Actuarial Standards Board
Conseil des normes actuarielles

Memorandum

To: All Fellows, Affiliates, Associates, and Correspondents of the Canadian Institute of Actuaries and Other Interested Parties

From: James K. Christie, Chair
Actuarial Standards Board

Conrad Ferguson, Chair
Designated Group

Date: March 19, 2015

Subject: **Initial Communication of a Promulgation of the Mortality Table Referenced in the Standards of Practice for Actuarial Evidence (Subsection 4530)**

Comment Deadline: **May 18, 2015**

Document 215015

INTRODUCTION

According to subsection 4530 of the Standards of Practice:

> **Mortality rates**
>
> .02 *The actuary should assume mortality rates in accordance with a mortality table promulgated from time to time by the Actuarial Standards Board for the purpose of these calculations, modified, if appropriate, to reflect the member's or the member's spouse's impaired health, if medically determinable.* [Effective January 1, 2012]

The Actuarial Standards Board (ASB) proposes to promulgate the use of the mortality rates underlying the 2014 Canadian Pensioner Mortality Table (CPM2014) combined with the mortality improvement scale CPM Improvement Scale B (CPM-B) for calculations, effective October 1, 2015. Use of mortality improvement scale CPM-B1D2014 is acceptable as an interim measure for calculations up to and including December 31, 2019.

The process being used to implement this is described in section E of the ASB's Policy on Due Process for the Adoption of Standards of Practice.

EXECUTIVE SUMMARY

The Final Report – Canadian Pensioners' Mortality, published in February 2014 by the Pension Experience Subcommittee of the Research Committee, clearly establishes that life expectancy for members of pension plans in Canada is longer than recognized in the previously used tables and shows a marked trend towards continued improvement over the long term. It also introduces information on the differences in mortality experience for different pension plan member cohorts.

The findings of this report revealed that the current promulgated mortality table under subsection 4530 is now out of date and that change is necessary to provide acceptable estimates of life expectancy for capitalized value calculations at the dissolution of a couple's union. In arriving at its recommendations, the designated group (DG) considered the following factors:

- The unique nature of the principles underlying family law as it pertains to equalization of assets on dissolution of a couple's union;
- Consistency in actuarial standards versus strong rationale required to deviate from consistency; and
- Constraint of practice to a reasonable range.

Each of these factors is discussed further under the header Rationale below. A review of these factors was necessary in assessing how to best serve the public interest for this standard.

After its review of important issues and analysis, the DG concluded that the public interest would be best served through a process that:

- Is consistent with approaches used to estimate life expectancy in other practice areas;
- Would not result in a wide range of different assumptions depending on region or pension plan; and
- Is not overly complex for parties involved in equalization of matrimonial assets to understand.

This is consistent with the promulgation of one mortality assumption to apply to all pension plans subject to this standard of practice.

SCOPE

Capitalized values on marriage breakdown are primarily intended to fairly equalize a couple's assets upon dissolution of their union. In effect, the capitalized value basis covers a very broad range of pension plans with widely differing demographic profiles and an even wider range of individual sets of circumstances.

In addition, the value of the pension asset is affected by decisions made by a court or by two opposing parties in an equalization of matrimonial assets. These are specific to individual circumstances and are affected by a variety of factors. For example, unlike section 3500 for pension commuted value calculations, paragraph 4530.05 does allow for the funding status of the plan to be considered by the actuary. While standards allow the actuary to consider the funding status, it is relevant to point out that the ultimate decision

in these situations is with the parties or the court as to what is accepted as the pension value for purposes of equalization.

The focus of the DG was on a mortality assumption for the capitalized value standard that provides a fair assessment of the average life expectancy of pension plan members and their spouses using a basis that can be broadly and easily applied on a consistent basis for all pension plans and their members. Consistency with other standards, allowing for deviations only if they can be supported by sound rationale, is also an important consideration.

RATIONALE

The Standards of Practice require the promulgation from time to time by the ASB of a mortality table for capitalized value calculations.

