Self-administered Pension Schemes Mortality Committee

Summary of Working Paper 104: "Mortality experience of pensioners for the period 2009 to 2016"

January 2018

NOTE: This document is being made available publicly and its use is not subject to CMI's Terms and Conditions for Subscribers or Terms and Conditions for Academics and CMI Committee Members.

Introduction

This document provides a brief synopsis of Working Paper 104, which is one of a series of annual reports setting out the results of the CMI SAPS Mortality investigation. Data is submitted throughout each year but, for these annual reports, a cut-off date of 30 June is used. This paper analyses the experience of data submitted up to 30 June 2017. Working Paper 95 presented the previous analysis of experience of data collected by 30 June 2016.

The Committee intends to use the dataset to 30 June 2017 as the dataset underlying "S3" Series tables.

For more detailed analysis and full results, readers are encouraged to refer to the full Working Paper[1].

The data

The CMI SAPS investigation collects data from actuarial consultancies and the Government Actuary's Department (GAD) in respect of self-administered pension schemes – the requirement for data submissions is that schemes have 500 or more current pensioners. We also receive data from the Pension Protection Fund (PPF); this is received for all schemes within the PPF in a single submission, hence it includes schemes with fewer than 500 pensioners. The PPF submissions currently account for around 2% of the total exposed to risk on a lives-weighted basis.

The analysis in Working Paper 104 includes members of pension schemes who were in receipt of a pension from the scheme during the eight years from 1 January 2009 to 31 December 2016. In total, we have received data for 452 distinct schemes (excluding those submitted by the PPF) covering part or all of this period. A rolling eight-year period is analysed so, compared with last year's dataset, the overall change in the number of lives exposed to risk is a combination of the volume of data for the year that is lost relative to the data that is gained, both for the year that is introduced and for the years common to both datasets.

The size of the dataset reviewed in Working Paper 104 is much larger than the dataset used to produce the "S2" Series tables; the total lives exposed to risk has increased by around 17% for male Pensioners and 63% for female Pensioners (as shown in Table 1).

A key reason for this growth is a substantial increase in the volume of public sector data that has been submitted recently, much of it covering the years 2012 to 2016 only. Some of this was data being submitted for some large public sector schemes for the first time. In total, 11% of schemes in the dataset to 30 June 2017 (excluding the PPF) were public sector schemes. Public sector schemes make up a significant proportion of larger schemes: 20% of schemes in this dataset with 5,000 or more pensioners were public sector schemes. To help readers understand the impact of the growth in public sector data in the latest dataset, Working Paper 104 includes some results for private and public sector data separately; these are summarised later in this document.

[1] Most of the CMI's research is only available to employees of subscribers and to researchers, for non-commercial use. Details of how to access the full paper and the CMI's other research can be found on the CMI's web pages.

Despite the recent increase in data volumes, the Committee remains keen to increase the coverage of the investigation and would like to encourage firms to submit data for all schemes with 500 or more pensioners. Unless more data is submitted to replace the older data as it drops out, the quantity of data will diminish.

The "S2" Series tables were based on the mortality experience in the period 2004 to 2011; that dataset is described in Working Paper 65. The weighted mid-point of the data used in the latest analysis is around 70 months later than the midpoint of the dataset used for the "S2" Series tables.

Table 1: Summary of dataset for Working Paper 104 compared with Working Paper 65

	Pensioners Lives	Pensioners Amounts (£'000)	Average Amounts (Pensioners) (£ pa)	Dependants Lives	Dependants Amounts (£'000)	Average Amounts (Dependants) (£ pa)
Males						
WP 104 Exposure	11,646,540	122,715,201	10,537	488,588	1,122,811	2,298
WP 104 Deaths	381,730	3,035,685	7,952	20,911	37,589	1,798
WP 65 Exposure*	9,962,733	83,400,916	8,371	275,847	485,052	1,758
WP 65 Deaths*	353,709	2,220,839	6,279	11,901	17,059	1,433
Females						
WP 104 Exposure	9,457,812	52,622,610	5,564	3,963,618	18,781,373	4,738
WP 104 Deaths	195,275	875,815	4,485	227,593	946,427	4,158
WP 65 Exposure*	5,796,201	20,025,051	3,455	3,680,509	13,670,286	3,714
WP 65 Deaths*	144,613	440,497	3,046	194,591	644,306	3,311

**These figures relate to the dataset underlying the "S2" Series tables.*

Analysis

Tables 2 and 3 show the experience for males and females respectively over the period analysed, expressed as Actual / Expected (A/E) results. The experience has been compared with the "S2" Series tables, without and with CMI_2016 [0.0%] projections. The expected improvements will therefore be based on the smoothed rates of mortality improvements that have been observed in the population of England and Wales (E&W) as a whole. CMI Working Paper 97 provides analysis of the improvements in E&W population mortality for these years. In applying CMI_2016 we assume the long-term rate of improvement will be 0% p.a., but this assumption has no impact on the results as it only applies after 2016.

