.4885	2.4884	2.4883	2.6321	2.4693	2.4350	2.5380	2.6258	2.4838	2.4856	2.5233	2.6030	2.4676	2.4700	2.5247	2.6371	2.4482	2.4565	2.5317
28.00	2.4786	2.4787	2.4787	2.5786	2.3885	2.4369	2.3878	2.5271	2.3623	2.4360	2.4288	2.5276	2.3775	2.4515	2.4457	2.5647	2.3941	2.4187	2.4191
28.25	2.4786	2.4787	2.4787	2.5255	2.4644	2.4681	2.3040	2.5603	2.4196	2.4525	2.3191	2.5432	2.4194	2.4675	2.3335	2.5501	2.4454	2.4719	2.2948
28.50	2.4787	2.4787	2.4786	2.5151	2.4255	2.5835	2.5407	2.5265	2.4658	2.5449	2.5407	2.5065	2.4520	2.5452	2.5569	2.4979	2.4482	2.5629	2.5509
28.75	2.4787	2.4787	2.4786	2.6338	2.4590	2.4194	2.5278	2.6247	2.4689	2.4683	2.5132	2.6056	2.4556	2.4558	2.5151	2.6402	2.4376	2.4413	2.5207
29.00	2.4711	2.4712	2.4713	2.5751	2.3831	2.4254	2.3767	2.5283	2.3594	2.4245	2.4207	2.5273	2.3708	2.4372	2.4348	2.5622	2.3884	2.4061	2.4075
29.25	2.4711	2.4712	2.4712	2.5192	2.4530	2.4592	2.2988	2.5543	2.4108	2.4447	2.3127	2.5405	2.4100	2.4568	2.3246	2.5460	2.4343	2.4624	2.2878
29.50	2.4712	2.4712	2.4711	2.5151	2.4134	2.5699	2.5350	2.5222	2.4528	2.5327	2.5349	2.5055	2.4420	2.5330	2.5485	2.4984	2.4370	2.5492	2.5440
29.75	2.4713	2.4712	2.4711	2.6379	2.4510	2.4060	2.5198	2.6260	2.4563	2.4532	2.5054	2.6104	2.4459	2.4439	2.5077	2.6456	2.4294	2.4285	2.5120
30.00	2.4970	2.4971	2.4972	2.6064	2.4099	2.4467	2.3978	2.5638	2.3884	2.4457	2.4452	2.5611	2.3961	2.4557	2.4566	2.5944	2.4150	2.4259	2.4284
30.25	2.4970	2.4971	2.4971	2.5469	2.4747	2.4836	2.3246	2.5828	2.4344	2.4699	2.3376	2.5722	2.4331	2.4792	2.3471	2.5762	2.4561	2.4861	2.3117
30.50	2.4971	2.4971	2.4970	2.5492	2.4339	2.5910	2.5636	2.5519	2.4729	2.5547	2.5634	2.5384	2.4650	2.5550	2.5744	2.5327	2.4588	2.5699	2.5715

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates				Shortcut 2 death rates				Shortcut 3 death rates			
Age	UDD	cte ux	Balducci	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn
30.75	2.4972	2.4971	2.4970	2.6777	2.4761	2.4252	2.5459	2.6627	2.4769	2.4712	2.5314	2.6506	2.4692	2.4649	2.5343	2.6869	2.4539	2.4484	2.5372
31.00	2.5624	2.5625	2.5626	2.6791	2.4750	2.5065	2.4567	2.6402	2.4554	2.5055	2.5084	2.6358	2.4594	2.5129	2.5173	2.6678	2.4799	2.4839	2.4876
31.25	2.5625	2.5625	2.5626	2.6150	2.5354	2.5473	2.3874	2.6523	2.4966	2.5343	2.3995	2.6448	2.4947	2.5407	2.4068	2.6474	2.5166	2.5492	2.3722
31.50	2.5626	2.5625	2.5625	2.6239	2.4927	2.6528	2.6329	2.6223	2.5320	2.6170	2.6325	2.6118	2.5270	2.6172	2.6411	2.6074	2.5194	2.6311	2.6398
31.75	2.5626	2.5625	2.5624	2.7604	2.5404	2.4825	2.6123	2.7421	2.5365	2.5281	2.5976	2.7333	2.5315	2.5249	2.6010	2.7712	2.5172	2.5069	2.6026
32.00	2.6882	2.6883	2.6884	2.8153	2.5984	2.6251	2.5732	2.7795	2.5805	2.6240	2.6307	2.7732	2.5807	2.6287	2.6370	2.8045	2.6034	2.6001	2.6051
32.25	2.6883	2.6883	2.6884	2.7448	2.6555	2.6708	2.5064	2.7844	2.6174	2.6584	2.5181	2.7801	2.6149	2.6618	2.5230	2.7812	2.6362	2.6721	2.4886
32.50	2.6884	2.6883	2.6883	2.7610	2.6099	2.7768	2.7644	2.7546	2.6503	2.7406	2.7638	2.7472	2.6483	2.7408	2.7699	2.7441	2.6390	2.7538	2.7703
32.75	2.6884	2.6883	2.6882	2.9090	2.6645	2.5978	2.7403	2.8867	2.6555	2.6440	2.7249	2.8813	2.6533	2.6440	2.7290	2.9219	2.6398	2.6240	2.7292
33.00	2.9025	2.9026	2.9028	3.0448	2.8077	2.8295	2.7738	3.0115	2.7913	2.8283	2.8394	3.0028	2.7870	2.8301	2.8431	3.0343	2.8128	2.8011	2.8077
33.25	2.9026	2.9026	2.9027	2.9651	2.8626	2.8822	2.7083	3.0084	2.8243	2.8699	2.7196	3.0077	2.8209	2.8701	2.7220	3.0071	2.8420	2.8827	2.6870
33.50	2.9027	2.9026	2.9026	2.9901	2.8123	2.9913	2.9871	2.9780	2.8551	2.9538	2.9864	2.9740	2.8564	2.9539	2.9899	2.9723	2.8450	2.9664	2.9922
33.75	2.9028	2.9026	2.9025	3.1551	2.8762	2.7978	2.9583	3.1276	2.8611	2.8459	2.9418	3.1260	2.8622	2.8495	2.9468	3.1705	2.8492	2.8267	2.9455
34.00	3.2350	3.2352	3.2353	3.3992	3.1317	3.1482	3.0866	3.3681	3.1166	3.1468	3.1636	3.3563	3.1069	3.1453	3.1641	3.3887	3.1370	3.1149	3.1237
34.25	3.2351	3.2352	3.2352	3.3064	3.1853	3.2105	3.0208	3.3553	3.1457	3.1981	3.0319	3.3588	3.1412	3.1946	3.0315	3.3562	3.1628	3.2102	2.9947
34.50	3.2352	3.2352	3.2351	3.3427	3.1282	3.3263	3.3319	3.3235	3.1749	3.2863	3.3309	3.3233	3.1803	3.2864	3.3314	3.3234	3.1660	3.2984	3.3360
34.75	3.2353	3.2352	3.2350	3.5323	3.2050	3.1105	3.2968	3.4979	3.1822	3.1619	3.2785	3.5007	3.1871	3.1700	3.2847	3.5513	3.1743	3.1433	3.2814
35.00	3.6990	3.6992	3.6994	3.8931	3.5837	3.5936	3.5236	3.8645	3.5699	3.5920	3.6162	3.8486	3.5533	3.5861	3.6125	3.8827	3.5893	3.5537	3.5654
35.25	3.6991	3.6992	3.6993	3.7827	3.6362	3.6690	3.4567	3.8391	3.5946	3.6563	3.4678	3.8481	3.5887	3.6478	3.4636	3.8429	3.6109	3.6676	3.4242
35.50	3.6993	3.6992	3.6991	3.8335	3.5698	3.7948	3.8129	3.8051	3.6221	3.7510	3.8115	3.8098	3.6326	3.7510	3.8081	3.8121	3.6145	3.7627	3.8158
35.75	3.6994	3.6992	3.6990	4.0570	3.6638	3.5476	3.7693	4.0134	3.6310	3.6041	3.7485	4.0219	3.6408	3.6180	3.7563	4.0807	3.6283	3.5860	3.7505
36.00	4.2586	4.2588	4.2591	4.4895	4.1290	4.1302	4.0501	4.4645	4.1173	4.1282	4.1618	4.4434	4.0917	4.1166	4.1529	4.4791	4.1350	4.0821	4.0974
36.25	4.2587	4.2588	4.2589	4.3571	4.1795	4.2217	3.9826	4.4229	4.1356	4.2089	3.9936	4.4389	4.1279	4.1940	3.9845	4.4304	4.1508	4.2189	3.9421
36.50	4.2589	4.2588	4.2587	4.4267	4.1016	4.3588	4.3931	4.3865	4.1605	4.3107	4.3914	4.3975	4.1778	4.3106	4.3829	4.4026	4.1549	4.3216	4.3945
36.75	4.2591	4.2588	4.2586	4.6915	4.2171	4.0739	4.3389	4.6363	4.1715	4.1363	4.3152	4.6523	4.1876	4.1576	4.3250	4.7212	4.1756	4.1190	4.3160
37.00	4.8838	4.8842	4.8845	5.1571	4.7388	4.7285	4.6373	5.1376	4.7303	4.7262	4.7713	5.1103	4.6935	4.7074	4.7556	5.1472	4.7452	4.6709	4.6906
37.25	4.8841	4.8842	4.8843	4.9995	4.7853	4.8388	4.5708	5.0757	4.7398	4.8262	4.5813	5.1006	4.7299	4.8032	4.5660	5.0879	4.7530	4.8343	4.5208

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates				Shortcut 2 death rates				Shortcut 3 death rates			
Age	UDD	cte ux	Balducci	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn
37.50	4.8843	4.8842	4.8841	5.0918	4.6945	4.9873	5.0422	5.0371	4.7605	4.9348	5.0400	5.0563	4.7862	4.9346	5.0249	5.0650	4.7575	4.9445	5.0415
37.75	4.8845	4.8842	4.8838	5.4042	4.8351	4.6602	4.9755	5.3353	4.7739	4.7286	4.9484	5.3606	4.7980	4.7593	4.9606	5.4409	4.7869	4.7130	4.9476
38.00	5.5367	5.5372	5.5376	5.8562	5.3765	5.3514	5.2487	5.8444	5.3722	5.3488	5.4073	5.8098	5.3221	5.3212	5.3834	5.8472	5.3831	5.2834	5.3081
38.25	5.5370	5.5372	5.5373	5.6708	5.4162	5.4827	5.1857	5.7582	5.3699	5.4706	5.1952	5.7938	5.3575	5.4380	5.1724	5.7760	5.3802	5.4761	5.1251
38.50	5.5373	5.5372	5.5370	5.7896	5.3114	5.6411	5.7208	5.7179	5.3846	5.5844	5.7180	5.7471	5.4204	5.5841	5.6950	5.7601	5.3852	5.5922	5.7174
38.75	5.5376	5.5372	5.5367	6.1537	5.4802	5.2698	5.6400	6.0692	5.4007	5.3438	5.6095	6.1057	5.4344	5.3855	5.6244	6.1984	5.4248	5.3308	5.6066
39.00	6.2008	6.2013	6.2019	6.5693	6.0259	5.9829	5.8688	6.5677	6.0273	5.9800	6.0538	6.5250	5.9617	5.9421	6.0202	6.5617	6.0327	5.9037	5.9340
39.25	6.2011	6.2013	6.2015	6.3542	6.0558	6.1369	5.8120	6.4532	6.0101	6.1259	5.8200	6.5013	5.9948	6.0819	5.7883	6.4777	6.0163	6.1277	5.7397
39.50	6.2015	6.2013	6.2011	6.5032	5.9365	6.3031	6.4121	6.4120	6.0167	6.2430	6.4087	6.4530	6.0641	6.2425	6.3762	6.4712	6.0218	6.2480	6.4053
39.75	6.2019	6.2013	6.2008	6.9220	6.1361	5.8868	6.3157	6.8202	6.0356	5.9658	6.2817	6.8700	6.0804	6.0202	6.2996	6.9755	6.0731	5.9565	6.2764
40.00	6.8914	6.8921	6.8928	7.3130	6.7022	6.6379	6.5119	7.3241	6.7105	6.6345	6.7258	7.2721	6.6271	6.5847	6.6808	7.3073	6.7091	6.5464	6.5830
40.25	6.8919	6.8921	6.8923	7.0656	6.7193	6.8167	6.4642	7.1768	6.6751	6.8073	6.4701	7.2395	6.6567	6.7501	6.4280	7.2092	6.6762	6.8046	6.3789
40.50	6.8923	6.8921	6.8919	7.2489	6.5844	6.9890	7.1319	7.1354	6.6715	6.9259	7.1278	7.1901	6.7325	6.9252	7.0844	7.2144	6.6821	6.9274	7.1211
40.75	6.8928	6.8921	6.8914	7.7267	6.8180	6.5257	7.0183	7.6055	6.6937	6.6091	6.9809	7.6708	6.7514	6.6783	7.0021	7.7899	6.7470	6.6047	6.9724
41.00	7.6232	7.6241	7.6249	8.1028	7.4196	7.3301	7.1917	8.1293	7.4362	7.3263	7.4375	8.0669	7.3325	7.2626	7.3793	8.0995	7.4264	7.2252	7.2690
41.25	7.6238	7.6241	7.6244	7.8200	7.4206	7.5364	7.1561	7.9443	7.3791	7.5291	7.1592	8.0238	7.3572	7.4568	7.1051	7.9857	7.3739	7.5209	7.0562
41.50	7.6244	7.6241	7.6238	8.0423	7.2690	7.7133	7.8956	7.9034	7.3629	7.6475	7.8906	7.9741	7.4396	7.6466	7.8344	8.0054	7.3802	7.6448	7.8800
41.75	7.6249	7.6241	7.6232	8.5844	7.5403	7.2002	7.7627	8.4415	7.3888	7.2876	7.7216	8.5246	7.4613	7.3737	7.7465	8.6585	7.4607	7.2891	7.7095
42.00	8.8078	8.8090	8.8101	9.3773	8.5792	8.4546	8.2958	9.4244	8.6071	8.4501	8.5905	9.3466	8.4738	8.3667	8.5133	9.3771	8.5861	8.3290	8.3834
42.25	8.8086	8.8090	8.8093	9.0399	8.5597	8.7027	8.2744	9.1851	8.5203	8.6980	8.2742	9.2888	8.4931	8.6038	8.2029	9.2394	8.5067	8.6824	8.1527
42.50	8.8093	8.8090	8.8086	9.3194	8.3817	8.8914	9.1299	9.1434	8.4876	8.8200	9.1237	9.2369	8.5868	8.8188	9.0493	9.2782	8.5139	8.8117	9.1076
42.75	8.8101	8.8090	8.8078	9.9615	8.7100	8.2978	8.9681	9.7862	8.5188	8.3932	8.9208	9.8948	8.6128	8.5037	8.9514	10.0520	8.6169	8.4024	8.9038
43.00	10.2337	10.2353	10.2369	10.9134	9.9759	9.8064	9.6233	10.9872	10.0183	9.8012	9.9780	10.8901	9.8479	9.6927	9.8770	10.9172	9.9828	9.6555	9.7231
43.25	10.2348	10.2353	10.2358	10.5090	9.9292	10.1062	9.6213	10.6794	9.8934	10.1048	9.6167	10.8136	9.8595	9.9832	9.5236	10.7501	9.8689	10.0797	9.4725
43.50	10.2358	10.2353	10.2348	10.8600	9.7191	10.3069	10.6165	10.6376	9.8390	10.2295	10.6088	10.7598	9.9666	10.2279	10.5114	10.8138	9.8769	10.2139	10.5858
43.75	10.2369	10.2353	10.2337	11.6243	10.1179	9.6164	10.4189	11.4088	9.8770	9.7207	10.3644	11.5497	9.9979	9.8621	10.4018	11.7351	10.0083	9.7402	10.3410
44.00	11.8638	11.8659	11.8681	12.6726	11.5739	11.3489	11.1381	12.7803	11.6347	11.3427	11.5637	12.6601	11.4192	11.2036	11.4334	12.6817	11.5807	11.1681	11.2515

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates				Shortcut 2 death rates				Shortcut 3 death rates			
Age	UDD	cte ux	Balducci	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn
44.25	11.8652	11.8659	11.8666	12.1895	11.4920	11.7096	11.1624	12.3891	11.4620	11.7130	11.1519	12.5604	11.4201	11.5577	11.0322	12.4797	11.4235	11.6757	10.9814
44.50	11.8666	11.8659	11.8652	12.6269	11.2445	11.9211	12.3175	12.3481	11.3800	11.8377	12.3080	12.5057	11.5421	11.8356	12.1823	12.5751	11.4325	11.8126	12.2764
44.75	11.8681	11.8659	11.8638	13.5340	11.7271	11.1196	12.0773	13.2705	11.4260	11.2329	12.0145	13.4508	11.5797	11.4117	12.0603	13.6690	11.5983	11.2656	11.9832
45.00	13.6658	13.6686	13.6714	14.6214	13.3423	13.0502	12.8091	14.7710	13.4257	13.0430	13.3158	14.6236	13.1567	12.8673	13.1506	14.6373	13.3486	12.8351	12.9372
45.25	13.6677	13.6686	13.6695	14.0484	13.2158	13.4810	12.8677	14.2807	13.1945	13.4904	12.8496	14.4964	13.1434	13.2952	12.6982	14.3952	13.1385	13.4381	12.6494
45.50	13.6695	13.6686	13.6677	14.5873	12.9264	13.6999	14.1999	14.2422	13.0783	13.6112	14.1883	14.4420	13.2815	13.6085	14.0289	14.5299	13.1486	13.5743	14.1460
45.75	13.6714	13.6686	13.6658	15.6567	13.5054	12.7755	13.9103	15.3373	13.1335	12.8975	13.8385	15.5645	13.3262	13.1205	13.8939	15.8197	13.3552	12.9467	13.7977
46.00	15.6757	15.6794	15.6831	16.7994	15.3166	14.9439	14.6693	17.0003	15.4277	14.9354	15.2695	16.8211	15.0952	14.7163	15.0624	16.8239	15.3222	14.6893	14.8132
46.25	15.6782	15.6794	15.6806	16.1233	15.1348	15.4554	14.7716	16.3925	15.1255	15.4727	14.7441	16.6608	15.0635	15.2300	14.5548	16.5353	15.0480	15.4019	14.5099
46.50	15.6806	15.6794	15.6782	16.7817	14.7977	15.6784	16.3017	16.3583	14.9672	15.5850	16.2875	16.6084	15.2192	15.5816	16.0878	16.7184	15.0592	15.5335	16.2324
46.75	15.6831	15.6794	15.6757	18.0363	15.4885	14.6168	15.9547	17.6518	15.0331	14.7466	15.8729	17.9349	15.2721	15.0222	15.9395	18.2320	15.3140	14.8165	15.8205
47.00	17.9844	17.9893	17.9941	19.3054	17.5863	17.1154	16.8027	19.5694	17.7314	17.1055	17.5129	19.3522	17.3226	16.8339	17.2554	19.3407	17.5908	16.8144	16.9643
47.25	17.9876	17.9893	17.9909	18.5080	17.3354	17.7223	16.9603	18.8199	17.3423	17.7495	16.9209	19.1518	17.2673	17.4496	16.6859	18.9970	17.2380	17.6559	16.6471
47.50	17.9909	17.9893	17.9876	19.3096	16.9429	17.9458	18.7179	18.7921	17.1320	17.8482	18.7007	19.1031	17.4427	17.8440	18.4524	19.2398	17.2505	17.7786	18.6299
47.75	17.9941	17.9893	17.9844	20.7811	17.7660	16.7263	18.3029	20.3191	17.2106	16.8639	18.2097	20.6696	17.5054	17.2027	18.2895	21.0154	17.5633	16.9593	18.1432
48.00	20.5505	20.5568	20.5631	22.0962	20.1115	19.5238	19.1692	22.4363	20.2974	19.5124	20.0055	22.1749	19.7991	19.1789	19.6885	22.1448	20.1144	19.1698	19.3499
48.25	20.5547	20.5568	20.5589	21.1603	19.7766	20.2403	19.3953	21.5203	19.8043	20.2799	19.3414	21.9270	19.7143	19.9125	19.0524	21.7378	19.6677	20.1588	19.0226
48.50	20.5589	20.5568	20.5547	22.1290	19.3214	20.4588	21.4061	21.5016	19.5313	20.3582	21.3855	21.8845	19.9110	20.3530	21.0797	22.0526	19.6815	20.2666	21.2958
48.75	20.5631	20.5568	20.5505	23.8472	20.2967	19.0635	20.9126	23.2955	19.6244	19.2077	20.8069	23.7255	19.9848	19.6206	20.9021	24.1263	20.0623	19.3342	20.7236
49.00	23.4380	23.4462	23.4545	25.2425	22.9556	22.2289	21.8274	25.6742	23.1907	22.2157	22.8096	25.3608	22.5867	21.8089	22.4219	25.3073	22.9564	21.8135	22.0290
49.25	23.4435	23.4462	23.4490	24.1468	22.5186	23.0723	22.1378	24.5614	22.5730	23.1270	22.0662	25.0566	22.4653	22.6799	21.7133	24.8267	22.3972	22.9727	21.6959
49.50	23.4490	23.4462	23.4435	25.3119	21.9920	23.2792	24.4340	24.5551	22.2242	23.1771	24.4093	25.0230	22.6855	23.1707	24.0354	25.2285	22.4124	23.0589	24.2971
49.75	23.4545	23.4462	23.4380	27.3133	23.1441	21.6859	23.8491	26.6569	22.3343	21.8355	23.7294	27.1809	22.7722	22.3359	23.8425	27.6446	22.8735	21.9998	23.6261
50.00	26.6082	26.6189	26.6295	28.7042	26.0814	25.1924	24.7400	29.2440	26.3744	25.1771	25.8872	28.8709	25.6483	24.6854	25.4174	28.7883	26.0795	24.7076	24.9638
50.25	26.6153	26.6189	26.6224	27.4282	25.5229	26.1795	25.1520	27.9035	25.6105	26.2526	25.0591	28.5012	25.4825	25.7131	24.6320	28.2242	25.3882	26.0591	24.6311
50.50	26.6224	26.6189	26.6153	28.8192	24.9164	26.3666	27.7620	27.9132	25.1721	26.2648	27.7326	28.4800	25.7277	26.2571	27.2796	28.7287	25.4048	26.1150	27.5939
50.75	26.6295	26.6189	26.6082	31.1388	26.2695	24.5556	27.0729	30.3628	25.3013	24.7084	26.9380	30.9958	25.8289	25.3100	27.0716	31.5296	25.9586	24.9176	26.8113