The Final Report on Canadian Pensioners' Mortality shows significant variances between actual and expected mortality experience relative to the current promulgated table (i.e., mortality rates underlying the UP-94 table projected forward to the year 2020 using mortality projection scale AA). In addition, the report underlines a trend towards continued improvements in life expectancy over the long term at levels much stronger than those anticipated by the previously-used Scale AA.

Clearly, the evidence shows that a change in the mortality basis is required at this time. However, the selection of a recommended table or tables requires consideration of many factors.

In addition to the analysis discussed further below, the DG also considered the three factors discussed separately below in arriving at its recommendations.

Unique Nature of Equalization Calculations

In the case of the capitalized values of a pension on the dissolution of a couple's union, the goal is to value an asset which by definition is backed by a pension fund, by the funding arrangement under a supplemental employee retirement plan and/or by a promise, usually by the employer, to pay for the promised benefits.

In addition and perhaps more importantly, principles that have developed under family law require that equalization of all family property be based on a snapshot taken as of the date of separation. Our understanding is that, based on practices that have developed under the law in most provinces, an event that occurs after the date of separation is to be disregarded except in the most extraordinary of circumstances.

This raises the question as to whether use of observed trends in improvements of life expectancy is part of an actuary's best estimate of life expectancy or predicated on events that will happen after the date of separation. Our understanding is that, for actuarial evidence practitioners, this is a crucial element to consider in making a recommendation on life expectancy improvements that by definition will occur in the future. We also understand the primary issue is whether the courts can be satisfied that life expectancy improvement is anticipated based on information available at the date of separation or if it is driven largely or partially by future developments that may make it fail the principle that future events cannot be taken into account at the date of separation.

The DG believes that establishing a best estimate for future life expectancy is based on the recognition of both current mortality rates and observed trends with respect to

changes in such mortality rates that could be reasonably expected in the future. The projected life expectancy for an individual is dependent not only on the mortality experience today but also on factors that, based on observed trends, are expected to affect life expectancy for the age/gender cohort the individual belongs to.

Trying to identify the reasons for future improvements is secondary to the estimate required for actuarial purposes. No doubt certain factors will contribute positively and some will contribute negatively over time. In the end actual experience will deviate from estimates, such is the nature of actuarial work.

On this point, the DG noted that actuarial practice is a constantly evolving process since past observations influence the choice of assumptions for the future. For the purposes of estimating life expectancy, actuarial practice has evolved in virtually all practice areas from the use of a static table based on recent experience, to allowance for modest, usually short term, improvements along with recent experience, to—in recent years—the recognition that life expectancy has an underlying trend that should also be recognized for the long-term future. For example, this latter view is now used for pension plan valuations, which influence the amount required to fund a benefit and also in the pricing of annuities by financial institutions.

The trend in life expectancy improvement is now an essential component of assessing life expectancy for a multitude of actuarial purposes. To do otherwise, would imply ignoring strong evidence, built up over several decades, of a material trend in life expectancy improvement and, in the view of the DG, would fall short of meeting the public interest.

The primary evidence on trends in life expectancy in Canada comes from the study conducted by the Office of the Chief Actuary for social security programs in Canada. This is supported by similar studies in the USA and the UK (via work conducted by the Continuous Mortality Investigation).

There is broad acceptance within the actuarial profession in Canada and elsewhere that life expectancy improvement trends need to be considered to produce a reasonable estimate of life expectancy today. This is not about future events or reasons for such developments; this is about recognizing trends in developing mortality assumptions based on valid and observable experience today. In a sense, the assumption should not be viewed as two pieces—a mortality table and a projection scale—but as a best estimate of life expectancy today and in the future based on observable experience from the past.

On the uniqueness of capitalized value calculations, the DG concluded that the evidence supports the notion that the assumption should be driven by observable information regarding both the current mortality rates and trends. There is no explicit recognition of specific future events positive or negative; the projection scale reflects an unbiased expectation based on information to date. The future will no doubt occur differently and that is why assumptions are regularly reviewed and actuarial practice evolves over time.

