SOCIETY OF ACTUARIES®

Mortality Improvement Scale MP-2017

October 2017

SOCIETY OF ACTUARIES

Mortality Improvement Scale MP-2017

Caveat and Disclaimer

This study is published by the Society of Actuaries (SOA) and contains information from a variety of sources. The study is for informational purposes only and should not be construed as professional or financial advice. The SOA does not recommend or endorse any particular use of the information provided in this study. The SOA makes no warranty, express or implied, or representation whatsoever and assumes no liability in connection with the use or misuse of this study.

CONTENTS

Acknowledgments

The Society of Actuaries (SOA) would like to thank the Retirement Plans Experience Committee ("RPEC" or "we"), and especially the Mortality Improvement subcommittee, for their support, guidance, direction and feedback throughout the project.

Members of the Retirement Plans Experience Committee:
(Members of the Mortality Improvement subcommittee are denoted with an asterisk.)

- James G. Berberian,* *Chairperson*
- Elena V. Black*
- Feng Ling Chen
- Andrew D. Eisner
- Timothy J. Geddes*
- David T. Kausch*
- Jeffrey Litwin*
- Eric John Minute*
- C. Allen Pinkham IV*
- Laurence Pinzur*
- Barthus J. Prien
- Patricia A. Pruitt
- Robert A. Pryor
- William E. Roberts*
- Charles Kenneth Vogl*
- Kevin James Woodrich
- Eva Sau Ying Yum
- Peter M. Zouras

- Cynthia MacDonald, SOA Senior Experience Studies Actuary
- Patrick D. Nolan, SOA Experience Studies Actuary
- Andrew J. Peterson, SOA Staff Fellow—Retirement
- Erika Schulty, SOA Research Associate

Special Acknowledgments

The SOA would like to thank James Von Arb for his assistance with technical calculations of numerical results appearing in this report, including sensitivity results presented in Section 4. The SOA would also like to thank Robert C.W. Howard, FSA, FCIA, who was part of the Retirement Plans Experience Committee and the Mortality Improvement subcommittee through November 2016. Bob made many significant contributions in his years as a member of RPEC,

including helping develop the backtesting methodology and related tools described in Section 5.2.

Section 1: Executive Summary

The purpose of this study is to provide actuaries with information, tools (in the form of an Excel-based tool) and research to assist them in determining mortality improvement assumptions. This report presents Scale MP-2017, the latest installment of the pension mortality improvement scales developed annually by the Retirement Plans Experience Committee (RPEC) of the Society of Actuaries. Scale MP-2017 is based on the same underlying methodology and committee-selected assumption set used to develop Scale MP-2016 [SOA 2016] and reflects historical U.S. population mortality experience through 2015.

The age-adjusted mortality rates in the United States increased from 724.6 (per 100,000) in 2014 to 733.1 in 2015, an increase of 1.2%. This was the first year-over-year increase in the age-adjusted U.S. mortality rates since 2005, and only the seventh time since 1980 that those annual rates went up rather than down.

The Scale MP-2017 mortality improvement rates presented in this report are generally lower than the corresponding Scale MP-2016 rates. The following table indicates that starting with RP-2014 base mortality rates adjusted back to 2006, most 2017 pension obligations calculated using Scale MP-2017 (with a discount rate of 4.0%) are anticipated to be approximately 0.7% to 1.0% lower than those calculated using Scale MP-2016.

Monthly Deferred-To-62 Annuity-Due Values
Base Rates: **Adjusted RP-2014**
Generational @ 2017; Discount Rate = 4.0%

	Males			Females		
Projection Scale →	MP-2016	**MP-2017**	*% Change*	MP-2016	**MP-2017**	*% Change*
Age						
25	3.5296	**3.4991**	*-0.86%*	3.7596	**3.7340**	*-0.68%*
35	5.1211	**5.0780**	*-0.84%*	5.4655	**5.4279**	*-0.69%*
45	7.4396	**7.3803**	*-0.80%*	7.9569	**7.9026**	*-0.68%*
55	10.9025	**10.8195**	*-0.76%*	11.6498	**11.5722**	*-0.67%*
65	13.4746	**13.3842**	*-0.67%*	14.3437	**14.2554**	*-0.62%*
75	9.6371	**9.5435**	*-0.97%*	10.4652	**10.3586**	*-1.02%*
85	5.7171	**5.6376**	*-1.39%*	6.3946	**6.2961**	*-1.54%*

In an effort to help users better understand the sensitivity of the underlying RPEC model to assumptions other than those selected by RPEC for Scale MP-2017, Section 4 includes illustrations of the impact of adjustments to the long-term rate and convergence period assumptions.

RPEC believes that Scale MP-2017 produces a reasonable mortality improvement assumption for measuring obligations for most retirement programs in the United States within the context of the "assumption universe" as described in Actuarial Standard of Practice No. 35 (ASOP No. 35) [ASB 2014]. However, RPEC also believes that other mortality improvement scales, including

those created with an assumption set different than that selected by RPEC or those based on an underlying model other than RPEC_2014, also could fall within the ASOP No. 35 assumption universe. It is the responsibility of the actuary to determine which mortality improvement assumption is appropriate to use for a given purpose.

Section 2: Data Sources and Underlying Model

2.1 Data Sources

The historical mortality information published by the Social Security Administration (SSA) in conjunction with the 2017 Trustees' Report included rates that are smoothed across ages for each individual year [SSA 2005] through calendar year 2014 [SSA 2017]. The data for calendar years 1950 through 2013 used in the underlying RPEC_2014 model were taken directly from these SSA-published mortality rates.

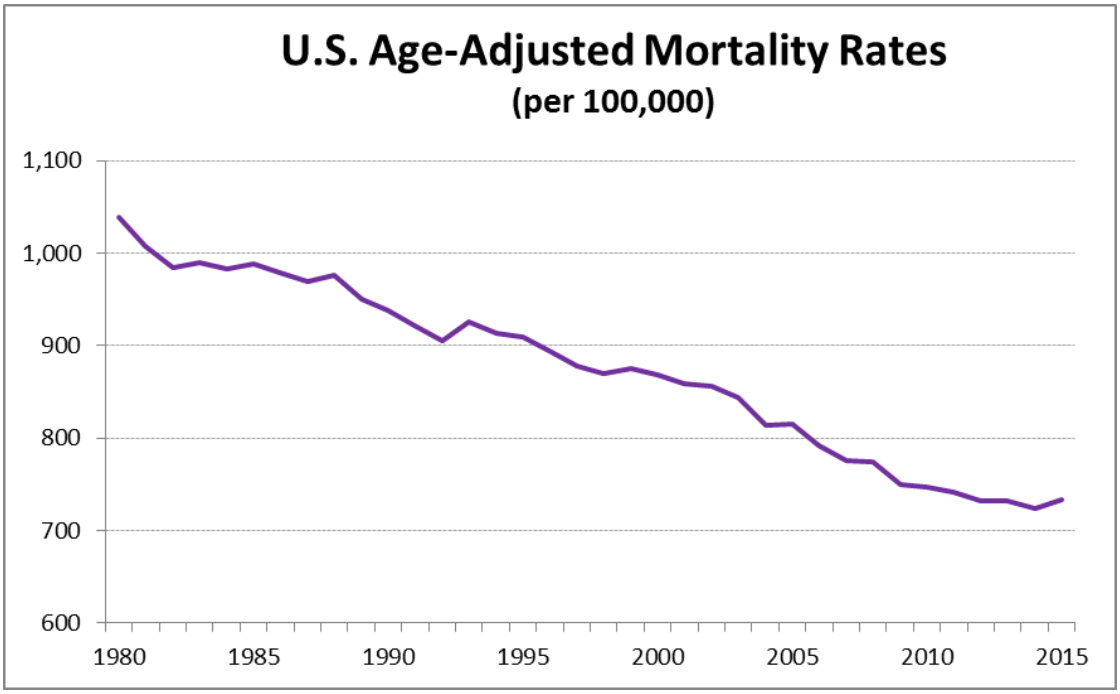
Based on prior discussions with the SSA, RPEC was aware that the SSA-published mortality rates for calendar year 2014 reflected preliminary Medicare data for ages 65 and older. Final Medicare data for 2014 became available subsequent to the development of the SSA-published rates, but prior to the finalization of Scale MP-2017. RPEC elected to develop updated 2014 mortality rates reflecting the more current Medicare data and using the graduation methodology described in Actuarial Study No. 120 [SSA 2005].

Estimated SSA-style[1] rates for 2015 were calculated using data developed by the Centers for Disease Control and Prevention (CDC), the U.S. Census Bureau and the Center for Medicare and Medicaid Serivces (CMS). With the exception of one small change described in Appendix C, the methodology used to develop the estimated rates for calendar year 2015 was the same as that described in Appendix B1.3 of the Scale MP-2016 report for the estimated SSA-style rates for 2014.

2.2 Recent U.S. Population Mortality Experience

The following chart shows the total (males and females combined) age-adjusted mortality rates in the United States for calendar years 1980 through 2015; see [NCHS 2015], [NCHS 2016] and [NVSS 2016].

[1] "SSA-style" rates refer to mortality rates developed by RPEC using the same data sources and methodology used by the Social Security Administration to develop the mortality rates that are published along with the annual Trustees' Report. See Appendix C.



The age-adjusted mortality rate for 2015 was 733.1 (per 100,000), an *increase* of 1.2% over the 2014 rate of 724.6. This was the first year-over-year increase in the age-adjusted U.S. mortality rates since 2005, and only the seventh year-over-year increase since 1980. In fact, the only other time since 1980 that an annual age-adjusted mortality rate increased by more than 1.0% was in 1993, when the rate increased 2.3% over the 1992 rate.

Mortality rates in calendar year 2015 were significantly higher than those in 2014 for eight of the 10 leading causes of death in the United States: +0.9% for heart disease, +2.7% for chronic lower respiratory diseases, +6.7% for unintentional injuries, +3.0% for stroke, +15.7% for Alzheimer's disease, +1.9% for diabetes, +1.5% for kidney disease and +2.3% for suicide. Only the mortality rates for cancer were significantly lower (−1.7%), while the mortality rates for pneumonia and influenza remained essentially unchanged [NCHS 2016].

Preliminary analysis by the National Vital Statistics System [NVSS 2017] indicates that the average age-adjusted death rate in the United States (per 100,000 of population) was 728.7 during 2016, which was slightly lower than the corresponding value of 733.1 in 2015.

Additional information about the slowdown in mortality improvement rates over the past few years in the United States, United Kingdom and Canada can be found in a recently released report jointly published by the SOA, the Institute and Faculty of Actuaries (IFoA) and the Canadian Institute of Actuaries (CIA) [IFoA 2017]. A recently published brief from the Center for Retirement Research at Boston College also contains information regarding the drivers of mortality improvement trends over time [BC 2017].

2.3 Mortality Improvement Model

The 2017 version of the RPEC mortality improvement model, denoted RPEC_2014_v2017, is based on the original RPEC_2014 model updated to reflect the historical mortality data through calendar year 2015 as described in Section 2.1. Scale MP-2017 was constructed using the RPEC_2014_v2017 model and the same committee-selected assumption set used to develop Scale MP-2016. Specifically, Scale MP-2017 was constructed assuming the following:

- Long-term rate of mortality improvement: Flat 1.0% rate to age 85; decreasing linearly to 0.85% at age 95; then decreasing linearly to 0.0% at age 115
- Horizontal convergence period (along fixed ages): 10 years
- Diagonal convergence period (along fixed year-of-birth cohorts): 20 years
- Horizontal/diagonal blending percentages: 50%/50%
- Initial slope constraint: 0.

The sensitivities of deferred-to-age-62 monthly annuity values to some adjustments to the long-term rate structure and convergence period are presented in Section 4.

Section 3: Impact of Scale MP-2017

3.1 Comparison of 2017 Annuity Values

The following table presents a comparison of monthly deferred-to-age-62 annuity-due values, all calculated generationally as of 2017 ("Generational @ 2017") with the following:

- Adjusted[2] RP-2014 rates; Employee rates for ages below 62 and Healthy Annuitant rates for ages 62 and older
- Mortality projection (starting with the 2006 adjusted RP-2014 base rates) using Scale MP-2016 for the first columns of annuity values and using Scale MP-2017 for the second columns of annuity values
- A discount rate of 4.0%.

[2] Adjusted RP-2014 means that the applicable set of RP-2014 base rates was adjusted back to 2006 by removing the Scale MP-2014 improvements between calendar years 2007 and 2014.

Monthly Deferred-To-62 Annuity-Due Values Base Rates: **Adjusted RP-2014** Generational @ 2017; Discount Rate = 4.0%						
	Males			Females		
Projection Scale →	MP-2016	**MP-2017**	*% Change*	MP-2016	**MP-2017**	*% Change*
Age						
25	3.5296	**3.4991**	*-0.86%*	3.7596	**3.7340**	*-0.68%*
35	5.1211	**5.0780**	*-0.84%*	5.4655	**5.4279**	*-0.69%*
45	7.4396	**7.3803**	*-0.80%*	7.9569	**7.9026**	*-0.68%*
55	10.9025	**10.8195**	*-0.76%*	11.6498	**11.5722**	*-0.67%*
65	13.4746	**13.3842**	*-0.67%*	14.3437	**14.2554**	*-0.62%*
75	9.6371	**9.5435**	*-0.97%*	10.4652	**10.3586**	*-1.02%*
85	5.7171	**5.6376**	*-1.39%*	6.3946	**6.2961**	*-1.54%*

Therefore, 2017 measurements of retirement plan obligations calculated using Scale MP-2017 with adjusted RP-2014 base rates (and a 4.0% discount rate) will likely be 0.7 to 1.0% lower than the corresponding measurements calculated using Scale MP-2016.

3.2 Comparison of 2017 Cohort Life Expectancy Values

The following table presents a comparison of 2017 complete cohort life expectancy values[3] at the indicated ages, all calculated using the following:

- Base mortality rates equal to RP-2014 Employee rates adjusted to 2006 for ages below 62 and RP-2014 Healthy Annuitant rates adjusted to 2006 for ages 62 and older and
- Mortality projection starting in 2006 using Scale MP-2016 for the first columns of annuity values and using Scale MP-2017 for the second columns.

[3] The life expectancy values presented in this report were calculated as complete cohort life expectancies, which are smaller than the corresponding 0.0% monthly annuity values by a constant 1/24th of a year.

	2017 Cohort Life Expectancies (Complete)					
	Males			Females		
Projection Scale →	MP-2016	MP-2017	*% Change*	MP-2016	MP-2017	*% Change*
Age						
25	62.0360	61.6777	*-0.58%*	64.6248	64.3040	*-0.50%*
35	51.3257	51.0011	*-0.63%*	53.8492	53.5404	*-0.57%*
45	40.6755	40.3853	*-0.71%*	43.1589	42.8661	*-0.68%*
55	30.2934	30.0236	*-0.89%*	32.6624	32.3833	*-0.85%*
65	20.8550	20.6379	*-1.04%*	22.8450	22.6113	*-1.02%*
75	13.0021	12.8310	*-1.32%*	14.4757	14.2696	*-1.42%*
85	6.8280	6.7135	*-1.68%*	7.7925	7.6449	*-1.89%*

Section 4: Sensitivity Analysis[4]

4.1 Introductory Comments

The RPEC_2014_v2017 model allows the user of the model to adjust certain parameters to create a projection scale based on the same methodology as MP-2017 but reflecting different user-selected assumption sets. This flexibility is an important part of the RPEC improvement model, and so the committee believes it would be helpful for users to understand the likely sensitivity of annuity factors to changes in select, key parameter assumptions within those sets. The ranges of possible parameter selections shown in this Section 4 are illustrative. They are not intended to be a recommendation that such a variation in a given parameter would be viewed by RPEC as being reasonable, nor is there any intended implication that variations other than those shown would necessarily be unreasonable.

Note that these sensitivities have been measured based on the RPEC_2014_v2017 model, which includes recent historical mortality improvement rates that are relatively close to the long-term rate assumption. These initial conditions will change over time and may significantly impact sensitivity to alternative parameter selections.