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates				Shortcut 2 death rates				Shortcut 3 death rates			
Age	UDD	cte ux	Balducci	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn
51.00	29.0860	29.0987	29.1114	31.4285	28.5325	27.4908	26.9999	32.0729	28.8815	27.4738	28.2891	31.6463	28.0434	26.9036	27.7432	31.5321	28.5274	26.9464	27.2389
51.25	29.0944	29.0987	29.1029	29.9986	27.8538	28.6022	27.5154	30.5232	27.9777	28.6940	27.4013	31.2154	27.8316	28.0694	26.9055	30.8952	27.7099	28.4626	26.9251
51.50	29.1029	29.0987	29.0944	31.5939	27.1814	28.7545	30.3720	30.5524	27.4521	28.6587	30.3384	31.2108	28.0945	28.6497	29.8120	31.4997	27.7275	28.4779	30.1745
51.75	29.1114	29.0987	29.0860	34.1815	28.7099	26.7723	29.5913	33.2995	27.5982	26.9209	29.4450	34.0331	28.2083	27.6151	29.5966	34.6246	28.3660	27.1743	29.2962
52.00	31.6784	31.6935	31.7085	34.2858	31.1002	29.8892	29.3587	35.0469	31.5113	29.8705	30.8010	34.5616	30.5504	29.2138	30.1713	34.4113	31.0912	29.2807	29.6130
52.25	31.6884	31.6935	31.6985	32.6902	30.2865	31.1352	29.9911	33.2671	30.4523	31.2482	29.8531	34.0633	30.2864	30.5299	29.2816	33.6956	30.1337	30.9743	29.3254
52.50	31.6985	31.6935	31.6884	34.5090	29.5440	31.2440	33.1062	33.3190	29.8293	31.1566	33.0680	34.0785	30.5670	31.1462	32.4606	34.4115	30.1521	30.9412	32.8760
52.75	31.7085	31.6935	31.6784	37.3838	31.2625	29.0825	32.2261	36.3865	29.9936	29.2242	32.0678	37.2310	30.6943	30.0200	32.2392	37.8839	30.8836	29.5271	31.8946
53.00	34.3302	34.3479	34.3656	37.2167	33.7301	32.3352	31.7647	38.1055	34.2094	32.3145	33.3691	37.5574	33.1159	31.5643	32.6485	37.3663	33.7168	31.6587	32.0336
53.25	34.3420	34.3479	34.3538	35.4460	32.7678	33.7237	32.5269	36.0771	32.9808	33.8603	32.3624	36.9859	32.7936	33.0407	31.7089	36.5668	32.6062	33.5398	31.7807
53.50	34.3538	34.3479	34.3420	37.5053	31.9520	33.7799	35.9069	36.1553	32.2509	33.7035	35.8638	37.0242	33.0916	33.6916	35.1687	37.4052	32.6254	33.4499	35.6412
53.75	34.3656	34.3479	34.3302	40.6821	33.8727	31.4346	34.9208	39.5615	32.4345	31.5663	34.7505	40.5258	33.2333	32.4720	34.9429	41.2430	33.4572	31.9238	34.5506
54.00	37.0016	37.0222	37.0427	40.1783	36.3836	34.7910	34.1808	41.2054	36.9365	34.7684	35.9548	40.5907	35.7016	33.9181	35.1369	40.3543	36.3653	34.0435	34.4636
54.25	37.0153	37.0222	37.0290	38.2252	35.2595	36.3288	35.0853	38.9118	35.5250	36.4912	34.8918	39.9408	35.3153	35.5636	34.1507	39.4668	35.0897	36.1204	34.2543
54.50	37.0290	37.0222	37.0153	40.5398	34.3683	36.3228	38.7327	39.0197	34.6792	36.2603	38.6844	40.0057	35.6299	36.2468	37.8956	40.4378	35.1095	35.9653	38.4287
54.75	37.0427	37.0222	37.0016	44.0298	36.5012	33.7919	37.6350	42.7792	34.8832	33.9103	37.4529	43.8715	35.7865	34.9330	37.6674	44.6548	36.0483	34.3272	37.2243
55.00	39.6834	39.7070	39.7307	43.1605	39.0513	37.2477	36.5984	44.3363	39.6833	37.2232	38.5489	43.6512	38.2985	36.2665	37.6276	43.3652	39.0275	36.4264	36.8940
55.25	39.6991	39.7070	39.7149	41.0180	37.7526	38.9413	37.6573	41.7612	38.0758	39.1318	37.4326	42.9179	37.8424	38.0893	36.5984	42.3857	37.5752	38.7068	36.7375
55.50	39.7149	39.7070	39.6991	43.6023	36.7840	38.8635	41.5739	41.9022	37.1054	38.8177	41.5201	43.0127	38.1728	38.8024	40.6315	43.4993	37.5956	38.4780	41.2291
55.75	39.7307	39.7070	39.6834	47.4162	39.1389	36.1458	40.3593	46.0289	37.3307	36.2476	40.1654	47.2573	38.3450	37.3943	40.4032	48.1083	38.6476	36.7285	39.9063
56.00	42.4014	42.4284	42.4554	46.1918	41.7590	39.7297	39.0414	47.5274	42.4759	39.7031	41.1766	46.7679	40.9318	38.6332	40.1450	46.4275	41.7290	38.8311	39.3491
56.25	42.4193	42.4284	42.4373	43.8514	40.2717	41.5866	40.2678	44.6529	40.6583	41.8076	40.0093	45.9454	40.3998	40.6429	39.0757	45.3513	40.0872	41.3243	39.2545
56.50	42.4373	42.4284	42.4193	46.7217	39.2231	41.4272	44.4577	44.8305	39.5538	41.4009	44.3981	46.0738	40.7452	41.3838	43.4032	46.6184	40.1080	41.0131	44.0692
56.75	42.4554	42.4284	42.4014	50.8725	41.8113	38.5197	43.1201	49.3411	39.8014	38.6016	42.9144	50.7143	40.9338	39.8801	43.1767	51.6354	41.2805	39.1515	42.6225
57.00	45.2064	45.2371	45.2678	49.3279	44.5567	42.2843	41.5562	50.8362	45.3655	42.2555	43.8874	49.9972	43.6504	41.0640	42.7372	49.5971	44.5200	41.3039	41.8756
57.25	45.2269	45.2371	45.2474	46.7780	42.8650	44.3146	42.9651	47.6404	43.3209	44.5687	42.6699	49.0789	43.0357	43.2727	41.6295	48.4183	42.6736	44.0224	41.8522
57.50	45.2474	45.2371	45.2269	49.9543	41.7323	44.0633	47.4377	47.8586	42.0712	44.0593	47.3719	49.2445	43.3959	44.0402	46.2626	49.8515	42.6947	43.6194	47.0020

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates				Shortcut 2 death rates				Shortcut 3 death rates			
Age	UDD	cte ux	Balducci	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn
57.75	45.2678	45.2371	45.2064	54.4605	44.5685	40.9596	45.9690	52.7754	42.3426	41.0181	45.7513	54.3043	43.6017	42.4381	46.0398	55.2988	43.9963	41.6429	45.4241
58.00	48.1689	48.2037	48.2386	52.6459	47.5141	44.9768	44.2072	54.3432	48.4232	44.9457	46.7492	53.4179	46.5225	43.6218	45.4701	52.9521	47.4699	43.9082	44.5382
58.25	48.1921	48.2037	48.2153	49.8708	45.5984	47.1939	45.8163	50.7980	46.1310	47.4845	45.4808	52.3952	45.8168	46.0458	44.3244	51.6624	45.4002	46.8692	44.5957
58.50	48.2153	48.2037	48.1921	53.3791	44.3759	46.8394	50.5878	51.0613	44.7226	46.8610	50.5153	52.6024	46.1920	46.8397	49.2816	53.2772	45.4217	46.3640	50.1007
58.75	48.2386	48.2037	48.1689	58.2666	47.4798	43.5283	48.9775	56.4153	45.0196	43.5600	48.7474	58.1134	46.4165	45.1337	49.0641	59.1864	46.8634	44.2668	48.3817
59.00	51.3737	51.4133	51.4530	56.2401	50.7157	47.8857	47.0715	58.1463	51.7357	47.8522	49.8448	57.1261	49.6304	46.3823	48.4234	56.5871	50.6630	46.7206	47.4147
59.25	51.4001	51.4133	51.4265	53.2183	48.5518	50.3077	48.9028	54.2161	49.1698	50.6388	48.5227	55.9883	48.8236	49.0427	47.2382	55.1758	48.3466	49.9472	47.5640
59.50	51.4265	51.4133	51.4001	57.0920	47.2314	49.8373	53.9981	54.5296	47.5856	49.8877	53.9181	56.2420	49.2147	49.8640	52.5472	56.9917	48.3682	49.3275	53.4541
59.75	51.4530	51.4133	51.3737	62.3966	50.6290	46.3015	52.2322	60.3625	47.9109	46.3026	51.9886	62.2472	49.4596	48.0456	52.3364	63.4059	49.9645	47.1002	51.5804
60.00	54.9102	54.9554	55.0008	60.2096	54.2501	51.0931	50.2298	62.3496	55.3944	51.0567	53.2604	61.2236	53.0606	49.4238	51.6800	60.6024	54.1880	49.8205	50.5861
60.25	54.9403	54.9554	54.9705	56.9135	51.8084	53.7431	52.3103	57.9895	52.5222	54.1196	51.8802	59.9571	52.1404	52.3477	50.4526	59.0557	51.5955	53.3425	50.8398
60.50	54.9705	54.9554	54.9403	61.1950	50.3793	53.1415	57.7630	58.3596	50.7413	53.2247	57.6747	60.2632	52.5486	53.1984	56.1505	61.0965	51.6174	52.5938	57.1555
60.75	55.0008	54.9554	54.9102	66.9628	54.1041	49.3577	55.8238	64.7251	51.0980	49.3239	55.5655	66.8182	52.8162	51.2560	55.9479	68.0719	53.3862	50.2232	55.1097
61.00	58.8687	58.9208	58.9729	64.6557	58.2079	54.6814	53.7634	67.0601	59.4925	54.6419	57.0836	65.8147	56.9009	52.8250	55.3238	65.1004	58.1351	53.2879	54.1341
61.25	58.9034	58.9208	58.9381	61.0509	55.4518	57.5883	56.1258	62.2147	56.2743	58.0160	55.6392	64.4029	55.8523	56.0458	54.0501	63.4011	55.2306	57.1424	54.5069
61.50	58.9381	58.9208	58.9034	65.7924	53.9007	56.8373	61.9788	62.6489	54.2710	56.9580	61.8813	64.7686	56.2795	56.9287	60.1840	65.6963	55.2527	56.2470	61.2996
61.75	58.9729	58.9208	58.8687	72.0813	57.9941	52.7757	59.8444	69.6140	54.6630	52.7021	59.5696	71.9424	56.5727	54.8475	59.9910	73.3028	57.2162	53.7163	59.0601
62.00	63.3399	63.4001	63.4604	69.6804	62.6797	58.7327	57.7531	72.3859	64.1241	58.6896	61.4020	71.0048	61.2392	56.6633	59.4380	70.1842	62.5946	57.2019	58.1398
62.25	63.3800	63.4001	63.4202	65.7253	59.5655	61.9311	60.4369	66.9885	60.5119	62.4174	59.8858	69.4277	60.0444	60.2216	58.1129	68.3117	59.3349	61.4339	58.6494
62.50	63.4202	63.4001	63.3800	70.9898	57.8760	61.0091	66.7422	67.4961	58.2554	61.1728	66.6341	69.8615	60.4927	61.1401	64.7399	70.8966	59.3574	60.3707	65.9814
62.75	63.4604	63.4001	63.3399	77.8696	62.3880	56.6335	64.3860	75.1414	58.6875	56.5141	64.0926	77.7375	60.8149	58.9022	64.5584	79.2188	61.5422	57.6593	63.5220
63.00	68.4010	68.4712	68.5416	75.3720	67.7436	63.3163	62.2671	78.4215	69.3707	63.2692	66.2904	76.8857	66.1511	61.0038	64.0932	75.9433	67.6444	61.6291	62.6716
63.25	68.4478	68.4712	68.4947	71.0181	64.2198	66.8467	65.3188	72.3941	65.3083	67.4000	64.6939	75.1198	64.7887	64.9466	62.7113	73.8735	63.9789	66.2908	63.3391
63.50	68.4947	68.4712	68.4478	76.8793	62.3732	65.7279	72.1363	72.9859	62.7622	65.9413	72.0161	75.6318	65.2606	65.9046	69.8971	76.7895	64.0016	65.0349	71.2822
63.75	68.5416	68.4712	68.4010	84.4311	67.3619	60.9968	69.5273	81.4056	63.2401	60.8243	69.2130	84.3072	65.6160	63.4894	69.7293	85.9259	66.4391	62.1194	68.5726
64.00	74.1217	74.2042	74.2869	81.8107	73.4703	68.4939	67.3665	85.2540	75.3064	68.4422	71.8159	83.5416	71.7046	65.9038	69.3524	82.4595	73.3549	66.6288	67.7905
64.25	74.1767	74.2042	74.2317	77.0031	69.4775	72.4025	70.8397	78.5071	70.7291	73.0326	70.1302	81.5599	70.1501	70.2850	67.9080	80.1648	69.2253	71.7795	68.6408

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates				Shortcut 2 death rates				Shortcut 3 death rates			
Age	UDD	cte ux	Balducci	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn
64.50	74.2317	74.2042	74.1767	83.5452	67.4524	71.0567	78.2366	79.1957	67.8516	71.3275	78.1026	82.1620	70.6483	71.2864	75.7266	83.4598	69.2481	70.3018	77.2758
64.75	74.2869	74.2042	74.1217	91.8612	72.9845	65.9235	75.3394	88.4967	68.3816	65.6894	75.0015	91.7473	71.0413	68.6707	75.5754	93.5220	71.9741	67.1560	74.2813
65.00	80.5681	80.6656	80.7633	89.0735	79.9270	74.3235	73.1083	92.9670	82.0021	74.2666	78.0423	91.0533	77.9643	71.4165	75.2747	89.8108	79.7931	72.2562	73.5537
65.25	80.6330	80.6656	80.6981	83.7502	75.3976	78.6622	77.0643	85.3991	76.8363	79.3803	76.2582	88.8253	76.1897	76.2969	73.7623	87.2604	75.1330	77.9626	74.6161
65.50	80.6981	80.6656	80.6330	91.0687	73.1702	77.0543	85.1146	86.1989	73.5798	77.3917	84.9649	89.5311	76.7169	77.3455	82.2957	90.9888	75.1560	76.2295	84.0320
65.75	80.7633	80.6656	80.5681	100.2522	79.3206	71.4676	81.8895	96.5016	74.1691	71.1618	81.5251	100.1505	77.1527	74.5040	82.1646	102.1018	78.2111	72.8247	80.7137
66.00	87.8196	87.9355	88.0516	97.2526	87.1951	80.8752	79.5618	101.6609	89.5433	80.8124	85.0463	99.5179	85.0083	77.6067	81.9316	98.0915	87.0398	78.5781	80.0305
66.25	87.8968	87.9355	87.9741	91.3440	82.0513	85.7028	84.0711	93.1565	83.7050	86.5216	83.1541	97.0088	82.9813	83.0551	80.3461	95.2501	81.7733	84.9159	81.3390
66.50	87.9741	87.9355	87.8968	99.5473	79.5950	83.7919	92.8569	94.0844	80.0150	84.2067	92.6893	97.8342	83.5403	84.1546	89.6855	99.4743	81.7964	82.8883	91.6351
66.75	88.0516	87.9355	87.8196	109.7146	86.4484	77.6946	89.2586	105.5245	80.6718	77.3055	88.8646	109.6278	84.0247	81.0592	89.5788	111.7793	85.2268	79.1930	87.9490
67.00	96.0055	96.1440	96.2828	106.4965	95.4052	88.2644	86.8408	111.4954	98.0669	88.1949	92.9529	109.0903	92.9626	84.5820	89.4408	107.4519	95.2252	85.7054	87.3347
67.25	96.0977	96.1440	96.1901	99.9207	89.5561	93.6495	91.9860	101.9190	91.4573	94.5843	90.9418	106.2590	90.6455	90.6792	87.7763	104.2786	89.2635	92.7626	88.9299
67.50	96.1901	96.1440	96.0977	109.1360	86.8395	91.3876	101.6029	102.9946	87.2697	91.8924	101.4148	107.2226	91.2395	91.8336	98.0277	109.0717	89.2865	90.3947	100.2215
67.75	96.2828	96.1440	96.0055	120.4232	94.4954	84.7134	97.5785	115.7310	88.0035	84.2269	97.1513	120.3546	91.7794	88.4516	97.9507	122.7333	93.1465	86.3723	96.1162
68.00	105.3224	105.4892	105.6563	117.0295	104.7562	96.6679	95.1196	122.7109	107.7799	96.5908	101.9526	120.0038	102.0196	92.5082	97.9821	118.1199	104.5475	93.8081	95.6412
68.25	105.4335	105.4892	105.5447	109.6880	98.0914	102.6938	101.0007	111.8986	100.2796	103.7626	99.8093	116.8010	99.3664	99.3518	96.2315	114.5649	97.7830	101.6915	97.5718
68.50	105.5447	105.4892	105.4335	120.0690	95.0770	100.0225	111.5643	113.1458	95.5172	100.6327	111.3527	117.9252	99.9994	100.5662	107.5235	120.0154	97.8058	98.9277	109.9988
68.75	105.6563	105.4892	105.3224	132.6404	103.6555	92.6912	107.0498	127.3705	96.3394	92.0904	106.5850	132.5940	100.6029	96.8580	107.4825	135.2329	102.1609	94.5339	105.4121
69.00	116.0494	116.2520	116.4548	129.1697	115.5296	106.3370	104.6457	135.6472	118.9757	106.2510	112.3157	132.5889	112.4515	101.6214	107.8111	130.4175	115.2874	103.1281	105.1982
69.25	116.1842	116.2520	116.3194	120.9396	107.9127	113.1069	111.3867	123.3957	110.4368	114.3324	110.0234	128.9531	109.4055	109.3327	105.9652	126.4193	107.5866	111.9702	107.5246
69.50	116.3194	116.2520	116.1842	132.6772	104.5533	109.9542	123.0411	124.8441	105.0034	110.6887	122.8022	130.2659	110.0823	110.6132	118.4580	132.6368	107.6091	108.7418	121.2609
69.75	116.4548	116.2520	116.0494	146.7373	114.2036	101.8657	117.9571	140.7957	105.9285	101.1297	117.4491	146.7180	110.7598	106.5296	118.4607	149.6581	112.5406	103.9213	116.1155
70.00	128.5556	128.8042	129.0533	143.3381	128.0986	117.6042	115.7470	150.7548	132.0428	117.5078	124.3999	147.2831	124.6191	112.2338	119.2661	144.7719	127.8166	113.9853	116.3344
70.25	128.7211	128.8042	128.8870	134.0650	119.3577	125.2481	123.5036	136.8083	122.2791	126.6588	121.9374	143.1372	121.1090	120.9653	117.3133	140.2528	119.0117	123.9532	119.1322
70.50	128.8870	128.8042	128.7211	147.3993	115.5944	121.5238	136.4308	138.4949	116.0541	122.4063	136.1596	144.6736	121.8359	122.3203	131.2087	147.3752	119.0338	120.1739	134.3975
70.75	129.0533	128.8042	128.5556	163.2056	126.5043	112.5518	130.6772	156.4742	117.1001	111.6546	130.1191	163.2195	122.6002	117.7990	131.2648	166.5123	124.6440	114.8570	128.5961
71.00	143.2895	143.5985	143.9081	160.0483	142.9174	130.8731	128.8212	168.5839	147.4552	130.7644	138.6403	164.6210	138.9613	124.7235	132.7578	161.7039	142.5878	126.7678	129.4484