Therefore, notwithstanding the differences in purpose of the calculation and the limitations that may have been imposed by principles under family law, the DG is of the view that the body of evidence is strong enough today to make a valid and strong argument that it is necessary to consider observed trends in life expectancy in valuing a pension for equalization purposes upon dissolution of a couple’s union.

Consistency with Other Standards

The ASB aims to achieve consistency among the various standards of practice unless there is a sound rationale to introduce an inconsistency. The calculation of capitalized values is similar in some respects to the calculation for pension commuted values. However, the purpose of the calculation is different. Section 4500 allows for differences in the underlying calculation when compared to section 3500.

The DG struggled with the notion that the estimate of the life expectancy of the same individuals in the same plan, assessed on a basis intended for broad application, would be different for pension commuted value and pension capitalized value calculations.

For the reasons under the previous header, the DG could not come up with sufficient rationale to conclude that the life expectancy estimate for the same person under the same pension plan should be different whether a commuted value or a capitalized value calculation is required.

The DG is aware that the commuted value mortality basis is not always the same basis as used for the funding of a particular pension plan. That difference can be easily explained by the fact that each plan has its unique characteristics that may influence the choice of underlying mortality rates for funding that plan. However, the development of a basis to cover all plans under one rule is intended to be a de-facto average for all plans so that the recommended basis does not result in different values payable to individuals depending on what they do, what plan they belong to, where they reside, and how much they earn.

The DG concluded that the current evidence for mortality experience and underlying trends is just too strong to allow for the development of a sufficient rationale to deviate from actuarial practice in other areas for purposes of estimating life expectancy for capitalized value calculations.

Constrain Practice to Reasonable Range

The DG, in making its recommendations, also allowed for practical considerations related to constraining actuarial practice to a reasonable range and the administrative ease of application of the promulgated table or tables.

The DG recognizes that life expectancy can be affected by many factors, including socio-economic conditions of a particular cohort, smoker versus non-smoker, single versus married, and so on. Section 4500 allows for deviation from standard mortality rates where the individual's health condition warrants it based on medical evidence, although it goes on to state that tobacco use would not, in itself, be sufficient reason to modify the mortality rates.

Ultimately, consideration of whether more than one mortality basis should be promulgated due to plan specific characteristics for purposes of capitalized value calculations is one of balancing uniformity, ease of application, and consistency with other standards against limiting the effect of the projections scale, as is the case at present, and other impacts caused by use of a more complex approach.

The DG concluded that the public interest would be better served by one recommendation for capitalized values calculations that use the same mortality basis for all plans in Canada.

In arriving at its recommendation, the DG conducted the analysis summarized below. Further comments on the rationale behind the recommendations are provided with the recommendation below.

ANALYSIS

The goal of the analysis was to estimate the materiality associated with alternative mortality bases and assist the DG in making its recommendations. The analysis was conducted in two parts.

First, the analysis, which was conducted for purposes of making a recommendation for a mortality basis for commuted values, focused on whether it was reasonable to make one recommendation for all plans and, if so, which mortality basis would apply. The considerations are essentially the same for capitalized value calculations, and the analysis was conducted by only adjusting to the different discount rate applicable. This part of the analysis is summarized below.

Part 1 of Analysis

The DG focused its analysis on assessing the impact on capitalized values of the use of:

- Different mortality tables;
- Different mortality loadings;
- Gender impact;
- The impact of one year of projection scale change; and
- The impact of a small discount rate change.

Intuitively, an impact on a capitalized value of less than 5% would seem reasonable (roughly equivalent to the impact of a 0.125% change in the discount rate for annuity certain factors with a duration of about 40 years).