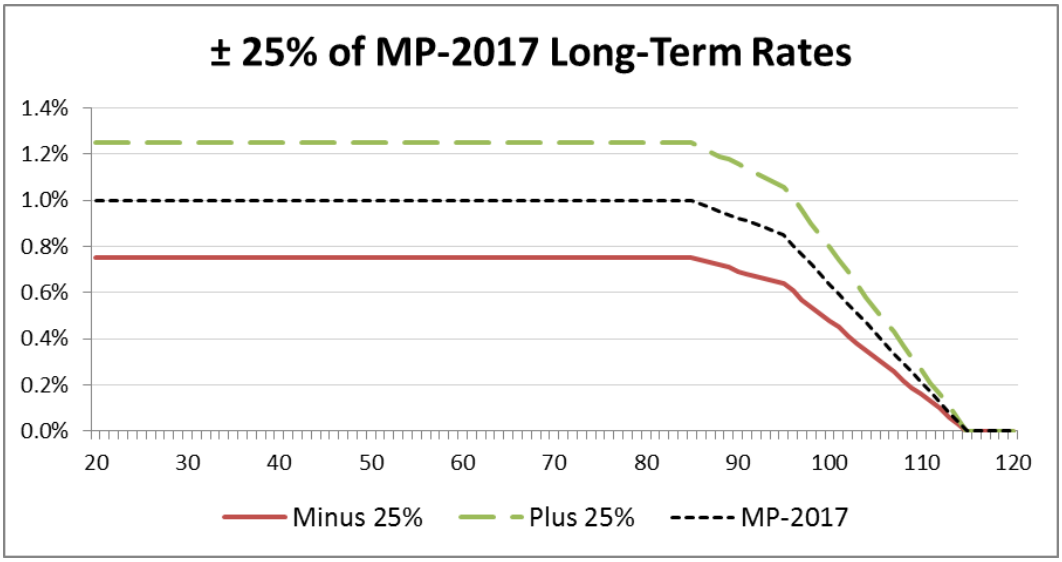
4.2 Impact of Alternative Long-Term Rate Assumptions

The long-term mortality improvement rate within the RPEC_2014_v2017 model represents the user's estimate of the underlying trend in mortality improvement once the influence of recent experience is deemed to have worn away. As such, the long-term rate assumption has a proportionately greater impact on annuity values for younger lives relative to older lives because younger participants are more likely to survive to the period when the long-term rate is more

[4] The base mortality rates used throughout this section are equal to RP-2014 Employee rates adjusted to 2006 for ages below 62 and RP-2014 Healthy Annuitant rates adjusted to 2006 for ages 62 and older.

influential on the overall projected rates of mortality. The MP-2017 improvement scale is based upon a long-term rate of 1.0% for ages before 85, grading to 0.85% at age 95 and then grading to zero at age 115. This section presents the sensitivity of monthly annuity values to alternative long-term rate structures while all the other Scale MP-2017 assumptions summarized in Section 2.3 are left unchanged.

The following table shows the impact on deferred-to-age-62 annuities of a set of long-term rates that are equal to −25% and +25% of the Scale MP-2017 rates. The results are generally symmetric to increases and decreases and have comparable impacts for males and females.

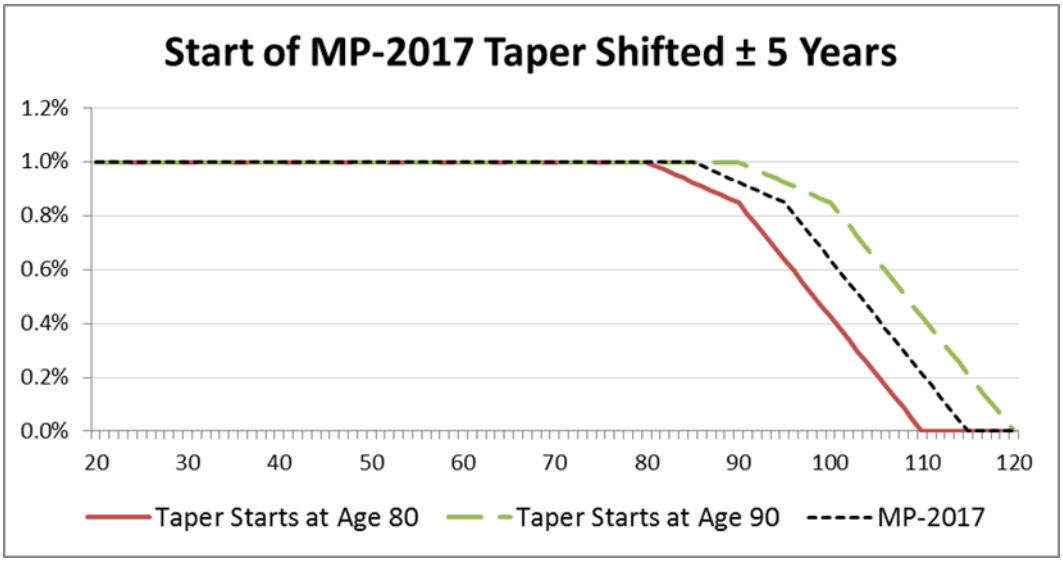


	Change in Monthly Deferred-to-Age-62 Annuity Values (i = 4%)			
	Males		Females	
Age	**Minus 25%**	**Plus 25%**	**Minus 25%**	**Plus 25%**
25	-2.80%	2.74%	-2.41%	2.35%
35	-2.26%	2.25%	-1.98%	1.95%
45	-1.68%	1.69%	-1.50%	1.50%
55	-1.08%	1.09%	-1.00%	1.00%
65	-0.67%	0.68%	-0.65%	0.66%
75	-0.55%	0.55%	-0.55%	0.56%
85	-0.35%	0.36%	-0.36%	0.37%

RPEC has utilized a primarily flat, 1% improvement rate in its committee-selected assumption sets since the initial release of the interim Scale BB in 2012. However, while considered flat, those rates eventually taper at older ages, as historical improvement rates decline significantly as age advances. Whether the improvement rates will follow patterns seen in historical data is unknown.

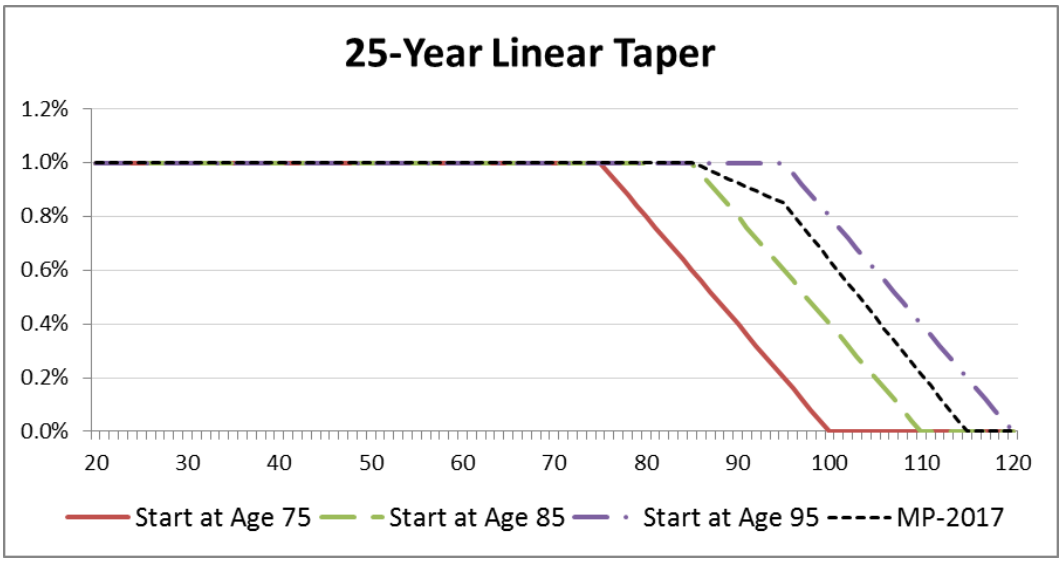
Another potential alteration to mortality improvement scales could thus come from shifting the beginning of the tapering period away from age 85. Making such a modification while retaining the shape of the tapering pattern leads to the following results:

- Larger changes for younger participants than older ones
- Similar effects for males and females and
- A more significant impact for a decrease in the tapering age than for an increase.



	Change in Monthly Deferred-to-Age-62 Annuity Values (i = 4%)			
	Males		Females	
Age	**Taper Starts at Age 80**	**Taper Starts at Age 90**	**Taper Starts at Age 80**	**Taper Starts at Age 90**
25	-0.58%	0.33%	-0.63%	0.38%
35	-0.47%	0.27%	-0.52%	0.31%
45	-0.37%	0.20%	-0.41%	0.24%
55	-0.28%	0.15%	-0.31%	0.18%
65	-0.24%	0.13%	-0.27%	0.15%
75	-0.31%	0.18%	-0.34%	0.20%
85	-0.30%	0.20%	-0.32%	0.22%

Scale MP-2017 utilizes a two-step tapering pattern which shows improvement rates declining for the first 10 years (ages 85–95) more gradually than for the subsequent 20 years (ages 95–115). Another potential modification to the committee-selected assumptions would be to remove that second bend point in the taper and utilize a linear decline over a 25-year period. Moving to a 25-year linear taper while keeping the starting age at 85 produces a modest decrease in annuity factors, which is larger at younger ages and not gender-differentiated. Decreasing the initial age of the taper by 10 years has a much more significant impact than increasing it by 10 years across ages but also does not differ noticeably by gender.



	Change in Monthly Deferred-to-Age-62 Annuity Values (i = 4%)					
	Males			Females		
Age	**Linear Taper from 75 to 100**	**Linear Taper from 85 to 110**	**Linear Taper from 95 to 120**	**Linear Taper from 75 to 100**	**Linear Taper from 85 to 110**	**Linear Taper from 95 to 120**
25	-2.66%	-0.59%	0.38%	-2.73%	-0.65%	0.43%
35	-2.22%	-0.48%	0.31%	-2.29%	-0.54%	0.35%
45	-1.77%	-0.37%	0.24%	-1.85%	-0.43%	0.27%
55	-1.33%	-0.28%	0.18%	-1.40%	-0.32%	0.21%
65	-1.10%	-0.24%	0.15%	-1.16%	-0.28%	0.18%
75	-1.22%	-0.35%	0.22%	-1.28%	-0.38%	0.24%
85	-0.98%	-0.34%	0.23%	-1.03%	-0.37%	0.24%

RPEC also developed sets of long-term mortality improvement rates derived from SSA's mortality projections under the Alternative 2 assumption set (which reflects the intermediate estimate of SSA's three assumption sets). RPEC's proxy for the SSA's long-term rate structure was developed by backing into the age-specific mortality improvement rate implicit in the SSA projected mortality rates[5] over the 30-year period starting in 2033 (the initial year of the current Scale MP-2017 long-term rate period) and extending through 2063.

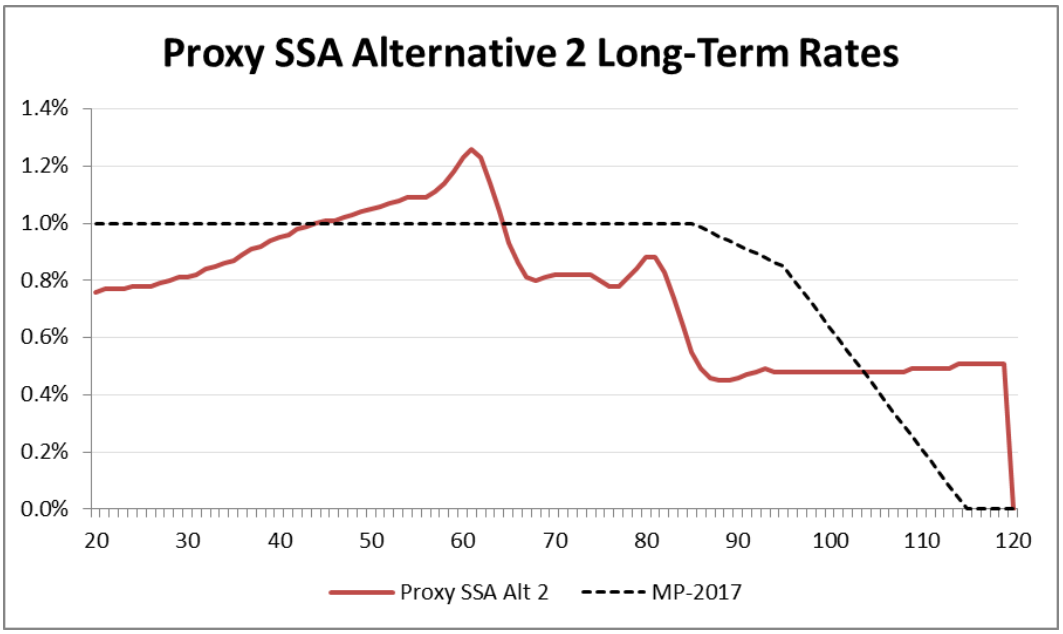
RPEC wishes to emphasize that the monthly annuity amounts described under the "Proxy SSA Alt 2" columns below were calculated under the RPEC_2014_v2017 model, with the current Scale MP-2017 long-term rate structure replaced by RPEC's proxy for the Alternative 2 long-term rates.[6] In particular, those annuity values do *not* reflect the methodology that underpins the

[5] Projected unisex mortality rates were provided to RPEC by the SSA.
[6] A table of the proxy SSA long-term rates can be found in Appendix D.

SSA's projection of future mortality rates, as published in conjunction with the 2017 Trustees' report; see [SSA 2005] for a description of SSA's methodology.

The proxy for the SSA Alternative 2 long-term rate is slightly higher than that from Scale MP-2017 for some ages between 45 and 65. For the ages most significant for pension valuations, however, it generally is lower than the current Scale MP-2017 long-term rate structure. It begins to taper earlier and does so more quickly but remains at roughly 0.5% even at the advanced ages where Scale MP-2017 declines toward zero.

Replacing the current Scale MP-2017 long-term rates with the proxy SSA long-term rates produces a cost decrease. Those changes are more pronounced at younger ages but do not differ substantially between males and females.



	Change in Monthly Deferred-to-Age-62 Annuity Values (i = 4%)	
	Proxy SSA Alternative 2 Long-Term Rates	
Age	**Males**	**Females**
25	-2.56%	-2.46%
35	-2.15%	-2.08%
45	-1.73%	-1.68%
55	-1.26%	-1.23%
65	-0.93%	-0.93%
75	-0.84%	-0.84%
85	-0.54%	-0.54%

4.3 Impact of Alternative Convergence Period Assumptions

Another adjustment anticipated by the RPEC_2014_v2017 model is to the period over which the recent graduated experience is projected to blend into the long-term rates. The model utilized two convergence functions, one that operates horizontally and one that operates diagonally. The current MP-2017 scale utilizes a 10-year convergence period in the horizontal direction and a 20-year convergence period diagonally.

The following table shows the impact of adjusting convergence periods by ±5 years. The impact of adjusting the horizontal and diagonal convergence periods are shown in isolation. Although the table illustrates horizontal and diagonal adjustments of equal size, that presentation does not imply that adjusting both in equal amounts is necessarily appropriate. We have illustrated only a five-year change in either direction, but the committee's investigation found the impact for modestly different adjustments to be roughly linear.

	Change in Monthly Deferred-to-Age-62 Annuity Values (i = 4%)							
	Males				Females			
	Horizontal Convergence Period		Diagonal Convergence Period		Horizontal Convergence Period		Diagonal Convergence Period	
Age	– 5 Years	+ 5 Years	– 5 Years	+ 5 Years	– 5 Years	+ 5 Years	– 5 Years	+ 5 Years
25	0.15%	-0.15%	0.23%	-0.26%	0.13%	-0.13%	0.22%	-0.25%
35	0.15%	-0.15%	0.23%	-0.26%	0.13%	-0.13%	0.23%	-0.25%
45	0.15%	-0.16%	0.21%	-0.22%	0.13%	-0.13%	0.22%	-0.23%
55	0.16%	-0.14%	0.23%	-0.24%	0.12%	-0.11%	0.22%	-0.23%
65	0.07%	-0.05%	0.17%	-0.18%	0.09%	-0.09%	0.11%	-0.12%
75	0.08%	-0.07%	0.09%	-0.08%	0.20%	-0.17%	0.14%	-0.12%
85	0.13%	-0.07%	0.09%	-0.04%	0.29%	-0.18%	0.19%	-0.10%

Section 5: Related Topics

5.1 Online Tools

The SOA has made available two Excel workbooks that readers may find helpful:

- Scale MP-2017 rates can be downloaded in Excel format at https://www.soa.org/Files/Research/Exp-Study/mortality-improvement-scale-mp-2017-rates.xlsx.