Because the composition of the SAPS dataset changes from year to year, readers should not rely solely on this analysis to inform their view on mortality improvements in the SAPS dataset. Working Paper 103 analysed this in some detail, making an allowance for the continuity of schemes (albeit for the 2008-15 dataset).

In particular, the changes in the composition of the dataset are considerably more significant this year than is usually the case, as a result of the large quantity of public sector data submitted for the first time this year). For example, there is a significant growth in data volumes between 2011 and 2012.

Care should also be taken when interpreting the results in this paper due to low volumes of data in the most recent year.

Observations based on the experience of the latest dataset are that:

- Overall the mortality rates experienced by individuals in the latest dataset are lower than the unadjusted "S2" Series tables. This is to be expected if mortality rates are improving, since the midpoint of the latest dataset is about 6 years more recent than that underlying the "S2" Series tables.
- Considering the experience by type of member:
  - For male Pensioners, lives-weighted mortality rates improved from year to year until 2014, with mortality observed in 2015 and 2016 similar to that in 2014. Over the whole period, experience has moved broadly in line with CMI_2016 [0.0%].
  - For male Dependants, lives-weighted mortality experience generally became lighter over the period. However, the confidence intervals are much wider compared with the other datasets, highlighting the lower volume of data for this subset.
  - For female Pensioners, lives-weighted mortality rates improved during the period 2010 to 2014, with mortality observed in 2015 and 2016 similar to that in 2014. Experience has moved broadly in line with CMI_2016 [0.0%], but with greater volatility than male Pensioners.
  - For female Dependants, mortality experience has been fairly volatile with no obvious trend emerging, although 2015 appears heavier than other years.
- In recent years the Committee has been concerned about the fall in the volume of data that is identifiable as Normal-health and Ill-health retirements in the SAPS dataset. We are pleased to report that the volumes of such data have increased substantially this year.
- Mortality experience by different pension amount bands, illustrated in Figures A and B, exhibit similar patterns to those seen in earlier datasets, including the "S2" Series dataset, i.e. observed mortality rates are generally lower in higher pension amount bands, with differentials between the bands reducing at higher ages.
- As shown in Table 1, the exposed to risk for female Pensioners is lower than that available for male Pensioners (although it is more substantial than in the "S2" dataset). In particular, when the data is analysed in smaller subsets (for example, the analysis by amounts bands) this gives rise to more volatile outcomes.

Table 2: 100A/E for Males compared with "S2" Series, without and with CMI_2016 projections

Year	Male Pensioner Lives S2PML		Male Pensioner Amounts S2PMA		Male Dependant Lives S2PML *		Male Dependant Amounts S2PMA *	
	No projection	CMI_2016 [0.0%]	No projection	CMI_2016 [0.0%]	No projection	CMI_2016 [0.0%]	No projection	CMI_2016 [0.0%]
2009	95.5	100.5	94.7	99.5	108.5	114.0	120.1	126.0
2010	94.3	101.6	93.4	100.7	107.4	115.3	127.7	137.0
2011	90.4	99.6	87.0	95.9	99.4	108.9	103.4	113.0
2012	88.8	99.8	85.6	96.2	102.2	114.5	114.0	127.4
2013	86.8	99.3	84.0	96.1	100.7	114.9	129.8	147.7
2014	83.5	97.1	81.4	94.7	100.7	117.1	117.8	136.8
2015	85.2	100.8	82.4	97.3	96.9	115.1	117.2	138.9
2016	83.4	100.2	78.8	94.5	89.7	107.5	88.3	105.2
2009-16	**88.8**	**99.7**	**85.9**	**96.9**	**101.2**	**114.3**	**117.2**	**132.5**

* *Note: the "S2" Series tables do not include a table for male Dependants. The male Dependants experience is therefore shown compared to a Pensioner table, which is not directly comparable.*

Table 3: 100A/E for Females compared with "S2" Series, without and with CMI_2016 projections

Year	Female Pensioner Lives S2PFL		Female Pensioner Amounts S2PFA		Female Dependant Lives S2DFL		Female Dependant Amounts S2DFA	
	No projection	CMI_2016 [0.0%]	No projection	CMI_2016 [0.0%]	No projection	CMI_2016 [0.0%]	No projection	CMI_2016 [0.0%]
2009	94.7	98.5	96.3	100.1	93.9	96.9	94.2	97.3
2010	96.7	102.6	93.2	98.9	97.6	102.3	98.0	102.6
2011	92.4	99.7	85.1	92.0	95.3	101.2	93.9	99.6
2012	89.2	97.8	82.2	90.1	97.9	105.0	96.7	103.6
2013	85.9	95.5	81.5	90.6	97.2	105.3	95.5	103.3
2014	83.0	93.5	78.9	89.0	93.6	102.2	91.6	99.9
2015	84.8	96.9	79.5	90.9	98.8	108.6	98.0	107.7
2016	84.2	97.4	79.4	91.9	94.7	105.0	87.3	96.6
2009-16	**88.1**	**97.1**	**82.6**	**91.7**	**96.2**	**103.0**	**94.9**	**101.7**

Figure A: 100 A/E values for Male Pensioners amounts-weighted compared with S2PMA