Annuity factor calculations were made in January 2015 using the following variations:

- Ages 30, 40 and 50;
- Mortality rates for the three published CPM tables (i.e., CPM 2014Priv, CPM2014 and CPM2014 Publ);
- Adjustment of mortality rates for each table were considered, ranging from 80% to 120% of standard mortality rates;
- Male and female;
- Life and 50% joint life annuities both indexed to the Consumer Price Index (CPI) and non-indexed;
- Change of 0.05% in the discount rate ($1/20^{th}$ of 1%);
- Impact of the use of the 2015 two-dimensional scale versus the 2014 two-dimensional projection scale; and
- Some of the annuity factors were calculated with and without a projection scale.

A summary of the key results of this analysis are as follows:

- A 0.05% change in discount rate has about a 1% impact on annuity factors depending on age. Market rates can vary by more than that on a month-to-month basis and it can be argued that some tolerance under current standards is already deemed acceptable.
- Moving from the 2014 to the 2015 projection scale has an impact of 0.1% to 0.2%, meaning that it could take several years before the impact of a two-dimensional scale versus a one-dimensional scale would be equivalent to a 0.05% change in the discount rate.
- Use of 100% of mortality rates for CPM2014Priv versus 100% of the corresponding rates under the CPM2014Publ for a single life pension has an impact of about 3% lower for males (the differences are less for female single life pensions and for both male and female for joint life pensions).
- Factors using 90% of mortality rates for a particular table are about 3% to 4% higher than using 110% of mortality rates for the same table. This means that using standard rates implies about a +/-2.5% tolerance factor relative to plans who may have mortality experience within +/- 10% of standard mortality rates.
- Factors using 115% of CPM2014Priv mortality rates produce the following differences when compared to factors calculated using standard CPM2014 mortality rates:

Age	**Male, Single Not Indexed**	**Female, Single Not Indexed**	**Male, JLLS50% Not Indexed**	**Female, JLLS50% Not Indexed**
30	-4.2%	-3.2%	-3.2%	-2.8%
40	-4.4%	-3.3%	-3.4%	-2.9%
50	-5.7%	-3.5%	-3.6%	-3.1%

The above seems to suggest that a difference owing to individual pension plan circumstances of the order of 2.5% to 5% could be deemed reasonable in the search for a uniform basis to apply to all pension plans.

The need to change the projection scale annually for purposes of capitalized value determination does not appear essential in the short term.

Part 2 of Analysis

The second part of the analysis focused on illustrating the impact of the recommendations at a range of ages appropriate for capitalized value calculations.

We have made calculations for additional examples covering a broader range of ages because capitalized value calculations can occur over a wider range of ages than commuted value calculations. Also, the current promulgated table and discount rates are different than for commuted value calculations.

For each age (i.e., 30, 40, 50, 60, and 70), calculations were made on three mortality bases:

1. UP94 projected to 2020 using scale AA;

2. CPM 2014 with no projection scale; and
3. CPM 2014 with projection scale CPM-B (two-dimensional scale; in 2014 the result would be the same if the one-dimensional scale had been used).

For each age and each mortality assumptions we calculated annuity factors for:

- A single life and a joint life at 50%; and
- A pension that is non-indexed, indexed before and after retirement and indexed after retirement only.

The other assumptions used are

- Calculation date of January 1, 2015;
- Discount rate of 2.70% per annum for 20 years and 5.50% per annum thereafter for non-indexed pensions;
- Discount rate of 1.71% per annum for 20 years and 2.25% per annum thereafter for indexed pensions; and
- Retirement age of 65 for ages 30 to 60 inclusive and immediate pension at ages 60 and 70 (i.e., two examples at age 60, one deferred to age 65 and one immediate).

We have not presented all of the results below since the conclusions would be the same or similar as the use of indexing before and after retirement and the use of indexing after retirement, produce virtually the same results. The results presented are the percentage increase in the annuity factor at each age tested and each gender for a change to the mortality rates only without future projections of improved life expectancy (UP94 proj. to 2020 using scale AA vs. CPM 2014 at 2015) and the additional increase resulting from introducing a projection scale for continued life expectancy improvements (CPM 2014 at 2015 with no scale vs. CPM 2014 at 2015 with scale CPM-B).