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates				Shortcut 2 death rates				Shortcut 3 death rates			
Age	UDD	cte ux	Balducci	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn
71.25	143.4951	143.5985	143.7013	149.5380	132.8366	139.5544	137.7894	152.6210	136.2325	141.1859	135.9811	159.8678	134.8973	134.6670	130.6837	156.5663	132.4679	138.0711	132.8130
71.50	143.7013	143.5985	143.4951	164.7709	128.5949	135.1446	152.2173	154.5926	129.0642	136.2050	151.9078	161.6719	135.6821	136.1064	146.2348	164.7670	132.4892	133.6323	149.8826
71.75	143.9081	143.5985	143.2895	182.6466	141.0005	125.1308	145.6684	174.9768	130.2537	124.0394	145.0515	182.7014	136.5495	131.0694	146.3566	186.4116	138.9068	127.7315	143.3030
72.00	160.7363	161.1253	161.5152	179.8592	160.4795	146.5788	144.2973	189.7360	165.7286	146.4555	155.5082	185.1856	155.9543	139.4966	148.7292	181.7808	160.0926	141.8930	144.9700
72.25	160.9951	161.1253	161.2547	167.8733	148.7915	156.4984	154.7198	171.3600	152.7578	158.3951	152.6212	179.7055	151.2253	150.8882	146.5177	175.9048	148.3969	154.7896	149.0206
72.50	161.2547	161.1253	160.9951	185.3768	143.9806	151.2612	170.9263	173.6745	144.4584	152.5370	170.5709	181.8320	152.0771	152.4233	164.0336	185.3982	148.4171	149.5562	168.2305
72.75	161.5152	161.1253	160.7363	205.7186	158.1723	140.0127	163.4274	196.9276	145.8193	138.6858	162.7411	205.8242	153.0674	146.7757	164.2366	210.0312	155.8008	142.9653	160.7224
73.00	181.3378	181.8332	182.3297	203.2860	181.2379	165.1150	162.5638	214.7698	187.3393	164.9742	175.4335	209.5177	176.0340	156.9173	167.5820	205.5268	180.7820	159.7376	163.2881
73.25	181.6672	181.8332	181.9979	189.5424	167.6228	176.5110	174.7316	193.5081	172.2747	178.7258	172.2847	203.1677	170.5066	170.0373	165.2168	198.7701	167.1991	174.5324	168.1698
73.50	181.9979	181.8332	181.6672	209.7592	162.1355	170.2746	193.0404	196.2355	162.6199	171.8112	192.6303	205.6828	171.4354	171.6794	185.0589	209.8126	167.2178	168.3411	189.9124
73.75	182.3297	181.8332	181.3378	233.0357	178.4577	157.5665	184.4079	222.9063	164.1852	155.9536	183.6401	233.2046	172.5722	165.3108	185.3629	238.0017	175.7566	160.9374	181.2980
74.00	205.4293	206.0654	206.7032	230.7293	205.5420	186.7772	183.9128	244.1256	212.6578	186.6159	198.7443	238.0412	199.5346	177.2545	189.6186	233.3504	205.0037	180.5818	184.6939
74.25	205.8522	206.0654	206.2768	214.9083	189.6313	199.9200	198.1616	219.4375	195.1023	202.5142	195.2995	230.6577	193.0547	192.4223	187.0860	225.5512	189.1756	197.6210	190.5781
74.50	206.2768	206.0654	205.8522	238.3442	183.3470	192.4831	218.9320	222.6590	183.8337	194.3342	218.4570	233.6385	194.0705	194.1810	209.6571	238.4377	189.1921	190.2815	215.2901
74.75	206.7032	206.0654	205.4293	265.0848	202.1915	178.0658	208.9568	253.3695	185.6412	176.1073	208.0944	265.3326	195.3806	186.9691	210.0865	270.8248	199.1023	181.9299	205.3677
75.00	233.2770	234.0978	234.9211	262.5161	233.6750	211.7975	208.5738	278.1684	241.9871	211.6123	225.7030	271.1062	226.7255	200.7154	215.0772	265.5866	233.0387	204.6443	209.4162
75.25	233.8225	234.0978	234.3705	244.2642	215.0536	226.9871	225.2826	249.4491	221.4950	230.0298	221.9302	262.5057	219.1191	218.2864	212.3681	256.5653	214.5637	224.3109	216.5004
75.50	234.3705	234.0978	233.8225	271.4837	207.8398	218.1190	248.9028	253.2571	208.3221	220.3466	248.3516	266.0402	220.2312	220.1681	238.1054	271.6274	214.5772	215.6062	244.6552
75.75	234.9211	234.0978	233.2770	302.2722	229.6418	201.7229	237.3524	288.6957	210.4134	199.3495	236.3814	302.6177	221.7443	211.9815	238.6895	308.9202	226.1004	206.1626	233.2015
76.00	265.2433	266.3052	267.3708	299.0864	266.0194	240.4956	236.8632	317.3846	275.7345	240.2827	256.6669	309.1804	257.9720	227.5889	244.2853	302.6846	265.2675	232.2277	237.7701
76.25	265.9487	266.3052	266.6579	278.0069	244.2153	258.0691	256.4636	283.9500	251.7999	261.6391	252.5352	299.1553	249.0406	247.9634	241.3947	292.2392	243.6897	254.9516	246.2832
76.50	266.6579	266.3052	265.9487	309.6476	235.9243	247.5041	283.3603	288.4504	236.3926	250.1798	282.7201	303.3444	250.2581	249.9718	270.7812	309.8536	243.6989	244.6322	278.4031
76.75	267.3708	266.3052	265.2433	345.1374	261.1733	228.8326	269.9731	329.3894	238.8148	225.9639	268.8784	345.6031	252.0075	240.6663	271.5553	352.8443	257.1085	233.9397	265.1676
77.00	302.0077	303.3855	304.7690	341.2459	303.2821	273.4803	269.3816	362.6520	314.6450	273.2351	292.3046	353.1118	293.9529	258.4350	277.8645	345.4649	302.3936	263.9125	270.3564
77.25	302.9225	303.3855	303.8429	316.8717	277.7355	293.8352	292.3860	323.6932	286.6688	298.0260	287.7799	341.4162	283.4609	282.0858	274.7891	333.3572	277.1728	290.2003	280.5721
77.50	303.8429	303.3855	302.9225	353.6870	268.1938	281.2564	323.0576	329.0120	268.6359	284.4660	322.3132	346.3803	284.7937	284.2233	308.3900	353.9702	277.1764	277.9694	317.2678
77.75	304.7690	303.3855	302.0077	394.6467	297.4676	259.9631	307.5246	376.3610	271.4444	256.5027	306.2888	395.2600	286.8186	273.6308	309.3966	403.5906	292.7956	265.8457	301.9550

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates				Shortcut 2 death rates				Shortcut 3 death rates			
Age	UDD	cte ux	Balducci	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn
78.00	344.6485	346.4448	348.2493	390.2642	346.5800	311.7228	307.0876	415.3466	359.8920	311.4398	333.6763	404.2319	335.7429	294.1526	316.8054	395.2186	345.5288	300.6276	308.1341
78.25	345.8405	346.4448	347.0407	362.0212	316.6019	335.3478	334.1265	369.8687	327.1368	340.2745	328.7177	390.5635	323.4002	321.6611	313.5422	381.1558	316.0004	331.1021	320.3897
78.50	347.0407	346.4448	345.8405	404.9376	305.5962	320.3645	369.1843	376.1610	305.9966	324.2136	368.3170	396.4506	324.8602	323.9301	352.0508	405.3165	315.9967	316.5937	362.4103
78.75	348.2493	346.4448	344.6485	452.3114	339.6052	296.0246	351.1257	431.0378	309.2598	291.8537	349.7275	453.1063	327.2090	311.8443	353.3427	462.7113	334.2233	302.8155	344.6574
79.00	394.6400	396.9979	399.3682	447.8795	397.4424	356.5546	351.2950	477.3512	413.0816	356.2269	382.2349	464.3627	384.8140	335.9751	362.4659	453.7129	396.1961	343.6467	352.4178
79.25	396.2036	396.9979	397.7796	415.0478	362.1684	384.0627	383.1599	424.1062	374.6224	389.8696	376.7914	448.3425	370.2567	368.0705	359.0116	437.3277	361.5263	379.0889	367.1372
79.50	397.7796	396.9979	396.2036	465.2275	349.4315	366.1843	423.3694	431.5668	349.7706	370.8059	422.3560	455.3384	371.8587	370.4735	403.2967	465.7251	361.5130	361.8438	415.4214
79.75	399.3682	396.9979	394.6400	520.1986	389.0665	338.2654	402.3090	495.3727	353.5740	333.2348	400.7216	521.2175	374.5919	356.6362	404.9401	532.3287	382.8459	346.1313	394.7731

Section S3. Measuring discrepancies between quarterly death probabilites

Average men/women composite discrepancies by age x between full information SAIs death probabilities, on the one hand, and shortcut or classical assumption death probabilities, on the other hand, have been computed as relative absolute mean averages of all the possibilities for the premiums to be paid for a man/woman who subscribes to a year-term life insurance policy with integer age x last birthday.

In particular, for shortcut i, $i = 1, 2, 3$, the discrepancies (in percentages, x100) have been computed by $\sum_{r=1}^{4}\sum_{s=1}^{4}\frac{|{}_{s}^{r}P_x^{Sh-i} - {}_{s}^{r}P_x^{Full}|}{{}_{s}^{r}P_x^{Full}}/16$, where ${}_{s}^{r}P_x^{Sh-i}$ and ${}_{s}^{r}P_x^{Full}$ denote the premium to be paid for a year-term life insurance policy for a man/woman with age $x + \frac{r-1}{4}$ who subscribes to the policy during season s using, respectively, the shortcut i and the full information SAI tables.

For each classical assumption ($class = UDD, cte\ ux, Balducci$) the discrepancies (in percentages, x100) have been calculated as $\sum_{r=1}^{4}\frac{|{}^{r}P_x^{class} - {}^{r}P_x^{Full}|}{{}^{r}P_x^{Full}}/4$, where ${}^{r}P_x^{Class}$ denotes the premium to be paid for a year-term life insurance policy for a man/woman with age $x + \frac{r-1}{4}$ using the corresponding $class$ table and ${}^{r}P_x^{Full} = \sum_{s=1}^{4}{}_{s}^{r}P_x^{Full}/4$.

Note that there are (i) sixteen possibilities for each age x combining the subscription age (rounded to quarters) and the calendar season of subscription, but (ii) only four possibilities under classical assumptions as, in this case, premiums are independent of the moment in time in the year when the subscription is taken out. In the next section, we work through an example of how premiums are computed using quarterly tables.

Table S3. Average composite comparions of quarterly death rates by integer-age. Men.

Age	UDD	cte ux	Balducci	Shortcut 1	Shortcut 2	Shortcut 3
18	0.01034	0.01042	0.01049	0.01761	0.00183	0.00166
19	0.01024	0.01033	0.01042	0.01697	0.00175	0.00164
20	0.01047	0.01056	0.01066	0.01731	0.00178	0.00168
21	0.01058	0.01069	0.01080	0.01716	0.00176	0.00170
22	0.01108	0.01118	0.01128	0.01848	0.00191	0.00178
23	0.01150	0.01159	0.01168	0.01960	0.00203	0.00185
24	0.01191	0.01198	0.01205	0.02107	0.00220	0.00191
25	0.01225	0.01227	0.01229	0.02299	0.00244	0.00196
26	0.01230	0.01227	0.01225	0.02425	0.00260	0.00196
27	0.01209	0.01202	0.01195	0.02495	0.00270	0.00192
28	0.01167	0.01156	0.01146	0.02506	0.00273	0.00185
29	0.01149	0.01141	0.01132	0.02433	0.00265	0.00182
30	0.01155	0.01149	0.01143	0.02375	0.00257	0.00184
31	0.01229	0.01228	0.01228	0.02357	0.00251	0.00196
32	0.01409	0.01418	0.01427	0.02442	0.00254	0.00226
33	0.01700	0.01721	0.01743	0.02677	0.00271	0.00273
34	0.02031	0.02065	0.02100	0.03028	0.00301	0.00327
35	0.02246	0.02289	0.02331	0.03333	0.00330	0.00363
36	0.02381	0.02429	0.02477	0.03578	0.00355	0.00385

Age	UDD	cte ux	Balducci	Shortcut 1	Shortcut 2	Shortcut 3
37	0.02440	0.02491	0.02541	0.03740	0.00373	0.00395
38	0.02497	0.02550	0.02603	0.03893	0.00390	0.00405
39	0.02628	0.02688	0.02747	0.04136	0.00416	0.00427
40	0.02820	0.02889	0.02957	0.04462	0.00449	0.00459
41	0.03884	0.04006	0.04127	0.06005	0.00596	0.00636
42	0.04312	0.04468	0.04624	0.06737	0.00669	0.00709
43	0.04570	0.04758	0.04947	0.07247	0.00721	0.00756
44	0.04693	0.04912	0.05131	0.07568	0.00755	0.00780
45	0.04798	0.05052	0.05306	0.07867	0.00787	0.00803
46	0.04940	0.05237	0.05534	0.08229	0.00825	0.00832
47	0.04935	0.05269	0.05604	0.08361	0.00841	0.00837
48	0.04948	0.05325	0.05701	0.08521	0.00859	0.00846
49	0.04884	0.05298	0.05712	0.08550	0.00863	0.00841
50	0.03960	0.04297	0.04633	0.07061	0.00717	0.00681
51	0.03945	0.04303	0.04661	0.07114	0.00723	0.00682
52	0.03923	0.04302	0.04681	0.07151	0.00727	0.00681
53	0.03908	0.04310	0.04711	0.07198	0.00732	0.00682
54	0.03908	0.04335	0.04761	0.07269	0.00740	0.00685
55	0.03923	0.04379	0.04835	0.07370	0.00750	0.00691
56	0.03947	0.04436	0.04925	0.07487	0.00762	0.00699
57	0.03972	0.04496	0.05020	0.07609	0.00774	0.00708
58	0.03992	0.04554	0.05115	0.07724	0.00786	0.00715
59	0.04005	0.04604	0.05203	0.07824	0.00795	0.00722
60	0.04012	0.04650	0.05289	0.07916	0.00804	0.00728
61	0.04024	0.04706	0.05388	0.08021	0.00814	0.00735
62	0.04050	0.04781	0.05512	0.08156	0.00827	0.00744
63	0.04092	0.04883	0.05673	0.08333	0.00844	0.00758
64	0.04154	0.05016	0.05877	0.08561	0.00867	0.00777
65	0.04233	0.05179	0.06126	0.08837	0.00894	0.00800
66	0.04327	0.05376	0.06424	0.09166	0.00926	0.00828
67	0.04432	0.05603	0.06773	0.09545	0.00964	0.00860
68	0.04542	0.05855	0.07169	0.09962	0.01005	0.00895
69	0.04652	0.06133	0.07615	0.10417	0.01050	0.00934
70	0.04756	0.06435	0.08114	0.10906	0.01098	0.00976
71	0.04849	0.06758	0.08668	0.11422	0.01149	0.01019
72	0.04917	0.07092	0.09267	0.11944	0.01200	0.01063
73	0.04952	0.07428	0.09904	0.12455	0.01250	0.01105
74	0.04945	0.07760	0.10575	0.12939	0.01297	0.01144
75	0.04894	0.08088	0.11282	0.13390	0.01339	0.01180
76	0.04799	0.08417	0.12036	0.13812	0.01379	0.01212
77	0.04658	0.08751	0.12845	0.14202	0.01415	0.01241
78	0.04472	0.09096	0.13721	0.14561	0.01447	0.01266

Table S4. Average composite comparions of quarterly death rates by integer-age. Women.

Age	UDD	cte ux	Balducci	Shortcut 1	Shortcut 2	Shortcut 3
18	0.00429	0.00431	0.00433	0.02778	0.00277	0.00232
19	0.00393	0.00391	0.00389	0.02288	0.00212	0.00191
20	0.00714	0.00714	0.00714	0.01994	0.00171	0.00166
21	0.01033	0.01035	0.01037	0.01762	0.00137	0.00147
22	0.01099	0.01101	0.01103	0.01748	0.00133	0.00146
23	0.01125	0.01127	0.01129	0.01766	0.00134	0.00147
24	0.01045	0.01046	0.01048	0.01838	0.00144	0.00153
25	0.00810	0.00811	0.00811	0.01958	0.00164	0.00163
26	0.00654	0.00654	0.00654	0.02018	0.00176	0.00168
27	0.00578	0.00578	0.00577	0.02034	0.00180	0.00170
28	0.00606	0.00605	0.00605	0.02020	0.00178	0.00169
29	0.01059	0.01061	0.01062	0.01953	0.00155	0.00163
30	0.01601	0.01605	0.01609	0.01934	0.00133	0.00161
31	0.02397	0.02405	0.02412	0.01973	0.00108	0.00165
32	0.03464	0.03478	0.03491	0.02110	0.00082	0.00176
33	0.04679	0.04699	0.04720	0.02372	0.00064	0.00198
34	0.05704	0.05733	0.05762	0.02729	0.00061	0.00227
35	0.06053	0.06088	0.06123	0.03048	0.00080	0.00254
36	0.05997	0.06036	0.06075	0.03294	0.00106	0.00274
37	0.05636	0.05677	0.05718	0.03436	0.00133	0.00286
38	0.05232	0.05274	0.05315	0.03523	0.00156	0.00294
39	0.04996	0.05039	0.05083	0.03632	0.00175	0.00303
40	0.04873	0.04919	0.04964	0.03761	0.00192	0.00314
41	0.06756	0.06830	0.06904	0.04811	0.00226	0.00401
42	0.07083	0.07172	0.07262	0.05221	0.00253	0.00435
43	0.07077	0.07179	0.07281	0.05469	0.00277	0.00456
44	0.06886	0.06999	0.07112	0.05602	0.00297	0.00467
45	0.06784	0.06910	0.07036	0.05770	0.00317	0.00481
46	0.06870	0.07015	0.07159	0.06050	0.00340	0.00504
47	0.06764	0.06925	0.07086	0.06199	0.00358	0.00516
48	0.06749	0.06930	0.07110	0.06402	0.00378	0.00533
49	0.06603	0.06802	0.07000	0.06502	0.00392	0.00541
50	0.04899	0.05054	0.05209	0.05337	0.00341	0.00444
51	0.04775	0.04937	0.05099	0.05371	0.00348	0.00447
52	0.04582	0.04748	0.04914	0.05335	0.00351	0.00444
53	0.04362	0.04529	0.04696	0.05259	0.00351	0.00437
54	0.04159	0.04327	0.04495	0.05183	0.00350	0.00430
55	0.04013	0.04184	0.04354	0.05146	0.00351	0.00427
56	0.03940	0.04116	0.04291	0.05170	0.00355	0.00429
57	0.03946	0.04131	0.04317	0.05268	0.00363	0.00436
58	0.04028	0.04229	0.04429	0.05446	0.00376	0.00451
59	0.04174	0.04395	0.04617	0.05695	0.00394	0.00471
60	0.04366	0.04614	0.04862	0.06003	0.00415	0.00496

Age	UDD	cte ux	Balducci	Shortcut 1	Shortcut 2	Shortcut 3
61	0.04588	0.04868	0.05148	0.06356	0.00440	0.00525
62	0.04815	0.05132	0.05449	0.06729	0.00465	0.00556
63	0.05031	0.05389	0.05748	0.07102	0.00491	0.00586
64	0.05226	0.05630	0.06034	0.07465	0.00516	0.00615
65	0.05404	0.05859	0.06313	0.07820	0.00540	0.00644
66	0.05588	0.06102	0.06615	0.08197	0.00566	0.00674
67	0.05799	0.06383	0.06968	0.08627	0.00595	0.00708
68	0.06052	0.06724	0.07397	0.09134	0.00629	0.00749
69	0.06350	0.07135	0.07919	0.09733	0.00669	0.00797
70	0.06680	0.07605	0.08529	0.10417	0.00714	0.00852
71	0.07005	0.08101	0.09196	0.11143	0.00762	0.00910
72	0.07271	0.08565	0.09859	0.11839	0.00806	0.00964
73	0.07428	0.08942	0.10457	0.12427	0.00842	0.01009
74	0.07465	0.09217	0.10968	0.12882	0.00867	0.01042
75	0.07418	0.09430	0.11442	0.13251	0.00883	0.01067
76	0.07345	0.09660	0.11976	0.13633	0.00898	0.01091
77	0.07276	0.09964	0.12652	0.14101	0.00917	0.01122
78	0.07207	0.10361	0.13516	0.14683	0.00940	0.01160

Section S4. Examples of computations of premiums using quarterly death probabilities

S4.1. Example of calculus of a premium for a year-term life insurance premium

Let us consider a man of age 60.81 at the moment in time when he takes out a subscription, during the winter, for a life-risk insurance policy with a capital sum of C for a term of 4 quarters (1 year). In order to compute his single pure premium, the relevant probabilities to be employed using quarterly tables correspond to the ones displayed in the shaded cells of Table S5, which present the probabilities corresponding to the classical fractional age assumptions, full information SAIs and shortcut 1 (shortcuts 2 and 3 are omitted to save space). The relevant part of the table starts at age 60.75, after quarterly-rounding of the age 60.81, and the probabilities to be used are shaded by columns in the case of a table constructed using a classical fractional age assumption and by diagonals in the case of a full information or a shortcut table.

Table S5. Extract from Table S1, death probabilities (x 100,000).