- The RPEC_2014_v2017 tool can be used to reconstruct Scale MP-2017 or construct alternative scales based on the same underlying graduated historical mortality data; see the workbook for instructions.

5.2 Ongoing Research

RPEC continues to research, analyze and assess the effectiveness of alternative approaches for the projection of future mortality rates. As part of this ongoing investigation, RPEC has been closely following related research of the SOA's Longevity Advisory Group [Li 2017], the Continuous Mortality Investigation (CMI) group in the United Kingdom [CMI 2017a], [CMI 2017b] and the CIA's Mortality Improvement Taskforce [CIA 2017]. Although the evaluation criteria being considered by RPEC are conceptually similar to those used by the CMI and CIA research teams, the purposes and priorities will likely be somewhat different for the retirement-related actuarial practice in the United States compared to those in the United Kingdom and Canada.

RPEC has been focusing on several measures of effectiveness for alternative mortality improvement models and resulting scales:

- Stability. Periodic updates to the historical data should not have undue influence on liabilities generated by the new scale. RPEC has already modified their committee-selected assumption set once, effective with MP-2016 (RPEC_2014_v2016 model), primarily to address volatility in the original RPEC_2014 model.
- Forecast accuracy. The goal of a mortality improvement scale is to estimate future trends in mortality. There is tremendous year-over-year variability in historical rates of mortality improvement, so no projection methodology can be expected to track closely evolving future experience. However, to the extent achievable, minimizing errors between actual and projected mortality improvement rates over short- and long-term forecasts is desirable.
- Fit. Models typically smooth historical rates of mortality (or mortality improvement) in an attempt to distinguish trends from random noise. Fit measures the extent to which smoothed rates diverge from the actual raw data. It is an assessment for historical rates and is not necessarily relevant for projections into the future. However, because the

baseline table can be relatively old, this measure can be potentially significant for bringing historical data or mortality tables forward to a current date.

The Mortality Improvement subcommittee has been backtesting possible updates to the committee-selected assumption set, as well as potential changes to the historical graduation and projection framework of the RPEC model, to see if additional stability can be achieved without problematic erosion of other relevant characteristics.

In addition, the Mortality Improvement subcommittee, RPEC and SOA are considering more than just backtesting statistics in the evaluation of potential models. Backwards compatibility, flexibility, ease of use and consistency with other SOA initiatives are also important. It is anticipated that any structural changes to the graduation or projection framework would be subject to an exposure draft and comment period as was the original MP-2014 study.

Appendix A: Scale MP-2017 Rates

The gender-specific Scale MP-2017 rates for calendar years 2000 and beyond are displayed in this appendix. These rates, as well as those for calendar years starting in 1951 (e.g., for use in conjunction with Entry Age cost methods), are available in electronic format in the Excel file that accompanies this report.

Male	Calendar Year										
Age	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
≤ 20	0.0097	0.0024	-0.0023	-0.0033	-0.0005	0.0060	0.0151	0.0251	0.0335	0.0382	0.0382
21	0.0061	-0.0016	-0.0066	-0.0078	-0.0050	0.0013	0.0104	0.0204	0.0290	0.0339	0.0342
22	0.0036	-0.0048	-0.0102	-0.0117	-0.0091	-0.0029	0.0061	0.0161	0.0246	0.0297	0.0301
23	0.0022	-0.0069	-0.0129	-0.0149	-0.0127	-0.0067	0.0022	0.0121	0.0205	0.0255	0.0260
24	0.0022	-0.0079	-0.0147	-0.0173	-0.0155	-0.0098	-0.0011	0.0085	0.0167	0.0215	0.0219
25	0.0036	-0.0077	-0.0154	-0.0188	-0.0175	-0.0122	-0.0039	0.0053	0.0132	0.0177	0.0179
26	0.0062	-0.0062	-0.0149	-0.0191	-0.0186	-0.0138	-0.0061	0.0027	0.0100	0.0141	0.0141
27	0.0100	-0.0035	-0.0133	-0.0184	-0.0186	-0.0146	-0.0076	0.0005	0.0072	0.0108	0.0105
28	0.0147	0.0003	-0.0105	-0.0165	-0.0177	-0.0145	-0.0083	-0.0011	0.0049	0.0080	0.0073
29	0.0197	0.0047	-0.0069	-0.0137	-0.0157	-0.0135	-0.0083	-0.0020	0.0032	0.0057	0.0047
30	0.0247	0.0093	-0.0027	-0.0101	-0.0128	-0.0116	-0.0074	-0.0021	0.0022	0.0041	0.0026
31	0.0291	0.0138	0.0017	-0.0060	-0.0093	-0.0088	-0.0056	-0.0014	0.0021	0.0033	0.0014
32	0.0326	0.0177	0.0058	-0.0018	-0.0053	-0.0054	-0.0031	0.0002	0.0028	0.0033	0.0010
33	0.0349	0.0207	0.0095	0.0023	-0.0011	-0.0015	0.0002	0.0027	0.0045	0.0043	0.0015
34	0.0359	0.0228	0.0125	0.0061	0.0030	0.0025	0.0038	0.0057	0.0069	0.0062	0.0029
35	0.0359	0.0238	0.0147	0.0092	0.0067	0.0065	0.0077	0.0092	0.0099	0.0087	0.0051
36	0.0348	0.0239	0.0160	0.0115	0.0098	0.0101	0.0115	0.0129	0.0133	0.0119	0.0079
37	0.0330	0.0232	0.0165	0.0130	0.0122	0.0132	0.0149	0.0165	0.0169	0.0153	0.0112
38	0.0306	0.0219	0.0162	0.0137	0.0138	0.0155	0.0178	0.0197	0.0203	0.0188	0.0146
39	0.0278	0.0201	0.0154	0.0138	0.0147	0.0171	0.0200	0.0224	0.0234	0.0220	0.0180
40	0.0246	0.0180	0.0141	0.0133	0.0149	0.0180	0.0215	0.0245	0.0258	0.0247	0.0210
41	0.0213	0.0156	0.0125	0.0124	0.0146	0.0182	0.0223	0.0257	0.0274	0.0267	0.0233
42	0.0178	0.0131	0.0107	0.0112	0.0140	0.0180	0.0224	0.0261	0.0281	0.0278	0.0250
43	0.0143	0.0104	0.0088	0.0098	0.0130	0.0173	0.0219	0.0258	0.0280	0.0281	0.0258
44	0.0110	0.0078	0.0068	0.0083	0.0117	0.0161	0.0208	0.0247	0.0272	0.0276	0.0259
45	0.0079	0.0053	0.0048	0.0065	0.0100	0.0145	0.0192	0.0232	0.0257	0.0265	0.0254
46	0.0054	0.0030	0.0027	0.0045	0.0081	0.0126	0.0172	0.0212	0.0238	0.0249	0.0242
47	0.0034	0.0011	0.0007	0.0025	0.0059	0.0103	0.0149	0.0189	0.0216	0.0230	0.0227
48	0.0023	-0.0003	-0.0010	0.0004	0.0037	0.0079	0.0124	0.0164	0.0193	0.0208	0.0208
49	0.0019	-0.0011	-0.0023	-0.0013	0.0015	0.0055	0.0099	0.0139	0.0168	0.0184	0.0187
50	0.0022	-0.0012	-0.0029	-0.0025	-0.0001	0.0035	0.0076	0.0115	0.0143	0.0160	0.0163
51	0.0033	-0.0005	-0.0027	-0.0028	-0.0011	0.0020	0.0056	0.0091	0.0118	0.0134	0.0138
52	0.0049	0.0010	-0.0015	-0.0022	-0.0012	0.0012	0.0041	0.0071	0.0094	0.0107	0.0111
53	0.0069	0.0031	0.0005	-0.0006	-0.0003	0.0011	0.0033	0.0054	0.0072	0.0082	0.0084
54	0.0092	0.0058	0.0032	0.0017	0.0014	0.0020	0.0031	0.0043	0.0054	0.0059	0.0059
55	0.0116	0.0086	0.0063	0.0046	0.0038	0.0035	0.0036	0.0039	0.0042	0.0042	0.0038
56	0.0139	0.0115	0.0095	0.0078	0.0065	0.0056	0.0048	0.0042	0.0037	0.0031	0.0023
57	0.0161	0.0143	0.0125	0.0110	0.0095	0.0080	0.0066	0.0053	0.0041	0.0029	0.0015
58	0.0181	0.0167	0.0153	0.0139	0.0124	0.0107	0.0089	0.0071	0.0053	0.0034	0.0014
59	0.0199	0.0189	0.0178	0.0165	0.0151	0.0134	0.0115	0.0094	0.0071	0.0047	0.0021
60	0.0213	0.0206	0.0198	0.0188	0.0176	0.0161	0.0142	0.0120	0.0094	0.0065	0.0033
61	0.0224	0.0221	0.0215	0.0208	0.0198	0.0185	0.0168	0.0146	0.0119	0.0087	0.0050
62	0.0233	0.0232	0.0229	0.0225	0.0218	0.0207	0.0192	0.0170	0.0143	0.0109	0.0070
63	0.0238	0.0241	0.0241	0.0239	0.0235	0.0227	0.0213	0.0192	0.0165	0.0131	0.0090
64	0.0242	0.0247	0.0250	0.0252	0.0250	0.0243	0.0230	0.0210	0.0184	0.0150	0.0110

Male	Calendar Year										
Age	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
≤ 20	0.0337	0.0255	0.0143	0.0142	0.0140	0.0137	0.0133	0.0129	0.0125	0.0120	0.0116
21	0.0300	0.0222	0.0114	0.0128	0.0127	0.0126	0.0124	0.0122	0.0119	0.0117	0.0115
22	0.0262	0.0186	0.0081	0.0098	0.0113	0.0113	0.0113	0.0114	0.0114	0.0113	0.0113
23	0.0222	0.0148	0.0046	0.0064	0.0082	0.0099	0.0102	0.0105	0.0107	0.0110	0.0111
24	0.0181	0.0108	0.0009	0.0029	0.0050	0.0071	0.0090	0.0095	0.0101	0.0106	0.0109
25	0.0141	0.0069	-0.0029	-0.0008	0.0016	0.0041	0.0064	0.0086	0.0094	0.0102	0.0107
26	0.0101	0.0029	-0.0067	-0.0045	-0.0019	0.0009	0.0038	0.0064	0.0088	0.0098	0.0105
27	0.0064	-0.0008	-0.0103	-0.0081	-0.0054	-0.0022	0.0010	0.0041	0.0070	0.0094	0.0103
28	0.0030	-0.0042	-0.0137	-0.0116	-0.0087	-0.0053	-0.0018	0.0018	0.0051	0.0079	0.0102
29	0.0002	-0.0072	-0.0167	-0.0147	-0.0118	-0.0083	-0.0044	-0.0005	0.0032	0.0064	0.0091
30	-0.0021	-0.0096	-0.0192	-0.0174	-0.0146	-0.0110	-0.0069	-0.0027	0.0013	0.0049	0.0079
31	-0.0037	-0.0114	-0.0211	-0.0196	-0.0169	-0.0133	-0.0092	-0.0048	-0.0005	0.0034	0.0066
32	-0.0044	-0.0123	-0.0223	-0.0211	-0.0187	-0.0152	-0.0111	-0.0066	-0.0022	0.0019	0.0054
33	-0.0042	-0.0125	-0.0228	-0.0220	-0.0198	-0.0166	-0.0126	-0.0082	-0.0037	0.0005	0.0041
34	-0.0032	-0.0118	-0.0224	-0.0220	-0.0202	-0.0173	-0.0136	-0.0094	-0.0050	-0.0008	0.0029
35	-0.0014	-0.0102	-0.0211	-0.0212	-0.0199	-0.0174	-0.0140	-0.0101	-0.0059	-0.0019	0.0018
36	0.0012	-0.0080	-0.0191	-0.0196	-0.0188	-0.0168	-0.0139	-0.0104	-0.0066	-0.0027	0.0008
37	0.0043	-0.0050	-0.0163	-0.0172	-0.0169	-0.0155	-0.0132	-0.0102	-0.0068	-0.0033	0.0000
38	0.0077	-0.0017	-0.0128	-0.0141	-0.0144	-0.0136	-0.0119	-0.0095	-0.0067	-0.0036	-0.0006
39	0.0111	0.0020	-0.0089	-0.0105	-0.0113	-0.0111	-0.0101	-0.0084	-0.0062	-0.0037	-0.0011
40	0.0144	0.0056	-0.0048	-0.0066	-0.0077	-0.0081	-0.0078	-0.0068	-0.0053	-0.0034	-0.0012
41	0.0173	0.0091	-0.0006	-0.0025	-0.0039	-0.0049	-0.0052	-0.0049	-0.0041	-0.0028	-0.0012
42	0.0196	0.0122	0.0034	0.0016	-0.0001	-0.0015	-0.0024	-0.0027	-0.0026	-0.0019	-0.0008
43	0.0212	0.0147	0.0071	0.0053	0.0035	0.0019	0.0006	-0.0004	-0.0008	-0.0008	-0.0002
44	0.0221	0.0167	0.0101	0.0086	0.0068	0.0051	0.0034	0.0020	0.0011	0.0006	0.0006
45	0.0224	0.0179	0.0124	0.0112	0.0096	0.0078	0.0060	0.0044	0.0030	0.0021	0.0016
46	0.0220	0.0184	0.0138	0.0130	0.0117	0.0101	0.0083	0.0065	0.0049	0.0036	0.0028
47	0.0210	0.0181	0.0143	0.0140	0.0131	0.0117	0.0101	0.0083	0.0066	0.0052	0.0041
48	0.0195	0.0172	0.0141	0.0141	0.0137	0.0127	0.0114	0.0098	0.0082	0.0066	0.0054
49	0.0177	0.0157	0.0131	0.0136	0.0135	0.0130	0.0121	0.0108	0.0094	0.0080	0.0067
50	0.0155	0.0138	0.0116	0.0124	0.0127	0.0127	0.0122	0.0114	0.0103	0.0091	0.0080
51	0.0130	0.0116	0.0097	0.0107	0.0114	0.0118	0.0119	0.0115	0.0109	0.0100	0.0090
52	0.0104	0.0092	0.0075	0.0087	0.0097	0.0105	0.0110	0.0112	0.0110	0.0106	0.0099
53	0.0078	0.0067	0.0052	0.0065	0.0077	0.0089	0.0099	0.0105	0.0109	0.0108	0.0105
54	0.0053	0.0042	0.0028	0.0041	0.0056	0.0071	0.0084	0.0095	0.0103	0.0108	0.0109
55	0.0030	0.0019	0.0005	0.0018	0.0034	0.0051	0.0068	0.0083	0.0096	0.0104	0.0109
56	0.0012	-0.0002	-0.0017	-0.0004	0.0013	0.0032	0.0051	0.0069	0.0086	0.0099	0.0107
57	-0.0001	-0.0019	-0.0038	-0.0025	-0.0008	0.0012	0.0034	0.0055	0.0075	0.0091	0.0103
58	-0.0008	-0.0031	-0.0055	-0.0044	-0.0026	-0.0005	0.0018	0.0041	0.0063	0.0082	0.0097
59	-0.0008	-0.0038	-0.0068	-0.0058	-0.0042	-0.0021	0.0003	0.0028	0.0052	0.0073	0.0090
60	-0.0002	-0.0039	-0.0074	-0.0068	-0.0053	-0.0033	-0.0009	0.0016	0.0041	0.0064	0.0083
61	0.0010	-0.0033	-0.0074	-0.0071	-0.0059	-0.0041	-0.0018	0.0007	0.0032	0.0056	0.0075
62	0.0026	-0.0021	-0.0066	-0.0067	-0.0059	-0.0044	-0.0023	0.0000	0.0025	0.0048	0.0068
63	0.0045	-0.0004	-0.0052	-0.0057	-0.0053	-0.0042	-0.0024	-0.0003	0.0019	0.0041	0.0061
64	0.0065	0.0016	-0.0033	-0.0040	-0.0040	-0.0034	-0.0021	-0.0004	0.0016	0.0036	0.0055