Impact of Change in Table and Projection Scale on Capitalized Values
Life Only

	Non-indexed				**Indexed**			
	M		**F**		**M**		**F**	
Age	**Table**	**Scale**	**Table**	**Scale**	**Table**	**Scale**	**Table**	**Scale**
30	5.4%	8.1%	5.0%	5.9%	6.4%	10.2%	6.0%	7.7%
40	5.4%	6.9%	5.0%	5.0%	6.4%	8.7%	6.0%	6.4%
50	5.6%	5.8%	5.2%	4.0%	6.5%	7.2%	6.1%	5.2%
60	6.2%	4.8%	5.7%	3.3%	7.1%	5.9%	6.6%	4.1%
60*	4.7%	3.7%	4.8%	2.5%	5.7%	4.7%	5.8%	3.3%
70*	7.1%	4.0%	6.5%	2.8%	7.8%	4.7%	7.3%	3.4%

* Immediate

Impact of Change in Table and Projection Scale on Capitalized Values J&S 50%								
	Non-indexed				Indexed			
	M		F		M		F	
Age	Table	Scale	Table	Scale	Table	Scale	Table	Scale
30	4.0%	6.0%	4.1%	5.3%	4.9%	7.9%	5.0%	7.1%
40	4.0%	5.1%	4.1%	4.5%	4.9%	6.7%	5.0%	6.0%
50	4.1%	4.3%	4.2%	3.7%	5.0%	5.6%	5.1%	4.9%
60	4.6%	3.6%	4.7%	3.1%	5.4%	4.6%	5.5%	4.0%
60*	3.6%	2.8%	4.0%	2.4%	4.5%	3.9%	4.9%	3.2%
70*	5.5%	3.2%	5.5%	2.8%	6.2%	3.9%	6.2%	3.3%

* Immediate

The above shows that the base mortality rates in the table have a greater impact at older ages and as expected the projection scale has a greater impact at younger ages where the capitalized values would be smaller. It should also be noted that if an attempt was made to split the impact between what is already due to population age cohort characteristics and other factors (assuming this was possible), the impact of other factors in the projection scale would be a portion of the differences shown above. That said, as explained earlier, the DG feels it is the observed trends that are the driving factor behind the projection scale and not a detailed study of apportionment to various underlying, or potential underlying, reasons.

For illustration purposes, we have calculated capitalized values for non-indexed life only pensions at the same ages as above assuming a 2% annual benefit accrual rate and a $50,000 salary. These are presented in the table below.

Examples of Capitalized Values						
Age	Years of Service	Annual Pension ($)	Current Capitalized Value ($)	Impact of CPM2014 No scale ($)	Impact of Projection Scale CPM-B ($)	New Capitalized Value ($)
30	5	5,000	14,941	812	1,274	17,027
40	15	15,000	76,563	4,160	5,553	86,276
50	25	25,000	212,310	11,813	12,903	237,025
60	30	30,000	370,737	22,893	19,062	412,692
60*	30	30,000	495,318	23,355	19,122	537,795
70	30	30,000	367,044	25,959	15,606	408,609

* Immediate

While it is not a primary consideration for the DG in arriving at its recommendation, the DG does note that the order of magnitude of these changes does not seem to warrant the extra effort that would be required to split a projection scale between what is cohort driven and what might be driven by future developments, assuming that this was possible in the first place.

We have attached in an appendix all of the annuity factors for those who may wish to review more detailed examples on their own.

The above factors were considered in arriving at our recommendations.

RECOMMENDATION

The DG recommends the following table and projection scale:

- CPM2014; and
- CPM Improvement Scale B (CPM-B) with the use of the CPM Improvement Scale B1-2014. Use of mortality improvement scale (CPM-B1D2014) is an acceptable interim measure for calculations up to December 31, 2019.

It should be noted that paragraph 4520.17 addresses issues related to potential multiple calculation dates.

