

# **The mortality experience of Australian superannuation pensioners: Some surprising results**

David Knox and Mark Nelson

## Introduction

Most Australian superannuation schemes pay lump sum retirement benefits which means that it is difficult (if not impossible) to track the mortality experience of Australian retirees. However, until recently, many public sector superannuation schemes have been different.

It was common practice until the 1980s for the Commonwealth and State Governments to require their employees to join a defined benefit pension scheme. In many instances, no commutation options were available, particularly for the employer-financed component. Subsequently most Governments have introduced a defined benefit lump sum plan<sup>1</sup> and, more recently, defined contribution arrangements.

This research report considers the mortality experience of members in the following four public sector superannuation funds who receive a retirement pension<sup>2</sup>:

- State Super Scheme (NSW);
- State Superannuation Fund (Vic)<sup>3</sup>;
- Government Employees Superannuation Fund (WA);
- Public Sector Superannuation Scheme and Commonwealth Superannuation Scheme (Federal).

It should be noted that each scheme has its own commutation arrangements, which are briefly outlined below:

- NSW: Up to 100% commutation of the pension at retirement or age 60
- Vic: Up to 100% commutation of the pension at retirement or age 65
- WA: Up to 100% commutation of the member-financed component only
- Federal: Up to 100% commutation of the member-financed and the productivity components only (CSS)
- Federal: Up to 100% commutation of the pension at retirement (PSS)

In addition, both NSW and Victoria offered their existing pensioners special one-off commutation offers in the late 1990s and 2000-01 respectively.

This diverse range of commutation arrangements means that the experience between schemes is not directly comparable. Indeed, it may suggest that we would expect slightly different pensioner mortality experience between the schemes due to the

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<sup>1</sup> In some cases, these retirees have the option to convert their lump sum benefit into a pension benefit.

<sup>2</sup> That is, invalidity and other types of pensions are ignored.

<sup>3</sup> The Fund is now part of the Emergency Services Superannuation Scheme.

differing impacts of selection. Nevertheless, as will be shown in this report, the experience of most schemes is very similar.

### Data

This investigation is for the 3 year period from 1 July 2002 to 30 June 2005. The inclusion of earlier periods was considered but some of the data was less than reliable. Furthermore, longer periods mean that the experience is less homogenous.

Table 1 shows the number of “exposure-years” that were included in the investigation for each age group and type of pensioner. In total, there are more than half a million exposure-years which provides sufficient statistical reliability for most of the results. However, it is noted that the sample sizes for both male spouses and pensioners aged 95 and over are small so that the results for these groups should be treated with some caution.

Table 1: The number of exposure years in the investigation

Age range	Male retirees	Female retirees	Male spouses	Female spouses
55-59	47,992	23,931	633	11,492
60-64	53,735	24,515	612	19,524
65-69	44,025	18,535	718	18,765
70-74	40,200	15,084	917	22,837
75-79	45,383	13,397	916	32,380
80-84	31,598	8,485	664	31,056
85-89	12,320	3,450	249	19,560
90-94	4,019	1,398	66	9,086
95-99	631	365	3	2,220
100+	46	19	-	238
Total	279,948	109,178	4,778	167,158

### Overall results

Figures 1 and 2 compare the combined mortality experience for males and females with the Australian Life Tables 2000-2002 (ALT 00-02) which represents the Australian population mortality. This table has been used for the comparisons as there is no available annuitant or pensioner table based on Australian data.