	Classical fractional death rates			Full information SAI death rates				Shortcut 1 death rates			
Age	**UDD**	**cte ux**	**Balducci**	**Winter**	**Spring**	**Summer**	**Autumn**	**Winter**	**Spring**	**Summer**	**Autumn**
60.75	122.7909	122.5654	122.3402	146.5795	122.2019	111.9352	120.5426	141.6496	114.3524	110.1374	120.2964
61.00	132.5218	132.7861	133.0508	145.2775	132.7835	123.6961	122.6559	152.3064	137.3851	123.8743	130.1449
61.25	132.6977	132.7861	132.8740	138.4971	126.2027	128.7207	127.0017	139.5770	128.6924	130.9423	126.0504
61.50	132.8740	132.7861	132.6977	149.6916	122.6175	125.9345	138.0233	141.2704	121.7140	126.4105	139.3542

In general, the formula to be used is given by:

$$\begin{aligned} P = C \cdot {}^{4Q}_{Wi}q_{60.75} + C \cdot \left(1 - {}^{4Q}_{Wi}q_{60.75}\right) \cdot {}^{1Q}_{Sp}q_{61.00} + C \cdot \left(1 - {}^{4Q}_{Wi}q_{60.75}\right) \cdot \left(1 - {}^{1Q}_{Sp}q_{61.00}\right) \cdot {}^{2Q}_{Su}q_{61.25} \\ + C \cdot \left(1 - {}^{4Q}_{Wi}q_{60.75}\right) \cdot \left(1 - {}^{1Q}_{Sp}q_{61.00}\right) \cdot \left(1 - {}^{2Q}_{Su}q_{61.25}\right) \cdot {}^{3Q}_{Au}q_{61.50} \\ = C \left[{}^{4Q}_{Wi}q_{60.75} + \left(1 - {}^{4Q}_{Wi}q_{60.75}\right) \cdot {}^{1Q}_{Sp}q_{61.00} + \left(1 - {}^{4Q}_{Wi}q_{60.75}\right) \cdot \left(1 - {}^{1Q}_{Sp}q_{61.00}\right) \right. \\ \left. \cdot {}^{2Q}_{Su}q_{61.25} + \left(1 - {}^{4Q}_{Wi}q_{60.75}\right) \cdot \left(1 - {}^{1Q}_{Sp}q_{61.00}\right) \cdot \left(1 - {}^{2Q}_{Su}q_{61.25}\right) \cdot {}^{3Q}_{Au}q_{61.50}\right] \end{aligned}$$

where Wi, Sp, Su and Au stand for winter, spring, summer and autumn, respectively, and $1Q$, $2Q$, $3Q$ and $4Q$, being redundant, stand for the age-quarter corresponding to the quarterly-rounded ages.

For example, for a capital of 75,000€, the premium under shortcut 1 would be:

$$\begin{aligned} P^{(Sh-1)} = 75{,}000 \, [&0.001416496 + (1 - 0.001416496) \cdot 0.001373851 + (1 - 0.001416496) \\ &\cdot (1 - 0.001373851) \cdot 0.001309423 + (1 - 0.001416496) \cdot (1 - 0.001373851) \\ &\cdot (1 - 0.001309423) \cdot 0.001393542] = 411.15€ \end{aligned}$$

The procedure to compute the premiums under shortcut 2 and shortcut 3 and under the full information SAI method is similar, the premiums being $P^{(Sh-2)} = 402.45$, $P^{(Sh-3)} = 409.31$ and $P^{(Full-SAI)} = 408.74$. The premiums under the classical fractional age assumptions, computed in the same way but without considering seasons, are $P^{(UDD)} = 389.90$, $P^{(cte-ux)} = 389.93$ and $P^{(Bald)} = 389.95$.

S4.2. Example of calculus of a multi-term life insurance premium

Let us now consider a 42.15 year old woman at the moment in time of making a subscription, during the autumn, for a life-risk single-premium insurance with capital C for a term of 8 quarters (2 years); a multi-year term life insurance product. To compute her premium, the relevant probabilities to be employed with quarterly tables are presented in the shaded cells of Table S6 for classical fractional age assumptions, full information SAIs or shortcut 3 (shortcuts 1 and 2 are omitted to save space). The relevant part of the table starts at age 42.25 after quarterly-rounding of the age 42.15, with the probabilities being used by columns in the case of a table constructed using a classical fractional age assumption and by zigzag diagonals when full information or a shortcut table is employed.

Table S6. Extract from Table S2, death probabilities (x 100,000).

	Classical fractional death rates			Full information SAI method				Shortcut 3 death rates			
Age	UDD	cte ux	Balducci	Winter	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn
45.25	13.6677	13.6686	13.6695	14.0484	13.2158	13.4810	12.8677	14.3952	13.1385	13.4381	12.6494
45.50	13.6695	13.6686	13.6677	14.5873	12.9264	13.6999	14.1999	14.5299	13.1486	13.5743	14.1460
45.75	13.6714	13.6686	13.6658	15.6567	13.5054	12.7755	13.9103	15.8197	13.3552	12.9467	13.7977
46.00	15.6757	15.6794	15.6831	16.7994	15.3166	14.9439	14.6693	16.8239	15.3222	14.6893	14.8132
46.25	15.6782	15.6794	15.6806	16.1233	15.1348	15.4554	14.7716	16.5353	15.0480	15.4019	14.5099
46.50	15.6806	15.6794	15.6782	16.7817	14.7977	15.6784	16.3017	16.7184	15.0592	15.5335	16.2324
46.75	15.6831	15.6794	15.6757	18.0363	15.4885	14.6168	15.9547	18.2320	15.3140	14.8165	15.8205
47.00	17.9844	17.9893	17.9941	19.3054	17.5863	17.1154	16.8027	19.3407	17.5908	16.8144	16.9643

In general, the formula to be used is given by:

$$
\begin{aligned}
P = C \cdot {}^{2Q}_{Au}q_{45.25} &+ C \cdot \left(1 - {}^{2Q}_{Au}q_{45.25}\right) \cdot {}^{3Q}_{Wi}q_{45.50} + C \cdot \left(1 - {}^{2Q}_{Au}q_{45.25}\right) \cdot \left(1 - {}^{3Q}_{Wi}q_{45.50}\right) \cdot {}^{4Q}_{Sp}q_{45.75} \\
&+ C \cdot \left(1 - {}^{2Q}_{Au}q_{45.25}\right) \cdot \left(1 - {}^{3Q}_{Wi}q_{45.50}\right) \cdot \left(1 - {}^{4Q}_{Sp}q_{45.75}\right) \cdot {}^{1Q}_{Su}q_{46.00} + C \\
&\cdot \left(1 - {}^{2Q}_{Au}q_{45.25}\right) \cdot \left(1 - {}^{3Q}_{Wi}q_{45.50}\right) \cdot \left(1 - {}^{4Q}_{Sp}q_{45.75}\right) \cdot \left(1 - {}^{1Q}_{Su}q_{46.00}\right) \cdot {}^{2Q}_{Au}q_{46.25} + C \\
&\cdot \left(1 - {}^{2Q}_{Au}q_{45.25}\right) \cdot \left(1 - {}^{3Q}_{Wi}q_{45.50}\right) \cdot \left(1 - {}^{4Q}_{Sp}q_{45.75}\right) \cdot \left(1 - {}^{1Q}_{Su}q_{46.00}\right) \\
&\cdot \left(1 - {}^{2Q}_{Au}q_{46.25}\right) \cdot {}^{3Q}_{Wi}q_{46.50} + C \cdot \left(1 - {}^{2Q}_{Au}q_{45.25}\right) \cdot \left(1 - {}^{3Q}_{Wi}q_{45.50}\right) \cdot \left(1 - {}^{4Q}_{Sp}q_{45.75}\right) \\
&\cdot \left(1 - {}^{1Q}_{Su}q_{46.00}\right) \cdot \left(1 - {}^{2Q}_{Au}q_{46.25}\right) \cdot \left(1 - \cdot {}^{3Q}_{Wi}q_{46.50}\right) \cdot {}^{4Q}_{Sp}q_{46.75} + C \cdot \left(1 - {}^{2Q}_{Au}q_{45.25}\right) \\
&\cdot \left(1 - {}^{3Q}_{Wi}q_{45.50}\right) \cdot \left(1 - {}^{4Q}_{Sp}q_{45.75}\right) \cdot \left(1 - {}^{1Q}_{Su}q_{46.00}\right) \cdot \left(1 - {}^{2Q}_{Au}q_{46.25}\right) \\
&\cdot \left(1 - \cdot {}^{3Q}_{Wi}q_{46.50}\right)\left(1 - {}^{4Q}_{Sp}q_{46.75}\right) \cdot {}^{1Q}_{Su}q_{47.00}
\end{aligned}
$$

For example, for a capital of 125,000€, the premium under shortcut 3 would be:

$$
\begin{aligned}
P^{(Sh-3)} = 125{,}000\,[&0.000126494 + (1 - 0.000126494) \cdot 0.000145299 + (1 - 0.000126494) \\
&\cdot (1 - 0.000145299) \cdot 0.00013355 + (1 - 0.000126494) \cdot (1 - 0.000145299) \\
&\cdot (1 - 0.00013355) \cdot 0.000146893 + (1 - 0.000126494) \cdot (1 - 0.000145299) \\
&\cdot (1 - 0.00013355) \cdot (1 - 0.000146893) \cdot 0.000145099 + (1 - 0.000126494) \\
&\cdot (1 - 0.000145299) \cdot (1 - 0.00013355) \cdot (1 - 0.000146893) \\
&\cdot (1 - 0.000145099) \cdot 0.000167184 + (1 - 0.000126494) \cdot (1 - 0.000145299) \\
&\cdot (1 - 0.00013355) \cdot (1 - 0.000146893) \cdot (1 - 0.000145099) \\
&\cdot (1 - 0.000167184) \cdot 0.000153140 + (1 - 0.000126494) \cdot (1 - 0.000145299) \\
&\cdot (1 - 0.00013355) \cdot (1 - 0.000146893) \cdot (1 - 0.000145099) \\
&\cdot (1 - 0.000167184) \cdot (1 - 0.000153140) \cdot 0.000168144] = 148.15€
\end{aligned}
$$

Likewise, the other premiums would be $P^{(Sh-1)} = 147.93$ and $P^{(Sh-2)} = 147.99$ under shortcut 1 and shortcut 2, $P^{(UDD)} = 152.06$, $P^{(cte-ux)} = 152.06$ and $P^{Bald} = 152.06$ under the classical fractional age assumptions, and $P^{(Full-SAI)} = 149.99$ under the full information SAI method.

Section S5. Impact of differences in capitals at risk and quarterly sales distribution

Table S7. Summary of the main components of income statements by shortcut in the two competitor markets in the standardised portfolio, assuming $\delta_x = 0$.

	Shortcut 1		Shortcut 2		Shortcut 3	
Men	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**
Number of Policies	96,286	94,322	94,529	96,079	93,255	97,353
Average capital at risk	100,000.00€	100,000.00€	100,000.00€	100,000.00€	100,000.00€	100,000.00€
Insurance Premiums	12,668,837€	13,715,004€	12,688,388€	13,754,920€	12,744,663€	13,650,394€
Claims	13,121,301€	13,741,960€	13,113,145€	13,750,116€	13,229,596€	13,633,665€
Income Statement	**-452,464.41€**	**-26,957€**	**-424,757.28€**	**4,804€**	**-484,933.36€**	**16,729€**
Income Statement %	**-3.57%**	**-0.20%**	**-3.35%**	**0.03%**	**-3.80%**	**0.12%**

	Shortcut 1		Shortcut 2		Shortcut 3	
Women	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**
Number of Policies	57,602	56,198	56,515	57,285	55,697	58,103
Average capital at risk	100,000.00€	100,000.00€	100,000.00€	100,000.00€	100,000.00€	100,000.00€
Insurance Premiums	7,618,100€	8,215,786€	7,636,471€	8,232,756€	7,661,632€	8,179,913€
Claims	7,891,721€	8,232,991€	7,892,945€	8,231,767€	7,954,009€	8,170,703€
Income Statement	**-273,621.60€**	**-17,205€**	**-256,474.85€**	**989€**	**-292,376.83€**	**9,210€**
Income Statement %	**-3.59%**	**-0.21%**	**-3.36%**	**0.01%**	**-3.82%**	**0.11%**

Source: compiled by the authors

Table S8. Summary of the main components of income statements by shortcut in the three competitor markets in the standardised portfolio, assuming $\delta_x = 0$.

	Shortcut 1			Shortcut 2			Shortcut 3		
Men	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**
Number of Policies	79,908	62,108	48,592	76,960	58,368	55,280	83,796	45,412	61,400
Average capital at risk	100,000.00€	100,000.00€	100,000.00€	100,000.00€	100,000.00€	100,000.00€	100,000.00€	100,000.00€	100,000.00€
Insurance Premiums	13,707,947€	12,528,509€	7,338,986€	12,770,260€	11,993,881€	8,797,347€	15,373,966€	7,906,957€	10,339,099€
Claims	14,299,821€	12,528,509€	7,513,045€	13,356,868€	11,993,881€	8,990,626€	16,001,103€	7,906,957€	10,433,315€
Income Statement	**-591,874€**	**0.00€**	**-174,058€**	**-586,608€**	**0.00€**	**-193,280€**	**-627,137€**	**0.00€**	**-94,216€**
Income Statement %	**-4.32%**	**0.00%**	**-2.37%**	**-4.59%**	**0.00%**	**-2.20%**	**-4.08%**	**0.00%**	**-0.91%**

	Shortcut 1			Shortcut 2			Shortcut 3		
Women	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**
Number of Policies	50,228	50,228	50,228	50,564	32,712	30,524	53,116	30,204	30,480
Average capital at risk	100,000.00€	100,000.00€	100,000.00€	100,000.00€	100,000.00€	100,000.00€	100,000.00€	100,000.00€	100,000.00€
Insurance Premiums	3,715,969€	2,604,181€	2,129,347€	3,589,932€	2,470,719€	2,386,959€	3,842,663€	2,081,486€	2,534,929€
Claims	3,873,092€	2,604,181€	2,169,326€	3,745,405€	2,470,719€	2,430,475€	4,001,815€	2,081,486€	2,563,298€
Income Statement	**-157,122€**	**0.00€**	**-39,979€**	**-155,473€**	**0.00€**	**-43,515€**	**-159,153€**	**0.00€**	**-28,368€**
Income Statement %	**-4.23%**	**0.00%**	**-1.88%**	**-4.33%**	**0.00%**	**-1.82%**	**-4.14%**	**0.00%**	**-1.12%**

Source: compiled by the authors

Section S6. Summary of the main components of income statements by age group

Table S9. Summary of the main components of income statements by shortcut in the two competitor markets in the standardised portfolio for the age group 18-34, assuming $\delta_x = 0$.

	Shortcut 1		Shortcut 2		Shortcut 3	
[18 - 34]	Jahr	Ungefahr	Jahr	Ungefahr	Jahr	Ungefahr
Number of Policies	7,833	4,807	7,279	5,361	5,795	6,845
Average capital at risk	85,555€	87,467€	85,906€	86,792€	86,372€	86,206€
Insurance Premiums	129,916€	76,534€	119,174€	87,273€	88,517€	117,815€
Claims	131,313€	76,937€	120,806€	87,444€	90,337€	117,913€
Income Statement	-1,398€	-403€	-1,632€	-171€	-1,820€	-99€
Income Statement %	-1.08%	-0.53%	-1.37%	-0.20%	-2.06%	-0.08%

Table S10. Summary of the main components of income statements by shortcut in the two competitor markets in the standardised portfolio for the age group 35-54, assuming $\delta_x = 0$.

	Shortcut 1		Shortcut 2		Shortcut 3	
[35 - 54]	Jahr	Ungefahr	Jahr	Ungefahr	Jahr	Ungefahr
Number of Policies	24,357	25,518	24,181	25,694	25,164	24,711
Average capital at risk	95,910€	95,427€	95,962€	95,381€	96,054€	95,264€
Insurance Premiums	2,263,807€	2,365,736€	2,243,355€	2,389,578€	2,320,772€	2,306,018€
Claims	2,354,203€	2,362,921€	2,331,261€	2,385,862€	2,411,987€	2,305,136€
Income Statement	-90,395€	2,815€	-87,905€	3,715€	-91,215€	882€
Income Statement %	-3.99%	0.12%	-3.92%	0.16%	-3.93%	0.04%

Table S11. Summary of the main components of income statements by shortcut in the two competitor markets in the standardised portfolio for the age group 55-64, assuming $\delta_x = 0$.

	Shortcut 1		Shortcut 2		Shortcut 3	
[55 - 64]	Jahr	Ungefahr	Jahr	Ungefahr	Jahr	Ungefahr
Number of Policies	5,680	6,592	5,705	6,567	5,673	6,599
Average capital at risk	81,399€	81,082€	82,462€	80,157€	81,497€	80,997€
Insurance Premiums	1,683,854€	1,926,989€	1,748,598€	1,874,259€	1,707,298€	1,907,821€
Claims	1,739,690€	1,935,106€	1,798,396€	1,876,400€	1,770,032€	1,904,763€
Income Statement	-55,836€	-8,117€	-49,798€	-2,141€	-62,734€	3,058€
Income Statement %	-3.32%	-0.42%	-2.85%	-0.11%	-3.67%	0.16%

Table S12. Summary of the main components of income statements by shortcut in the two competitor markets in the standardised portfolio for the age group 65-79, assuming $\delta_x = 0$.

	Shortcut 1		Shortcut 2		Shortcut 3	
[65 - 79]	Jahr	Ungefahr	Jahr	Ungefahr	Jahr	Ungefahr
Number of Policies	602	713	596	719	606	709
Average capital at risk	77,326€	76,493€	77,640€	76,240€	78,577€	75,419€
Insurance Premiums	357,347€	391,171€	352,443€	400,055€	355,358€	395,183€
Claims	370,695€	394,025€	364,589€	400,131€	370,744€	393,976€
Income Statement	-13,348€	-2,854€	-12,146€	-76€	-15,385€	1,206€
Income Statement %	-3.74%	-0.73%	-3.45%	-0.02%	-4.33%	0.31%

Table S13. Summary of the main components of income statements by shortcut in the three competitor markets in the actual portfolio for the age group 18-34, assuming $\delta_x = 0$.

	Shortcut 1			Shortcut 2			Shortcut 3		
[18 - 34]	Jahr	Viertel	Ungefahr	Jahr	Viertel	Ungefahr	Jahr	Viertel	Ungefahr
Number of Policies	4,684	5,356	2,600	4,991	5,403	2,246	4,863	3,296	4,481
Average capital al risk	86,012€	86,009€	87,331€	86,018€	85,675€	88,326€	86,098€	85,916€	86,751€
Insurance Premiums	75,823€	83,757€	46,006€	78,369€	83,037€	44,262€	75,137€	51,351€	79,423€
Claims	77,699€	83,757€	46,795€	80,253€	83,037€	44,960€	77,021€	51,351€	79,879€
Income Statement	-1,876€	0.00€	-789€	-1,884€	0.00€	-698€	-1,884€	0.00€	-456€
Income Statement %	-2.47%	0.00%	-1.72%	-2.40%	0.00%	-1.58%	-2.51%	0.00%	-0.57%

Table S14. Summary of the main components of income statements by shortcut in the three competitor markets in the actual portfolio for the age group 35-54, assuming $\delta_x = 0$.

	Shortcut 1			Shortcut 2			Shortcut 3		
[35 - 54]	Jahr	Viertel	Ungefahr	Jahr	Viertel	Ungefahr	Jahr	Viertel	Ungefahr
Number of Policies	22,593	13,499	13,783	22,070	12,166	15,639	23,330	12,379	14,166
Average capital al risk	96,030€	94,327€	96,368€	96,060€	94,419€	96,069€	95,926€	95,113€	95,709€
Insurance Premiums	2,076,955€	1,490,389€	1,045,020€	2,000,013€	1,334,751€	1,274,117€	2,152,525€	1,114,297€	1,346,059€
Claims	2,168,671€	1,490,389€	1,058,063€	2,091,348€	1,334,751€	1,291,025€	2,244,952€	1,114,297€	1,357,874€
Income Statement	-91,716€	0.00€	-13,042€	-91,335€	0.00€	-16,908€	-92,427€	0.00€	-11,815€
Income Statement %	-4.42%	0.00%	-1.25%	-4.57%	0.00%	-1.33%	-4.29%	0.00%	-0.88%

Table S15. Summary of the main components of income statements by shortcut in the three competitor markets in the actual portfolio for the age group 55-64, assuming $\delta_x = 0$.

	Shortcut 1			Shortcut 2			Shortcut 3		
[55 - 64]	Jahr	Viertel	Ungefahr	Jahr	Viertel	Ungefahr	Jahr	Viertel	Ungefahr
Number of Policies	4,759	4,677	2,836	4,370	4,677	3,225	5,456	2,909	3,907
Average capital al risk	81,536€	80,899€	81,257€	82,292€	80,899€	80,265€	81,564€	81,165€	80,807€
Insurance Premiums	1,394,149€	1,375,943€	822,396€	1,282,565€	1,375,943€	933,687€	1,634,775€	828,310€	1,136,739€
Claims	1,451,909€	1,375,943€	846,943€	1,339,639€	1,375,943€	959,214€	1,698,034€	828,310€	1,148,451€
Income Statement	-57,760€	0.00€	-24,548€	-57,074€	0.00€	-25,527€	-63,259€	0.00€	-11,712€
Income Statement %	-4.14%	0.00%	-2.98%	-4.45%	0.00%	-2.73%	-3.87%	0.00%	-1.03%

Table S16. Summary of the main components of income statements by shortcut in the three competitor markets in the actual portfolio for the age group 65-79, assuming $\delta_x = 0$.