Male	Calendar Year											
Age	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033+
≤ 20	0.0113	0.0111	0.0109	0.0108	0.0106	0.0105	0.0103	0.0102	0.0101	0.0101	0.0100	0.0100
21	0.0113	0.0111	0.0109	0.0108	0.0106	0.0105	0.0103	0.0102	0.0101	0.0101	0.0100	0.0100
22	0.0112	0.0111	0.0109	0.0108	0.0106	0.0105	0.0103	0.0102	0.0101	0.0101	0.0100	0.0100
23	0.0112	0.0111	0.0109	0.0108	0.0106	0.0105	0.0103	0.0102	0.0101	0.0101	0.0100	0.0100
24	0.0111	0.0111	0.0109	0.0108	0.0106	0.0105	0.0103	0.0102	0.0101	0.0101	0.0100	0.0100
25	0.0111	0.0111	0.0109	0.0108	0.0106	0.0105	0.0103	0.0102	0.0101	0.0101	0.0100	0.0100
26	0.0110	0.0111	0.0109	0.0108	0.0106	0.0105	0.0103	0.0102	0.0101	0.0101	0.0100	0.0100
27	0.0110	0.0111	0.0109	0.0108	0.0106	0.0105	0.0103	0.0102	0.0101	0.0101	0.0100	0.0100
28	0.0109	0.0111	0.0109	0.0108	0.0106	0.0105	0.0103	0.0102	0.0101	0.0101	0.0100	0.0100
29	0.0109	0.0111	0.0109	0.0108	0.0106	0.0105	0.0103	0.0102	0.0101	0.0101	0.0100	0.0100
30	0.0100	0.0111	0.0109	0.0108	0.0106	0.0105	0.0103	0.0102	0.0101	0.0101	0.0100	0.0100
31	0.0090	0.0103	0.0109	0.0108	0.0106	0.0105	0.0103	0.0102	0.0101	0.0101	0.0100	0.0100
32	0.0080	0.0095	0.0103	0.0108	0.0106	0.0105	0.0103	0.0102	0.0101	0.0101	0.0100	0.0100
33	0.0069	0.0086	0.0096	0.0102	0.0106	0.0105	0.0103	0.0102	0.0101	0.0101	0.0100	0.0100
34	0.0058	0.0077	0.0089	0.0097	0.0102	0.0105	0.0103	0.0102	0.0101	0.0101	0.0100	0.0100
35	0.0048	0.0068	0.0081	0.0090	0.0097	0.0101	0.0103	0.0102	0.0101	0.0101	0.0100	0.0100
36	0.0038	0.0058	0.0073	0.0084	0.0092	0.0098	0.0101	0.0102	0.0101	0.0101	0.0100	0.0100
37	0.0028	0.0049	0.0065	0.0077	0.0087	0.0094	0.0099	0.0101	0.0101	0.0101	0.0100	0.0100
38	0.0020	0.0041	0.0057	0.0071	0.0082	0.0090	0.0096	0.0099	0.0100	0.0101	0.0100	0.0100
39	0.0013	0.0033	0.0050	0.0064	0.0077	0.0086	0.0093	0.0097	0.0099	0.0100	0.0100	0.0100
40	0.0009	0.0027	0.0043	0.0058	0.0071	0.0082	0.0090	0.0095	0.0098	0.0100	0.0100	0.0100
41	0.0006	0.0022	0.0038	0.0053	0.0067	0.0078	0.0087	0.0093	0.0097	0.0099	0.0100	0.0100
42	0.0005	0.0019	0.0034	0.0049	0.0062	0.0074	0.0084	0.0091	0.0096	0.0099	0.0100	0.0100
43	0.0007	0.0018	0.0031	0.0045	0.0059	0.0071	0.0081	0.0089	0.0095	0.0098	0.0100	0.0100
44	0.0011	0.0019	0.0030	0.0043	0.0056	0.0068	0.0079	0.0088	0.0094	0.0098	0.0100	0.0100
45	0.0017	0.0022	0.0031	0.0042	0.0054	0.0066	0.0077	0.0086	0.0093	0.0097	0.0099	0.0100
46	0.0025	0.0027	0.0034	0.0043	0.0054	0.0065	0.0076	0.0085	0.0092	0.0097	0.0099	0.0100
47	0.0035	0.0034	0.0038	0.0045	0.0054	0.0065	0.0075	0.0084	0.0091	0.0096	0.0099	0.0100
48	0.0046	0.0043	0.0044	0.0049	0.0056	0.0065	0.0074	0.0083	0.0091	0.0096	0.0099	0.0100
49	0.0058	0.0053	0.0051	0.0054	0.0059	0.0066	0.0075	0.0083	0.0090	0.0096	0.0099	0.0100
50	0.0070	0.0063	0.0060	0.0060	0.0063	0.0069	0.0076	0.0083	0.0090	0.0095	0.0099	0.0100
51	0.0081	0.0074	0.0069	0.0067	0.0068	0.0072	0.0077	0.0084	0.0090	0.0095	0.0099	0.0100
52	0.0091	0.0084	0.0078	0.0074	0.0073	0.0075	0.0079	0.0085	0.0091	0.0095	0.0099	0.0100
53	0.0100	0.0093	0.0086	0.0081	0.0079	0.0080	0.0082	0.0086	0.0091	0.0096	0.0099	0.0100
54	0.0106	0.0100	0.0094	0.0088	0.0085	0.0084	0.0085	0.0088	0.0092	0.0096	0.0099	0.0100
55	0.0110	0.0106	0.0100	0.0095	0.0091	0.0089	0.0088	0.0090	0.0093	0.0096	0.0099	0.0100
56	0.0111	0.0109	0.0105	0.0100	0.0096	0.0093	0.0092	0.0092	0.0094	0.0097	0.0099	0.0100
57	0.0110	0.0111	0.0108	0.0104	0.0100	0.0097	0.0095	0.0094	0.0096	0.0097	0.0099	0.0100
58	0.0107	0.0110	0.0109	0.0107	0.0103	0.0100	0.0098	0.0097	0.0097	0.0098	0.0099	0.0100
59	0.0102	0.0108	0.0109	0.0108	0.0105	0.0103	0.0100	0.0098	0.0098	0.0099	0.0099	0.0100
60	0.0097	0.0104	0.0107	0.0107	0.0106	0.0104	0.0102	0.0100	0.0099	0.0099	0.0100	0.0100
61	0.0090	0.0099	0.0103	0.0106	0.0106	0.0105	0.0103	0.0101	0.0100	0.0100	0.0100	0.0100
62	0.0084	0.0094	0.0099	0.0103	0.0104	0.0104	0.0103	0.0102	0.0101	0.0100	0.0100	0.0100
63	0.0077	0.0088	0.0095	0.0099	0.0102	0.0103	0.0103	0.0102	0.0101	0.0100	0.0100	0.0100
64	0.0071	0.0082	0.0090	0.0096	0.0100	0.0102	0.0102	0.0102	0.0101	0.0101	0.0100	0.0100