Figure 1: A comparison of the combined male pensioner mortality with ALT 00-02

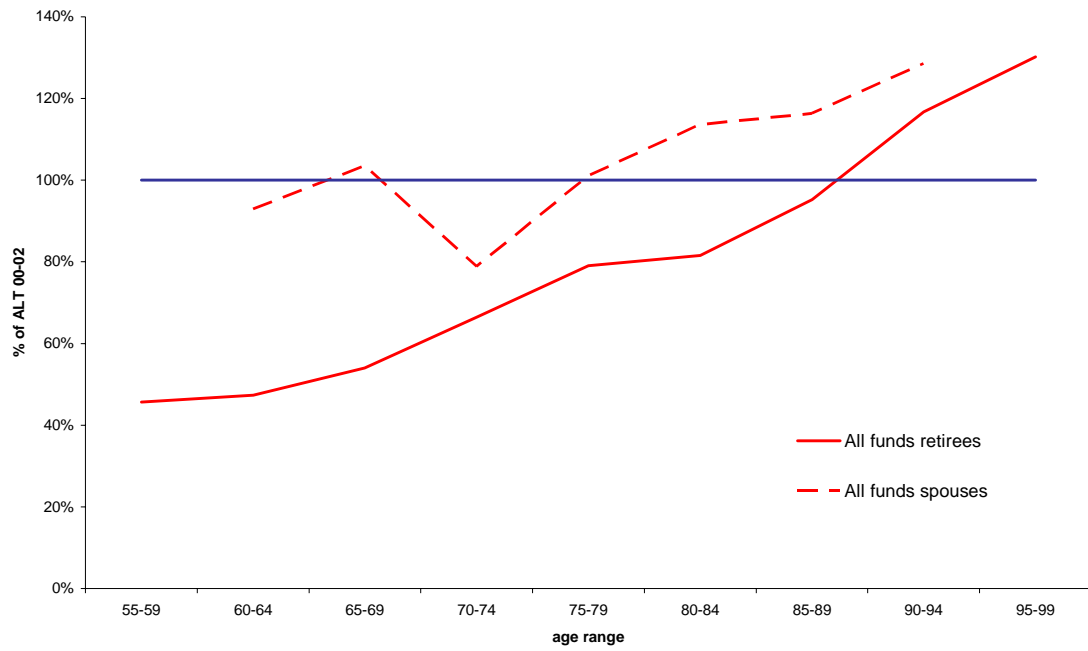
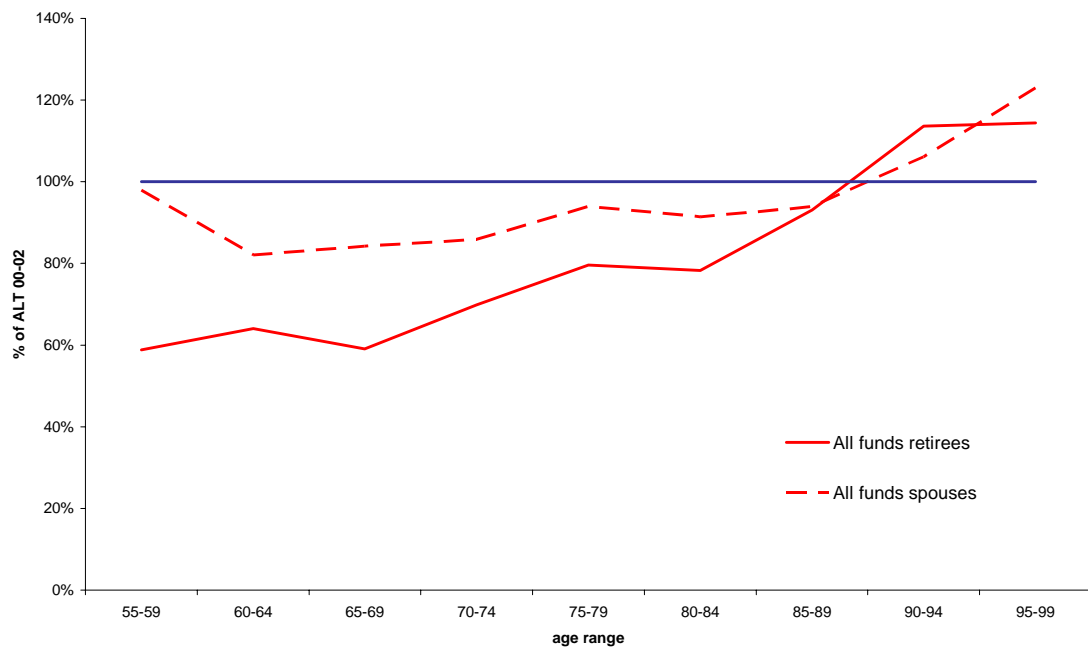


Figure 2: A comparison of the combined female pensioner mortality with ALT 00-02



The following general comments arise from these findings:

- As expected, the mortality for these pensioners is less than the population, due to the inbuilt selection process which arises from retiring from the workforce in good health (note that invalidity pensioners have been excluded);
- This selection process is further accentuated as this investigation is limited to the public sector. On average, these individuals are likely to have higher educational standards and income which can lead to different lifestyle choices and better access to health services than the population. This also leads to lower mortality rates;
- During retirement, the pensioners' mortality experience approaches the population mortality as this selection effect wears off;
- The effect of this selection is lower for spouses than for retirees;
- For both male and female retirees, the pensioner mortality rates exceed the population mortality from about age 85.