	Shortcut 1			Shortcut 2			Shortcut 3		
[65 - 79]	Jahr	Viertel	Ungefahr	Jahr	Viertel	Ungefahr	Jahr	Viertel	Ungefahr
Number of Policies	498	524	293	450	524	341	579	320	416
Average capital al risk	78,813€	74,116€	78,513€	79,012€	74,116€	78,292€	78,316€	76,787€	74,936€
Insurance Premiums	289,138€	295,490€	159,327€	261,872€	295,490€	186,631€	338,386€	180,912€	227,326€
Claims	303,519€	295,490€	165,711€	275,953€	295,490€	193,277€	353,997€	180,912€	229,811€
Income Statement	-14,381€	0.00€	-6,384€	-14,081€	0.00€	-6,646€	-15,611€	0.00€	-2,485€
Income Statement %	-4.97%	0.00%	-4.01%	-5.38%	0.00%	-3.56%	-4.61%	0.00%	-1.09%

Section S7. Impact of rounding (Jahr using a classical quarterly life table)

Table S17. Summary of the main components of income statements by shortcut in the two competitor markets when Jahr calculates premiums using a quarterly table built under the assumption of uniform distribution of deaths (UDD), assuming $\delta_x = 0$.

	Shortcut 1		Shortcut 2		Shortcut 3	
Men	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**
Number of Policies	19,017	28,635	17,569	30,083	12,070	35,582
Average capital at risk	90,887€	95,655€	90,916€	95,408€	93,501€	93,837€
Insurance Premiums	3,262,709€	4,205,068€	3,023,930€	4,471,823€	1,936,369€	5,539,197€
Claims	3,344,009€	4,223,875€	3,106,830€	4,461,054€	2,024,263€	5,543,621€
Income Statement	**-81,299.86€**	**-18,806€**	**-82,899.45€**	**10,769€**	**-87,894.55€**	**-4,424€**
Income Statement %	**-2.49%**	**-0.45%**	**-2.74%**	**0.24%**	**-4.54%**	**-0.08%**

	Shortcut 1		Shortcut 2		Shortcut 3	
Women	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**
Number of Policies	14,475	13,975	14,719	13,731	14,284	14,166
Average capital at risk	87,408€	87,799€	87,337€	87,882€	87,709€	87,491€
Insurance Premiums	903,263€	868,468€	905,141€	871,936€	855,268€	917,688€
Claims	928,655€	868,350€	930,579€	866,426€	880,605€	916,400€
Income Statement	**-25,391.71€**	**118€**	**-25,437.74€**	**5,509€**	**-25,337.19€**	**1,288€**
Income Statement %	**-2.81%**	**0.01%**	**-2.81%**	**0.63%**	**-2.96%**	**0.14%**

Table S18. Summary of the main components of income statements by shortcut in the three competitor markets when Jahr calculates premiums using a quarterly table built under the assumption of uniform distribution of deaths (UDD), assuming $\delta_x = 0$.

	Shortcut 1			Shortcut 2			Shortcut 3		
Men	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**
Number of Policies	12,127	20,349	15,176	12,094	19,328	16,230	12,050	11,907	23,695
Average capital at risk	93,567€	92,706€	95,302€	93,530€	92,244€	95,714€	93,534€	93,931€	93,773€
Insurance Premiums	1,946,041€	3,452,483€	2,035,163€	1,945,108€	3,368,407€	2,120,491€	1,936,036€	1,786,447€	3,721,789€
Claims	2,033,942€	3,452,483€	2,081,460€	2,033,008€	3,368,407€	2,166,469€	2,023,933€	1,786,447€	3,757,504€
Income Statement	**-87,900€**	**0.00€**	**-46,296€**	**-87,900€**	**0.00€**	**-45,978€**	**-87,897€**	**0.00€**	**-35,715€**
Income Statement %	**-4.52%**	**0.00%**	**-2.27%**	**-4.52%**	**0.00%**	**-2.17%**	**-4.54%**	**0.00%**	**-0.96%**

	Shortcut 1			Shortcut 2			Shortcut 3		
Women	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**
Number of Policies	13,496	8,368	6,586	13,958	8,345	6,147	13,776	7,239	7,435
Average capital at risk	87,685€	87,082€	88,083€	87,526€	86,991€	88,593€	87,667€	87,606€	87,470€
Insurance Premiums	889,386€	433,653€	439,455€	893,072€	433,286€	436,389€	850,962€	418,606€	495,437€
Claims	914,863€	433,653€	448,490€	918,560€	433,286€	445,159€	876,322€	418,606€	502,077€
Income Statement	**-25,477€**	**0.00€**	**-9,035€**	**-25,489€**	**0.00€**	**-8,770€**	**-25,360€**	**0.00€**	**-6,640€**
Income Statement %	**-2.86%**	**0.00%**	**-2.06%**	**-2.85%**	**0.00%**	**-2.01%**	**-2.98%**	**0.00%**	**-1.34%**

Table S19. Summary of the main components of income statements by shortcut in the two competitor markets for the age group 18-34 when Jahr calculates premiums using a quarterly table built under the assumption of uniform distribution of deaths (UDD), assuming $\delta_x = 0$.

	Shortcut 1		Shortcut 2		Shortcut 3	
Men [18 - 34]	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**
Number of Policies	4,952	2,406	4,567	2,791	1,821	5,537
Average capital at risk	86,831€	89,890€	86,664€	89,741€	87,534€	87,929€
Insurance Premiums	108,048€	53,340€	99,383€	62,058€	40,105€	121,284€
Claims	108,819€	53,849€	100,246€	62,422€	41,314€	121,355€
Income Statement	**-772€**	**-509€**	**-863€**	**-364€**	**-1,209€**	**-71€**
Income Statement %	**-0.71%**	**-0.95%**	**-0.87%**	**-0.59%**	**-3.01%**	**-0.06%**

	Shortcut 1		Shortcut 2		Shortcut 3	
Women [18 - 34]	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**
Number of Policies	2,918	2,364	3,162	2,120	2,926	2,356
Average capital at risk	82,563€	86,050€	82,608€	86,385€	83,233€	85,230€
Insurance Premiums	24,544€	20,890€	26,422€	19,005€	24,677€	20,583€
Claims	24,822€	20,760€	26,746€	18,836€	25,020€	20,562€
Income Statement	**-278€**	**130€**	**-324€**	**169€**	**-343€**	**21€**
Income Statement %	**-1.13%**	**0.62%**	**-1.22%**	**0.89%**	**-1.39%**	**0.10%**

Table S20. Summary of the main components of income statements by shortcut in the two competitor markets for the age group 35-54 when Jahr calculates premiums using a quarterly table built under the assumption of uniform distribution of deaths (UDD), assuming $\delta_x = 0$.

	Shortcut 1		Shortcut 2		Shortcut 3	
Men [35 - 54]	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**
Number of Policies	9,338	21,539	8,275	22,602	7,827	23,050
Average capital at risk	97,310€	99,179€	98,099€	98,802€	98,618€	98,613€
Insurance Premiums	1,282,825€	2,352,558€	1,052,710€	2,591,394€	939,626€	2,691,831€
Claims	1,320,272€	2,352,603€	1,091,666€	2,581,210€	979,193€	2,693,682€
Income Statement	**-37,448€**	**-45€**	**-38,955€**	**10,184€**	**-39,568€**	**-1,852€**
Income Statement %	**-2.92%**	**0.00%**	**-3.70%**	**0.39%**	**-4.21%**	**-0.07%**

	Shortcut 1		Shortcut 2		Shortcut 3	
Women [35 - 54]	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**
Number of Policies	9,423	9,575	9,423	9,575	9,423	9,575
Average capital at risk	91,346€	90,392€	91,346€	90,392€	91,346€	90,392€
Insurance Premiums	521,099€	511,030€	521,099€	513,284€	521,099€	510,628€
Claims	534,565€	509,683€	534,565€	509,683€	534,565€	509,683€
Income Statement	**-13,466€**	**1,347€**	**-13,466€**	**3,601€**	**-13,466€**	**945€**
Income Statement %	**-2.58%**	**0.26%**	**-2.58%**	**0.70%**	**-2.58%**	**0.19%**

Table S21. Summary of the main components of income statements by shortcut in the two competitor markets for the age group 55-64 when Jahr calculates premiums using a quarterly table built under the assumption of uniform distribution of deaths (UDD), assuming $\delta_x = 0$.

	Shortcut 1		Shortcut 2		Shortcut 3	
Men [55 - 64]	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**
Number of Policies	4,248	4,243	4,248	4,243	2,172	6,319
Average capital at risk	83,079€	82,895€	83,079€	82,895€	81,330€	83,556€
Insurance Premiums	1,543,327€	1,497,561€	1,543,327€	1,512,371€	771,344€	2,277,381€
Claims	1,577,218€	1,511,523€	1,577,218€	1,511,523€	808,901€	2,279,840€
Income Statement	**-33,891€**	**-13,962€**	**-33,891€**	**848€**	**-37,557€**	**-2,459€**
Income Statement %	**-2.20%**	**-0.93%**	**-2.20%**	**0.06%**	**-4.87%**	**-0.11%**

	Shortcut 1		Shortcut 2		Shortcut 3	
Women [55 - 64]	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**
Number of Policies	1,944	1,837	1,944	1,837	1,819	1,962
Average capital at risk	76,783€	77,805€	76,783€	77,805€	76,764€	77,757€
Insurance Premiums	300,008€	275,644€	300,008€	278,023€	275,008€	301,952€
Claims	309,542€	276,512€	309,542€	276,512€	284,445€	301,609€
Income Statement	**-9,534€**	**-868€**	**-9,534€**	**1,511€**	**-9,437€**	**344€**
Income Statement %	**-3.18%**	**-0.31%**	**-3.18%**	**0.54%**	**-3.43%**	**0.11%**

Table S22. Summary of the main components of income statements by shortcut in the two competitor markets for the age group 65-79 when Jahr calculates premiums using a quarterly table built under the assumption of uniform distribution of deaths (UDD), assuming $\delta_x = 0$.

	Shortcut 1		Shortcut 2		Shortcut 3	
Men [65 - 79]	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**
Number of Policies	479	447	479	447	250	676
Average capital at risk	76,862€	77,970€	76,862€	77,970€	82,493€	75,512€
Insurance Premiums	328,510€	301,610€	328,510€	306,000€	185,294€	448,701€
Claims	337,700€	305,899€	337,700€	305,899€	194,856€	448,744€
Income Statement	**-9,190€**	**-4,290€**	**-9,190€**	**101€**	**-9,561€**	**-43€**
Income Statement %	**-2.80%**	**-1.42%**	**-2.80%**	**0.03%**	**-5.16%**	**-0.01%**

	Shortcut 1		Shortcut 2		Shortcut 3	
Women [65 - 79]	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**
Number of Policies	190	199	190	199	116	273
Average capital at risk	75,199€	76,044€	75,199€	76,044€	76,711€	75,173€
Insurance Premiums	57,612€	60,904€	57,612€	61,623€	34,484€	84,523€
Claims	59,726€	61,395€	59,726€	61,395€	36,575€	84,545€
Income Statement	**-2,115€**	**-491€**	**-2,115€**	**229€**	**-2,092€**	**-22€**
Income Statement %	**-3.67%**	**-0.81%**	**-3.67%**	**0.37%**	**-6.07%**	**-0.03%**

Table S23. Summary of the main components of income statements by shortcut in the three competitor markets for the age group 18-34 when Jahr calculates premiums using a quarterly table built under the assumption of uniform distribution of deaths (UDD), assuming $\delta_x = 0$.

	Shortcut 1			Shortcut 2			Shortcut 3		
Men [18 - 34]	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**
Number of Policies	1,866	3,696	1,796	1,833	3,541	1,984	1,801	1,915	3,642
Average capital at risk	88,286€	87,881€	87,256€	87,944€	87,353€	88,580€	87,692€	87,291€	88,184€
Insurance Premiums	41,517€	81,058€	38,138€	40,584€	76,969€	43,223€	39,772€	41,427€	79,803€
Claims	42,728€	81,058€	38,883€	41,795€	76,969€	43,905€	40,983€	41,427€	80,258€
Income Statement	**-1,211€**	**0.00€**	**-745€**	**-1,211€**	**0.00€**	**-682€**	**-1,211€**	**0.00€**	**-456€**
Income Statement %	**-2.92%**	**0.00%**	**-1.95%**	**-2.98%**	**0.00%**	**-1.58%**	**-3.05%**	**0.00%**	**-0.57%**

	Shortcut 1			Shortcut 2			Shortcut 3		
Women [18 - 34]	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**
Number of Policies	1,956	2,610	716	2,418	2,587	277	2,418	1,498	1,366
Average capital at risk	81,858€	85,501€	85,292€	82,054€	85,195€	92,191€	82,054€	86,555€	85,121€
Insurance Premiums	16,686€	22,228€	6,283€	20,371€	21,862€	2,979€	20,371€	13,191€	11,580€
Claims	17,039€	22,228€	6,315€	20,736€	21,862€	2,984€	20,736€	13,191€	11,655€
Income Statement	**-353€**	**0.00€**	**-32€**	**-365€**	**0.00€**	**-5€**	**-365€**	**0.00€**	**-75€**
Income Statement %	**-2.12%**	**0.00%**	**-0.50%**	**-1.79%**	**0.00%**	**-0.15%**	**-1.79%**	**0.00%**	**-0.65%**

Table S24. Summary of the main components of income statements by shortcut in the three competitor markets for the age group 35-54 when Jahr calculates premiums using a quarterly table built under the assumption of uniform distribution of deaths (UDD), assuming $\delta_x = 0$.

	Shortcut 1			Shortcut 2			Shortcut 3		
Men [35 - 54]	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**
Number of Policies	7,827	12,077	10,973	7,827	11,211	11,839	7,827	7,709	15,341
Average capital at risk	98,618€	97,886€	99,413€	98,618€	97,589€	99,582€	98,618€	99,032€	98,402€
Insurance Premiums	939,626€	1,605,915€	1,071,859€	939,626€	1,525,927€	1,151,375€	939,626€	882,408€	1,795,436€
Claims	979,193€	1,605,915€	1,087,767€	979,193€	1,525,927€	1,167,755€	979,193€	882,408€	1,811,274€
Income Statement	**-39,568€**	**0.00€**	**-15,909€**	**-39,568€**	**0.00€**	**-16,379€**	**-39,568€**	**0.00€**	**-15,838€**
Income Statement %	**-4.21%**	**0.00%**	**-1.48%**	**-4.21%**	**0.00%**	**-1.42%**	**-4.21%**	**0.00%**	**-0.88%**

	Shortcut 1			Shortcut 2			Shortcut 3		
Women [35 - 54]	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**
Number of Policies	9,423	4,755	4,820	9,423	4,755	4,820	2,418	1,498	1,366
Average capital at risk	91,346€	90,039€	90,741€	91,346€	90,039€	90,741€	82,054€	86,555€	85,121€
Insurance Premiums	521,099€	247,417€	258,313€	521,099€	247,417€	258,339€	20,371€	13,191€	11,580€
Claims	534,565€	247,417€	262,266€	534,565€	247,417€	262,266€	20,736€	13,191€	11,655€
Income Statement	**-13,466€**	**0.00€**	**-3,954€**	**-13,466€**	**0.00€**	**-3,927€**	**-365€**	**0.00€**	**-75€**
Income Statement %	**-2.58%**	**0.00%**	**-1.53%**	**-2.58%**	**0.00%**	**-1.52%**	**-1.79%**	**0.00%**	**-0.65%**

Table S25. Summary of the main components of income statements by shortcut in the three competitor markets for the age group 55-64 when Jahr calculates premiums using a quarterly table built under the assumption of uniform distribution of deaths (UDD), assuming $\delta_x = 0$.

	Shortcut 1			Shortcut 2			Shortcut 3		
Men [55 - 64]	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**
Number of Policies	2,172	4,130	2,189	2,172	4,130	2,189	2,172	2,054	4,265
Average capital at risk	81,330€	83,911€	82,887€	81,330€	83,911€	82,887€	81,330€	82,903€	83,871€
Insurance Premiums	771,344€	1,477,912€	778,314€	771,344€	1,477,912€	778,852€	771,344€	709,595€	1,554,226€
Claims	808,901€	1,477,912€	801,928€	808,901€	1,477,912€	801,928€	808,901€	709,595€	1,570,246€
Income Statement	**-37,557€**	**0.00€**	**-23,615€**	**-37,557€**	**0.00€**	**-23,076€**	**-37,557€**	**0.00€**	**-16,019€**
Income Statement %	**-4.87%**	**0.00%**	**-3.03%**	**-4.87%**	**0.00%**	**-2.96%**	**-4.87%**	**0.00%**	**-1.03%**

	Shortcut 1			Shortcut 2			Shortcut 3		
Women [55 - 64]	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**
Number of Policies	1,944	895	942	1,944	895	942	1,819	895	1,067
Average capital at risk	76,783€	77,506€	78,090€	76,783€	77,506€	78,090€	76,764€	77,506€	77,968€
Insurance Premiums	300,008€	130,105€	142,538€	300,008€	130,105€	142,701€	275,008€	130,105€	169,030€
Claims	309,542€	130,105€	146,407€	309,542€	130,105€	146,407€	284,445€	130,105€	171,504€
Income Statement	**-9,534€**	**0.00€**	**-3,869€**	**-9,534€**	**0.00€**	**-3,706€**	**-9,437€**	**0.00€**	**-2,474€**
Income Statement %	**-3.18%**	**0.00%**	**-2.71%**	**-3.18%**	**0.00%**	**-2.60%**	**-3.43%**	**0.00%**	**-1.46%**

Table S26. Summary of the main components of income statements by shortcut in the three competitor markets for the age group 65-79 when Jahr calculates premiums using a quarterly table built under the assumption of uniform distribution of deaths (UDD), assuming $\delta_x = 0$.

	Shortcut 1			Shortcut 2			Shortcut 3		
Men [65 - 79]	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**
Number of Policies	262	446	218	262	446	218	250	229	447
Average capital at risk	81,737€	73,888€	79,359€	81,737€	73,888€	79,359€	82,493€	76,647€	74,931€
Insurance Premiums	193,555€	287,599€	146,853€	193,555€	287,599€	147,040€	185,294€	153,018€	292,324€
Claims	203,120€	287,599€	152,881€	203,120€	287,599€	152,881€	194,856€	153,018€	295,725€
Income Statement	**-9,565€**	**0.00€**	**-6,028€**	**-9,565€**	**0.00€**	**-5,841€**	**-9,561€**	**0.00€**	**-3,401€**
Income Statement %	**-4.94%**	**0.00%**	**-4.10%**	**-4.94%**	**0.00%**	**-3.97%**	**-5.16%**	**0.00%**	**-1.16%**

	Shortcut 1			Shortcut 2			Shortcut 3		
Women [65 - 79]	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**
Number of Policies	173	108	108	173	108	108	116	91	182
Average capital at risk	76,690€	74,445€	75,123€	76,690€	74,445€	75,123€	76,711€	77,138€	74,191€
Insurance Premiums	51,593€	33,902€	32,321€	51,593€	33,902€	32,369€	34,484€	27,893€	55,920€
Claims	53,717€	33,902€	33,501€	53,717€	33,902€	33,501€	36,575€	27,893€	56,652€
Income Statement	**-2,124€**	**0.00€**	**-1,180€**	**-2,124€**	**0.00€**	**-1,132€**	**-2,092€**	**0.00€**	**-732€**
Income Statement %	**-4.12%**	**0.00%**	**-3.65%**	**-4.12%**	**0.00%**	**-3.50%**	**-6.07%**	**0.00%**	**-1.31%**

Section S8. Examples of life-risk multi year renewal insurance markets

Table S27. Summary of the main components of income statements by shortcut in the two competitor markets in the actual portfolio with 3-year renewable term policies, assuming $\delta_x = 0$.

	Shortcut 1		Shortcut 2		Shortcut 3	
Men	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**
Number of Policies	24,018	23,632	23,316	24,334	22,786	24,864
Average capital at risk	93,393€	94,119€	93,579€	93,920€	94,181€	93,361€
Insurance Premiums	11,868,066€	12,745,527€	12,004,325€	12,673,758€	11,996,903€	12,638,663€
Claims	12,288,265€	12,787,819€	12,397,175€	12,678,909€	12,452,023€	12,624,062€
Income Statement	**-420,199€**	**-42,293€**	**-392,850€**	**-5,151€**	**-455,119€**	**14,601€**
Income Statement %	**-3.54%**	**-0.33%**	**-3.27%**	**-0.04%**	**-3.79%**	**0.12%**

	Shortcut 1		Shortcut 2		Shortcut 3	
Women	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**	**Jahr**	**Ungefahr**
Number of Policies	14,731	13,719	14,322	14,128	14,488	13,962
Average capital at risk	88,116€	87,046€	88,579€	86,608€	88,730€	86,427€
Insurance Premiums	2,906,558€	2,926,030€	2,814,039€	3,031,244€	2,842,842€	2,991,420€
Claims	3,012,612€	2,927,635€	2,916,623€	3,023,624€	2,952,443€	2,987,803€
Income Statement	**-106,054€**	**-1,605€**	**-102,584€**	**7,620€**	**-109,601€**	**3,617€**
Income Statement %	**-3.65%**	**-0.05%**	**-3.65%**	**0.25%**	**-3.86%**	**0.12%**

Note: The discount rate is assumed null and two insured persons with an actuarial age of over 77 have been removed.