Male	Calendar Year										
Age	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
65	0.0242	0.0251	0.0258	0.0261	0.0261	0.0256	0.0244	0.0225	0.0199	0.0167	0.0129
66	0.0241	0.0253	0.0263	0.0269	0.0271	0.0266	0.0255	0.0237	0.0212	0.0181	0.0145
67	0.0237	0.0253	0.0266	0.0274	0.0277	0.0274	0.0263	0.0245	0.0222	0.0193	0.0159
68	0.0232	0.0251	0.0266	0.0277	0.0282	0.0279	0.0269	0.0252	0.0229	0.0202	0.0170
69	0.0225	0.0247	0.0265	0.0277	0.0284	0.0282	0.0273	0.0257	0.0235	0.0209	0.0178
70	0.0218	0.0241	0.0261	0.0276	0.0283	0.0283	0.0275	0.0260	0.0239	0.0214	0.0184
71	0.0210	0.0234	0.0256	0.0272	0.0281	0.0282	0.0275	0.0262	0.0242	0.0217	0.0189
72	0.0202	0.0227	0.0249	0.0267	0.0277	0.0280	0.0275	0.0262	0.0243	0.0219	0.0191
73	0.0194	0.0219	0.0242	0.0260	0.0272	0.0276	0.0272	0.0261	0.0243	0.0220	0.0192
74	0.0187	0.0211	0.0234	0.0253	0.0266	0.0271	0.0269	0.0259	0.0242	0.0219	0.0192
75	0.0181	0.0204	0.0226	0.0245	0.0259	0.0266	0.0265	0.0256	0.0239	0.0218	0.0191
76	0.0175	0.0197	0.0219	0.0238	0.0252	0.0260	0.0259	0.0251	0.0236	0.0215	0.0189
77	0.0169	0.0191	0.0212	0.0231	0.0245	0.0253	0.0253	0.0246	0.0231	0.0211	0.0186
78	0.0164	0.0185	0.0205	0.0224	0.0238	0.0246	0.0246	0.0239	0.0225	0.0206	0.0181
79	0.0159	0.0179	0.0199	0.0217	0.0231	0.0238	0.0239	0.0232	0.0219	0.0200	0.0177
80	0.0154	0.0174	0.0193	0.0210	0.0223	0.0231	0.0231	0.0225	0.0212	0.0194	0.0171
81	0.0148	0.0168	0.0187	0.0204	0.0216	0.0223	0.0224	0.0217	0.0205	0.0187	0.0165
82	0.0141	0.0161	0.0180	0.0196	0.0209	0.0215	0.0216	0.0210	0.0198	0.0180	0.0159
83	0.0133	0.0153	0.0172	0.0188	0.0200	0.0207	0.0207	0.0202	0.0190	0.0173	0.0153
84	0.0123	0.0144	0.0163	0.0179	0.0191	0.0198	0.0199	0.0193	0.0182	0.0166	0.0146
85	0.0113	0.0133	0.0153	0.0169	0.0182	0.0188	0.0189	0.0184	0.0174	0.0159	0.0140
86	0.0102	0.0122	0.0141	0.0158	0.0171	0.0178	0.0179	0.0175	0.0166	0.0152	0.0134
87	0.0089	0.0110	0.0129	0.0146	0.0159	0.0167	0.0169	0.0165	0.0157	0.0144	0.0128
88	0.0076	0.0096	0.0115	0.0132	0.0146	0.0154	0.0157	0.0155	0.0148	0.0137	0.0122
89	0.0062	0.0082	0.0101	0.0118	0.0131	0.0140	0.0145	0.0144	0.0138	0.0129	0.0116
90	0.0047	0.0066	0.0085	0.0102	0.0116	0.0126	0.0131	0.0132	0.0128	0.0121	0.0110
91	0.0031	0.0050	0.0068	0.0085	0.0099	0.0110	0.0117	0.0119	0.0118	0.0113	0.0105
92	0.0015	0.0033	0.0051	0.0067	0.0082	0.0093	0.0101	0.0106	0.0107	0.0104	0.0099
93	-0.0002	0.0015	0.0032	0.0049	0.0063	0.0076	0.0085	0.0092	0.0095	0.0095	0.0093
94	-0.0020	-0.0004	0.0013	0.0029	0.0044	0.0057	0.0068	0.0077	0.0083	0.0086	0.0088
95	-0.0038	-0.0023	-0.0007	0.0008	0.0023	0.0037	0.0050	0.0061	0.0070	0.0077	0.0083
96	-0.0036	-0.0022	-0.0007	0.0008	0.0022	0.0036	0.0047	0.0058	0.0066	0.0073	0.0078
97	-0.0034	-0.0021	-0.0007	0.0007	0.0021	0.0034	0.0045	0.0055	0.0063	0.0069	0.0074
98	-0.0032	-0.0020	-0.0006	0.0007	0.0020	0.0032	0.0042	0.0052	0.0059	0.0065	0.0070
99	-0.0030	-0.0018	-0.0006	0.0007	0.0019	0.0030	0.0040	0.0049	0.0056	0.0062	0.0066
100	-0.0029	-0.0017	-0.0006	0.0006	0.0018	0.0028	0.0037	0.0046	0.0052	0.0058	0.0062
101	-0.0027	-0.0016	-0.0005	0.0006	0.0016	0.0026	0.0035	0.0043	0.0049	0.0054	0.0058
102	-0.0025	-0.0015	-0.0005	0.0005	0.0015	0.0024	0.0032	0.0040	0.0045	0.0050	0.0054
103	-0.0023	-0.0014	-0.0004	0.0005	0.0014	0.0022	0.0030	0.0037	0.0042	0.0046	0.0050
104	-0.0021	-0.0013	-0.0004	0.0005	0.0013	0.0021	0.0027	0.0033	0.0038	0.0042	0.0045
105	-0.0019	-0.0012	-0.0004	0.0004	0.0012	0.0019	0.0025	0.0030	0.0035	0.0039	0.0041
106	-0.0017	-0.0010	-0.0003	0.0004	0.0011	0.0017	0.0022	0.0027	0.0031	0.0035	0.0037
107	-0.0015	-0.0009	-0.0003	0.0003	0.0009	0.0015	0.0020	0.0024	0.0028	0.0031	0.0033
108	-0.0013	-0.0008	-0.0003	0.0003	0.0008	0.0013	0.0017	0.0021	0.0024	0.0027	0.0029
109	-0.0011	-0.0007	-0.0002	0.0002	0.0007	0.0011	0.0015	0.0018	0.0021	0.0023	0.0025
110	-0.0010	-0.0006	-0.0002	0.0002	0.0006	0.0009	0.0012	0.0015	0.0017	0.0019	0.0021
111	-0.0008	-0.0005	-0.0001	0.0002	0.0005	0.0007	0.0010	0.0012	0.0014	0.0015	0.0017
112	-0.0006	-0.0003	-0.0001	0.0001	0.0004	0.0006	0.0007	0.0009	0.0010	0.0012	0.0012
113	-0.0004	-0.0002	-0.0001	0.0001	0.0002	0.0004	0.0005	0.0006	0.0007	0.0008	0.0008
114	-0.0002	-0.0001	0.0000	0.0000	0.0001	0.0002	0.0002	0.0003	0.0003	0.0004	0.0004
115+	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Male	Calendar Year										
Age	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
65	0.0085	0.0038	-0.0011	-0.0020	-0.0024	-0.0022	-0.0014	-0.0001	0.0015	0.0032	0.0050
66	0.0104	0.0059	0.0012	0.0002	-0.0004	-0.0006	-0.0003	0.0005	0.0016	0.0030	0.0045
67	0.0120	0.0078	0.0034	0.0024	0.0017	0.0012	0.0010	0.0013	0.0020	0.0030	0.0042
68	0.0133	0.0094	0.0053	0.0044	0.0036	0.0030	0.0025	0.0024	0.0026	0.0032	0.0041
69	0.0144	0.0107	0.0068	0.0061	0.0054	0.0046	0.0040	0.0036	0.0035	0.0037	0.0042
70	0.0152	0.0117	0.0080	0.0075	0.0068	0.0061	0.0054	0.0048	0.0044	0.0043	0.0045
71	0.0157	0.0123	0.0088	0.0084	0.0079	0.0073	0.0066	0.0060	0.0055	0.0051	0.0050
72	0.0160	0.0128	0.0094	0.0091	0.0087	0.0082	0.0077	0.0070	0.0064	0.0060	0.0057
73	0.0162	0.0130	0.0097	0.0095	0.0093	0.0089	0.0084	0.0079	0.0073	0.0068	0.0064
74	0.0162	0.0131	0.0098	0.0097	0.0096	0.0093	0.0090	0.0086	0.0081	0.0076	0.0071
75	0.0162	0.0130	0.0098	0.0098	0.0097	0.0096	0.0094	0.0090	0.0087	0.0082	0.0078
76	0.0160	0.0129	0.0097	0.0097	0.0097	0.0097	0.0096	0.0094	0.0091	0.0087	0.0084
77	0.0157	0.0127	0.0095	0.0096	0.0096	0.0097	0.0096	0.0095	0.0094	0.0091	0.0088
78	0.0154	0.0124	0.0093	0.0094	0.0095	0.0096	0.0096	0.0096	0.0095	0.0094	0.0092
79	0.0150	0.0120	0.0090	0.0091	0.0093	0.0094	0.0095	0.0096	0.0096	0.0095	0.0094
80	0.0145	0.0117	0.0087	0.0089	0.0090	0.0092	0.0093	0.0095	0.0095	0.0096	0.0095
81	0.0140	0.0112	0.0084	0.0086	0.0087	0.0089	0.0091	0.0093	0.0095	0.0096	0.0096
82	0.0135	0.0108	0.0081	0.0083	0.0085	0.0087	0.0089	0.0091	0.0093	0.0095	0.0096
83	0.0129	0.0104	0.0078	0.0079	0.0082	0.0084	0.0087	0.0089	0.0091	0.0094	0.0095
84	0.0124	0.0100	0.0074	0.0076	0.0079	0.0081	0.0084	0.0087	0.0090	0.0092	0.0094
85	0.0119	0.0096	0.0072	0.0073	0.0076	0.0078	0.0082	0.0085	0.0088	0.0090	0.0093
86	0.0114	0.0092	0.0069	0.0071	0.0073	0.0076	0.0079	0.0082	0.0085	0.0088	0.0090
87	0.0109	0.0089	0.0068	0.0069	0.0071	0.0073	0.0076	0.0080	0.0083	0.0086	0.0088
88	0.0105	0.0086	0.0067	0.0068	0.0069	0.0071	0.0074	0.0077	0.0080	0.0083	0.0086
89	0.0101	0.0084	0.0067	0.0067	0.0068	0.0070	0.0073	0.0075	0.0078	0.0081	0.0083
90	0.0097	0.0083	0.0068	0.0068	0.0068	0.0069	0.0071	0.0074	0.0076	0.0079	0.0081
91	0.0094	0.0083	0.0070	0.0069	0.0069	0.0070	0.0071	0.0073	0.0075	0.0077	0.0079
92	0.0092	0.0083	0.0074	0.0072	0.0071	0.0071	0.0071	0.0072	0.0073	0.0075	0.0076
93	0.0090	0.0085	0.0079	0.0076	0.0074	0.0073	0.0072	0.0072	0.0073	0.0073	0.0074
94	0.0088	0.0087	0.0085	0.0082	0.0079	0.0076	0.0074	0.0073	0.0072	0.0072	0.0072
95	0.0087	0.0090	0.0093	0.0089	0.0084	0.0081	0.0077	0.0075	0.0073	0.0072	0.0071
96	0.0082	0.0086	0.0088	0.0084	0.0080	0.0077	0.0074	0.0071	0.0069	0.0068	0.0067
97	0.0078	0.0081	0.0084	0.0080	0.0076	0.0073	0.0070	0.0067	0.0066	0.0064	0.0064
98	0.0074	0.0077	0.0079	0.0075	0.0072	0.0069	0.0066	0.0064	0.0062	0.0061	0.0060
99	0.0069	0.0072	0.0074	0.0071	0.0068	0.0065	0.0062	0.0060	0.0058	0.0057	0.0057
100	0.0065	0.0068	0.0070	0.0066	0.0063	0.0061	0.0058	0.0056	0.0055	0.0054	0.0053
101	0.0061	0.0063	0.0065	0.0062	0.0059	0.0056	0.0054	0.0052	0.0051	0.0050	0.0050
102	0.0056	0.0059	0.0060	0.0058	0.0055	0.0052	0.0050	0.0049	0.0047	0.0046	0.0046
103	0.0052	0.0054	0.0056	0.0053	0.0051	0.0048	0.0046	0.0045	0.0044	0.0043	0.0042
104	0.0048	0.0050	0.0051	0.0049	0.0046	0.0044	0.0043	0.0041	0.0040	0.0039	0.0039
105	0.0043	0.0045	0.0046	0.0044	0.0042	0.0040	0.0039	0.0037	0.0036	0.0036	0.0035
106	0.0039	0.0041	0.0042	0.0040	0.0038	0.0036	0.0035	0.0034	0.0033	0.0032	0.0032
107	0.0035	0.0036	0.0037	0.0035	0.0034	0.0032	0.0031	0.0030	0.0029	0.0029	0.0028
108	0.0030	0.0032	0.0032	0.0031	0.0030	0.0028	0.0027	0.0026	0.0025	0.0025	0.0025
109	0.0026	0.0027	0.0028	0.0027	0.0025	0.0024	0.0023	0.0022	0.0022	0.0021	0.0021
110	0.0022	0.0023	0.0023	0.0022	0.0021	0.0020	0.0019	0.0019	0.0018	0.0018	0.0018
111	0.0017	0.0018	0.0019	0.0018	0.0017	0.0016	0.0015	0.0015	0.0015	0.0014	0.0014
112	0.0013	0.0014	0.0014	0.0013	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0011
113	0.0009	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0007	0.0007	0.0007	0.0007
114	0.0004	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
115+	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Male	Calendar Year											
Age	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033+
65	0.0065	0.0076	0.0085	0.0092	0.0097	0.0100	0.0101	0.0102	0.0101	0.0101	0.0100	0.0100
66	0.0059	0.0071	0.0080	0.0087	0.0093	0.0097	0.0100	0.0101	0.0101	0.0101	0.0100	0.0100
67	0.0055	0.0066	0.0075	0.0083	0.0090	0.0095	0.0098	0.0100	0.0100	0.0100	0.0100	0.0100
68	0.0051	0.0061	0.0071	0.0079	0.0087	0.0092	0.0096	0.0099	0.0100	0.0100	0.0100	0.0100
69	0.0049	0.0058	0.0067	0.0076	0.0083	0.0090	0.0094	0.0098	0.0099	0.0100	0.0100	0.0100
70	0.0050	0.0056	0.0064	0.0073	0.0081	0.0087	0.0093	0.0096	0.0099	0.0100	0.0100	0.0100
71	0.0052	0.0056	0.0063	0.0070	0.0078	0.0085	0.0091	0.0095	0.0098	0.0099	0.0100	0.0100
72	0.0056	0.0058	0.0063	0.0069	0.0076	0.0083	0.0089	0.0094	0.0097	0.0099	0.0100	0.0100
73	0.0062	0.0062	0.0065	0.0069	0.0075	0.0082	0.0088	0.0093	0.0096	0.0099	0.0100	0.0100
74	0.0068	0.0067	0.0068	0.0071	0.0075	0.0081	0.0087	0.0092	0.0096	0.0098	0.0100	0.0100
75	0.0074	0.0072	0.0072	0.0073	0.0077	0.0081	0.0086	0.0091	0.0095	0.0098	0.0100	0.0100
76	0.0080	0.0078	0.0076	0.0077	0.0079	0.0082	0.0086	0.0091	0.0095	0.0098	0.0100	0.0100
77	0.0085	0.0083	0.0081	0.0081	0.0081	0.0084	0.0087	0.0091	0.0095	0.0098	0.0099	0.0100
78	0.0090	0.0087	0.0085	0.0084	0.0084	0.0086	0.0088	0.0091	0.0095	0.0098	0.0099	0.0100
79	0.0093	0.0091	0.0089	0.0087	0.0087	0.0088	0.0090	0.0092	0.0095	0.0098	0.0099	0.0100
80	0.0095	0.0093	0.0092	0.0090	0.0090	0.0090	0.0091	0.0093	0.0095	0.0098	0.0099	0.0100
81	0.0096	0.0095	0.0094	0.0092	0.0092	0.0092	0.0093	0.0094	0.0096	0.0098	0.0099	0.0100
82	0.0096	0.0096	0.0095	0.0094	0.0093	0.0093	0.0094	0.0095	0.0097	0.0098	0.0099	0.0100
83	0.0096	0.0096	0.0096	0.0095	0.0094	0.0094	0.0094	0.0095	0.0097	0.0098	0.0100	0.0100
84	0.0096	0.0096	0.0096	0.0095	0.0095	0.0095	0.0095	0.0096	0.0097	0.0098	0.0100	0.0100
85	0.0095	0.0096	0.0096	0.0096	0.0095	0.0095	0.0095	0.0096	0.0096	0.0098	0.0099	0.0100
86	0.0092	0.0094	0.0094	0.0094	0.0094	0.0094	0.0095	0.0095	0.0095	0.0096	0.0098	0.0099
87	0.0090	0.0091	0.0092	0.0093	0.0093	0.0093	0.0094	0.0094	0.0094	0.0095	0.0096	0.0097
88	0.0088	0.0089	0.0090	0.0091	0.0092	0.0092	0.0092	0.0093	0.0093	0.0094	0.0095	0.0096
89	0.0085	0.0086	0.0087	0.0088	0.0090	0.0091	0.0091	0.0091	0.0092	0.0092	0.0093	0.0094
90	0.0083	0.0084	0.0085	0.0086	0.0087	0.0088	0.0090	0.0090	0.0091	0.0091	0.0092	0.0093
91	0.0080	0.0081	0.0082	0.0083	0.0084	0.0086	0.0087	0.0089	0.0089	0.0090	0.0090	0.0091
92	0.0078	0.0079	0.0080	0.0081	0.0082	0.0083	0.0084	0.0086	0.0088	0.0088	0.0089	0.0090
93	0.0075	0.0076	0.0077	0.0078	0.0079	0.0080	0.0082	0.0083	0.0085	0.0087	0.0087	0.0088
94	0.0073	0.0074	0.0074	0.0075	0.0076	0.0078	0.0079	0.0080	0.0082	0.0084	0.0086	0.0087
95	0.0071	0.0071	0.0072	0.0073	0.0074	0.0075	0.0076	0.0078	0.0079	0.0081	0.0083	0.0085
96	0.0067	0.0067	0.0068	0.0069	0.0070	0.0071	0.0072	0.0074	0.0075	0.0077	0.0079	0.0081
97	0.0064	0.0064	0.0065	0.0065	0.0066	0.0067	0.0069	0.0070	0.0071	0.0073	0.0075	0.0077
98	0.0060	0.0060	0.0061	0.0062	0.0063	0.0064	0.0065	0.0066	0.0067	0.0069	0.0070	0.0072
99	0.0057	0.0057	0.0057	0.0058	0.0059	0.0060	0.0061	0.0062	0.0063	0.0065	0.0066	0.0068
100	0.0053	0.0053	0.0054	0.0055	0.0055	0.0056	0.0057	0.0058	0.0059	0.0061	0.0062	0.0064
101	0.0049	0.0050	0.0050	0.0051	0.0052	0.0052	0.0053	0.0054	0.0055	0.0057	0.0058	0.0060
102	0.0046	0.0046	0.0047	0.0047	0.0048	0.0049	0.0050	0.0050	0.0052	0.0053	0.0054	0.0055
103	0.0042	0.0043	0.0043	0.0044	0.0044	0.0045	0.0046	0.0047	0.0048	0.0049	0.0050	0.0051
104	0.0039	0.0039	0.0039	0.0040	0.0041	0.0041	0.0042	0.0043	0.0044	0.0045	0.0046	0.0047
105	0.0035	0.0036	0.0036	0.0036	0.0037	0.0037	0.0038	0.0039	0.0040	0.0041	0.0041	0.0043
106	0.0032	0.0032	0.0032	0.0033	0.0033	0.0034	0.0034	0.0035	0.0036	0.0036	0.0037	0.0038
107	0.0028	0.0028	0.0029	0.0029	0.0029	0.0030	0.0030	0.0031	0.0032	0.0032	0.0033	0.0034
108	0.0025	0.0025	0.0025	0.0025	0.0026	0.0026	0.0027	0.0027	0.0028	0.0028	0.0029	0.0030
109	0.0021	0.0021	0.0022	0.0022	0.0022	0.0022	0.0023	0.0023	0.0024	0.0024	0.0025	0.0026
110	0.0018	0.0018	0.0018	0.0018	0.0018	0.0019	0.0019	0.0019	0.0020	0.0020	0.0021	0.0021
111	0.0014	0.0014	0.0014	0.0015	0.0015	0.0015	0.0015	0.0016	0.0016	0.0016	0.0017	0.0017
112	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0011	0.0012	0.0012	0.0012	0.0012	0.0013
113	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0008	0.0008	0.0008	0.0008	0.0008	0.0009
114	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
115+	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Female	Calendar Year										
Age	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
≤ 20	0.0018	-0.0006	-0.0012	0.0008	0.0052	0.0114	0.0183	0.0246	0.0290	0.0304	0.0283
21	0.0003	-0.0027	-0.0039	-0.0027	0.0010	0.0063	0.0125	0.0183	0.0225	0.0239	0.0224
22	-0.0003	-0.0040	-0.0059	-0.0054	-0.0026	0.0018	0.0072	0.0124	0.0163	0.0179	0.0169
23	0.0001	-0.0044	-0.0071	-0.0074	-0.0055	-0.0020	0.0026	0.0072	0.0108	0.0125	0.0118
24	0.0013	-0.0040	-0.0074	-0.0086	-0.0076	-0.0050	-0.0013	0.0027	0.0060	0.0077	0.0074
25	0.0032	-0.0028	-0.0069	-0.0090	-0.0088	-0.0071	-0.0043	-0.0009	0.0021	0.0037	0.0036
26	0.0056	-0.0009	-0.0057	-0.0085	-0.0092	-0.0083	-0.0063	-0.0035	-0.0010	0.0005	0.0004
27	0.0083	0.0015	-0.0038	-0.0072	-0.0087	-0.0086	-0.0073	-0.0052	-0.0032	-0.0020	-0.0021
28	0.0110	0.0041	-0.0015	-0.0054	-0.0074	-0.0080	-0.0073	-0.0059	-0.0044	-0.0037	-0.0041
29	0.0135	0.0067	0.0011	-0.0030	-0.0055	-0.0065	-0.0063	-0.0055	-0.0048	-0.0046	-0.0054
30	0.0154	0.0092	0.0038	-0.0003	-0.0030	-0.0043	-0.0045	-0.0044	-0.0043	-0.0048	-0.0062
31	0.0167	0.0111	0.0062	0.0025	-0.0001	-0.0015	-0.0020	-0.0024	-0.0030	-0.0042	-0.0062
32	0.0171	0.0124	0.0083	0.0052	0.0030	0.0017	0.0010	0.0002	-0.0010	-0.0029	-0.0055
33	0.0166	0.0129	0.0098	0.0075	0.0060	0.0050	0.0043	0.0033	0.0016	-0.0009	-0.0042
34	0.0153	0.0126	0.0106	0.0094	0.0088	0.0083	0.0077	0.0066	0.0047	0.0017	-0.0023
35	0.0132	0.0115	0.0107	0.0107	0.0110	0.0111	0.0109	0.0100	0.0079	0.0046	0.0002
36	0.0106	0.0098	0.0101	0.0111	0.0125	0.0134	0.0138	0.0131	0.0112	0.0077	0.0030
37	0.0075	0.0075	0.0087	0.0108	0.0131	0.0150	0.0160	0.0159	0.0142	0.0109	0.0061
38	0.0043	0.0048	0.0067	0.0097	0.0130	0.0157	0.0176	0.0180	0.0169	0.0138	0.0092
39	0.0010	0.0018	0.0043	0.0079	0.0120	0.0156	0.0183	0.0195	0.0189	0.0164	0.0121
40	-0.0021	-0.0012	0.0015	0.0056	0.0103	0.0147	0.0181	0.0201	0.0202	0.0184	0.0146
41	-0.0049	-0.0041	-0.0013	0.0030	0.0081	0.0130	0.0172	0.0199	0.0208	0.0196	0.0165
42	-0.0072	-0.0067	-0.0041	0.0002	0.0055	0.0109	0.0155	0.0189	0.0204	0.0201	0.0177
43	-0.0089	-0.0088	-0.0066	-0.0024	0.0028	0.0083	0.0133	0.0171	0.0193	0.0197	0.0181
44	-0.0098	-0.0102	-0.0085	-0.0048	0.0002	0.0056	0.0106	0.0148	0.0175	0.0185	0.0178
45	-0.0098	-0.0109	-0.0098	-0.0067	-0.0022	0.0029	0.0078	0.0121	0.0151	0.0166	0.0166
46	-0.0090	-0.0107	-0.0103	-0.0079	-0.0041	0.0005	0.0051	0.0092	0.0123	0.0143	0.0148
47	-0.0074	-0.0096	-0.0099	-0.0083	-0.0053	-0.0015	0.0026	0.0064	0.0094	0.0116	0.0125
48	-0.0051	-0.0077	-0.0086	-0.0079	-0.0057	-0.0027	0.0006	0.0039	0.0067	0.0088	0.0099
49	-0.0024	-0.0052	-0.0066	-0.0066	-0.0053	-0.0032	-0.0006	0.0020	0.0043	0.0061	0.0072
50	0.0006	-0.0022	-0.0040	-0.0045	-0.0040	-0.0028	-0.0010	0.0008	0.0024	0.0037	0.0046
51	0.0036	0.0010	-0.0009	-0.0018	-0.0019	-0.0014	-0.0005	0.0005	0.0013	0.0019	0.0023
52	0.0064	0.0041	0.0024	0.0014	0.0009	0.0008	0.0009	0.0010	0.0010	0.0008	0.0004
53	0.0088	0.0071	0.0058	0.0049	0.0042	0.0037	0.0031	0.0025	0.0016	0.0005	-0.0008
54	0.0108	0.0098	0.0090	0.0084	0.0078	0.0070	0.0060	0.0046	0.0029	0.0010	-0.0012
55	0.0124	0.0120	0.0118	0.0116	0.0113	0.0105	0.0092	0.0073	0.0050	0.0022	-0.0008
56	0.0136	0.0138	0.0142	0.0145	0.0145	0.0138	0.0124	0.0103	0.0075	0.0041	0.0004
57	0.0144	0.0152	0.0161	0.0169	0.0172	0.0168	0.0155	0.0133	0.0103	0.0066	0.0023
58	0.0149	0.0161	0.0175	0.0187	0.0194	0.0194	0.0183	0.0162	0.0132	0.0093	0.0047
59	0.0151	0.0167	0.0184	0.0200	0.0211	0.0213	0.0206	0.0188	0.0159	0.0121	0.0074
60	0.0151	0.0170	0.0190	0.0208	0.0222	0.0228	0.0224	0.0209	0.0183	0.0147	0.0101
61	0.0149	0.0170	0.0192	0.0213	0.0229	0.0237	0.0237	0.0225	0.0202	0.0169	0.0126
62	0.0145	0.0168	0.0192	0.0215	0.0233	0.0243	0.0245	0.0236	0.0216	0.0187	0.0147
63	0.0140	0.0165	0.0191	0.0215	0.0234	0.0246	0.0249	0.0242	0.0225	0.0199	0.0163
64	0.0133	0.0161	0.0188	0.0213	0.0233	0.0246	0.0250	0.0245	0.0230	0.0206	0.0174