This last result is surprising and could be caused by several reasons including:

- The impact of the selection factors mentioned earlier may result in these pensioners extending their life beyond their 'normal' expectation. This may mean that in the later years of life when the selection effect has worn off and genetics become relatively more important, the actual mortality rates may be higher than the population who have not had the positive effects of selection;
- The benchmark of ALT 00-02 may be underestimating mortality rates at older ages as the allowance for improvement in the 5 years to 2001 may be excessive. For example, the increase in life expectancy for an 85 year old was 0.71 years for males and 0.75 years for females in the five years to 2000-02 compared to the corresponding improvements of 0.95 years and 1.04 years for the 20 years to 1995-97.

#### Variations by scheme

Figures 3 and 4 show the male and female retirement pensioner mortality for each scheme, expressed as a percentage of ALT 00-02.

Figure 3: A comparison of male pensioner mortality by schemes

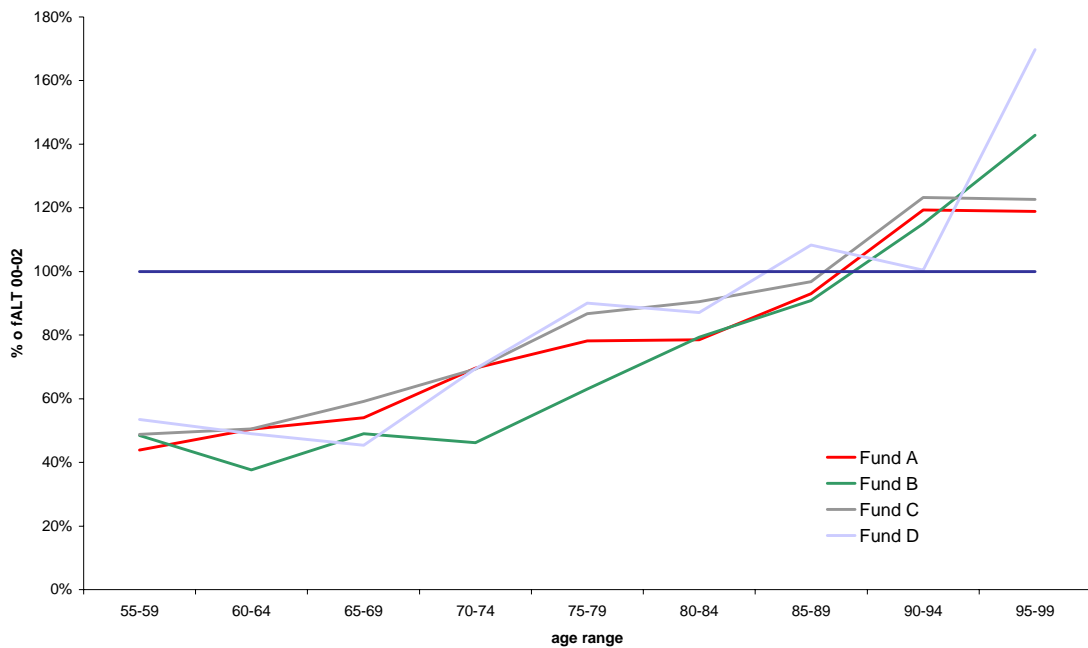
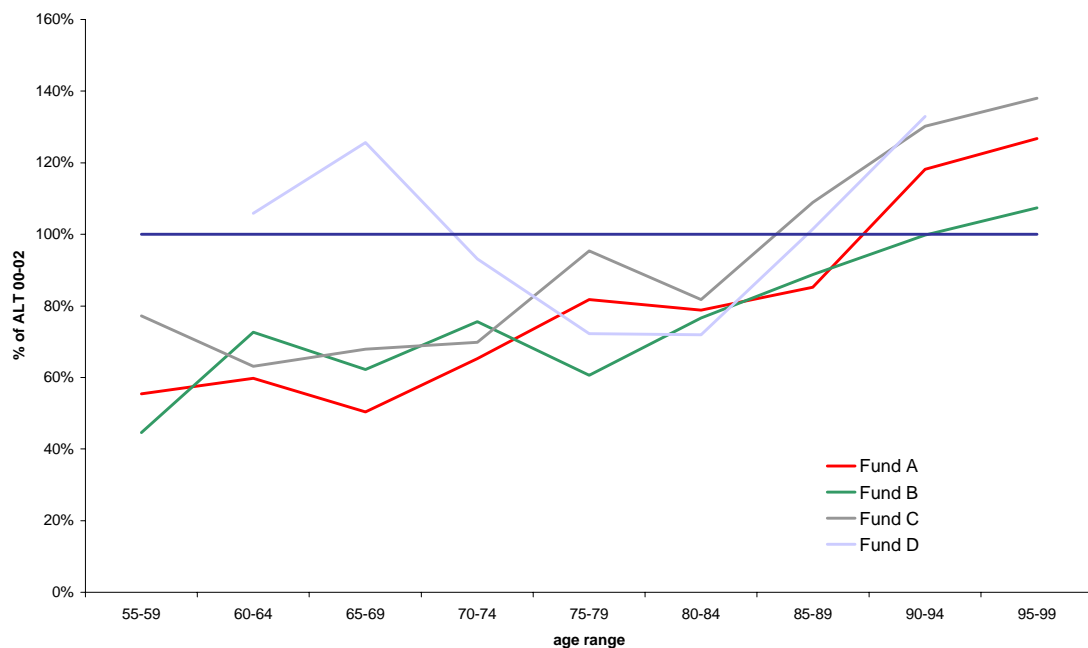