Table S28. Summary of the main components of income statements by shortcut in the three competitor markets in the actual portfolio with 3-year renewable term policies, assuming $\delta_x = 0$.

	Shortcut 1			Shortcut 2			Shortcut 3		
Men	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**
Number of Policies	19,949	16,299	11,402	18,951	14,971	13,728	20,775	11,530	15,345
Average capital at risk	94,584€	92,097€	94,666€	94,838€	91,359€	94,866€	94,135€	93,403€	93,500€
Insurance Premiums	10,007,428€	9,267,662€	5,233,655€	9,378,629€	8,737,671€	6,387,011€	11,176,818€	5,829,768€	7,539,688€
Claims	10,441,595€	9,267,662€	5,366,828€	9,810,915€	8,737,671€	6,527,499€	11,637,209€	5,829,768€	7,609,107€
Income Statement	**-434,167€**	**0.00€**	**-133,173€**	**-432,286€**	**0.00€**	**-140,488€**	**-460,391€**	**0.00€**	**-69,419€**
Income Statement %	**-4.34%**	**0.00%**	**-2.54%**	**-4.61%**	**0.00%**	**-2.20%**	**-4.12%**	**0.00%**	**-0.92%**

	Shortcut 1			Shortcut 2			Shortcut 3		
Women	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**	**Jahr**	**Viertel**	**Ungefahr**
Number of Policies	12,693	8,682	7,075	12,588	8,305	7,557	13,225	7,668	7,557
Average capital at risk	88,593€	85,361€	88,567€	88,539€	85,332€	88,528€	88,650€	87,562€	85,801€
Insurance Premiums	2,598,835€	1,779,354€	1,425,220€	2,494,345€	1,689,514€	1,618,536€	2,677,450€	1,442,641€	1,690,244€
Claims	2,707,916€	1,779,354€	1,452,976€	2,602,435€	1,689,514€	1,648,297€	2,788,475€	1,442,641€	1,709,131€
Income Statement	**-109,081€**	**0.00€**	**-27,756€**	**-108,089€**	**0.00€**	**-29,762€**	**-111,025€**	**0.00€**	**-18,887€**
Income Statement %	**-4.20%**	**0.00%**	**-1.95%**	**-4.33%**	**0.00%**	**-1.84%**	**-4.15%**	**0.00%**	**-1.12%**

Note: The discount rate is assumed null and two insured persons with an actuarial age of over 77 have been removed.

Section S9. Figures of relative income statements in three competitors markets by loadings, δ_x

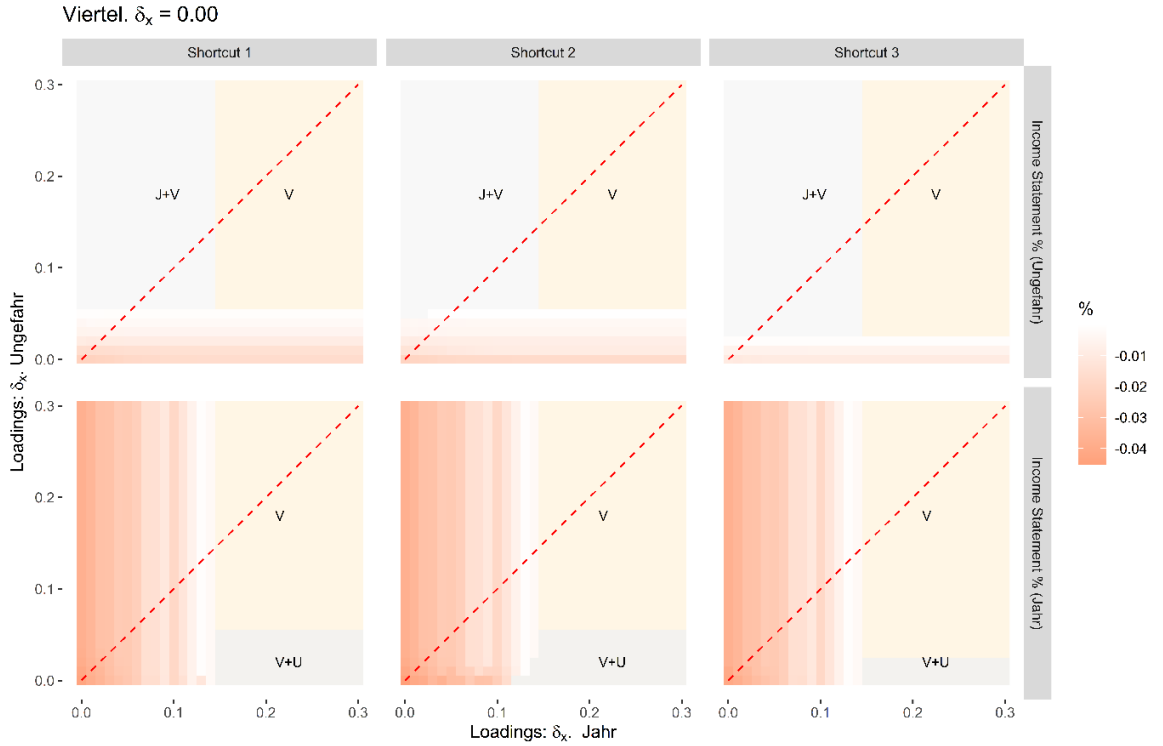

Figure S3. Ungefahr's and Jahr's relative income statements by shortcut in the three competitors markets in the actual portfolio as a function of the security loadings, δ_x, keeping constant Viertel's loading at 0.00. Red lines signal the edges delimiting the different loading areas for the two displayed companies. V: whole market taken by Viertel. J+V: Ungerfahr gets out of the market. V+U: Jahr gets out of the market.

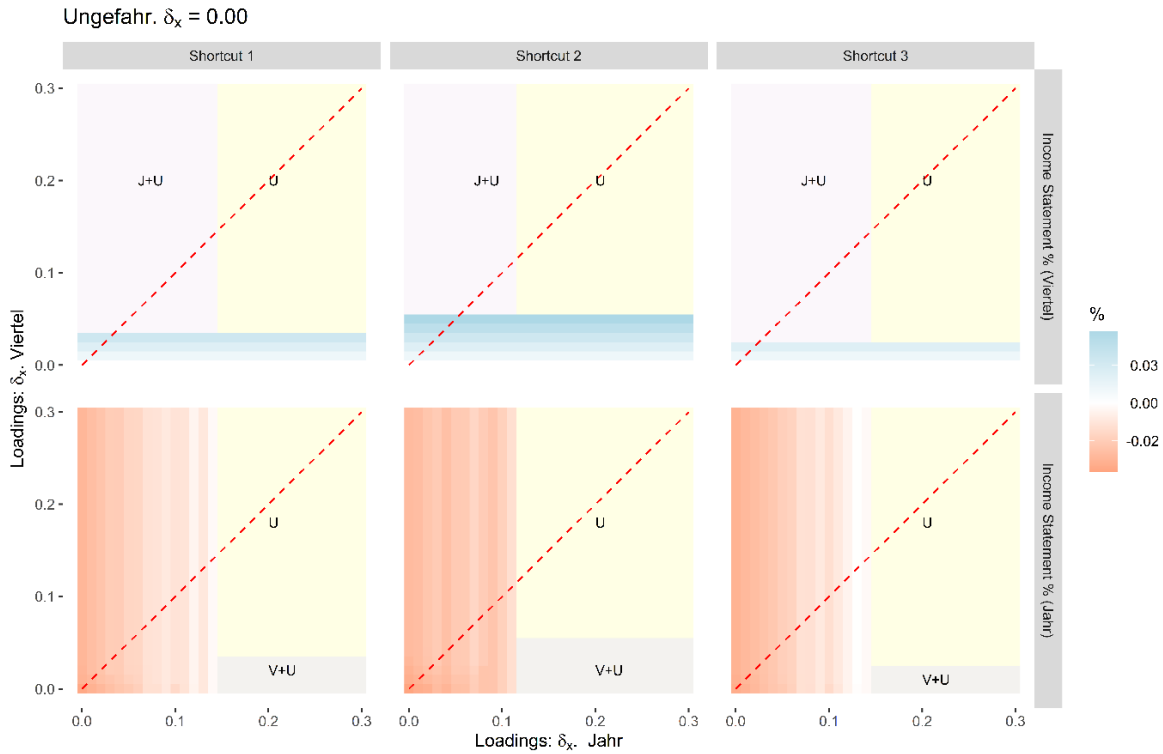

Figure S4. Viertel's and Jahr's relative income statements by shortcut in the three competitors markets in the actual portfolio as a function of the security loadings, δ_x, keeping Ungefahr's loadingc onstant at 0.00. Red lines signal the edges delimiting the different loading areas for the two displayed companies. U: whole market taken by Ungerfahr. J+U: Viertel gets out of the market. V+U: Jahr gets out of the market.

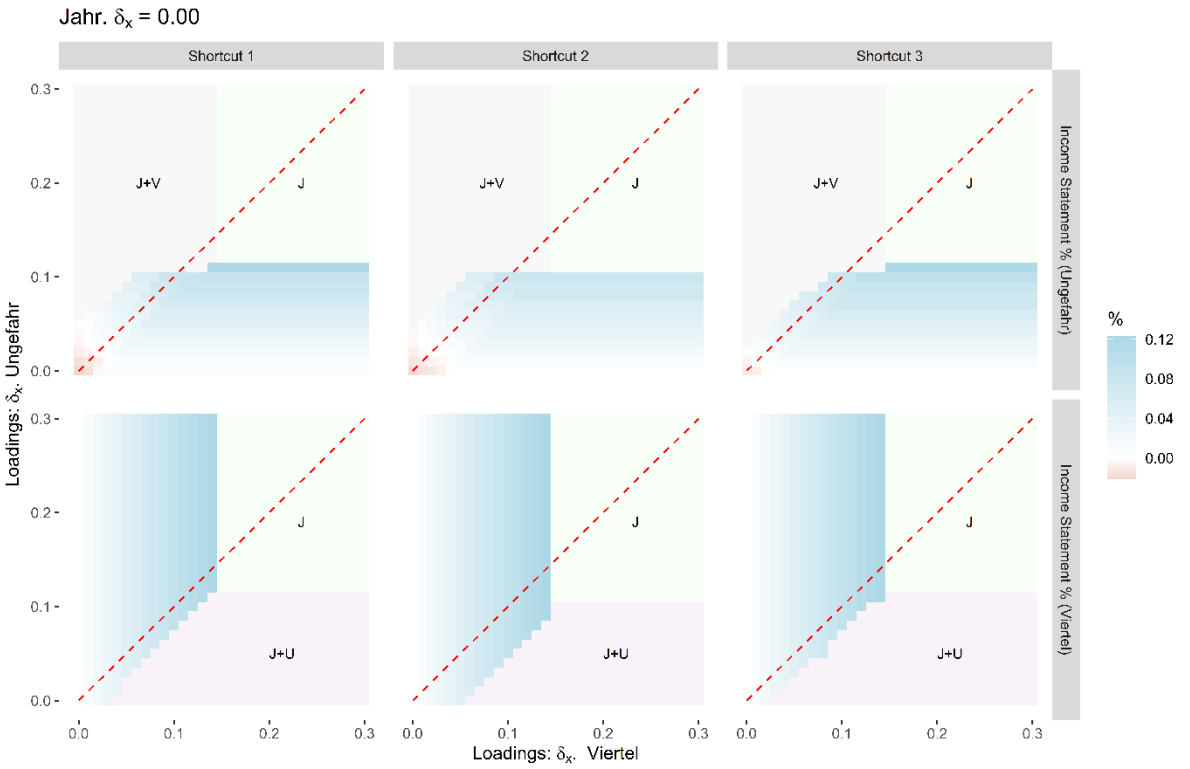

Figure S5. Ungefahr's and Viertel's relative income statements by shortcut in the three competitors markets in the actual portfolio as a function of the security loadings, δ_x, keeping Jahr's loading constant at 0.00. Red lines signal the edges delimiting the different loading areas for the two displayed companies. J: whole market taken by Jahr. J+U: Viertel gets out of the market. J+V: Ungerfahr gets out of the market.

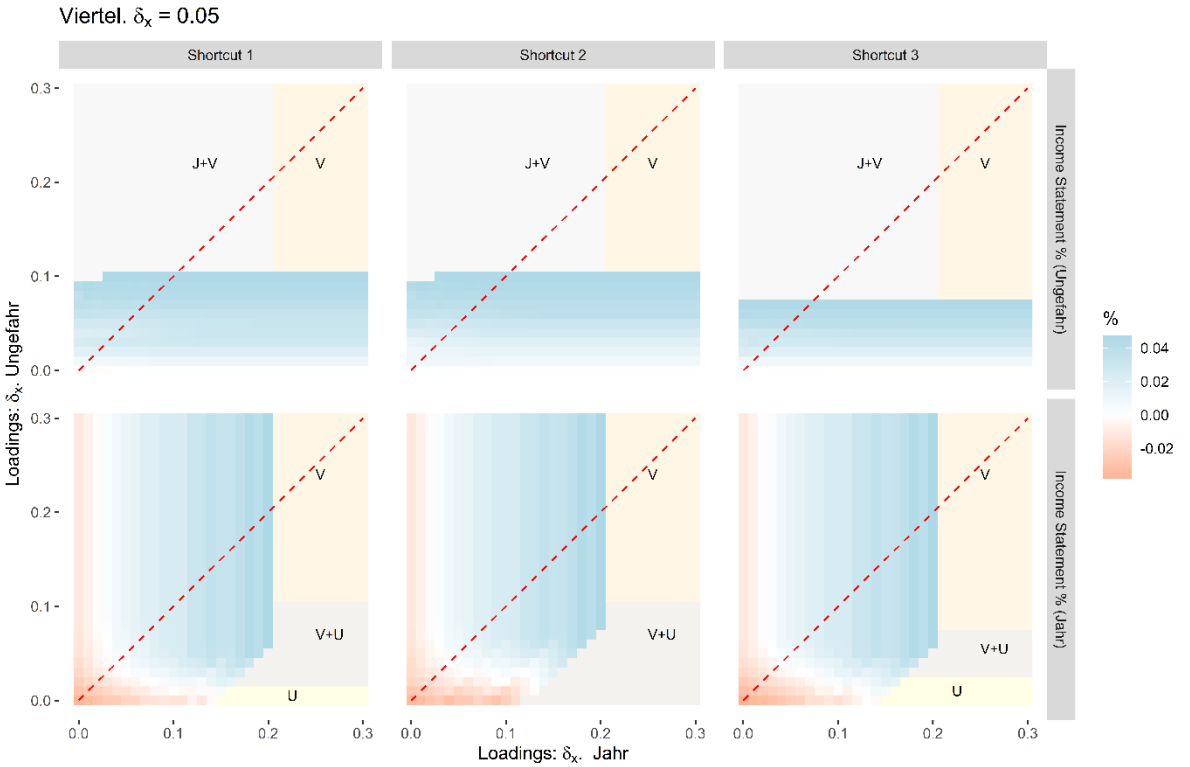

Figure S6. Ungefahr's and Jahr's relative income statements by shortcut in the three competitors markets in the actual portfolio as a function of the security loadings, δ_x, keeping Viertel's loading constant at 0.05. Red lines signal the edges delimiting the different loading areas for the two displayed companies. U: whole market taken by Ungerfahr. V: whole market taken by Viertel. J+V: Ungerfahr gets out of the market. V+U: Jahr gets out of the market.

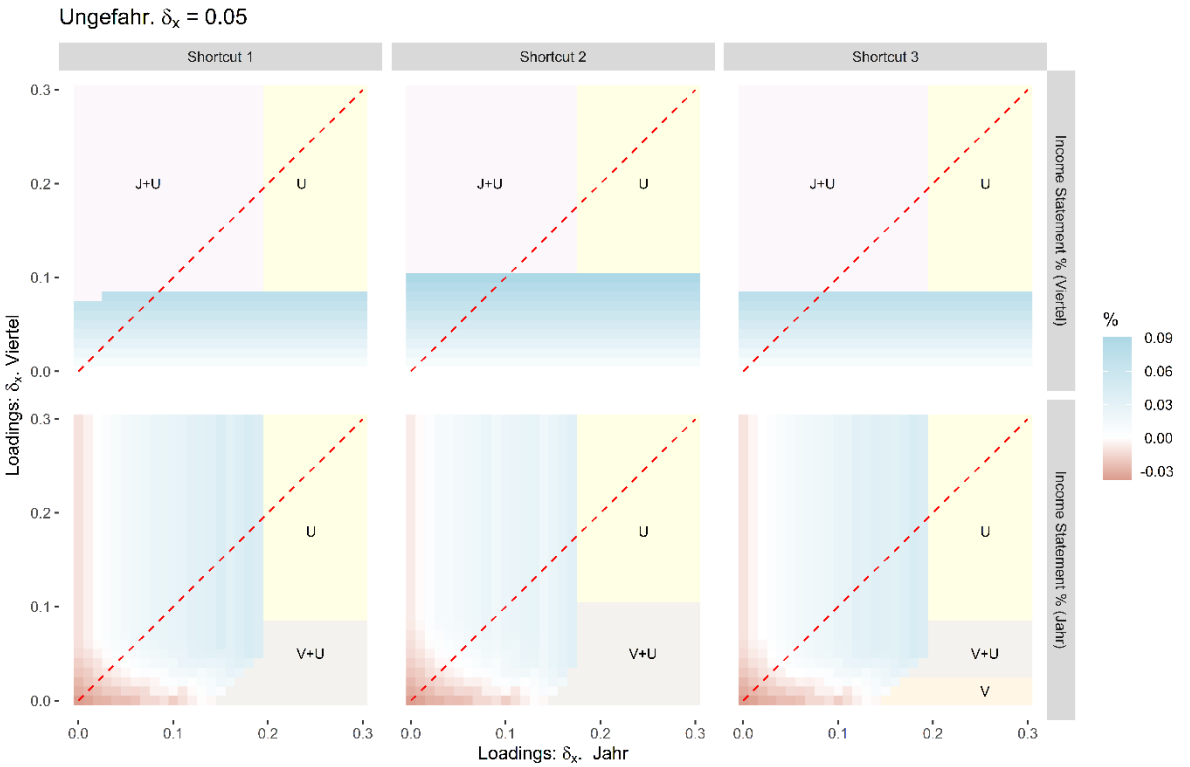

Figure S7. Viertel's and Jahr's relative income statements by shortcut in the three competitors markets in the actual portfolio as a function of the security loadings, δ_x, keeping Ungefahr's loading constant at 0.05 for. Red lines signal the edges delimiting the different loading areas for the two displayed companies. U: whole market taken by Ungerfahr. J+U: Viertel gets out of the market. V+U: Jahr gets out of the market.

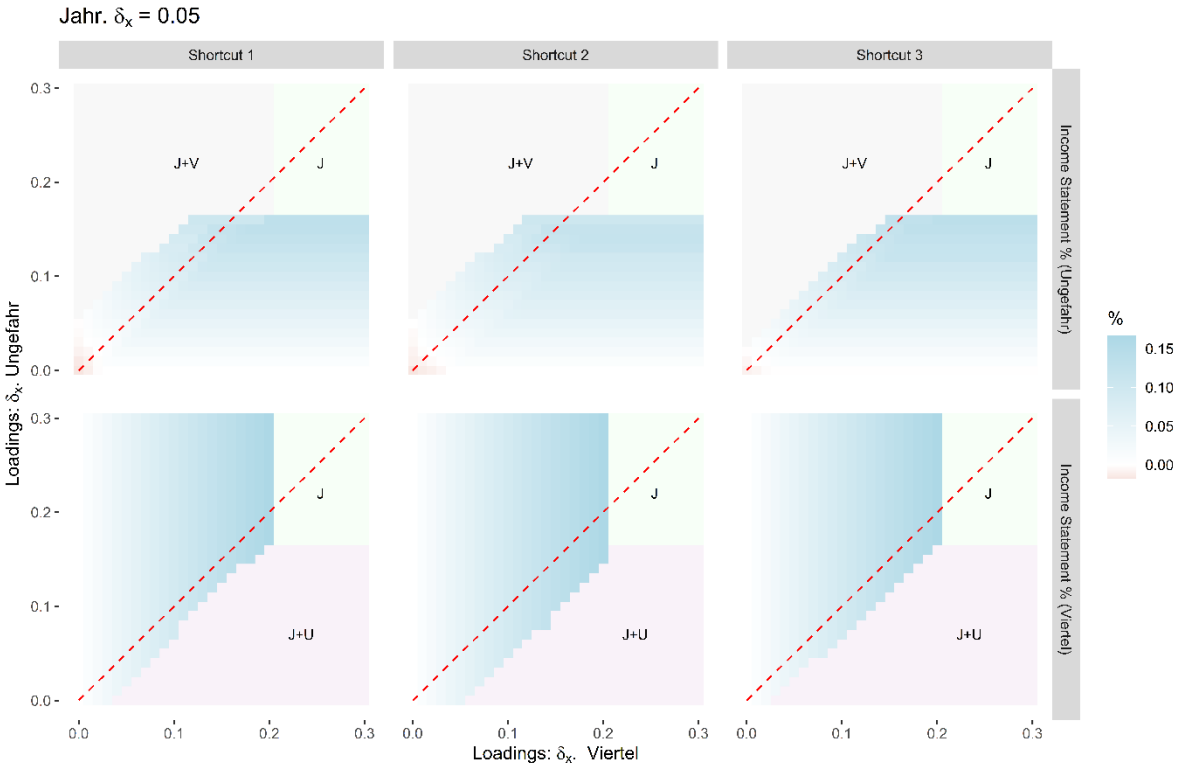

Figure S8. Ungefahr's and Viertel's relative income statements by shortcut in the three competitors markets in the actual portfolio as a function of the security loadings, δ_x, keeping Jahr's loading constant at 0.05. Red lines signal the edges delimiting the different loading areas for the two displayed companies. J: whole market taken by Jahr. J+U: Viertel gets out of the market. J+V: Ungerfahr gets out of the market.