Female	Calendar Year										
Age	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
≤ 20	0.0230	0.0149	0.0046	0.0047	0.0049	0.0053	0.0058	0.0064	0.0069	0.0075	0.0080
21	0.0180	0.0111	0.0023	0.0036	0.0039	0.0044	0.0051	0.0058	0.0065	0.0072	0.0078
22	0.0133	0.0074	-0.0001	0.0013	0.0028	0.0035	0.0043	0.0052	0.0061	0.0070	0.0077
23	0.0089	0.0039	-0.0026	-0.0011	0.0006	0.0025	0.0035	0.0046	0.0057	0.0067	0.0076
24	0.0049	0.0006	-0.0052	-0.0036	-0.0017	0.0004	0.0027	0.0039	0.0052	0.0064	0.0075
25	0.0015	-0.0025	-0.0077	-0.0062	-0.0041	-0.0017	0.0008	0.0033	0.0048	0.0061	0.0073
26	-0.0015	-0.0053	-0.0102	-0.0086	-0.0064	-0.0039	-0.0011	0.0017	0.0043	0.0059	0.0072
27	-0.0041	-0.0077	-0.0126	-0.0110	-0.0088	-0.0060	-0.0030	0.0001	0.0030	0.0056	0.0071
28	-0.0061	-0.0098	-0.0148	-0.0133	-0.0109	-0.0080	-0.0048	-0.0015	0.0017	0.0046	0.0070
29	-0.0077	-0.0115	-0.0167	-0.0153	-0.0130	-0.0100	-0.0066	-0.0031	0.0004	0.0035	0.0061
30	-0.0088	-0.0128	-0.0183	-0.0170	-0.0147	-0.0117	-0.0082	-0.0046	-0.0009	0.0024	0.0053
31	-0.0093	-0.0137	-0.0195	-0.0184	-0.0162	-0.0132	-0.0097	-0.0059	-0.0021	0.0014	0.0044
32	-0.0092	-0.0140	-0.0203	-0.0193	-0.0173	-0.0144	-0.0109	-0.0071	-0.0033	0.0004	0.0035
33	-0.0085	-0.0139	-0.0205	-0.0199	-0.0180	-0.0152	-0.0119	-0.0081	-0.0042	-0.0006	0.0027
34	-0.0072	-0.0131	-0.0202	-0.0198	-0.0182	-0.0157	-0.0125	-0.0088	-0.0050	-0.0014	0.0019
35	-0.0053	-0.0118	-0.0192	-0.0192	-0.0179	-0.0157	-0.0127	-0.0092	-0.0056	-0.0021	0.0012
36	-0.0029	-0.0098	-0.0176	-0.0179	-0.0170	-0.0151	-0.0125	-0.0093	-0.0059	-0.0026	0.0005
37	-0.0001	-0.0073	-0.0153	-0.0160	-0.0155	-0.0141	-0.0119	-0.0091	-0.0060	-0.0029	0.0000
38	0.0030	-0.0044	-0.0125	-0.0135	-0.0135	-0.0125	-0.0108	-0.0085	-0.0058	-0.0030	-0.0003
39	0.0061	-0.0012	-0.0093	-0.0105	-0.0109	-0.0105	-0.0093	-0.0076	-0.0054	-0.0029	-0.0006
40	0.0089	0.0020	-0.0058	-0.0072	-0.0080	-0.0081	-0.0075	-0.0063	-0.0046	-0.0027	-0.0006
41	0.0115	0.0050	-0.0024	-0.0039	-0.0049	-0.0054	-0.0053	-0.0047	-0.0036	-0.0022	-0.0005
42	0.0134	0.0077	0.0009	-0.0005	-0.0017	-0.0026	-0.0030	-0.0029	-0.0024	-0.0015	-0.0003
43	0.0147	0.0098	0.0038	0.0025	0.0012	0.0002	-0.0006	-0.0010	-0.0010	-0.0006	0.0002
44	0.0152	0.0112	0.0062	0.0051	0.0039	0.0027	0.0017	0.0009	0.0005	0.0005	0.0009
45	0.0149	0.0118	0.0078	0.0071	0.0060	0.0049	0.0038	0.0028	0.0021	0.0017	0.0017
46	0.0139	0.0117	0.0086	0.0082	0.0075	0.0066	0.0055	0.0044	0.0036	0.0029	0.0026
47	0.0122	0.0108	0.0085	0.0086	0.0083	0.0076	0.0068	0.0058	0.0049	0.0042	0.0037
48	0.0100	0.0091	0.0075	0.0081	0.0082	0.0080	0.0075	0.0068	0.0060	0.0053	0.0047
49	0.0075	0.0069	0.0057	0.0067	0.0074	0.0077	0.0076	0.0073	0.0068	0.0063	0.0058
50	0.0047	0.0043	0.0033	0.0046	0.0058	0.0067	0.0072	0.0074	0.0073	0.0071	0.0067
51	0.0021	0.0015	0.0005	0.0021	0.0037	0.0051	0.0063	0.0070	0.0075	0.0076	0.0075
52	-0.0003	-0.0013	-0.0025	-0.0008	0.0012	0.0031	0.0048	0.0062	0.0073	0.0079	0.0081
53	-0.0022	-0.0038	-0.0054	-0.0037	-0.0015	0.0008	0.0031	0.0051	0.0067	0.0078	0.0085
54	-0.0034	-0.0057	-0.0080	-0.0064	-0.0041	-0.0015	0.0012	0.0037	0.0059	0.0075	0.0086
55	-0.0039	-0.0070	-0.0099	-0.0086	-0.0064	-0.0037	-0.0007	0.0022	0.0048	0.0070	0.0085
56	-0.0035	-0.0073	-0.0111	-0.0101	-0.0082	-0.0055	-0.0024	0.0007	0.0037	0.0062	0.0081
57	-0.0022	-0.0068	-0.0113	-0.0108	-0.0092	-0.0068	-0.0038	-0.0006	0.0025	0.0053	0.0075
58	-0.0003	-0.0054	-0.0106	-0.0106	-0.0095	-0.0074	-0.0047	-0.0017	0.0015	0.0044	0.0068
59	0.0022	-0.0034	-0.0090	-0.0095	-0.0089	-0.0074	-0.0051	-0.0023	0.0006	0.0035	0.0059
60	0.0048	-0.0009	-0.0068	-0.0076	-0.0075	-0.0066	-0.0049	-0.0026	0.0000	0.0026	0.0051
61	0.0075	0.0018	-0.0040	-0.0051	-0.0055	-0.0052	-0.0041	-0.0024	-0.0003	0.0020	0.0043
62	0.0099	0.0045	-0.0011	-0.0023	-0.0031	-0.0033	-0.0028	-0.0018	-0.0002	0.0016	0.0036
63	0.0120	0.0070	0.0019	0.0005	-0.0005	-0.0011	-0.0012	-0.0007	0.0002	0.0015	0.0031
64	0.0136	0.0092	0.0046	0.0033	0.0022	0.0013	0.0007	0.0006	0.0010	0.0018	0.0029

Female	Calendar Year											
Age	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033+
≤ 20	0.0084	0.0086	0.0088	0.0090	0.0092	0.0094	0.0096	0.0097	0.0098	0.0099	0.0100	0.0100
21	0.0083	0.0086	0.0088	0.0090	0.0092	0.0094	0.0096	0.0097	0.0098	0.0099	0.0100	0.0100
22	0.0083	0.0086	0.0088	0.0090	0.0092	0.0094	0.0096	0.0097	0.0098	0.0099	0.0100	0.0100
23	0.0083	0.0086	0.0088	0.0090	0.0092	0.0094	0.0096	0.0097	0.0098	0.0099	0.0100	0.0100
24	0.0082	0.0086	0.0088	0.0090	0.0092	0.0094	0.0096	0.0097	0.0098	0.0099	0.0100	0.0100
25	0.0082	0.0086	0.0088	0.0090	0.0092	0.0094	0.0096	0.0097	0.0098	0.0099	0.0100	0.0100
26	0.0082	0.0086	0.0088	0.0090	0.0092	0.0094	0.0096	0.0097	0.0098	0.0099	0.0100	0.0100
27	0.0081	0.0086	0.0088	0.0090	0.0092	0.0094	0.0096	0.0097	0.0098	0.0099	0.0100	0.0100
28	0.0081	0.0086	0.0088	0.0090	0.0092	0.0094	0.0096	0.0097	0.0098	0.0099	0.0100	0.0100
29	0.0081	0.0086	0.0088	0.0090	0.0092	0.0094	0.0096	0.0097	0.0098	0.0099	0.0100	0.0100
30	0.0074	0.0086	0.0088	0.0090	0.0092	0.0094	0.0096	0.0097	0.0098	0.0099	0.0100	0.0100
31	0.0067	0.0081	0.0088	0.0090	0.0092	0.0094	0.0096	0.0097	0.0098	0.0099	0.0100	0.0100
32	0.0060	0.0075	0.0084	0.0090	0.0092	0.0094	0.0096	0.0097	0.0098	0.0099	0.0100	0.0100
33	0.0052	0.0068	0.0079	0.0086	0.0092	0.0094	0.0096	0.0097	0.0098	0.0099	0.0100	0.0100
34	0.0045	0.0062	0.0073	0.0082	0.0089	0.0094	0.0096	0.0097	0.0098	0.0099	0.0100	0.0100
35	0.0038	0.0056	0.0068	0.0078	0.0086	0.0092	0.0096	0.0097	0.0098	0.0099	0.0100	0.0100
36	0.0031	0.0049	0.0062	0.0073	0.0082	0.0089	0.0094	0.0097	0.0098	0.0099	0.0100	0.0100
37	0.0025	0.0043	0.0057	0.0069	0.0079	0.0086	0.0092	0.0096	0.0098	0.0099	0.0100	0.0100
38	0.0020	0.0038	0.0052	0.0064	0.0075	0.0084	0.0090	0.0095	0.0098	0.0099	0.0100	0.0100
39	0.0016	0.0033	0.0047	0.0060	0.0071	0.0081	0.0088	0.0093	0.0097	0.0099	0.0100	0.0100
40	0.0013	0.0029	0.0043	0.0056	0.0068	0.0078	0.0086	0.0092	0.0096	0.0099	0.0100	0.0100
41	0.0011	0.0026	0.0040	0.0053	0.0065	0.0076	0.0084	0.0091	0.0095	0.0098	0.0100	0.0100
42	0.0011	0.0024	0.0037	0.0050	0.0062	0.0073	0.0082	0.0089	0.0095	0.0098	0.0100	0.0100
43	0.0012	0.0024	0.0036	0.0048	0.0060	0.0071	0.0081	0.0088	0.0094	0.0098	0.0099	0.0100
44	0.0015	0.0025	0.0035	0.0047	0.0058	0.0069	0.0079	0.0087	0.0093	0.0097	0.0099	0.0100
45	0.0020	0.0027	0.0036	0.0046	0.0057	0.0068	0.0078	0.0086	0.0092	0.0097	0.0099	0.0100
46	0.0027	0.0031	0.0038	0.0047	0.0057	0.0067	0.0077	0.0085	0.0092	0.0097	0.0099	0.0100
47	0.0035	0.0037	0.0041	0.0049	0.0057	0.0067	0.0076	0.0085	0.0091	0.0096	0.0099	0.0100
48	0.0044	0.0044	0.0046	0.0051	0.0059	0.0067	0.0076	0.0084	0.0091	0.0096	0.0099	0.0100
49	0.0054	0.0052	0.0052	0.0055	0.0061	0.0068	0.0076	0.0084	0.0091	0.0096	0.0099	0.0100
50	0.0064	0.0060	0.0059	0.0060	0.0064	0.0070	0.0077	0.0084	0.0091	0.0096	0.0099	0.0100
51	0.0073	0.0069	0.0066	0.0066	0.0068	0.0073	0.0078	0.0085	0.0091	0.0096	0.0099	0.0100
52	0.0081	0.0077	0.0074	0.0072	0.0073	0.0076	0.0080	0.0086	0.0091	0.0096	0.0099	0.0100
53	0.0087	0.0085	0.0081	0.0078	0.0078	0.0079	0.0082	0.0087	0.0092	0.0096	0.0099	0.0100
54	0.0091	0.0090	0.0087	0.0084	0.0083	0.0083	0.0085	0.0088	0.0092	0.0096	0.0099	0.0100
55	0.0093	0.0095	0.0092	0.0089	0.0087	0.0087	0.0088	0.0090	0.0093	0.0096	0.0099	0.0100
56	0.0093	0.0097	0.0095	0.0093	0.0091	0.0090	0.0090	0.0092	0.0094	0.0097	0.0099	0.0100
57	0.0090	0.0096	0.0097	0.0096	0.0095	0.0093	0.0093	0.0094	0.0095	0.0097	0.0099	0.0100
58	0.0085	0.0094	0.0097	0.0098	0.0097	0.0096	0.0095	0.0095	0.0096	0.0098	0.0099	0.0100
59	0.0078	0.0089	0.0095	0.0097	0.0098	0.0098	0.0097	0.0097	0.0097	0.0098	0.0099	0.0100
60	0.0070	0.0083	0.0091	0.0096	0.0098	0.0098	0.0098	0.0098	0.0098	0.0099	0.0100	0.0100
61	0.0062	0.0076	0.0086	0.0093	0.0097	0.0098	0.0099	0.0099	0.0099	0.0099	0.0100	0.0100
62	0.0054	0.0069	0.0080	0.0088	0.0094	0.0097	0.0099	0.0099	0.0099	0.0099	0.0100	0.0100
63	0.0047	0.0061	0.0073	0.0083	0.0091	0.0095	0.0098	0.0099	0.0100	0.0100	0.0100	0.0100
64	0.0042	0.0055	0.0067	0.0078	0.0087	0.0093	0.0097	0.0099	0.0100	0.0100	0.0100	0.0100