The enhanced need for simplicity in the underlying calculations in equalization of matrimonial asset situations has merit. All of these calculations are one-offs that are not supported by large administrative systems where economies of scale can be achieved.

The one-dimensional projection scale is allowed for a longer period than under the commuted value standard because simplicity is much more important here and also because the impact over the period where it is allowed is very small. It should be noted that the continued use of the one-dimensional scale will lead to slightly higher values after 2014 than the use of the two-dimensional scale.

This recommendation was made considering that:

- Consistency with other standards is important;
- The previous rationale that projection of continued life expectancy should be substantially curtailed is no longer warranted given the growing body of evidence on trends in improvement of life expectancy;
- The development of the projection scale CPM-B is from the most thorough study of life expectancy trends for pension plan members in Canada;
- Use of a one-dimensional scale for a longer period than for commuted value calculations is easier to implement and simplifies the calculation and explanation in the case of capitalized values at the dissolution of a couple’s union; and
- In the DG’s opinion, the public interest is better served by one basis that incorporates the effect of observed trends in life expectancy applied uniformly to all capitalized value calculations in Canada.

PROMULGATION

The CPM2014 mortality table combined with projection scale CPM-B for calculations starting on October 1, 2015 is recommended for use for capitalized value calculations. A calculation using scale CPM-B1D2014 is an acceptable interim measure for calculations up to and including December 31, 2019.

CRITERIA FOR THE ADOPTION OF STANDARDS OF PRACTICE

The recommended mortality table meets the criteria set out in section B of the ASB's Policy on Due Process for the Adoption of Standards of Practice:

1. It advances the public interest through the use of a mortality basis that is aligned with current mortality experience for Canadian pensioners and provides a fair and consistent assessment of life expectancy for a wide range of pension plan member cohorts.
2. The actuary will continue to apply professional judgment within a reasonable range as was the case previously. Although the use of the table is prescribed, there continue to be circumstances where an actuary should or may use judgment.
3. Compliance with the promulgated table is practical for actuaries as the underlying elements (mortality rates and projection scale) are similar in structure as those currently in use.
4. The promulgated table is considered to be unambiguous.

PROPOSED EFFECTIVE DATE

It is proposed that the promulgated table would be used for calculations on or after October 1, 2015, and that early implementation would NOT be permitted.

FUTURE TIMING

The intended date for the final communication of the promulgated table is July 1, 2015.

DESIGNATED GROUP

The DG is composed of the following individuals: Thomas Ault, Brian Burnell, Conrad Ferguson (chair), Alexandra Leslie, Laura Newman, and Catherine Robertson.

COMMENTS

Comments on the proposed changes are invited by May 18, 2015. Please send them to Chris Fievoli at chris.fievoli@cia-ica.ca with a copy to Conrad Ferguson at cferguson@morneaushepell.com. No other specific forums for submitting comments are planned.

JKC, CF

Comparison of Annuity Factors - Division of pension on dissolution of a couple's union
Assumptions

Date:	1-Jan-15			
Rates:				
	Interest	2.70%	20	5.50%
	Inflation	1.71%	20	2.25%
Deferred age:	65			
Mortality in deferral:	None			