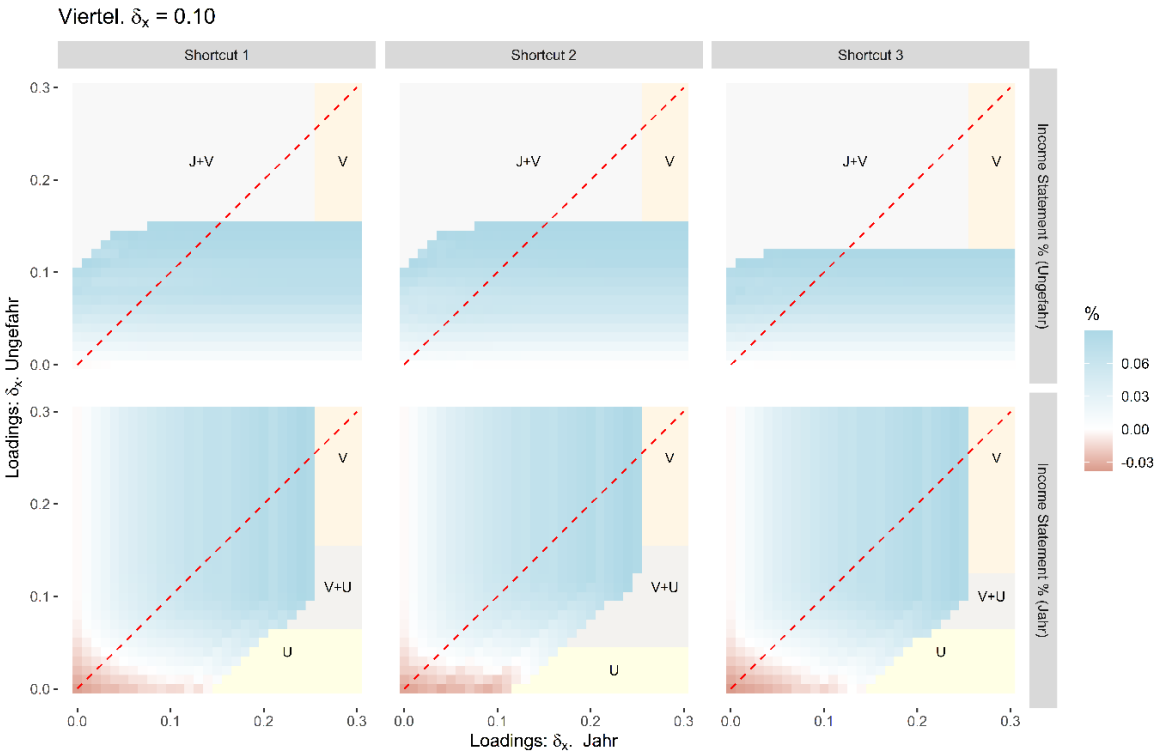

Figure S9. Ungefahr's and Jahr's relative income statements by shortcut in the three competitors markets in the actual portfolio as a function of the security loadings, δ_x, keeping Viertel's loading constant at 0.10. Red lines signal the edges delimiting the different loading areas for the two displayed companies. U: whole market taken by Ungerfahr. V: whole market taken by Viertel. J+V: Ungerfahr gets out of the market. V+U: Jahr gets out of the market.

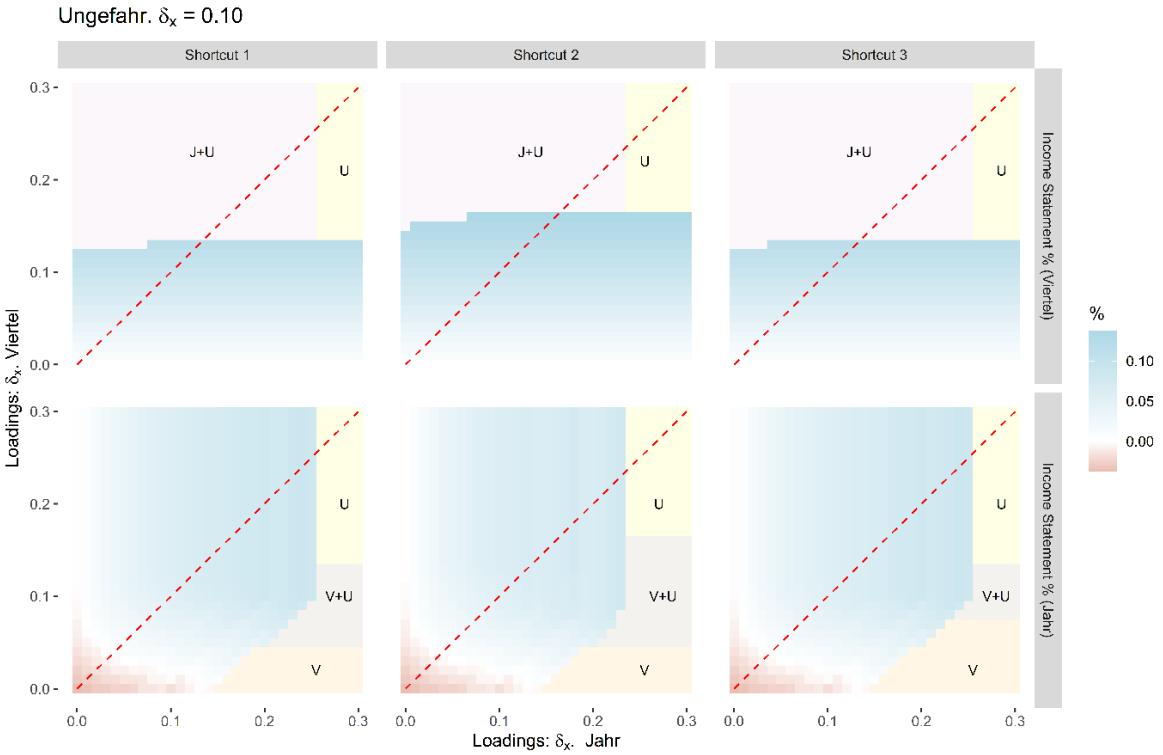

Figure S10. Viertel's and Jahr's relative income statements by shortcut in the three competitors markets in the actual portfolio as a function of the security loadings, δ_x, keeping Ungefahr's loading constant at 0.10 for. Red lines signal the edges delimiting the different loading areas for the two displayed companies. U: whole market taken by Ungerfahr. J+U: Viertel gets out of the market. V+U: Jahr gets out of the market. V: whole market taken by Viertel.

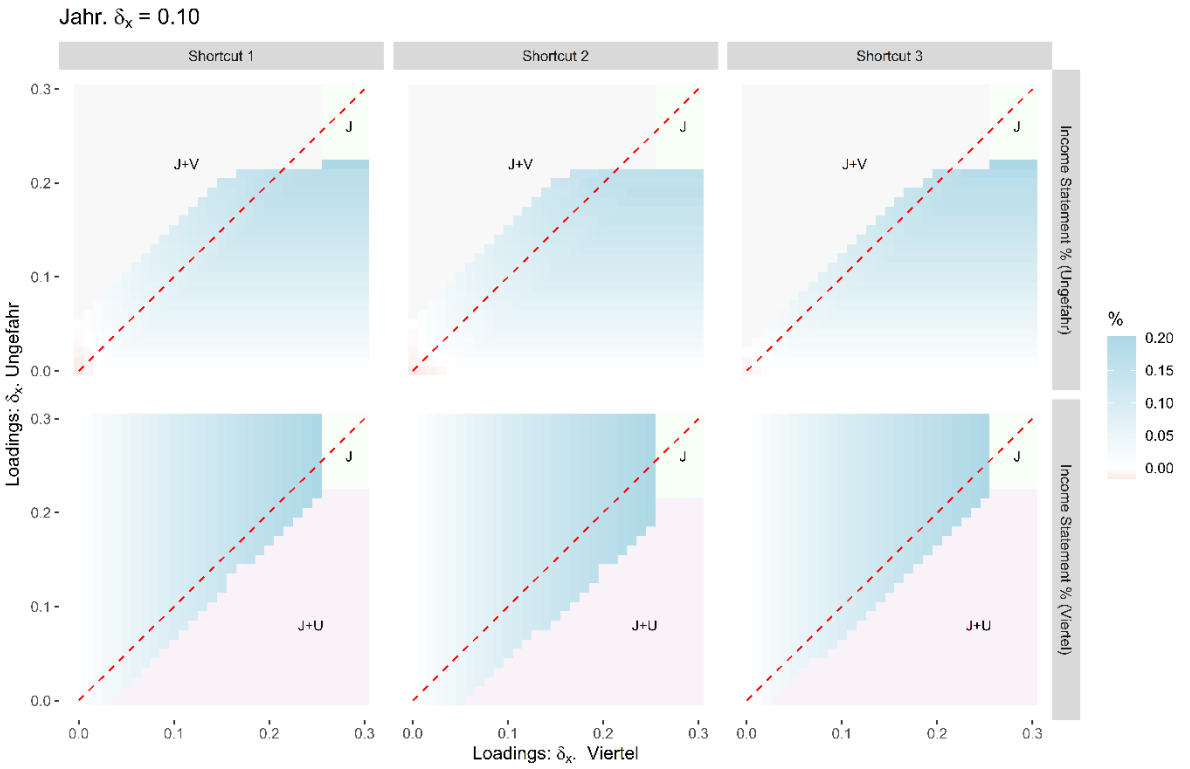

Figure S11. Ungefahr's and Viertel's relative income statements by shortcut in the three competitors markets in the actual portfolio as a function of the security loadings, δ_x, keeping Jahr's loading constant at 0.10. Red lines signal the edges delimiting the different loading areas for the two displayed companies. J: whole market taken by Jahr. J+U: Viertel gets out of the market. J+V: Ungerfahr gets out of the market.

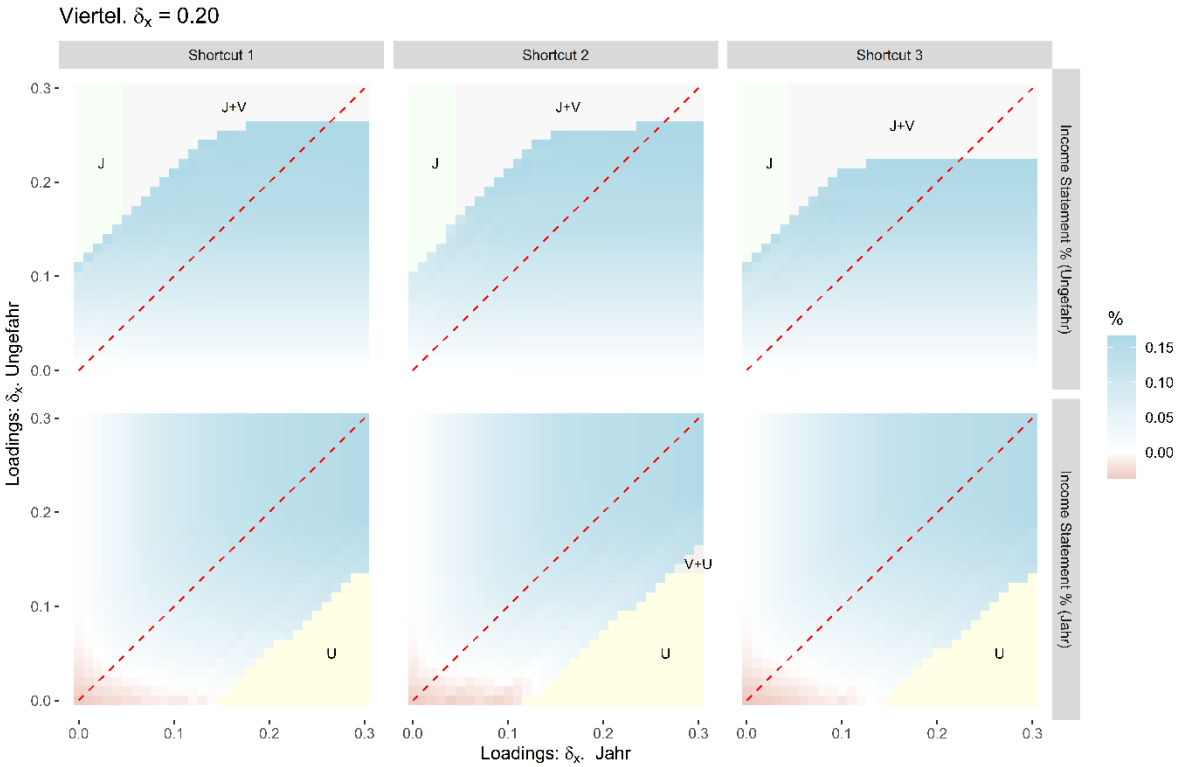

Figure S12. Ungefahr's and Jahr's relative income statements by shortcut in the three competitors markets in the actual portfolio as a function of the security loadings, δ_x, keeping Viertel's loading constant at 0.20. Red lines signal the edges delimiting the different loading areas for the two displayed companies. U: whole market taken by Ungerfahr. J: whole market taken by Jahr. J+V: Ungerfahr gets out of the market. V+U: Jahr gets out of the market.

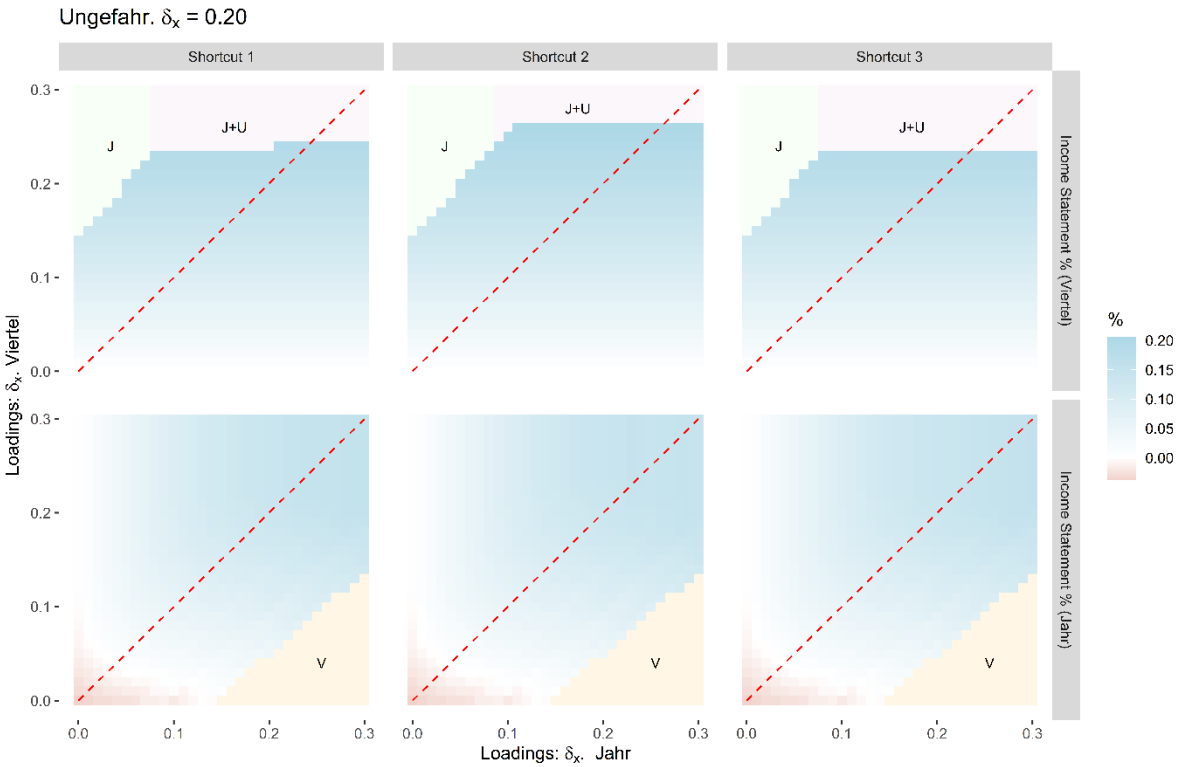

Figure S13. Viertel's and Jahr's relative income statements by shortcut in the three competitors markets in the actual portfolio as a function of the security loadings, δ_x, keeping Ungefahr's loading constant at 0.20. Red lines signal the edges delimiting the different loading areas for the two displayed companies. J+U: Viertel gets out of the market. J: whole market taken by Jahr. V: whole market taken by Viertel.

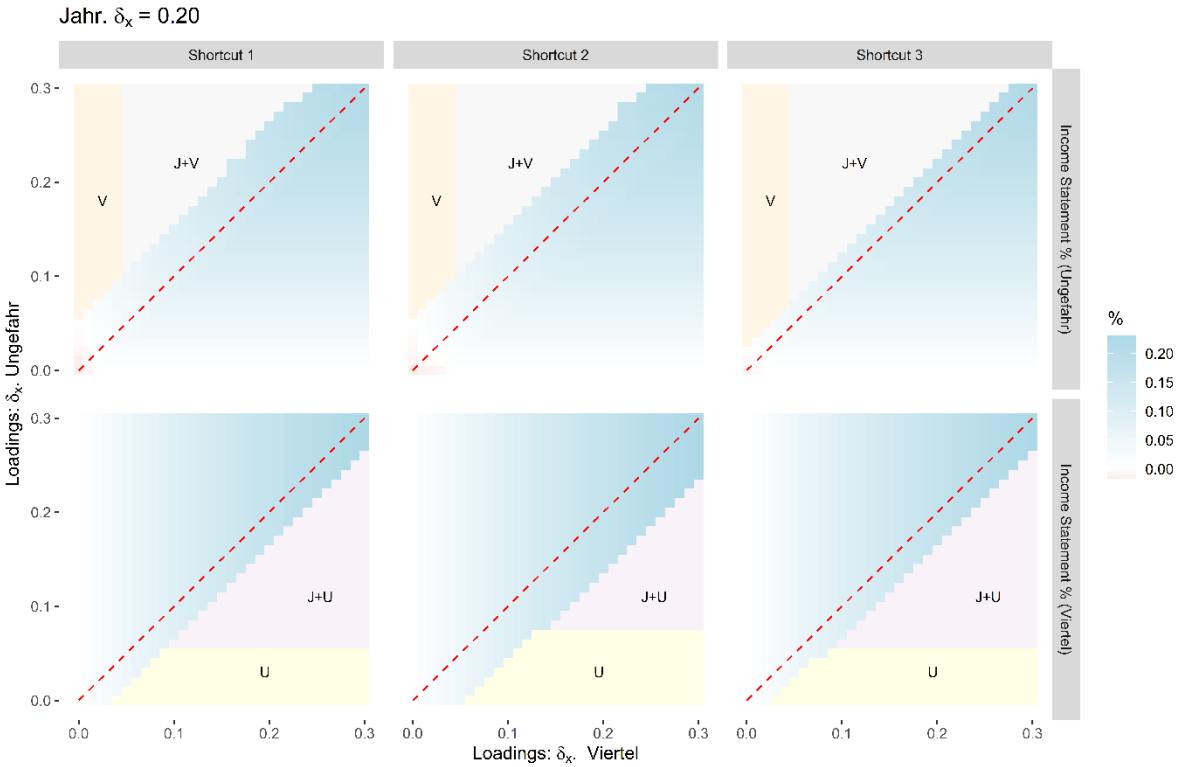

Figure S14. Ungefahr's and Viertel's relative income statements by shortcut in the three competitors markets in the actual portfolio as a function of the security loadings, δ_x, keeping Jahr's loading constant at 0.20. Red lines signal the edges delimiting the different loading areas for the two displayed companies. U: whole market taken by Ungerfahr. J+U: Viertel gets out of the market. J+V: Ungerfahr gets out of the market. V: whole market taken by Viertel.