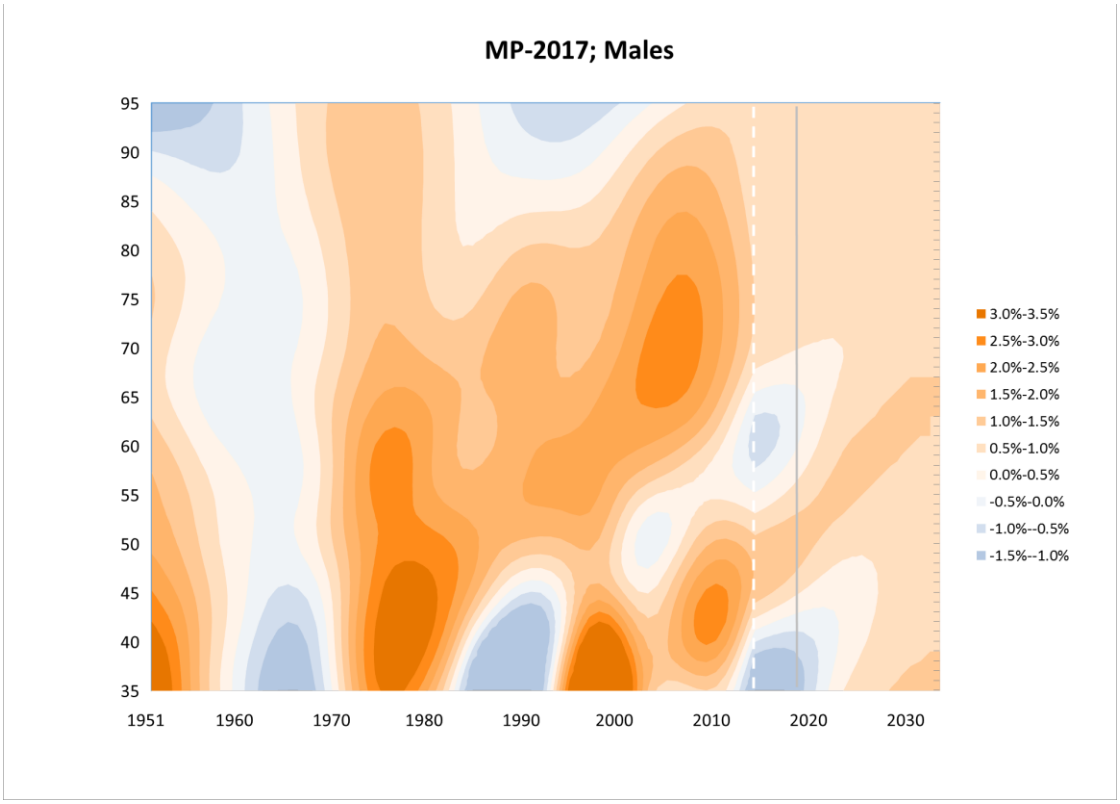
Female	Calendar Year										
Age	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
65	0.0126	0.0155	0.0184	0.0210	0.0231	0.0244	0.0248	0.0244	0.0230	0.0210	0.0181
66	0.0118	0.0148	0.0179	0.0206	0.0227	0.0240	0.0245	0.0241	0.0229	0.0210	0.0185
67	0.0110	0.0141	0.0172	0.0200	0.0221	0.0235	0.0240	0.0236	0.0226	0.0209	0.0186
68	0.0101	0.0133	0.0164	0.0192	0.0214	0.0228	0.0234	0.0231	0.0221	0.0206	0.0186
69	0.0093	0.0124	0.0156	0.0183	0.0206	0.0220	0.0227	0.0225	0.0217	0.0203	0.0184
70	0.0086	0.0116	0.0147	0.0174	0.0197	0.0212	0.0219	0.0219	0.0212	0.0199	0.0181
71	0.0079	0.0108	0.0138	0.0165	0.0188	0.0204	0.0212	0.0213	0.0207	0.0195	0.0178
72	0.0072	0.0100	0.0129	0.0157	0.0179	0.0196	0.0205	0.0206	0.0201	0.0190	0.0173
73	0.0066	0.0093	0.0122	0.0149	0.0172	0.0188	0.0198	0.0200	0.0195	0.0184	0.0167
74	0.0060	0.0087	0.0115	0.0142	0.0165	0.0182	0.0191	0.0194	0.0189	0.0178	0.0161
75	0.0055	0.0082	0.0110	0.0137	0.0160	0.0176	0.0186	0.0188	0.0182	0.0171	0.0154
76	0.0051	0.0077	0.0105	0.0133	0.0156	0.0172	0.0181	0.0182	0.0176	0.0164	0.0147
77	0.0046	0.0073	0.0102	0.0129	0.0152	0.0168	0.0177	0.0177	0.0170	0.0158	0.0140
78	0.0042	0.0069	0.0098	0.0126	0.0149	0.0165	0.0173	0.0173	0.0166	0.0152	0.0134
79	0.0038	0.0065	0.0095	0.0123	0.0147	0.0163	0.0170	0.0169	0.0161	0.0147	0.0128
80	0.0033	0.0061	0.0092	0.0120	0.0144	0.0160	0.0168	0.0166	0.0158	0.0143	0.0123
81	0.0028	0.0057	0.0088	0.0117	0.0141	0.0157	0.0165	0.0164	0.0155	0.0139	0.0119
82	0.0022	0.0052	0.0083	0.0113	0.0137	0.0154	0.0162	0.0161	0.0152	0.0136	0.0116
83	0.0016	0.0046	0.0078	0.0108	0.0133	0.0150	0.0159	0.0158	0.0149	0.0134	0.0113
84	0.0010	0.0040	0.0072	0.0102	0.0128	0.0146	0.0155	0.0155	0.0147	0.0131	0.0111
85	0.0003	0.0033	0.0065	0.0096	0.0122	0.0140	0.0150	0.0151	0.0143	0.0129	0.0109
86	-0.0004	0.0026	0.0058	0.0088	0.0115	0.0134	0.0145	0.0146	0.0140	0.0126	0.0107
87	-0.0011	0.0019	0.0050	0.0080	0.0107	0.0126	0.0138	0.0141	0.0135	0.0123	0.0105
88	-0.0017	0.0011	0.0042	0.0072	0.0098	0.0118	0.0130	0.0134	0.0130	0.0119	0.0103
89	-0.0023	0.0004	0.0034	0.0063	0.0089	0.0109	0.0122	0.0127	0.0124	0.0115	0.0101
90	-0.0028	-0.0002	0.0026	0.0054	0.0079	0.0099	0.0113	0.0119	0.0118	0.0110	0.0098
91	-0.0033	-0.0008	0.0018	0.0045	0.0069	0.0089	0.0103	0.0110	0.0110	0.0105	0.0094
92	-0.0037	-0.0014	0.0011	0.0036	0.0059	0.0078	0.0092	0.0100	0.0102	0.0099	0.0090
93	-0.0040	-0.0019	0.0004	0.0027	0.0049	0.0067	0.0081	0.0090	0.0094	0.0092	0.0086
94	-0.0043	-0.0024	-0.0003	0.0018	0.0038	0.0056	0.0070	0.0079	0.0084	0.0084	0.0081
95	-0.0045	-0.0028	-0.0010	0.0009	0.0028	0.0044	0.0058	0.0068	0.0074	0.0076	0.0075
96	-0.0043	-0.0027	-0.0009	0.0009	0.0026	0.0042	0.0055	0.0064	0.0070	0.0072	0.0072
97	-0.0040	-0.0025	-0.0009	0.0009	0.0025	0.0040	0.0052	0.0061	0.0066	0.0069	0.0068
98	-0.0038	-0.0024	-0.0008	0.0008	0.0024	0.0038	0.0049	0.0057	0.0063	0.0065	0.0064
99	-0.0036	-0.0023	-0.0008	0.0008	0.0022	0.0035	0.0046	0.0054	0.0059	0.0061	0.0060
100	-0.0034	-0.0021	-0.0007	0.0007	0.0021	0.0033	0.0043	0.0051	0.0055	0.0057	0.0056
101	-0.0031	-0.0020	-0.0007	0.0007	0.0019	0.0031	0.0040	0.0047	0.0052	0.0053	0.0053
102	-0.0029	-0.0018	-0.0006	0.0006	0.0018	0.0029	0.0037	0.0044	0.0048	0.0050	0.0049
103	-0.0027	-0.0017	-0.0006	0.0006	0.0017	0.0027	0.0035	0.0041	0.0044	0.0046	0.0045
104	-0.0025	-0.0016	-0.0005	0.0005	0.0015	0.0024	0.0032	0.0037	0.0041	0.0042	0.0041
105	-0.0022	-0.0014	-0.0005	0.0005	0.0014	0.0022	0.0029	0.0034	0.0037	0.0038	0.0038
106	-0.0020	-0.0013	-0.0004	0.0004	0.0013	0.0020	0.0026	0.0030	0.0033	0.0034	0.0034
107	-0.0018	-0.0011	-0.0004	0.0004	0.0011	0.0018	0.0023	0.0027	0.0029	0.0030	0.0030
108	-0.0016	-0.0010	-0.0003	0.0003	0.0010	0.0015	0.0020	0.0024	0.0026	0.0027	0.0026
109	-0.0013	-0.0008	-0.0003	0.0003	0.0008	0.0013	0.0017	0.0020	0.0022	0.0023	0.0023
110	-0.0011	-0.0007	-0.0002	0.0002	0.0007	0.0011	0.0014	0.0017	0.0018	0.0019	0.0019
111	-0.0009	-0.0006	-0.0002	0.0002	0.0006	0.0009	0.0012	0.0014	0.0015	0.0015	0.0015
112	-0.0007	-0.0004	-0.0001	0.0001	0.0004	0.0007	0.0009	0.0010	0.0011	0.0011	0.0011
113	-0.0004	-0.0003	-0.0001	0.0001	0.0003	0.0004	0.0006	0.0007	0.0007	0.0008	0.0008
114	-0.0002	-0.0001	0.0000	0.0000	0.0001	0.0002	0.0003	0.0003	0.0004	0.0004	0.0004
115+	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Female	Calendar Year										
Age	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
65	0.0147	0.0109	0.0069	0.0058	0.0047	0.0036	0.0027	0.0022	0.0020	0.0023	0.0029
66	0.0155	0.0122	0.0088	0.0079	0.0068	0.0057	0.0046	0.0038	0.0032	0.0030	0.0033
67	0.0160	0.0131	0.0101	0.0094	0.0085	0.0075	0.0064	0.0053	0.0045	0.0040	0.0038
68	0.0162	0.0136	0.0108	0.0104	0.0098	0.0089	0.0078	0.0068	0.0058	0.0050	0.0046
69	0.0162	0.0137	0.0111	0.0109	0.0105	0.0098	0.0090	0.0080	0.0070	0.0061	0.0055
70	0.0160	0.0136	0.0110	0.0110	0.0108	0.0104	0.0098	0.0090	0.0081	0.0072	0.0065
71	0.0157	0.0133	0.0107	0.0109	0.0108	0.0106	0.0102	0.0096	0.0089	0.0081	0.0074
72	0.0152	0.0128	0.0102	0.0105	0.0106	0.0106	0.0104	0.0101	0.0095	0.0089	0.0083
73	0.0146	0.0122	0.0096	0.0099	0.0102	0.0103	0.0103	0.0102	0.0099	0.0095	0.0090
74	0.0140	0.0116	0.0090	0.0093	0.0097	0.0099	0.0101	0.0102	0.0101	0.0099	0.0095
75	0.0133	0.0109	0.0084	0.0087	0.0091	0.0094	0.0097	0.0100	0.0101	0.0101	0.0099
76	0.0126	0.0102	0.0077	0.0081	0.0085	0.0089	0.0093	0.0097	0.0099	0.0101	0.0101
77	0.0119	0.0095	0.0070	0.0074	0.0079	0.0083	0.0088	0.0093	0.0097	0.0099	0.0101
78	0.0112	0.0088	0.0064	0.0067	0.0072	0.0078	0.0083	0.0088	0.0093	0.0097	0.0100
79	0.0106	0.0082	0.0057	0.0061	0.0066	0.0072	0.0078	0.0084	0.0090	0.0095	0.0098
80	0.0100	0.0076	0.0051	0.0055	0.0060	0.0066	0.0073	0.0080	0.0086	0.0092	0.0096
81	0.0096	0.0071	0.0046	0.0049	0.0055	0.0061	0.0068	0.0075	0.0083	0.0089	0.0094
82	0.0092	0.0067	0.0042	0.0045	0.0050	0.0056	0.0063	0.0071	0.0079	0.0086	0.0091
83	0.0090	0.0065	0.0039	0.0041	0.0046	0.0052	0.0059	0.0067	0.0075	0.0082	0.0089
84	0.0088	0.0063	0.0037	0.0039	0.0043	0.0049	0.0056	0.0064	0.0072	0.0079	0.0086
85	0.0086	0.0062	0.0036	0.0038	0.0041	0.0046	0.0053	0.0061	0.0069	0.0076	0.0083
86	0.0085	0.0061	0.0036	0.0037	0.0040	0.0045	0.0051	0.0058	0.0065	0.0073	0.0079
87	0.0084	0.0061	0.0037	0.0038	0.0040	0.0044	0.0049	0.0056	0.0062	0.0069	0.0076
88	0.0083	0.0061	0.0038	0.0038	0.0040	0.0044	0.0048	0.0054	0.0060	0.0067	0.0073
89	0.0082	0.0062	0.0040	0.0040	0.0041	0.0044	0.0048	0.0053	0.0058	0.0064	0.0070
90	0.0081	0.0062	0.0042	0.0042	0.0043	0.0045	0.0048	0.0052	0.0057	0.0062	0.0067
91	0.0080	0.0063	0.0045	0.0044	0.0045	0.0046	0.0049	0.0052	0.0056	0.0060	0.0065
92	0.0078	0.0064	0.0048	0.0047	0.0047	0.0048	0.0050	0.0053	0.0056	0.0059	0.0063
93	0.0076	0.0065	0.0051	0.0050	0.0050	0.0050	0.0051	0.0053	0.0056	0.0058	0.0061
94	0.0074	0.0066	0.0056	0.0054	0.0053	0.0053	0.0053	0.0054	0.0056	0.0058	0.0060
95	0.0072	0.0067	0.0060	0.0058	0.0056	0.0056	0.0055	0.0056	0.0057	0.0058	0.0059
96	0.0068	0.0063	0.0057	0.0055	0.0054	0.0053	0.0053	0.0053	0.0054	0.0055	0.0056
97	0.0065	0.0060	0.0054	0.0052	0.0051	0.0050	0.0050	0.0050	0.0051	0.0052	0.0053
98	0.0061	0.0057	0.0051	0.0049	0.0048	0.0047	0.0047	0.0047	0.0048	0.0049	0.0050
99	0.0057	0.0053	0.0048	0.0046	0.0045	0.0044	0.0044	0.0045	0.0045	0.0046	0.0047
100	0.0054	0.0050	0.0045	0.0043	0.0042	0.0042	0.0042	0.0042	0.0042	0.0043	0.0044
101	0.0050	0.0047	0.0042	0.0041	0.0040	0.0039	0.0039	0.0039	0.0040	0.0040	0.0041
102	0.0047	0.0043	0.0039	0.0038	0.0037	0.0036	0.0036	0.0036	0.0037	0.0038	0.0038
103	0.0043	0.0040	0.0036	0.0035	0.0034	0.0033	0.0033	0.0033	0.0034	0.0035	0.0036
104	0.0040	0.0037	0.0033	0.0032	0.0031	0.0031	0.0030	0.0031	0.0031	0.0032	0.0033
105	0.0036	0.0033	0.0030	0.0029	0.0028	0.0028	0.0028	0.0028	0.0028	0.0029	0.0030
106	0.0032	0.0030	0.0027	0.0026	0.0025	0.0025	0.0025	0.0025	0.0025	0.0026	0.0027
107	0.0029	0.0027	0.0024	0.0023	0.0023	0.0022	0.0022	0.0022	0.0023	0.0023	0.0024
108	0.0025	0.0023	0.0021	0.0020	0.0020	0.0019	0.0019	0.0020	0.0020	0.0020	0.0021
109	0.0022	0.0020	0.0018	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0018
110	0.0018	0.0017	0.0015	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0015
111	0.0014	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0011	0.0011	0.0012	0.0012
112	0.0011	0.0010	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0008	0.0009	0.0009
113	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006
114	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
115+	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