Annuity Factors J&S 50%						
Indexation	**Gender**	**Age**	**Deferral**	**Current (UP1994 projected to 2020)**	**CPM Combined**	**CPM Combined, Generat'l**
Non-Indexed	Male	30	Deferred	3.3450	3.4788	3.6866
		40	Deferred	5.7137	5.9423	6.2452
		50	Deferred	9.5314	9.9214	10.3454
		60	Deferred	14.0550	14.6965	15.2318
		60	Immediate	18.4128	19.0750	19.6150
		70	Immediate	14.4190	15.2087	15.6980
	Female	30	Deferred	3.3585	3.4961	3.6830
		40	Deferred	5.7368	5.9718	6.2405
		50	Deferred	9.5704	9.9712	10.3396
		60	Deferred	14.1049	14.7654	15.2210
		60	Immediate	18.4818	19.2178	19.6782
		70	Immediate	14.4102	15.2054	15.6245
Fully Indexed	Male	30	Deferred	8.3577	8.7689	9.4599
		40	Deferred	11.4282	11.9905	12.7952
		50	Deferred	15.3706	16.1386	17.0399
		60	Deferred	18.9043	19.9294	20.8519
		60	Immediate	23.3962	24.4470	25.3718
		70	Immediate	17.3072	18.3832	19.0981
	Female	30	Deferred	8.3639	8.7842	9.4094
		40	Deferred	11.4367	12.0114	12.7303
		50	Deferred	15.3816	16.1667	16.9563
		60	Deferred	18.9025	19.9514	20.7419
		60	Immediate	23.4112	24.5596	25.3539
		70	Immediate	17.2200	18.2957	18.9061
Indexed after Retirement	Male	30	Deferred	4.2645	4.4743	4.8268
		40	Deferred	7.2843	7.6427	8.1556
		50	Deferred	11.9189	12.5145	13.2133
		60	Deferred	17.3677	18.3095	19.1570
		60	Immediate	23.3962	24.4470	25.3718
		70	Immediate	17.3072	18.3832	19.0981
	Female	30	Deferred	4.2677	4.4821	4.8011
		40	Deferred	7.2897	7.6561	8.1142
		50	Deferred	11.9274	12.5362	13.1485
		60	Deferred	17.3660	18.3297	19.0560
		60	Immediate	23.4112	24.5596	25.3539
		70	Immediate	17.2200	18.2957	18.9061

Annuity Factors LIFE ONLY						
Indexation	**Sex**	**Age**	**Deferral**	**Current (UP1994 projected to 2020)**	**CPM Combined**	**CPM Combined, Generat'l**
Non-Indexed	Male	30	Deferred	2.9882	3.1505	3.4053
		40	Deferred	5.1042	5.3815	5.7517
		50	Deferred	8.4924	8.9649	9.4810
		60	Deferred	12.3579	13.1210	13.7564
		61	Immediate	16.5106	17.2891	17.9265
		70	Immediate	12.2348	13.1001	13.6203
	Female	30	Deferred	3.2003	3.3616	3.5613
		40	Deferred	5.4666	5.7421	6.0266
		50	Deferred	9.1104	9.5798	9.9645
		60	Deferred	13.3720	14.1345	14.5954
		60	Immediate	17.6329	18.4839	18.9455
		70	Immediate	13.5673	14.4496	14.8553
Fully Indexed	Male	30	Deferred	7.2736	7.7412	8.5327
		40	Deferred	9.9458	10.5852	11.5040
		50	Deferred	13.3459	14.2188	15.2440
		60	Deferred	16.2142	17.3634	18.3911
		60	Immediate	20.4601	21.6241	22.6478
		70	Immediate	14.3376	15.4593	16.1810
	Female	30	Deferred	7.9216	8.3991	9.0468
		40	Deferred	10.8319	11.4848	12.2237
		50	Deferred	14.5563	15.4478	16.2500
		60	Deferred	17.8273	19.0065	19.7899
		60	Immediate	22.2026	23.4932	24.2740
		70	Immediate	16.1463	17.3199	17.9055
Indexed after Retirement	Male	30	Deferred	3.7113	3.9499	4.3537
		40	Deferred	6.3394	6.7470	7.3326
		50	Deferred	10.3489	11.0258	11.8207
		60	Deferred	14.8962	15.9521	16.8962
		60	Immediate	20.4601	21.6241	22.6478
		70	Immediate	14.3376	15.4593	16.1810
	Female	30	Deferred	4.0420	4.2856	4.6160
		40	Deferred	6.9042	7.3204	7.7913
		50	Deferred	11.2875	11.9788	12.6008
		60	Deferred	16.3782	17.4616	18.1813
		60	Immediate	22.2026	23.4932	24.2740
		70	Immediate	16.1463	17.3199	17.9055