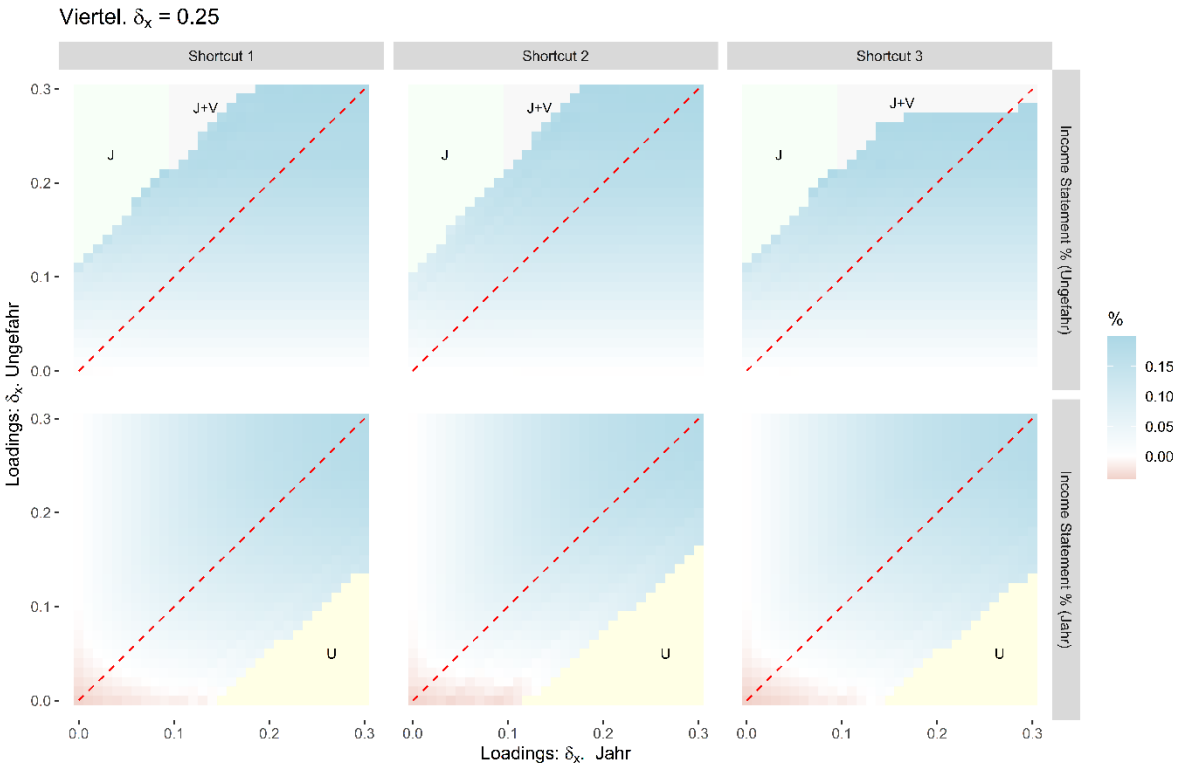

Figure S15. Ungefahr's and Jahr's relative income statements by shortcut in the three competitors markets in the actual portfolio as a function of the security loadings, δ_x, keeping Viertel's loading constant at 0.25. Red lines signal the edges delimiting the different loading areas for the two displayed companies. U: whole market taken by Ungerfahr. J: whole market taken by Jahr. J+V: Ungerfahr gets out of the market.

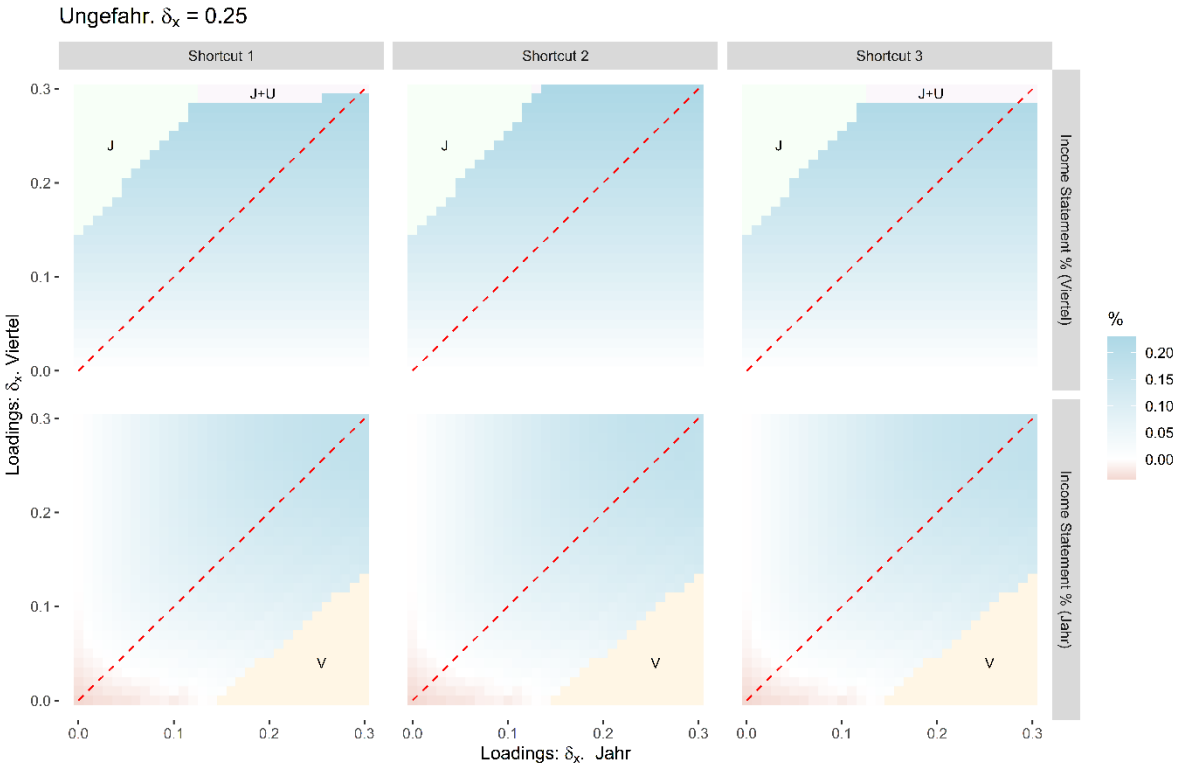

Figure S16. Viertel's and Jahr's relative income statements by shortcut in the three competitors markets in the actual portfolio as a function of the security loadings, δ_x, keeping Ungefahr's loading constant at 0.25. Red lines signal the edges delimiting the different loading areas for the two displayed companies. J+U: Viertel gets out of the market. J: whole market taken by Jahr. V: whole market taken by Viertel.

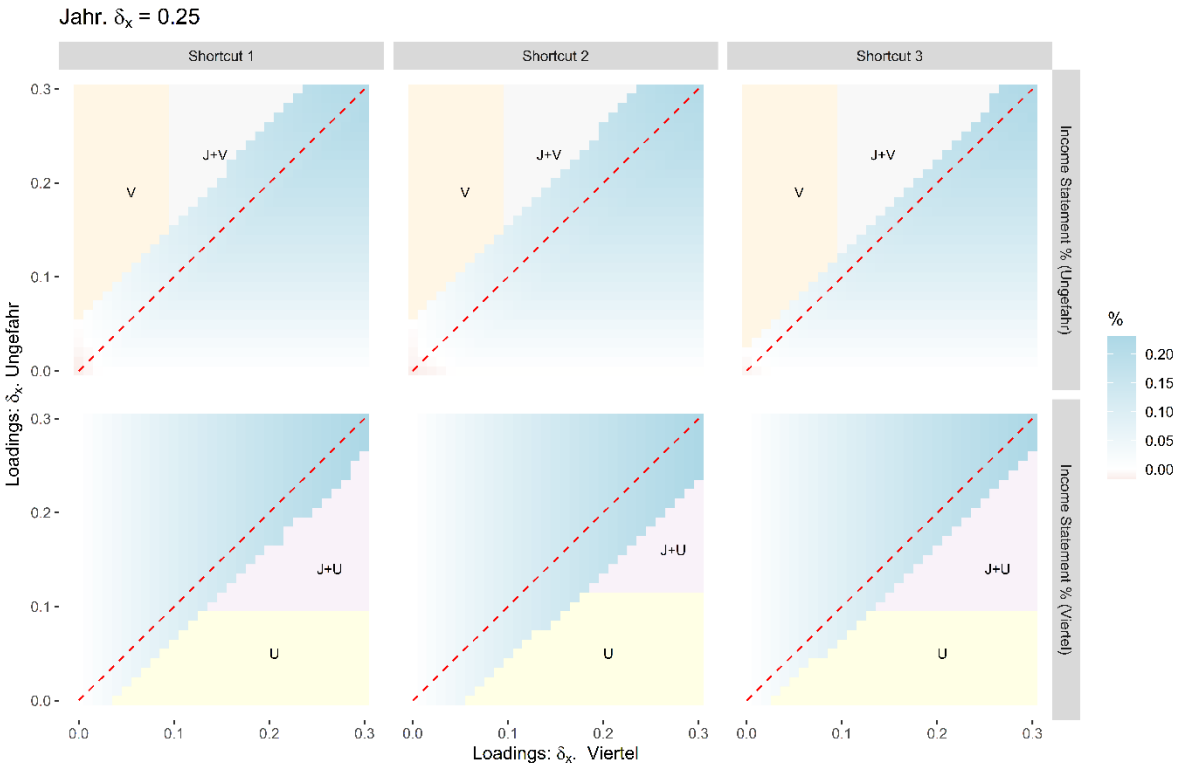

Figure S17. Ungefahr's and Viertel's relative income statements by shortcut in the three competitors markets in the actual portfolio as a function of the security loadings, δ_x, keeping Jahr's loading constant at 0.25. Red lines signal the edges delimiting the different loading areas for the two displayed companies. U: whole market taken by Ungerfahr. J+U: Viertel gets out of the market. J+V: Ungerfahr gets out of the market. V: whole market taken by Viertel.

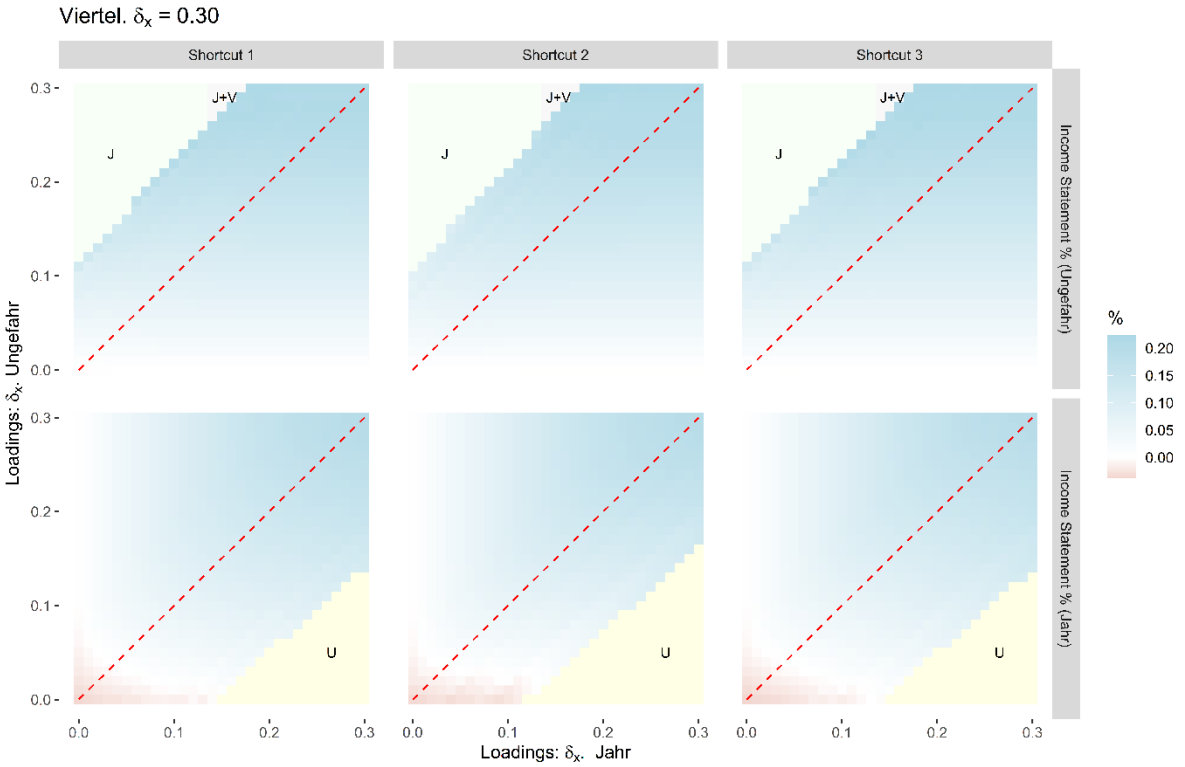

Figure S18. Ungefahr's and Jahr's relative income statements by shortcut in the three competitors markets in the actual portfolio as a function of the security loadings, δ_x, keeping Viertel's loading constant at 0.30. Red lines signal the edges delimiting the different loading areas for the two displayed companies. U: whole market taken by Ungerfahr. J: whole market taken by Jahr. J+V: Ungerfahr gets out of the market.

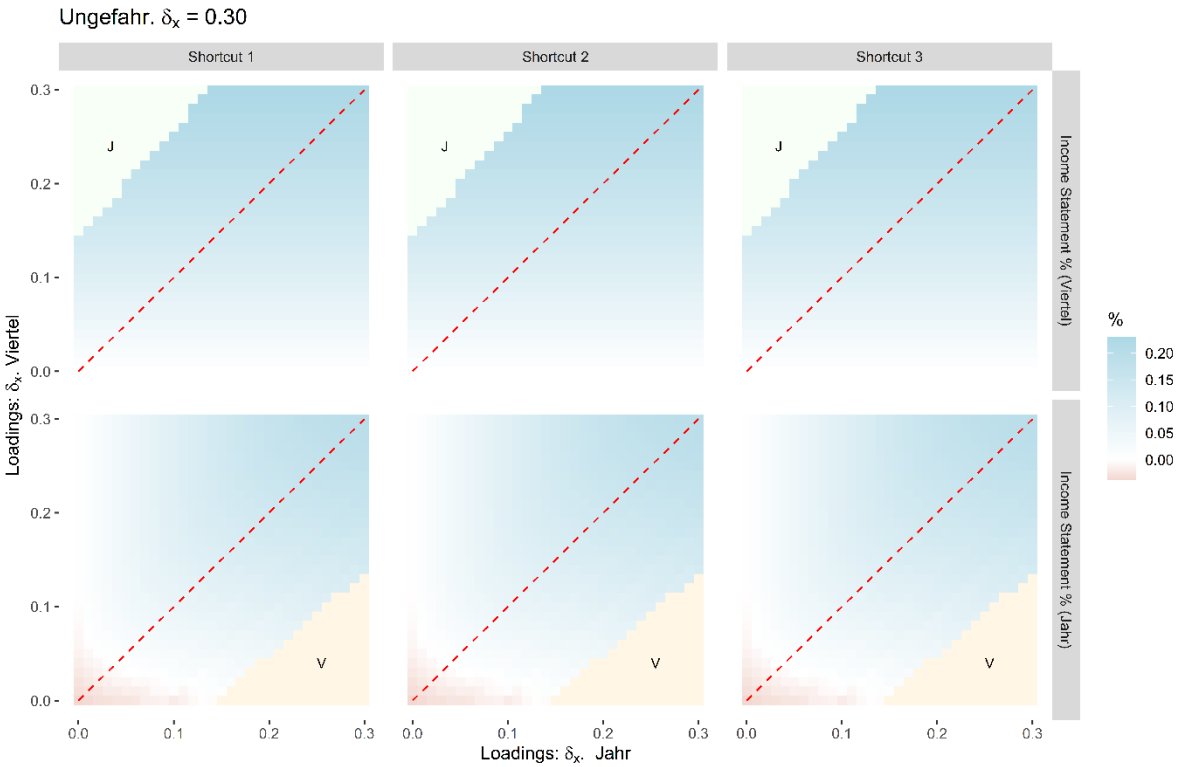

Figure S19. Viertel's and Jahr's relative income statements by shortcut in the three competitors markets in the actual portfolio as a function of the security loadings, δ_x, keeping Ungefahr's loading constant at 0.30. Red lines signal the edges delimiting the different loading areas for the two displayed companies. J: whole market taken by Jahr. V: whole market taken by Viertel.

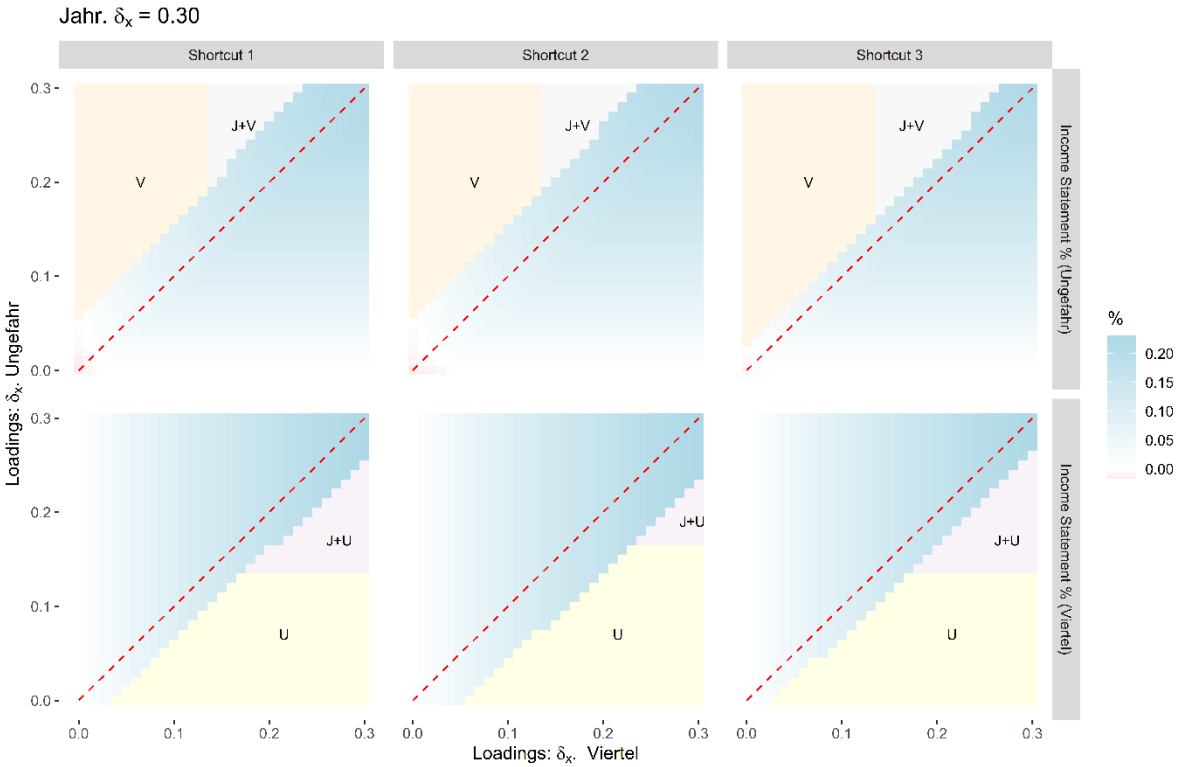

Figure S20. Ungefahr's and Viertel's relative income statements by shortcut in the three competitors markets in the actual portfolio as a function of the security loadings, δ_x, keeping Jahr's loading constant at 0.30. Red lines signal the edges delimiting the different loading areas for the two displayed companies. U: whole market taken by Ungerfahr. J+U: Viertel gets out of the market. J+V: Ungerfahr gets out of the market. V: whole market taken by Viertel.

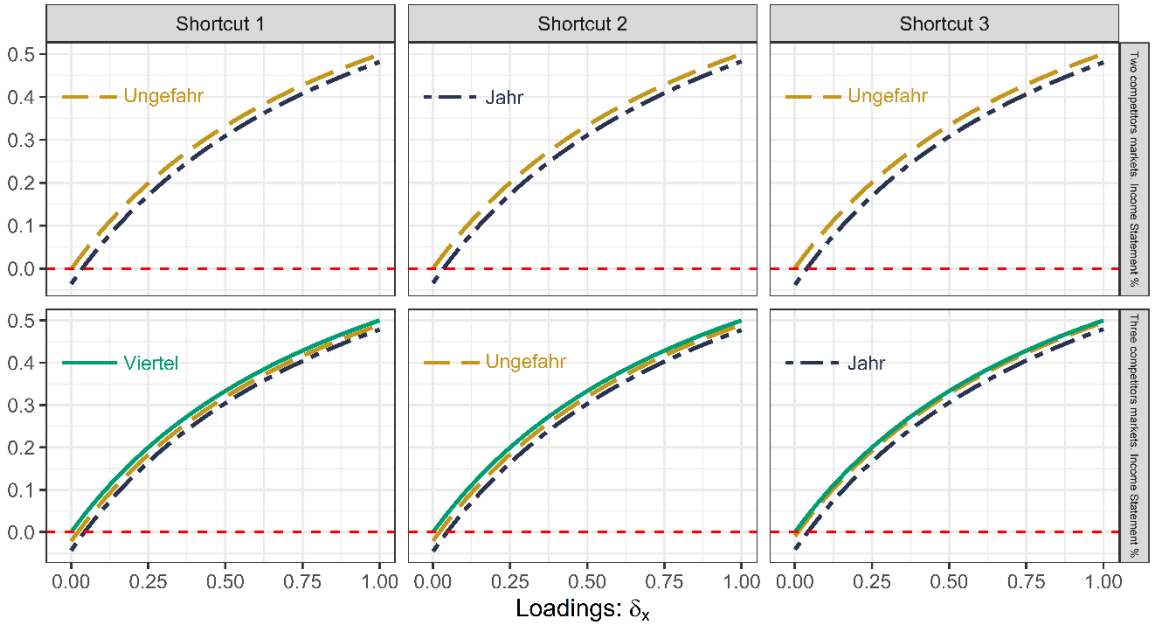

Figure S21. Expected technical profits (income statements in percentages) by shortcut in the two competitors markets (upper panels) and three competitors markets (lower panels) in the actual portfolio as a function of the proportion of security loading, δ_x, when loadings are assumed simultaneously the same for all the companies and ages.