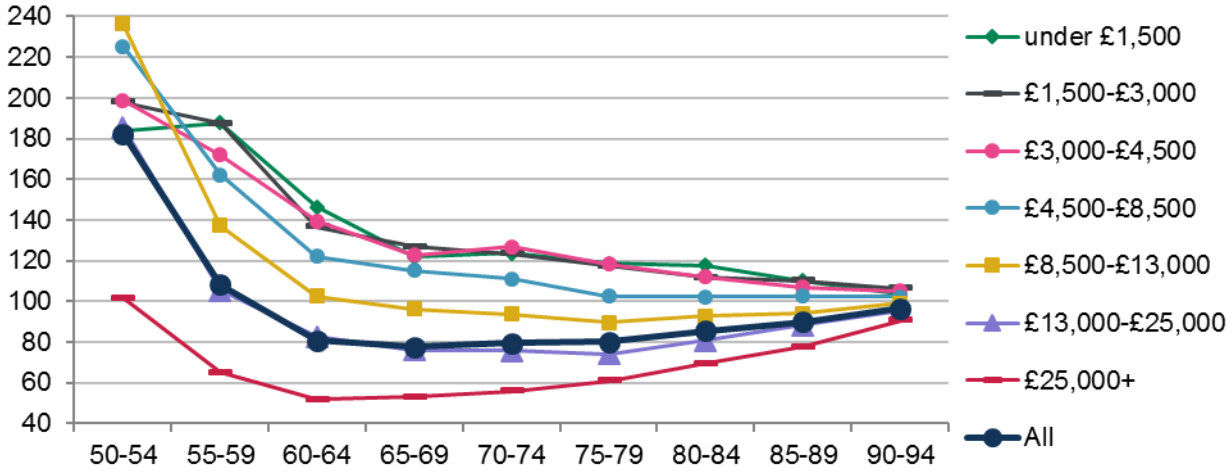
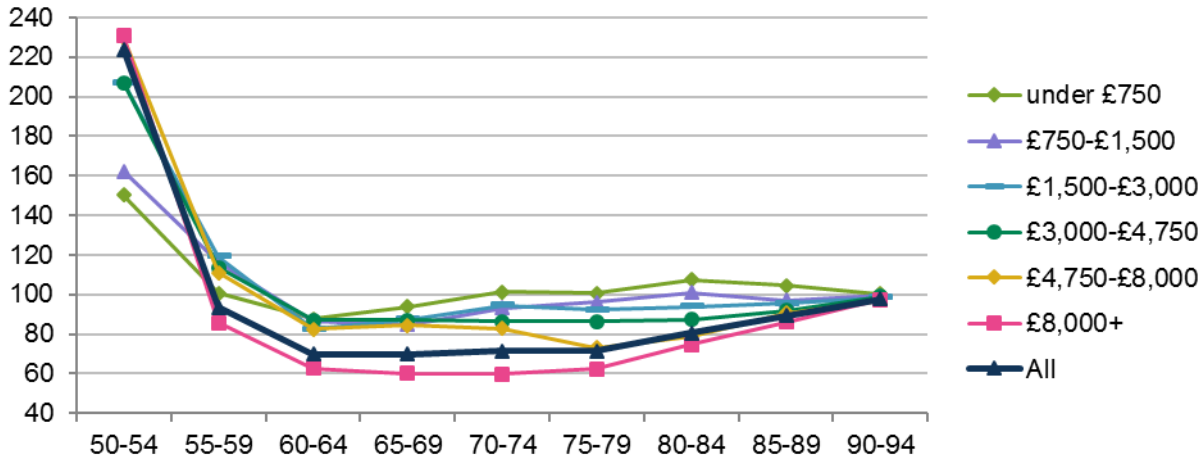


Figure B: 100A/E values for Female Pensioner amounts-weighted compared with S2PFA



Results by private and public sector

To help readers understand the impact of the growth in public sector data in the latest dataset, the Committee has analysed private and public sector data separately. Overall, the results indicate that the experience of the public sector data is lighter for each type of member than the private sector data.

However, it is important to recognise that these results reflect the schemes that have been submitted to the investigation. Working Paper 86 analysed the variation between schemes in the SAPS dataset (split by industry) and the differences observed in that paper were far higher than the differences in aggregate mortality of private and public sector data shown in Working Paper 104. Readers should not, therefore, conclude that the experience of any private sector scheme is necessarily heavier than any public sector scheme.

The Committee proposes to investigate the experience of these sectors further as part of the graduation process for the “S3” Series tables.

Continuous Mortality Investigation Limited ("CMI") is registered in England & Wales
Company number: 8373631
Registered Office: 7th Floor, Holborn Gate, 326-330 High Holborn, London, WC1V 7QJ

Correspondence address: Cheapside House, 138 Cheapside, London, EC2V 6BW
Email: info@cmilimited.co.uk
Tel: 020 7776 3820

Website: www.cmilimited.co.uk (redirects to www.actuaries.org.uk)

Continuous Mortality Investigation Limited is wholly owned by the Institute and Faculty of Actuaries.