Figure 4: A comparison of female pensioner mortality by schemes



Although two of these four schemes permit all members to fully commute their pension at retirement, which could suggest some selection by members and therefore lower mortality rates amongst the pensioners who remain, the evidence does not generally support this suggestion. However, it is noted that Fund B, which is one of

those schemes, is experiencing lower mortality in the 70-80 age group, particularly for males.

### Life expectancies

Table 2 shows the life expectancy at age 65 for each scheme, based on the individual scheme's experience, together with the life expectancy for the combined experience and ALT 00-02.

Table 2: Life expectancies at age 65

	<b>Male</b>	<b>Female</b>
Combined	19.4	22.2
Fund A	19.4	22.4
Fund B	20.3	22.7
Fund C	18.9	21.5
Fund D	19.1	22.0
ALT 00-02	17.7	21.2

As illustrated by Table 2, the life expectancy at age 65 for each fund is greater than those shown in ALT 00-02. This is not surprising as the mortality rates under age 85 are less than the population for most funds. Nevertheless the variation between funds is interesting as the two funds permitting 100% commutation have the highest and lowest life expectancies at age 65.

### The effect of pension size

Most pensioner mortality investigations show that the mortality rates are influenced by pension size. For example, a recent investigation in the UK<sup>4</sup> showed that the mortality rates for 70-74 year-old males with pensions over £13,000 pa were 50% of the rates experienced by the same age group with pensions under £4,500 pa. This and other evidence suggests that pension size, which is often related to the individual's income, represents a reasonable proxy for the mortality experience of a socio-economic group which is influenced by education, income, lifestyle and access to health services.

To assess the Australian experience, we divided the experience into those with pensions below and above \$20,000, expressed in 2005 dollars.

Table 3 shows the ratio of each group to the combined experience for that age and gender group.

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<sup>4</sup> Continuous Mortality Investigation, Report on the preliminary results of an analysis into the mortality experience of pensions of self-administered pension schemes for the period 2000-2003, Working Paper 17, October 2005.

Table 3: A comparison of mortality experience by pension size

Age	Male retirees		Female retirees		Female spouses	
	High	Low	High	Low	High	Low
55-59	89	121	64	126	89	119
60-64	94	111	98	101	92	122
65-69	88	116	116	93	84	123
70-74	76	125	116	95	85	114
75-79	86	116	78	107	89	103
80-84	89	113	93	103	94	101
85-89	94	107	93	105	97	102
90-94	98	103	101	98	94	102

The evidence clearly shows that male retirees with higher pensions have lower mortality rates than their counterparts with lower pensions. In fact, the life expectancy at age 65 of the two groups is 20.3 and 18.5 respectively.

For female retirees the evidence is less conclusive and this may be due to the diverse range of work experience of these female retirees. For example, it is likely that for some females their work experience has been fractured due to family responsibilities, so that their pension size is not a direct reflection of their annual income.

Interestingly, the experience of the female spouses is closer to the male retirees. This is reasonable as the female spouse would have experienced a similar lifestyle to their husbands.

### Conclusions

This pensioner mortality investigation of Australian public sector retirees has highlighted the fact that their mortality is considerably lighter than the Australian population before age 85. After that age it appears that the mortality experience is heavier than the population.

It is also noted that the mortality experience confirms the fact that pensioner mortality is likely to be affected by the individual's income, which, in turn, is an indicator of their socio-economic group.

Finally, the life expectancy of a public sector retiree at age 65 is likely to be significantly greater than that for the average Australian. For male retirees with larger pensioners, their life expectancy is higher again.

This investigation confirms that for Australians with significant assets, financial planning for retirement should not use life expectancies based on Australian population tables. These tables are likely to underestimate their life expectancy due to selection associated with work force participation and the individual's socio-economic background. Furthermore, it should be stressed that allowance should also be made for ongoing improvement in mortality experience which, based on recent trends, is likely to continue.