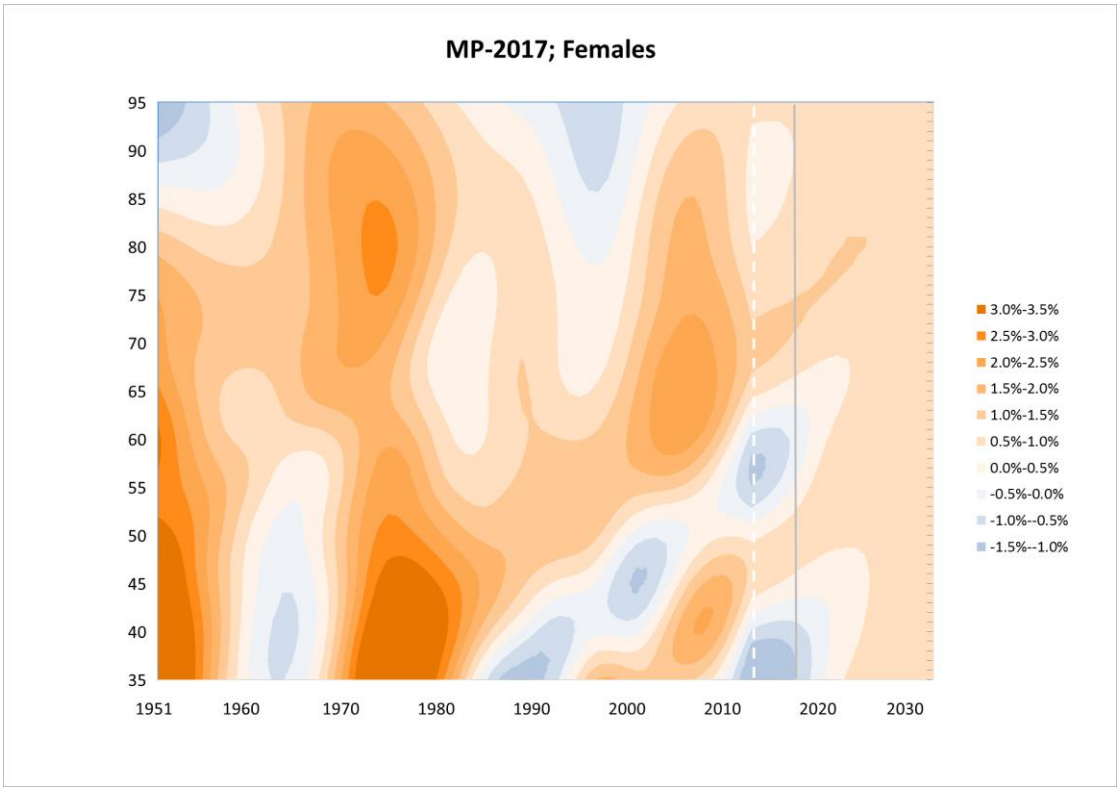
Female	Calendar Year											
Age	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033+
65	0.0039	0.0050	0.0062	0.0073	0.0082	0.0090	0.0095	0.0098	0.0099	0.0100	0.0100	0.0100
66	0.0039	0.0047	0.0058	0.0068	0.0078	0.0086	0.0093	0.0097	0.0099	0.0100	0.0100	0.0100
67	0.0041	0.0047	0.0055	0.0065	0.0075	0.0083	0.0090	0.0095	0.0098	0.0099	0.0100	0.0100
68	0.0045	0.0049	0.0055	0.0063	0.0072	0.0081	0.0088	0.0093	0.0097	0.0099	0.0100	0.0100
69	0.0052	0.0052	0.0056	0.0063	0.0070	0.0078	0.0086	0.0092	0.0096	0.0099	0.0100	0.0100
70	0.0060	0.0058	0.0060	0.0064	0.0070	0.0077	0.0084	0.0091	0.0095	0.0098	0.0100	0.0100
71	0.0068	0.0065	0.0064	0.0067	0.0071	0.0077	0.0084	0.0090	0.0095	0.0098	0.0100	0.0100
72	0.0077	0.0072	0.0070	0.0071	0.0073	0.0078	0.0083	0.0089	0.0094	0.0097	0.0099	0.0100
73	0.0084	0.0080	0.0076	0.0075	0.0076	0.0079	0.0084	0.0089	0.0094	0.0097	0.0099	0.0100
74	0.0091	0.0086	0.0083	0.0081	0.0080	0.0082	0.0085	0.0089	0.0094	0.0097	0.0099	0.0100
75	0.0096	0.0092	0.0089	0.0086	0.0084	0.0085	0.0087	0.0090	0.0094	0.0097	0.0099	0.0100
76	0.0099	0.0097	0.0093	0.0090	0.0089	0.0088	0.0089	0.0091	0.0094	0.0097	0.0099	0.0100
77	0.0101	0.0099	0.0097	0.0095	0.0092	0.0091	0.0091	0.0093	0.0095	0.0097	0.0099	0.0100
78	0.0101	0.0101	0.0099	0.0097	0.0096	0.0094	0.0094	0.0094	0.0096	0.0098	0.0099	0.0100
79	0.0101	0.0101	0.0100	0.0099	0.0098	0.0097	0.0096	0.0096	0.0097	0.0098	0.0099	0.0100
80	0.0099	0.0101	0.0101	0.0100	0.0099	0.0098	0.0098	0.0097	0.0098	0.0098	0.0099	0.0100
81	0.0098	0.0100	0.0100	0.0100	0.0100	0.0099	0.0098	0.0098	0.0098	0.0099	0.0100	0.0100
82	0.0096	0.0098	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0099	0.0100	0.0100
83	0.0093	0.0096	0.0097	0.0098	0.0099	0.0099	0.0099	0.0099	0.0099	0.0100	0.0100	0.0100
84	0.0091	0.0094	0.0096	0.0097	0.0098	0.0098	0.0098	0.0098	0.0099	0.0099	0.0100	0.0100
85	0.0088	0.0092	0.0094	0.0095	0.0097	0.0097	0.0098	0.0098	0.0098	0.0099	0.0099	0.0100
86	0.0085	0.0089	0.0091	0.0093	0.0094	0.0095	0.0096	0.0096	0.0097	0.0097	0.0098	0.0099
87	0.0081	0.0085	0.0088	0.0091	0.0092	0.0093	0.0094	0.0095	0.0095	0.0096	0.0096	0.0097
88	0.0078	0.0082	0.0085	0.0087	0.0090	0.0091	0.0092	0.0093	0.0094	0.0094	0.0095	0.0096
89	0.0075	0.0078	0.0081	0.0084	0.0087	0.0089	0.0091	0.0091	0.0092	0.0093	0.0093	0.0094
90	0.0071	0.0075	0.0078	0.0081	0.0084	0.0086	0.0089	0.0090	0.0091	0.0091	0.0092	0.0093
91	0.0069	0.0072	0.0075	0.0078	0.0080	0.0083	0.0086	0.0088	0.0089	0.0090	0.0090	0.0091
92	0.0066	0.0069	0.0072	0.0074	0.0077	0.0080	0.0083	0.0085	0.0087	0.0088	0.0089	0.0090
93	0.0064	0.0067	0.0069	0.0071	0.0074	0.0077	0.0079	0.0082	0.0084	0.0086	0.0087	0.0088
94	0.0062	0.0064	0.0066	0.0069	0.0071	0.0074	0.0076	0.0079	0.0081	0.0084	0.0086	0.0087
95	0.0061	0.0062	0.0064	0.0066	0.0068	0.0071	0.0073	0.0076	0.0078	0.0081	0.0083	0.0085
96	0.0058	0.0059	0.0061	0.0063	0.0065	0.0067	0.0070	0.0072	0.0074	0.0077	0.0079	0.0081
97	0.0055	0.0056	0.0057	0.0059	0.0061	0.0064	0.0066	0.0068	0.0071	0.0073	0.0075	0.0077
98	0.0052	0.0053	0.0054	0.0056	0.0058	0.0060	0.0062	0.0065	0.0067	0.0069	0.0070	0.0072
99	0.0049	0.0050	0.0051	0.0053	0.0055	0.0057	0.0059	0.0061	0.0063	0.0065	0.0066	0.0068
100	0.0046	0.0047	0.0048	0.0049	0.0051	0.0053	0.0055	0.0057	0.0059	0.0060	0.0062	0.0064
101	0.0043	0.0044	0.0045	0.0046	0.0048	0.0050	0.0051	0.0053	0.0055	0.0056	0.0058	0.0060
102	0.0039	0.0040	0.0042	0.0043	0.0044	0.0046	0.0048	0.0049	0.0051	0.0052	0.0054	0.0055
103	0.0036	0.0037	0.0038	0.0040	0.0041	0.0042	0.0044	0.0046	0.0047	0.0048	0.0050	0.0051
104	0.0033	0.0034	0.0035	0.0036	0.0038	0.0039	0.0040	0.0042	0.0043	0.0044	0.0046	0.0047
105	0.0030	0.0031	0.0032	0.0033	0.0034	0.0035	0.0037	0.0038	0.0039	0.0040	0.0041	0.0043
106	0.0027	0.0028	0.0029	0.0030	0.0031	0.0032	0.0033	0.0034	0.0035	0.0036	0.0037	0.0038
107	0.0024	0.0025	0.0026	0.0026	0.0027	0.0028	0.0029	0.0030	0.0031	0.0032	0.0033	0.0034
108	0.0021	0.0022	0.0022	0.0023	0.0024	0.0025	0.0026	0.0027	0.0027	0.0028	0.0029	0.0030
109	0.0018	0.0019	0.0019	0.0020	0.0020	0.0021	0.0022	0.0023	0.0024	0.0024	0.0025	0.0026
110	0.0015	0.0016	0.0016	0.0016	0.0017	0.0018	0.0018	0.0019	0.0020	0.0020	0.0021	0.0021
111	0.0012	0.0012	0.0013	0.0013	0.0014	0.0014	0.0015	0.0015	0.0016	0.0016	0.0017	0.0017
112	0.0009	0.0009	0.0010	0.0010	0.0010	0.0011	0.0011	0.0011	0.0012	0.0012	0.0012	0.0013
113	0.0006	0.0006	0.0006	0.0007	0.0007	0.0007	0.0007	0.0008	0.0008	0.0008	0.0008	0.0009
114	0.0003	0.0003	0.0003	0.0003	0.0003	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
115+	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Appendix B: Scale MP-2017 Heat Maps

Heat maps of the final gender-specific Scale MP-2017 rates for calendar years 1951 through 2033 are displayed below. Because of the two-year step-back, 2013 is the final year of graduated historical data included explicitly[7] in the Scale MP-2017 rates, and 2014 is the first year of the projected rates; the vertical dashed white lines on the heat maps distinguish between these rates. The thin vertical gray lines indicate the current 2017 rates.



[7] The historical graduation process reflected mortality rates for 2014 and 2015, and hence those years implicitly influenced the final RPEC_2014_v2017 model.



Appendix C: Estimated SSA-Style Rates for 2014 and 2015

Starting with the release of Scale MP-2016, RPEC was able to reduce the lag time between the first year of post-historical mortality projection and the release date of the corresponding set of mortality improvement rates by developing estimated SSA-style mortality rates for one year beyond the historical rates published by the SSA; see Appendix B1.3 of the Scale MP-2016 report for details on RPEC's methodology.

The final 2014 mortality rates published by the SSA in conjunction with the 2017 Trustees' Report turned out to be extremely close to RPEC's estimated SSA-style 2014 rates. The following table compares the 2016 monthly annuity values calculated using Scale MP-2016 as published to those calculated using a scale developed by replacing the SSA-style rates for 2014 with the final 2014 rates used to develop Scale MP-2017. The resulting impact is clearly de minimis.

Monthly Deferred-To-62 Annuity-Due Values Base Rates: **RP-2014** (Unadjusted) Generational @ 2016; Discount Rate = 4.0%						
	Males			Females		
Scale MP-2016 Projection With →	SSA-Style Rates for CY 2014	With Final Rates for CY 2014	*% Change*	SSA-Style Rates for CY 2014	With Final Rates for CY 2014	*% Change*
Age						
25	3.5209	3.5204	*-0.01%*	3.7521	3.7516	*-0.01%*
35	5.1082	5.1075	*-0.01%*	5.4543	5.4536	*-0.01%*
45	7.4202	7.4192	*-0.01%*	7.9398	7.9389	*-0.01%*
55	10.8736	10.8725	*-0.01%*	11.6252	11.6239	*-0.01%*
65	13.4451	13.4447	*0.00%*	14.3142	14.3131	*-0.01%*
75	9.5990	9.5975	*-0.02%*	10.4270	10.4254	*-0.02%*
85	5.6847	5.6826	*-0.04%*	6.3661	6.3635	*-0.04%*

In the development of the RPEC_2014_v2017 model, one further minor adjustment was made to the SSA-style methodology for calendar years 2014 and 2015. For ages below 65, RPEC decided to use the most recently available exposure data (taken from the U.S. Census Bureau [USCB 2017]) in lieu of the exposures available in the CDC's WONDER database. RPEC believes that this fine-tuning of the methodology will produce estimated rates that will be even closer to those eventually finalized by the SSA.

Appendix D: Proxy SSA Long-Term Rates

The following is a table of the rates that were used to develop the "Proxy for SSA Alternative 2 Long-Term Rates" displays in Section 4.2.

Proxy for SSA Alternative 2 Long-Term Rate Structure							
Age	Rate	Age	Rate	Age	Rate	Age	Rate
20	0.76%	45	1.01%	70	0.82%	95	0.48%
21	0.77%	46	1.01%	71	0.82%	96	0.48%
22	0.77%	47	1.02%	72	0.82%	97	0.48%
23	0.77%	48	1.03%	73	0.82%	98	0.48%
24	0.78%	49	1.04%	74	0.82%	99	0.48%
25	0.78%	50	1.05%	75	0.80%	100	0.48%
26	0.78%	51	1.06%	76	0.78%	101	0.48%
27	0.79%	52	1.07%	77	0.78%	102	0.48%
28	0.80%	53	1.08%	78	0.81%	103	0.48%
29	0.81%	54	1.09%	79	0.84%	104	0.48%
30	0.81%	55	1.09%	80	0.88%	105	0.48%
31	0.82%	56	1.09%	81	0.88%	106	0.48%
32	0.84%	57	1.11%	82	0.83%	107	0.48%
33	0.85%	58	1.14%	83	0.74%	108	0.48%
34	0.86%	59	1.18%	84	0.64%	109	0.49%
35	0.87%	60	1.23%	85	0.55%	110	0.49%
36	0.89%	61	1.26%	86	0.49%	111	0.49%
37	0.91%	62	1.23%	87	0.46%	112	0.49%
38	0.92%	63	1.14%	88	0.45%	113	0.49%
39	0.94%	64	1.04%	89	0.45%	114	0.51%
40	0.95%	65	0.93%	90	0.46%	115	0.51%
41	0.96%	66	0.86%	91	0.47%	116	0.51%
42	0.98%	67	0.81%	92	0.48%	117	0.51%
43	0.99%	68	0.80%	93	0.49%	118	0.51%
44	1.00%	69	0.81%	94	0.48%	119	0.51%

References

[ASB 2014] Actuarial Standards Board, "Actuarial Standards of Practice No. 35, Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations," Revised Edition, Doc. No. 178 (2014).

[BC 2017] Center for Retirement Research at Boston College, "What's Happening to U.S. Mortality Rates?" (Sept. 2017).

[CIA 2017] Canadian Institute of Actuaries, "Task Force Report on Mortality Improvement" (Sept. 2017).

[CMI 2017a] "Continuous Mortality Improvement," Working Paper #97 (Mar. 2017).

[CMI 2017b] "Continuous Mortality Improvement," Working Paper #98 (Mar. 2017).

[IFoA 2017] Institute and Faculty of Actuaries, "Longevity: Is the Tide Turning?" (Issue 10; July 2017).

[Li 2017] Li, J., R. Zhou & Y. Liu, "Components of Historical Mortality Improvement" (Oct. 2017), https://www.soa.org/research-reports/2017/2017-comp-hist-mort-impr/.

[NCHS 2015] National Center for Health Statistics, "NCHS Data Brief 229, Mortality in the United States, 2014" (Dec. 2015).

[NCHS 2016] National Center for Health Statistics, "NCHS Data Brief 267, Mortality in the United States, 2015" (Dec. 2016).

[NVSS 2016] National Vital Statistics System, "National Vital Statistics Reports (Volume 64, Number 2) Deaths: Final Data for 2013" (Feb. 2016).

[NVSS 2017] "National Vital Statistics Rapid Release: Mortality—Quarterly Provisional Estimates" (August 8, 2017), https://www.cdc.gov/nchs/products/vsrr/mortality-dashboard.htm#.

[SOA 2016] Society of Actuaries, "Mortality Improvement Scale MP-2016" (Oct. 2016).

[SSA 2005] Social Security Administration, "Life Tables for the United States Social Security Area 1900–2100," Actuarial Study #120 (Aug. 2005).

[SSA 2017] Social Security Administration, "The 2017 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds" (July 2017).

[USCB 2017] United States Census Bureau, "National Population Estimates as of June 22, 2017 (June 2017), https://www2.census.gov/programs-surveys/popest/datasets/2010-2016/national/asrh/.